Office of Environmental Remediation

Remedial Action Work Plan Template

Version 1.2

SUGAR HILL PROJECT

MANHATTAN, NEW YORK

Remedial Action Work Plan

NYC BCP Number: TBD

OER Project Number 11RH-N124M

Restrictive Declaration

CEQR Number 10DCP031M

Sugar Hill Rezoning

Prepared for:

Ms. Mary Ann Villari

Broadway Housing Development Fund

583 Riverside Drive, 7th Floor

New York, NY 10031

mavillari@broadwayhousing.org

Prepared by:

ATC Associates Inc.

104 East 25th Street, 10th Floor

New York, NY 10010

212-353-8280

gedeon15@atc-enviro.com

DECEMBER 2011

REMEDIAL ACTION WORK PLAN
TABLE OF CONTENTS

FIGURES

TABLES

APPENDICES

- Appendix 1 – Citizen Participation Plan
- Appendix 2 – Sustainability Statement
- Appendix 3 – Soil/Materials Management Plan
- Appendix 4 – Construction Health and Safety Plan
- Appendix 5 – Proposed Development Drawings
- Appendix 6 – Previous Environmental Investigations and Reports
- Appendix 7 – Previous Regulatory Correspondence
- Appendix 8 – Sample of Hazardous or Non-Hazardous Soil Disposal Manifest(s)
- Appendix 9 – Design Diagrams and Specifications for Vapor Barrier/Waterproofing Membrane
- Appendix 10 – Directions to Disposal Facility
- Appendix 11 – Lincoln Park Landfill Approval Letter
- Appendix 12 – Plaza Details prepared by Todd Rader + Amy Crews Architecture and Landscape Architecture LLC
- Appendix 13 – SLCE Architects, LLP Vapor Barrier Certificate Letter

LIST OF ACRONYMS

Acronym	Definition
AOC	Area of Concern
AS/SVE	Air Sparging/Soil Vapor Extraction
BOA	Brownfield Opportunity Area
CAMP	Community Air Monitoring Plan
C/D	Construction/Demolition
COC	Certificate of Completion
CQAP	Construction Quality Assurance Plan
CSOP	Contractors Site Operation Plan
DCR	Declaration of Covenants and Restrictions
ECs/ICs	Engineering and Institutional Controls
HASP	Health and Safety Plan
IRM	Interim Remedial Measure
BCA	Brownfield Cleanup Agreement
MNA	Monitored Natural Attenuation
NOC	Notice of Completion
NYC BCP	New York City Brownfield Cleanup Program
NYC DEP	New York City Department of Environmental Protection
NYC DOHMH	New York State Department of Health and Mental Hygiene
NYCRR	New York Codes Rules and Regulations
NYC OER	New York City Office of Environmental Remediation
NYS DEC	New York State Department of Environmental Conservation
NYS DEC DER	New York State Department of Environmental Conservation Division of Environmental Remediation
NYS DOH	New York State Department of Health
NYS DOT	New York State Department of Transportation
ORC	Oxygen-Release Compound
OSHA	United States Occupational Health and Safety Administration
PE	Professional Engineer

PID	Photo Ionization Detector
QEP	Qualified Environmental Professional
QHHEA	Qualitative Human Health Exposure Assessment
RAOs	Remedial Action Objectives
RAR	Remedial Action Report
RAWP	Remedial Action Work Plan or Plan
RCA	Recycled Concrete Aggregate
RD	Remedial Design
RI	Remedial Investigation
RMZ	Residual Management Zone
SCOs	Soil Cleanup Objectives
SCG	Standards, Criteria and Guidance
SMP	Site Management Plan
SPDES	State Pollutant Discharge Elimination System
SVOC	Semi-Volatile Organic Compound
USGS	United States Geological Survey
UST	Underground Storage Tank
VOC	Volatile Organic Compound

CERTIFICATION

I, Gilbert Gedeon, am a Professional Engineer licensed in the State of New York. I have primary direct responsibility for implementation of the remedial action for the Sugar Hill Project Site.

I certify that this Remedial Action Work Plan (RAWP) has a plan for handling, transport and disposal of soil, fill, fluids and other materials removed from the property in accordance with applicable City, State and Federal laws and regulations. Importation of all soil, fill and other material from off-Site will be in accordance with all applicable City, State and Federal laws and requirements. This RAWP has provisions to control nuisances during the remediation and all invasive work, including dust and odor suppression.

Gilbert Gedeon

Name

075399

NYS PE License Number

Signature

12/16/11

Date

STATE OF NEW YORK
GILBERT GEDEON
075399
LICENSED PROFESSIONAL ENGINEER

EXECUTIVE SUMMARY

Broadway Housing Development Fund Company, Inc. has enrolled in the New York City Brownfield Cleanup Program (NYC BCP) to investigate and remediate a 21,780-square foot site located at 400-414 West 155th Street in Manhattan, New York. A Remedial Investigation was performed to compile and evaluate data and information necessary to develop this Remedial Action Work Plan (RAWP). The remedial action described in this document provides for the protection of public health and the environment consistent with the intended property use, complies with applicable environmental standards, criteria and guidance and conforms with applicable laws and regulations.

Broadway Housing Development Fund Company, Inc. has enrolled in the New York City Brownfield Cleanup Program (NYC BCP) to investigate and remediate a property located at 400-414 West 155th Street, New York, NY 10032 in the Sugar Hill section of Manhattan, New York (the Site). A Phase II Environmental Site Investigation (ESI)

Site Location and Current Usage

The Site is located in the Sugar Hill section of Manhattan, New York and is identified as Block number 2069 and Lot(s) number(s) 21 on the New York City Tax Map. Figure 1 is a Site location map. The Site is 0.50-acres (21,685-square feet) and is bounded by is bounded by West 155th Street and a park to the north, a DEP building and six-story residence to the south, a gasoline station and St. Nicholas Place to the east. Currently, the Site is used for a parking garage and contains a two-story building with a cellar. The building encompasses the entire lot.

Summary of Proposed Redevelopment Plan

The proposed use of the Site will consist of an approximately 169,333-square foot 13-story mixed-use building with 124 residential units on Lot 21. As currently proposed, the building will include 124 residential units located on floors 3 through 13, a Children's Museum and a Day Care Center, along with non-for-profit offices on the lower floors, as well as a below-grade accessory parking garage being able to accommodate up to 114 parking spaces. The residential units comprise 121,483 square feet (sf), and all of the units are affordable housing units for low income tenants. The Children's Museum is spread out over the first and second floor and

measures 16,234 sf, the Day Care Center measures 9,838 sf. and is located on the second floor, and the 4,343 sf non-for-profit Offices are located on the first floor. Accessory offices to the residential use are provided on the 9th floor of the building measuring 4,465 sf. The proposed redevelopment activities include the excavation of all soils to bedrock. The estimated amount of soil to be removed and disposed of off-site is 4,918.5 tons (3,279 cubic yards [yd^3]) and the estimated amount to bedrock to be removed and disposed of off-site is 1,395 tons (930 yd^3). The estimated depth of excavation is as follows: 27 feet in the northeast corner, 9 feet in the northwest corner, 9 feet in the southeast corner, and 33 feet in the southwest corner. The existing on-Site building will be demolished to facilitate the construction of the proposed Site building.

The remedial action contemplated under this RAWP may be implemented independently of the proposed redevelopment plan.

Summary of the Remedy

The proposed remedial action achieves protection of public health and the environment for the intended use of the property. The proposed remedial action achieves all of the remedial action objectives established for the project and addresses applicable standards, criterion, and guidance; is effective in both the short-term and long-term and reduces mobility, toxicity and volume of contaminants; is cost effective and implementable; and uses standards methods that are well established in the industry.

The proposed remedial action will consist of:

1. Preparation of a Community Protection Statement and implementation of a Citizen Participation Plan.
2. Perform a Community Air Monitoring Program for particulates and volatile organic carbon compounds.
3. Establish Track 1 Soil Cleanup Objectives (SCOs).
4. Excavation and removal of soil/fill exceeding SCOs. Transportation and off-Site disposal of all soil/fill material at permitted facilities in accordance with applicable laws and regulations for handling, transport, and disposal, and this plan. Sampling and

analysis of excavated media as required by disposal facilities. Appropriate segregation of excavated media onsite.

5. Removal of underground storage tanks, if any, and closure of petroleum spills in compliance with applicable local, State and Federal laws and regulations.
6. As part of construction, installation of a waterproofing/vapor barrier system beneath the building slab and operation of a ventilated parking garage according to NYC Building Code at the base level of the new building.
7. Import of materials to be used for backfill and cover in compliance with this plan and in accordance with applicable laws and regulations.
8. Screening of excavated soil/fill during intrusive work for indications of contamination by visual means, odor, and monitoring with a PID.
9. Site mobilization involving Site security setup, equipment mobilization, utility mark outs and marking & staking excavation areas.
10. Performance of all activities required for the remedial action, including permitting requirements and pretreatment requirements, in compliance with applicable laws and regulations.
11. Submission of a RAR that describes the remedial activities, certifies that the remedial requirements have been achieved, defines the Site boundaries, and describes all Engineering and Institutional Controls to be implemented at the Site, and lists any changes from this RAWP.

COMMUNITY PROTECTION STATEMENT

The Office of Environmental Remediation created the New York City Brownfield Cleanup Program (NYC BCP) to provide governmental oversight for the cleanup of contaminated property in NYC. This Remedial Action Work Plan ("cleanup plan") describes the findings of prior environmental studies that show the location of contamination at the site, and describes the plans to clean up the site to protect public health and the environment.

This cleanup plan provides a very high level of protection for neighboring communities. This cleanup plan also includes many other elements that address common community concerns, such as community air monitoring, odor, dust and noise controls, hours of operation, good housekeeping and cleanliness, truck management and routing, and opportunities for community participation. The purpose of this Community Protection Statement is to explain these community protection measures in non-technical language to simplify community review.

Remedial Investigation and Cleanup Plan. Under the NYC BCP, a thorough cleanup study of this property (called a remedial investigation) has been performed to identify past property usage, to sample and test soils, groundwater and soil vapor, and identify contaminant sources present on the property. The cleanup plan has been designed to address all contaminant sources that have been identified during the study of this property.

Identification of Sensitive Land Uses. Prior to selecting a cleanup, the neighborhood was evaluated to identify sensitive land uses nearby, such as schools, day care facilities, hospitals and residential areas. The cleanup program was then tailored to address the special conditions of this community.

Qualitative Human Health Exposure Assessment. An important part of the cleanup planning for the Site is the performance of a study to find all of the ways that people might come in contact with contaminants at the Site now or in the future. This study is called a Qualitative Human Health Exposure Assessment (QHHEA). A QHHEA was performed for this project. This assessment has considered all known contamination at the Site and evaluated the potential for people to come in contact with this contamination. All identified public exposures will be addressed under this cleanup plan.

Health and Safety Plan. This cleanup plan includes a Health and Safety Plan that is designed to protect community residents and on-Site workers. The elements of this plan are in compliance with safety requirements of the United States Occupational Safety and Health Administration. This plan includes many protective elements including those discussed below.

Site Safety Coordinator. This project has a designated Site safety coordinator to implement the Health and Safety Plan. The safety coordinator maintains an emergency contact sheet and protocol for management of emergencies. The Site safety coordinator will be designated by general contractor, MJM Construction Services, and can be reached at 718-343-5074.

Worker Training. Workers participating in cleanup of contaminated material on this project are required to be trained in a 40-hour hazardous waste operators training course and to take annual refresher training. This pertains to workers performing specific tasks including removing contaminated material and installing cleanup systems in contaminated areas.

Community Air Monitoring Plan. Community air monitoring will be performed during this cleanup project to ensure that the community is properly protected from contaminants, dust and odors. Air samples will be tested in accordance with a detailed plan called the Community Air Monitoring Plan or CAMP. Results will be regularly reported to the NYC Office of Environmental Remediation. This cleanup plan also has a plan to address any unforeseen problems that might occur during the cleanup (called a 'Contingency Plan').

Odor, Dust and Noise Control. This cleanup plan includes actions for odor and dust control. These actions are designed to prevent off-Site odor and dust nuisances and includes steps to be taken if nuisances are detected. Generally, dust is managed by application of physical covers and by water sprays. Odors are controlled by limiting the area of open excavations, physical covers, spray foams and by a series of other actions (called operational measures). The project is also required to comply with NYC noise control standards. If you observe problems in these areas, please contact the onsite Project Manager which will be designated by general contractor, MJM Construction Services and can be reached at 718-343-5074 or NYC Office of Environmental Remediation Project Manager Maurizio Bertini at 212-788-3922.

Quality Assurance. This cleanup plan requires that evidence be provided to illustrate that all cleanup work required under the plan has been completed properly. This evidence will be summarized in the final report, called the Remedial Action Report. This report will be submitted to the NYC Office of Environmental Remediation and will be thoroughly reviewed.

Storm-Water Management. To limit the potential for soil erosion and discharge, this cleanup plan has provisions for storm-water management. The main elements of the storm water management include physical barriers such as tarp covers and erosion fencing, and a program for frequent inspection.

Hours of Operation. The hours for operation of cleanup will comply with the NYC Department of Buildings construction code requirements or according to specific variances issued by that agency. For this cleanup project, the hours of operation are 7:00 a.m. to 4:00 p.m. Monday through Friday.

Signage. While the cleanup is in progress, a placard will be prominently posted at the main entrance of the property with a laminated project Fact Sheet that states that the project is in the NYC Brownfield Cleanup Program, provides project contact names and numbers, and locations of project documents can be viewed.

Complaint Management. The contractor performing this cleanup is required to address all complaints. If you have any complaints, you can call the facility Project Manager which will be designated by general contractor, MJM Construction Services and can be reached at 718-343-5074, the NYC Office of Environmental Remediation Project Manager Maurizio Bertini at 212-788-3922, or call 311 and mention the Site is in the NYC Brownfield Cleanup Program.

Utility Mark-outs. To promote safety during excavation in this cleanup, the contractor is required to first identify all utilities and must perform all excavation and construction work in compliance with NYC Department of Buildings regulations.

Soil and Liquid Disposal. All soil and liquid material removed from the Site as part of the cleanup will be transported and disposed of in accordance with all applicable City, State and Federal regulations and required permits will be obtained.

Soil Chemical Testing and Screening. All excavations will be supervised by a trained and properly qualified environmental professional. In addition to extensive sampling and chemical testing of soils on the Site, excavated soil will be screened continuously using hand-held instruments, by sight, and by smell to ensure proper material handling and management, and community protection.

Stockpile Management. Soil stockpiles will be kept covered with tarps to prevent dust, odors and erosion. Stockpiles will be frequently inspected. Damaged tarp covers will be promptly replaced. Stockpiles will be protected with silt fences. Hay bales will be used, as needed to protect storm water catch basins and other discharge points.

Trucks and Covers. Loaded trucks leaving the Site will be covered in compliance with applicable laws and regulations to prevent dust and odor. Trucks will be properly recorded in logs and records and placarded in compliance with applicable City, State and Federal laws, including those of the New York State Department of Transportation. If loads contain wet material that can leak, truck liners will be used. All transport of materials will be performed by licensed truckers and in compliance with all laws and regulations.

Imported Material. All fill materials proposed to be brought onto the Site will comply with rules outlined in this cleanup plan and will be inspected and approved by a qualified worker located on-Site. Waste materials will not be brought onto the Site. Trucks entering the Site with imported clean materials will be covered in compliance with applicable laws and regulations.

Equipment Decontamination. All equipment used for cleanup work will be inspected and washed, if needed, before it leaves the Site. Trucks will be cleaned at a truck inspection station on the property before leaving the Site.

Housekeeping. Locations where trucks enter or leave the Site will be inspected every day and cleaned regularly to ensure that they are free of dirt and other materials from the Site.

Truck Routing. Truck routes have been selected to: (a) limit transport through residential areas and past sensitive nearby properties; (b) maximize use of city-mapped truck routes; (c) limit total distance to major highways; (d) promote safety in entry to highways; (e) promote overall safety in trucking; and (f) minimize off-Site line-ups (queuing) of trucks entering the

property. Operators of loaded trucks leaving the Site will be instructed not to stop or idle in the local neighborhood.

Final Report. The results of all cleanup work will be fully documented in a final report (called a Remedial Action Report) that will be available for you to review in the public document repositories located at the Hamilton Grange Library.

Long-Term Site Management. To provide long-term protection after the cleanup is complete, the property owner will be required to comply with an ongoing Site Management Plan that calls for continued inspection of protective controls, such as Site covers. The Site Management Plan is evaluated and approved by the NYC Office of Environmental Remediation. Requirements that the property owner must comply with are defined in the property's deed. A certification of continued protectiveness of the cleanup will be required from time to time to show that the approved cleanup is still effective.

REMEDIAL ACTION WORK PLAN

1.0 SITE BACKGROUND

Broadway Housing Development Fund Company, Inc. has enrolled in the New York City Brownfield Cleanup Program (NYC BCP) to investigate and remediate a property located at 400-414 West 155th Street, New York, NY 10032 in the Sugar Hill section of Manhattan, New York (the Site). A Phase II Environmental Site Investigation (ESI) was performed to compile and evaluate data and information necessary to develop this Remedial Action Work Plan (RAWP) in a manner that will render the Site protective of public health and the environment consistent with the contemplated end use. This RAWP establishes remedial action objectives, provides a remedial alternatives analysis that includes consideration of a permanent cleanup, and provides a description of the selected remedial action. The remedial action described in this document provides for the protection of public health and the environment, complies with applicable environmental standards, criteria and guidance and applicable laws and regulations.

1.1 SITE LOCATION AND CURRENT USAGE

The Site is located in the Sugar Hill section of Manhattan, New York and is identified as Block number 2069 and Lot number 21 on the New York City Tax Map. Figure 1 is a Site location map. The Site is 0.50-acres (21,685-square feet) and is bounded by is bounded by West 155th Street and a park to the north, a DEP building and six-story residence to the south, a gasoline station and St. Nicholas Place to the east. Currently, the Site is used for a parking garage and contains a two-story building with a cellar. The building encompasses the entire lot.

1.2 PROPOSED REDEVELOPMENT PLAN

The proposed use of the Site will consist of an approximately 169,333-square foot 13-story mixed-use building with 124 residential units on Lot 21. As currently proposed, the building will include 124 residential units located on floors 3 through 13, a Children's Museum and a Day Care Center, along with non-for-profit offices on the lower floors, as well as a below-grade accessory parking garage being able to accommodate up to 114 parking spaces. The residential units comprise 121,483 square feet (sf), and all of the units are affordable housing units for low

income tenants. The Children's Museum is spread out over the first and second floor and measures 16,234 sf, the Day Care Center measures 9,838 sf. and is located on the second floor, and the 4,343 sf non-for-profit Offices are located on the first floor. Accessory offices to the residential use are provided on the 9th floor of the building measuring 4,465 sf. The proposed redevelopment activities include the excavation of all soils to bedrock and a portion of bedrock beneath the site. The estimated amount of soil to be removed and disposed of off-site is 4,918.5 tons (3,279 cubic yards [yd^3]) and the estimated amount to bedrock to be removed and disposed of off-site is 1,395 tons (930 yd^3). The estimated depth of excavation is as follows: 27 feet in the northeast corner, 9 feet in the northwest corner, 9 feet in the southeast corner, and 33 feet in the southwest corner. The existing on-Site building will be demolished to facilitate the construction of the proposed Site building.

Layout of the proposed site development is presented in Figure 1.

The remedial action contemplated under this RAWP may be implemented independently of the proposed redevelopment plan.

1.3 DESCRIPTION OF SURROUNDING PROPERTY

The surrounding adjacent properties to the north consists of a 3-story public school, a 2-story store, a vacant lot and a park; to the east consists of gasoline station and St. Nicholas Place; to the south consists of a former garage/DEP building and six-story residence; and a former garage/DEP building, a parking lot, St. Nicholas Avenue and low-rise residences. The general character of the neighborhood is primarily residential, commercial, retail, and institutional buildings, recreational properties and parks. Figure 2 shows the surrounding land usage.

1.4 REMEDIAL INVESTIGATION / PHASE II ENVIRONMENTAL SITE INVESTIGATION

An investigation was performed and the results are documented in a companion document called "*Phase II Environmental Site Investigation, 414 West 155th Street, Block 2069, Lot 21, New York, New York 10032, DEP Project #10DCP031M / 10DEPTECH074M,*", dated November 18th, 2010 (Phase II ESI).

1. Elevation of the property ranges from 133.5 (northwest corner) to108 feet (southwest corner).
2. Groundwater was not encountered in any of the borings advanced during the ATC's Phase II investigation. A prior geotechnical investigation (Tectonic, May 2010) provided by the client reported depth to groundwater ranging from 3.5 feet below ground surface (bgs) in the northern portion of the basement to 5.2 feet bgs in the southeastern portion of basement.
3. Presumed groundwater flow is generally from west to east beneath the Site.
4. Depth to bedrock is very shallow and generally from 1 to 3 feet below the surface of the building slab through most of the site and ranges from approximately 1 foot bgs in the western portion of the basement to 9 to 14 feet bgs in the southeastern portion of the basement.
5. The stratigraphy of the site, from the surface down, consists of brown coarse to fine sand with trace gravel with minor amounts of debris including brick and concrete in some locations, underlain by a thin veneer of weathered rock and competent bedrock.
6. Possible environmental conditions identified during the Phase 1 consisting of buried gasoline tanks were investigated using two geophysical methods and soil borings. Geophysical methods did not reveal anomalies indicative of USTs and soil borings showed bedrock at a depth of 1 foot below the building slab in this area. Based on these results, tanks are not believed to be present on this site.
7. Soil/fill samples collected during the Phase II ESI showed semi-volatile organic compounds (SVOCs) detected at concentrations exceeding NYSDEC Subpart 375-6: Remedial Program Track 1 Unrestricted Use Soil Cleanup Objectives (SCOs) and Track 2 Restricted Use-Protection of Public Health-Residential (Restricted-Residential) SCOs. SVOC consist of PAH compounds and are found in two of eight samples and exceed Track 2 SCOs in only one shallow sample and thus were the only excedeence of Track 2 SCOs in this soil sampling program. The presence of SVOCs is believed to be associated with fill material. Soil samples from this property detected no pesticides or PCBs in any sample. Only one VOC, toluene, was observed

in one soil sample at very low concentrations and well below Track 1 Unrestricted Use SCOs. Most heavy metals were below Track 1 SCOs, however, five metals (copper, lead, mercury, nickel and zinc) exceeded Track 1 in no more than two soil samples each. No metals exceeded Track 2 Restricted Residential SCOs. Overall, soil results show a relatively clean property with no evidence of a soil staining, grossly contaminated soil or any contaminant source area and exhibited only minor evidence of historical fill material. Though originally planned, relatively few deep soil samples were collected because of the presence of competent rock below 1-3 feet depths.

8. Groundwater sampling was proposed but groundwater was not encountered in any of the borings installed onsite.

For more detailed results, consult the Phase II ESI. Based on an evaluation of the data and information from the Phase II ESI and this RAWP, disposal of significant amounts of hazardous waste is not suspected at this site.

2.0 REMEDIAL ACTION OBJECTIVES

Based on the results of the Phase II ESI, the following Remedial Action Objectives (RAOs) have been identified for this Site:

Soil

- Prevent direct contact with contaminated soil.
- Prevent exposure to contaminants volatilizing from contaminated soil.
- Prevent migration of contaminants that would result in groundwater or surface water contamination.

Soil Vapor

- Prevent exposure to contaminants in soil vapor.
- Prevent migration of soil vapor into dwelling and other occupied structures.

3.0 REMEDIAL ALTERNATIVES ANALYSIS

For Sugar Hill, a Track 1 remedial action alternative is considered in this alternative analysis as Alternative 1. Alternative 1 is a Track 1 alternative that involves complete removal of all soil and fill within the property boundary. This alternative involves the excavation and removal of approximately 3,308 cubic yards of soil and fill and eliminates all contaminated sources. In addition, as part of the development, a concrete slab will be installed across the entire Site coupled with the installation of a vapor/waterproofing membrane beneath the concrete foundation and foundation wall surfaces, and the base level will contain a parking area that will be ventilated in accordance with NYC Building Code regulations. A Track 4 remedial action is also considered as Alternative 2. Alternative 2 also involves the excavation and removal of approximately 3,308 cubic yards of soil and fill and eliminates all contaminated sources. In addition, as part of the development, a concrete slab will be installed across the entire Site coupled with the installation of a vapor/waterproofing membrane beneath the concrete foundation and foundation wall surfaces, and the base level will contain a parking area that will be ventilated in accordance with NYC Building Code regulations. It will also include the establishment of use restrictions including prohibitions on sensitive site uses, such as farming or vegetable gardening, to eliminate future exposure pathways, the establishment of a Site Management Plan to ensure long-term management of these Institutional Controls including the performance of periodic inspections and certification that the controls are performing as they were intended. A deed restriction will also be required to memorialize the remedial action and the Engineering and Institutional Controls to ensure that future owners of the site continue to maintain these controls as required.

3.1 THRESHOLD CRITERIA

Protection of Public Health and the Environment

This criterion is an evaluation of the remedy's ability to protect public health and the environment, and an assessment of how risks posed through each existing or potential pathway of exposure are eliminated, reduced or controlled through removal, treatment, and implementation of Engineering Controls or Institutional Controls. Protection of public health and the environment must be achieved for all approved remedial actions.

The Track 1 alternative will result in excavation of all soil with contaminant concentration above Track 1 SCOs and would:

- Eliminate the risk of ingestion exposures or other direct contact with contaminated on-Site soils consistent with remedial action objectives;
- Eliminate the risk of leaching into groundwater and ingestion exposures or direct contact with groundwater with contamination derived from the Site consistent with remedial action objectives; and
- Eliminate potential sources for on-Site production of soil vapors, and prevent migration of on-Site derived vapors into occupied structures and eliminate associated inhalation exposures consistent with remedial action objectives.

Alternative 2 will be protective of human health and the environment by establishing site specific SCOs, removal of soils that exceed these SCOs. A protective cover placed over the entire site will eliminate the potential for human and environmental exposure to soils that exceed Track 4 Restricted Residential SCOs.

The Track 4 alternative would:

- Establish Track 4 Site Specific SCOs and removal of soils that exceed these SCOs. Track 4 SCOs would meet Track 2 Restricted Residential SCOs;
- Placement of a final cover over consisting of concrete building slab to eliminate any potential exposures to remaining soils that do not exceed the SCOs;
- Establish use restrictions to ensure that future ingestion or other exposures are eliminated;
- Establish a Site Management Plan to ensure long term management of Institutional and Engineering Controls to ensure that all Engineering and Institutional controls are inspected periodically and requires certification that the remedy continues to perform as it was designed, thus ensuring that the protections achieved for public health and the environment remain in perpetuity;
- Place a deed restriction to memorialize these controls in order to decrease the risk of future exposures with contaminated media consistent with remedial action objectives to memorialize the remedial action and the existence of Engineering and Institutional

Controls and will ensure that these controls will be appropriately managed by future site owners.

During remedial and construction activity for both alternatives, workers and area residents may be exposed to impacted soil and vapors. Worker exposure to soil and vapors would be minimized through implementation of a Health and Safety Plan. Exposures to area residents from dust and/or vapors will be minimized through the use of engineering controls and through implementation of a Community Air Monitoring Plan (CAMP).

3.2. BALANCING CRITERIA

Compliance with Standards, Criteria and Guidance (SCGs)

The Track 1 alternative would address the chemical-specific SCGs for soil by excavation and removal of all material above the Track 1 SCOs. Focused attention on means and methods employed during the remedial action would ensure that handling and management of contaminated material would be in compliance with applicable SCGs.

Alternative 2 will achieve compliance with the remedial goals, SCGs and RAOs for soil through removal to Track 4 site specific soil cleanup levels. Removal of all or most unconsolidated material from the property will remove a substantial amount of lightly and moderately contaminated material and will greatly reduce any onsite contamination.

Short-term effectiveness and impacts

This evaluation criterion assesses the effects of the alternative during the construction and implementation phase until remedial action objectives are met. Under this criterion, alternatives are evaluated with respect to their effects on public health and the environment during implementation of the remedial action, including protection of the community, environmental impacts, time until remedial response objectives are achieved, and protection of workers during remedial actions.

Both alternatives would result in some short-term impacts due to the quantity of excavation and transport required to remove all unconsolidated and bedrock material necessary to achieve SCOs throughout the Site. These impacts could include higher air quality impacts caused by greater soil excavation, handling and load out, and associated truck traffic. Focused attention to

means and methods employed during the remedial action, including community air monitoring and appropriate truck routing, would minimize or negate the overall impact of this additional activity.

Long-term effectiveness and permanence

This evaluation criterion addresses the results of a remedial action in terms of its permanence and quantity/nature of waste or residual contamination remaining at the Site after response objectives have been met, such as permanence of the remedial alternative, magnitude of remaining contamination, adequacy of controls including the adequacy and suitability of ECs/ICs that may be used to manage contaminant residuals that remain at the Site and assessment of containment systems and ICs that are designed to eliminate exposures to contaminants, and long-term reliability of Engineering Controls.

Both alternatives would be effective over the long-term by providing a permanent (Track 1) or near-permanent (Track 4) cleanup of on-Site contamination through removal of all or most unconsolidated material above bedrock excess of the respective SCOs and would eliminate any potential on-Site sources of soil vapors and groundwater contamination consistent with remedial action objectives.

Reduction of toxicity, mobility, or volume of contaminated material

This evaluation criterion assesses the remedial alternative's use of remedial technologies that permanently and significantly reduce toxicity, mobility, or volume of contaminants as their principal element. The following is the hierarchy of source removal and control measures that are to be used to remediate a Site, ranked from most preferable to least preferable: removal and/or treatment, containment, elimination of exposure and treatment of source at the point of exposure. It is preferred to use treatment or removal to eliminate contaminants at a Site, reduce the total mass of toxic contaminants, cause irreversible reduction in contaminants mobility, or reduce of total volume of contaminated media.

The Track 1 alternative will provide maximum reduction of toxicity, mobility and volume of contaminated material on-Site by excavation and removal of all soils that exceed the Track 1 unrestricted use SCOs.

Alternative 2 will remove all or a large fraction of unconsolidated material present on the property and will provide engineering and institutional controls to ensure that there are no pathways for exposure to remaining materials.

Implementability

This evaluation criterion addresses the technical and administrative feasibility of implementing an alternative and the availability of various services and materials required during its implementation, including technical feasibility of construction and operation, reliability of the selected technology, ease of undertaking remedial action, monitoring considerations, administrative feasibility (e.g. obtaining permits for remedial activities), and availability of services and materials.

Both alternatives are both feasible and implementable. They use identical standard materials and services and well established technology. The reliability of each remedy is high. There are no special difficulties associated with any of the activities proposed but will require a long period of time to accomplish due to the large quantity of soil and fill material that would require removal.

Cost effectiveness

This evaluation criterion addresses the cost of alternatives, including capital costs (such as construction costs, equipment costs, and disposal costs, engineering expenses) and site management costs (costs incurred after remedial construction is complete) necessary to ensure the continued effectiveness of a remedial action.

The capital costs for both remedial alternatives are comparable Higher costs overall are driven by high total volume of soil/fill and rock that will be removed for development purposes that would be excavated and transported from the Site and disposed of at an off-Site location.

Both alternatives satisfy the threshold balancing criterion and other criterion listed here, and is fully protective of public health and the environment, will control migration of contaminants, will comply with SCGs, are effective for the short-term and long-term, are implementable, and reduce both mobility and toxicity.

Community Acceptance

This evaluation criterion addresses community opinion and support for the remedial action. Observations here will be supplemented by public comment received on the RAWP.

Based on the overall goals of the remedial program and initial observations by the project team, both alternatives will be acceptable to the community. This RAWP will be subject to and undergo public review under the NYC BCP and will provide the opportunity for detailed public input on the remedial alternative and the selected remedial action. This public comment will be considered by OER prior to approval of this plan.

Land use

This evaluation criterion addresses the proposed use of the property. This evaluation has considered reasonably anticipated future uses of the Site and takes into account: current use and historical and/or recent development patterns; applicable zoning laws and maps; NYS Department of State's Brownfield Opportunity Areas (BOA) pursuant to section 970-r of the general municipal law; applicable land use plans; proximity to real property currently used for residential use, and to commercial, industrial, agricultural, and/or recreational areas; environmental justice impacts, Federal or State land use designations; population growth patterns and projections; accessibility to existing infrastructure; proximity of the site to important cultural resources and natural resources, potential vulnerability of groundwater to contamination that might emanate from the site, proximity to flood plains, geography and geology; and current Institutional Controls applicable to the site.

Both alternatives for remedial action at the site are comparable with respect to the proposed use and to land uses in the vicinity of the Site. The proposed use is consistent with the existing zoning designation for the property and is consistent with recent development patterns. The Site is surrounded by residential and commercial properties and the proposed alternative provides comprehensive protection of public health and the environment for these uses. Improvements in the current brownfield condition of the property achieved by the alternatives is also consistent with the City's goals for cleanup of contaminated land and bringing such properties into productive reuse. The alternatives are equally protective of natural resources and cultural resources. This RAWP will be subject to public review under the NYC BCP and will provide the

opportunity for detailed public input on the land use factors described in this section. This public comment will be considered by OER prior to approval of this plan.

Sustainability of the Remedial Action

This criterion evaluates the overall sustainability of the remedial action alternatives and the degree to which sustainable means are employed to implement the remedial action including those that take into consideration NYC's sustainability goals defined in *PlaNYC: A Greener, Greater New York*. Sustainability goals may include: maximizing the recycling and reuse of non-virgin materials; reducing the consumption of virgin and non-renewable resources; minimizing energy consumption and greenhouse gas emissions; improving energy efficiency; and promotion of the use of native vegetation and enhancing biodiversity during landscaping associated with Site development.

Both alternatives have the potential to utilize sustainable means to achieve the cleanup goals. This program contemplates the utilization of several green remediation methods that are compatible with the alternative. The full list of green remediation activities considered in this program is included in the Sustainability Statement.

4.0 REMEDIAL ACTION

4.1 SUMMARY OF PREFERRED REMEDIAL ACTION

The preferred remedial action alternative is Altenative 1, the Track 1 Alternative. The preferred remedial action alternative achieves protection of public health and the environment for the intended use of the property. The preferred remedial action alternative will achieve all of the remedial action objectives established for the project and addresses applicable SCGs. The preferred remedial action alternative is effective in both the short-term and long-term and reduces mobility, toxicity and volume of contaminants. The preferred remedial action alternative is cost effective and implementable and uses standards methods that are well established in the industry.

The proposed remedial action will consist of:

1. Preparation of a Community Protection Statement and implementation of a Citizen Participation Plan. Perform a Community Air Monitoring Program for particulates and volatile organic carbon compounds.

2. Establish Track 1 Soil Cleanup Objectives (SCOs).

3. Excavation and removal of soil/fill exceeding SCOs. Transportation and off-Site disposal of all soil/fill material at permitted facilities in accordance with applicable laws and regulations for handling, transport, and disposal, and this plan. Sampling and analysis of excavated media as required by disposal facilities. Appropriate segregation of excavated media onsite.

4. Removal of underground storage tanks, if any, and closure of petroleum spills in compliance with applicable local, State and Federal laws and regulations.

5. As part of construction, installation of a waterproofing/vapor barrier system beneath the building slab and operation of a ventilated parking garage according to NYC Building Code at the base level of the new building.

6. Import of materials to be used for backfill and cover in compliance with this plan and in accordance with applicable laws and regulations.

7. Transportation and off-Site disposal of all soil/fill material at permitted facilities in accordance with applicable laws and regulations for handling, transport, and disposal, and this plan. Sampling and analysis of excavated media as required by disposal facilities. Appropriate segregation of excavated media onsite.

8. Screening of excavated soil/fill during intrusive work for indications of contamination by visual means, odor, and monitoring with a PID.

9. Site mobilization involving Site security setup, equipment mobilization, utility mark outs and marking & staking excavation areas.

10. Performance of all activities required for the remedial action, including permitting requirements and pretreatment requirements, in compliance with applicable laws and regulations.

11. Submission of a RAR that describes the remedial activities, certifies that the remedial requirements have been achieved, defines the Site boundaries, and describes all Engineering and Institutional Controls to be implemented at the Site, and lists any changes from this RAWP.

Prior to performance of the remedial action, soil vapor samples will be collected for characterization purposes. Similarly, an additional effort to collect groundwater samples will be performed at the property.

4.2 SOIL CLEANUP OBJECTIVES AND SOIL/FILL MANAGEMENT

Track 1 Soil Cleanup Objectives (SCOs) are proposed for this project. The SCOs for this Site are listed in Table 2. Soil and materials management on-Site and off-Site, including excavation, handling and disposal, will be conducted in accordance with the Soil/Materials Management Plan in Appendix 3. The location of planned excavations is shown in Figure 3.

Discrete contaminant sources (such as hotspots) identified during the remedial action will be identified by GPS or surveyed. This information will be provided in the Remedial Action Report.

Estimated Soil/Fill Removal Quantities

The total quantity of soil/fill expected to be excavated and disposed off-Site is 5037.5 tons. In addition, the total quantity of bedrock expected to be excavated and disposed off-Site is 1,395 tons. The proposed disposal location for Site-derived impacted soil/fill is listed below. The Lincoln Park Landfill approval letter is included in Appendix 10. The disposal facility for the bedrock will be identified and the approval letter will be sent to OER for review and approval once the contractor has been selected. Additional disposal locations established at a later date will be reported promptly to the OER Project Manager.

Disposal Facility	**Waste Type**	**Estimated Quantities**
Hudson County Lincoln Park Landfill, Jersey City, NJ	soil/fill	5037.5 tons

Import of Soils

Import of soils onto the property and reuse of soils already onsite, if any, will be performed in conformance with the Soil/Materials Management Plan in Appendix 3. The estimated quantity of topsoil to be imported into the Site for backfill at the planting beds in the plaza is 44 tons and the estimated quantity of CU-Soil™ fill at the proposed trees in plaza is 24 tons.

4.3 ENGINEERING CONTROLS

This remedial action does not include Engineering Controls. However, as part of the development a waterproof/vapor barrier will be installed and the building will include a parking garage at the base level of the building that will be ventilated in conformance with NYC Building Code. The vapor barrier is described below.

Vapor Barrier

The vapor barrier system is comprised of:

- A 15-mil vapor barrier, Stego® Wrap Vapor Barrier, manufactured by Stego Industries, LLC; or equal will be installed.
- The vapor barrier will be installed beneath the concrete slab of the cellar and parking garage, and along the sub-surface walls of both the cellar and parking garage.
- Installation will be performed according to the manufacturer's specifications and in accordance with ASTM E1643-10, Selection, Design, Installation, and Inspection of Water Vapor Retarders Used in Contact with Earth or Granular Fill Under Concrete Slabs.

Detailed certified drawings prepared by a PE or RA of Record depicting the extent of the proposed waterproofing/vapor barrier membrane and the installation details (penetrations, joints, etc.) with respect to the proposed building foundation, footings, slab, and sidewalls, and product specification sheets are provided as Figures 6 through 12 and in Appendix 7. The certificate letter from SLCE Architects, LLP is included as Appendix 12.

4.5 SITE MANAGEMENT PLAN

Site Management is not required due to attainment of Track 1 cleanup.

4.6 QUALITATIVE HUMAN HEALTH EXPOSURE ASSESSMENT

Investigations reported in the Phase II ESI are sufficient to complete a Qualitative Human Health Exposure Assessment (QHHEA).

Known and Potential Sources

Study of soil on the property showed only semi-volatile organic compounds (SVOCs) detected at concentrations exceeding NYSDEC Subpart 375-6: Remedial Program Track 2 Restricted Use-Protection of Public Health-Residential (Restricted-Residential) SCOs. SVOC consist of PAH compounds and are found in two of eight samples above Track 1 SCOs. Four

PAH exceed Track 2 SCOs in only one shallow sample. The presence of SVOCs is believed to be associated with fill material. Soil samples from this property detected no pesticides or PCBs in any sample. Only one VOC, toluene, was observed in one soil sample at very low concentrations and well below Track 1 Unrestricted Use SCOs. Most heavy metals were below Track 1 SCOs, however, five metals (copper, lead, mercury, nickel and zinc) exceeded Track 1 in no more than two soil samples each. No metals exceeded Track 2 Restricted Residential SCOs. Overall, soil results show a relatively clean property with no evidence of a contaminant source area and slight evidence of historical fill material.

Nature, Extent, Fate and Transport of Contaminants

As indicated above, the soil/fill material contains concentrations of SVOCs and metals above applicable standards. The soils will be removed to bedrock as part redevelopment.

Potential Routes of Exposure

Potential On-Site Exposures: An exposure route is the mechanism by which a receptor comes into contact with a chemical. Three potential primary routes exist by which chemicals can enter the body:

- Ingestion of water, fill or soil;
- Inhalation of vapors and particulates; and
- Dermal contact with soil.

Construction workers engaged in excavation of soils at the site for the installation of basement level foundation of the new building may be exposed to soil containing metals and SVOCs through ingestion and dermal contact.

Potential Off-Site Exposures: Off-site pedestrians and residents could be exposed to metals and SVOCs in historic fill materials through dust generated during excavation or grading work at the Site.

Existence of Human Health Exposure

Currently the property is fully paved and direct exposures are not present. Based upon this analysis, there are two future potential exposure pathways: 1) direct exposure to on-site soils and dust from on-site soils; and 2) exposure to soil vapors. Potential on-site receptors include adult

and child visitors, construction workers, trespassers and commercial workers. The potential off-site receptors are adult and child pedestrians and residents. The primary route of exposure would be inhalation and dermal contact on-site and inhalation off site.

Receptor Populations

Potential on-site receptors include adult and child visitors, construction workers, trespassers and commercial workers. The potential off-site receptors are adult and child pedestrians and residents.

Overall Human Health Exposure Assessment

The QHHEA indicated that potential exposure pathways exist during redevelopment and future remediated conditions and will not exist after the remedial action is complete and the proposed development is in place. During remedial construction, on-site and off-site exposures to dust from contaminated soils will be addressed through dust controls, and through the implementation of the community air monitoring program and a construction health and safety plan.

After the remedial action is complete, there will be no remaining exposure pathways. The soils will be completely removed to achieve Track 1 SCOs. As part of the development, a waterproof/vapor barrier will be installed and the building will include a parking garage at the base level of the building that will be ventilated in conformance with NYC Building Code. This construction activity will prevent migration of fugitive soil vapors from entering the building.

5.0 REMEDIAL ACTION MANAGEMENT

5.1 PROJECT ORGANIZATION AND OVERSIGHT

Principal personnel who will participate in the remedial action include Messrs. Matthew Mankovich, Senior Project Manager of ATC, Jed A. Myers, Ph.D., Senior Project Manager, and John Mascioli, M.S., Project Manager of ATC. The aforementioned personnel will provide oversight and consultation regarding the remedial action. Messrs. Robert Harrington, CIH, Senior Project Manager of ATC and Michael Donavan, CIH, Senior Project Manager of ATC will provide consultation regarding the CAMP. There may be additional personnel to perform air monitoring and particulate monitoring during the construction phase. . The Professional Engineer (PE) for this project is Mr. Gilbert Gedeon, P.E., Division Manager of ATC.

5.2 SITE SECURITY

Site access will be controlled by gated entrances to the fenced property.

5.3 WORK HOURS

The hours for operation of remedial construction will be from 7:00 to 4:00. These hours conform to the New York City Department of Buildings construction code requirements.

5.4 CONSTRUCTION HEALTH AND SAFETY PLAN

The Health and Safety Plan is included in Appendix 4. The Site Safety Coordinator will be Joseph Albino of Homeland Security. Remedial work performed under this RAWP will be in full compliance with applicable health and safety laws and regulations, including Site and OSHA worker safety requirements and HAZWOPER requirements. Confined space entry, if any, will comply with OSHA requirements and industry standards and will address potential risks. The parties performing the remedial construction work will ensure that performance of work is in compliance with the HASP and applicable laws and regulations. The HASP pertains to remedial and invasive work performed at the Site until the issuance of the Notice of Completion.

All field personnel involved in remedial activities will participate in training required under 29 CFR 1910.120, including 40-hour hazardous waste operator training and annual 8-hour

refresher training. Site Safety Officer will be responsible for maintaining workers training records.

Personnel entering any exclusion zone will be trained in the provisions of the HASP and be required to sign an HASP acknowledgment. Site-specific training will be provided to field personnel. Additional safety training may be added depending on the tasks performed. Emergency telephone numbers will be posted at the site location before any remedial work begins. A safety meeting will be conducted before each shift begins. Topics to be discussed include task hazards and protective measures (physical, chemical, environmental); emergency procedures; PPE levels and other relevant safety topics. Meetings will be documented in a log book or specific form.

An emergency contact sheet with names and phone numbers is included in the HASP. That document will define the specific project contacts for use in case of emergency.

5.5 COMMUNITY AIR MONITORING PLAN

Real-time air monitoring for volatile organic compounds (VOCs) and particulate levels at the perimeter of the exclusion zone or work area will be performed. Continuous monitoring will be performed for all ground intrusive activities and during the handling of contaminated or potentially contaminated media. Ground intrusive activities include, but are not limited to, soil/waste excavation and handling, test pit excavation or trenching, and the installation of soil borings or monitoring wells.

Periodic monitoring for VOCs will be performed during non-intrusive activities such as the collection of soil and sediment samples or the collection of groundwater samples from existing monitoring wells. Periodic monitoring during sample collection, for instance, will consist of taking a reading upon arrival at a sample location, monitoring while opening a well cap or overturning soil, monitoring during well baling/purging, and taking a reading prior to leaving a sample location. Depending upon the proximity of potentially exposed individuals, continuous monitoring may be performed during sampling activities. Examples of such situations include groundwater sampling at wells on the curb of a busy urban street, in the midst of a public park, or adjacent to a school or residence. Exceedences of action levels observed during performance

of the Community Air Monitoring Plan (CAMP) will be reported to the OER Project Manager and included in the Daily Report.

VOC Monitoring, Response Levels, and Actions

Volatile organic compounds (VOCs) will be monitored at the downwind perimeter of the immediate work area (i.e., the exclusion zone) on a continuous basis during invasive work. Upwind concentrations will be measured at the start of each workday and periodically thereafter to establish background conditions. The monitoring work will be performed using equipment appropriate to measure the types of contaminants known or suspected to be present. The equipment will be calibrated at least daily for the contaminant(s) of concern or for an appropriate surrogate. The equipment will be capable of calculating 15-minute running average concentrations, which will be compared to the levels specified below.

- If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or exclusion zone exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities will be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities will resume with continued monitoring.
- If total organic vapor levels at the downwind perimeter of the work area or exclusion zone persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities will be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities will resume provided that the total organic vapor level 200 feet downwind of the exclusion zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less - but in no case less than 20 feet, is below 5 ppm over background for the 15-minute average.
- If the organic vapor level is above 25 ppm at the perimeter of the work area, activities will be shutdown.

All 15-minute readings must be recorded and be available for OER personnel to review. Instantaneous readings, if any, used for decision purposes will also be recorded.

Particulate Monitoring, Response Levels, and Actions

Particulate concentrations will be monitored continuously at the upwind and downwind perimeters of the exclusion zone at temporary particulate monitoring stations. The particulate monitoring will be performed using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10) and capable of integrating over a period of 15 minutes (or less) for comparison to the airborne particulate action level. The equipment will be equipped with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration should be visually assessed during all work activities.

- If the downwind PM-10 particulate level is 100 micrograms per cubic meter (mcg/m^3) greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques will be employed. Work will continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed 150 mcg/m^3 above the upwind level and provided that no visible dust is migrating from the work area.
- If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 150 mcg/m^3 above the upwind level, work will be stopped and a re-evaluation of activities initiated. Work will resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 mcg/m^3 of the upwind level and in preventing visible dust migration.

All readings will be recorded and be available for OER personnel to review.

5.6 AGENCY APPROVALS

All permits or government approvals required for remedial construction have been or will be obtained prior to the start of remedial construction. Approval of this RAWP by OER does not constitute satisfaction of these requirements and will not be a substitute for any required permit.

5.7 SITE PREPARATION

Pre-Construction Meeting

OER will be invited to attend the pre-construction meeting at the Site with all parties involved in the remedial process prior to the start of remedial construction activities.

Mobilization

Mobilization will be conducted as necessary for each phase of work at the Site. Mobilization includes field personnel orientation, equipment mobilization (including securing all sampling equipment needed for the field investigation), marking/staking sampling locations and utility mark-outs. Each field team member will attend an orientation meeting to become familiar with the general operation of the Site, health and safety requirements, and field procedures.

Utility Marker Layouts, Easement Layouts

The presence of utilities and easements on the Site will be fully investigated prior to the performance of invasive work such as excavation or drilling under this plan by using, at a minimum, the One-Call System (811). Underground utilities may pose an electrocution, explosion, or other hazard during excavation or drilling activities. All invasive activities will be performed incompliance with applicable laws and regulations to assure safety. Utility companies and other responsible authorities will be contacted to locate and mark the locations, and a copy of the Markout Ticket will be retained by the contractor prior to the start of drilling, excavation or other invasive subsurface operations. Overhead utilities may also be present within the anticipated work zones. Electrical hazards associated with drilling in the vicinity of overhead utilities will be prevented by maintaining a safe distance between overhead power lines and drill rig masts.

Proper safety and protective measures pertaining to utilities and easements, and compliance with all laws and regulations will be employed during invasive and other work contemplated under this RAWP. The integrity and safety of on-Site and off-Site structures will be maintained during all invasive, excavation or other remedial activity performed under the RAWP.

Dewatering

Based on the presence of shallow bedrock, perched groundwater may be encountered.

In the event that dewatering is required, groundwater would need to be lowered below the lowest excavation depth across the project Site until the waterproofing/vapor barrier (if applicable) and building foundation have been installed. Dewatering, if required, would be completed in accordance with a New York City Department of Environmental Protection (NYCDEP) permit. As part of the NYCDEP permit process, additional groundwater samples may need to be collected and be analyzed for specific NYCDEP dewatering parameters. Dewatering engineering controls would need to be approved by NYCDEP. All dewatering would need to be conducted in accordance with NYCDEP regulations regarding discharge to the municipal sewer system. A copy of the NYCDEP sewer discharge permit and all pertinent regulatory correspondence would need to be included in the P.E. certified Remedial Closure Report.

Equipment and Material Staging

Equipment and materials will be stored and staged in a manner that complies with applicable laws and regulations. The location of proposed equipment and material staging areas, truck inspection station, stockpile areas, and other pertinent remedial management features is shown in Figure 13.

Stabilized Construction Entrance

Steps will be taken to ensure that trucks departing the site will not track soil, fill or debris off-Site. Such actions may include use of cleaned asphalt or concrete roads or use of stone or other aggregate-based egress paths between the truck inspection station and the property exit. Measures will be taken to ensure that adjacent roadways will be kept clean of project related soils, fill and debris.

Truck Inspection Station

An outbound-truck inspection station will be set up close to the Site exit. Before exiting the NYC BCP Site, trucks will be required to stop at the truck inspection station and will be

examined for evidence of contaminated soil on the undercarriage, body, and wheels. Soil and debris will be removed. Brooms, shovels and potable water will be utilized for the removal of soil from vehicles and equipment, as necessary.

5.8 TRAFFIC CONTROL

Drivers of trucks leaving the NYC BCP Site with soil/fill will be instructed to proceed without stopping in the vicinity of the site to prevent neighborhood impacts. The planned route on local roads for trucks leaving the site is shown in the directions included as Appendix 9.

5.9 DEMOBILIZATION

Demobilization will include:

- As necessary, restoration of temporary access areas and areas that may have been disturbed to accommodate support areas (e.g., staging areas, decontamination areas, storage areas, temporary water management areas, and access area);
- Removal of sediment from erosion control measures and truck wash and disposal of materials in accordance with applicable laws and regulations;
- Equipment decontamination, and;
- General refuse disposal.

Equipment will be decontaminated and demobilized at the completion of all field activities. Investigation equipment and large equipment (*e.g.*, soil excavators) will be washed at the truck inspection station as necessary. In addition, all investigation and remediation derived waste will be appropriately disposed.

5.10 REPORTING AND RECORD KEEPING

Daily Reports

Daily reports providing a general summary of activities for each day of *active remedial work* will be emailed to the OER Project Manager by the end of the following day. Those reports will include:

- Project number and statement of the activities and an update of progress made and locations of work performed;
- Quantities of material imported and exported from the Site;
- Status of on-Site soil/fill stockpiles;
- A summary of all citizen complaints, with relevant details (basis of complaint; actions taken; etc.);
- A summary of CAMP excursions, if any;
- Photograph of notable Site conditions and activities.

The frequency of the reporting period may be revised in consultation with OER project manager based on planned project tasks. Daily email reports are not intended to be the primary mode of communication for notification to OER of emergencies (accidents, spills), requests for changes to the RAWP or other sensitive or time critical information. However, such information will be included in the daily reports. Emergency conditions and changes to the RAWP will be communicated directly to the OER project manager by personal communication. Daily reports will be included as an Appendix in the Remedial Action Report.

An alpha-numeric site map will be used to identify locations described in reports submitted to OER and is shown in Figure 14.

Record Keeping and Photo-Documentation

Job-site record keeping for all remedial work will be performed. These records will be maintained on-Site during the project and will be available for inspection by OER staff. Representative photographs will be taken of the Site prior to any remedial activities and during major remedial activities to illustrate remedial program elements and contaminant source areas. Photographs will be submitted at the completion of the project in the RAR in digital format (i.e. jpeg files).

5.11 COMPLAINT MANAGEMENT

All complaints from citizens will be promptly reported to OER. Complaints will be addressed and outcomes will also be reported to OER in daily reports. Notices to OER will include the nature of the complaint, the party providing the complaint, and the actions taken to resolve any problems.

5.12 DEVIATIONS FROM THE REMEDIAL ACTION WORK PLAN

All changes to the RAWP will be reported to the OER Project Manager and will be documented in daily reports and reported in the Remedial Action Report. The process to be followed if there are any deviations from the RAWP will include a request for approval for the change from OER noting the following:

- Reasons for deviating from the approved RAWP;
- Effect of the deviations on overall remedy; and
- Determination that the remedial action with the deviation(s) is protective of public health and the environment.

5.13 DATA USABILITY SUMMARY REPORT

The primary objective of a Data Usability Summary Report (DUSR) is to determine whether or not data meets the site specific criteria for data quality and data use. The DUSR provides an evaluation of analytical data without third party data validation. The DUSR for post-remedial samples collected during implementation of this RAWP will be included in the Remedial Action Report (RAR).

6.0 REMEDIAL ACTION REPORT

A Remedial Action Report (RAR) will be submitted to OER following implementation of the remedial action defined in this RAWP. The RAR will document that the remedial work required under this RAWP has been completed and has been performed in compliance with this plan. The RAR will include:

- Information required by this RAWP;
- As-built drawings for all constructed remedial elements, required certifications, manifests and other written and photographic documentation of remedial work performed under this remedy;
- Description of any changes in the remedial action from the elements provided in this RAWP and associated design documents;
- Tabular summary of all end point sampling results and all material characterization results, QA/QC results for end-point sampling, and other sampling and chemical analysis performed as part of the remedial action and DUSR;
- Test results or other evidence demonstrating that remedial systems are functioning properly;
- Account of the source area locations and characteristics of all contaminated material removed from the Site including a map showing source areas;
- Account of the disposal destination of all contaminated material removed from the Site. Documentation associated with disposal of all material will include transportation and disposal records, and letters approving receipt of the material.
- Account of the origin and required chemical quality testing for material imported onto the Site.
- Reports and supporting material will be submitted in digital form.

Remedial Action Report Certification

The following certification will appear in front of the Executive Summary of the Remedial Action Report. The certification will include the following statements:

I, _____, am currently a professional engineer licensed by the State of New York. I had primary direct responsibility for implementation of the remedial program for the Site name Site Site number.

I, _____, am a qualified Environmental Professional. I had primary direct responsibility for implementation remedial program for the Site name Site Site number . (Optional)

I certify that the OER-approved Remedial Action Work Plan dated month day year and Stipulations in a letter dated month day, year; if any were implemented and that all requirements in those documents have been substantively complied with. I certify that contaminated soil, fill, liquids or other material from the property were taken to facilities licensed to accept this material in full compliance with applicable laws and regulations.

7.0 SCHEDULE

The table below presents a schedule for the proposed remedial action and reporting. If the schedule for remediation and development activities changes, it will be updated and submitted to OER. Currently, a 25 month remediation period is anticipated.

Schedule Milestone	Weeks from Remedial Action Start	Duration (weeks)
OER Approval of RAWP	0	-
Fact Sheet 2 announcing start of remedy	0	-
*Mobilization	1	8
Remedial Excavation – Excavation of soils and bedrock	7	4
Vapor Barrier System Installation	15	4
Demobilization	19	2
Submit Remedial Action Report	21	4

* Mobilization will take place once the existing building is demolished.

APPENDIX 1
CITIZEN PARTICIPATION PLAN

The NYC Office of Environmental Remediation and Broadway Housing Development Fund Company, Inc. have established this Citizen Participation Plan because the opportunity for citizen participation is an important component of the NYC Brownfield Cleanup Program. This Citizen Participation Plan describes how information about the project will be disseminated to the Community during the remedial process. As part of its obligations under the NYC BCP, Broadway Housing Development Fund Company, Inc. will maintain a repository for project documents and provide public notice at specified times throughout the remedial program. This Plan also takes into account potential environmental justice concerns in the community that surrounds the project Site. Under this Citizen Participation Plan, project documents and work plans are made available to the public in a timely manner. Public comment on work plans is strongly encouraged during public comment periods. Work plans are not approved by the NYC Office of Environmental Remediation (OER) until public comment periods have expired and all comments are formally reviewed. An explanation of cleanup plans in the form of a public meeting or informational session is available upon request to OER's project manager assigned to this Site, Maurizio Bertini at 212-788-3922, who can be contacted about these issues or any others questions, comments or concerns that arise during the remedial process at (212) 788-8841

Project Contact List. OER has established a Site Contact List for this project to provide public notices in the form of fact sheets to interested members of the Community. Communications will include updates on important information relating to the progress of the cleanup program at the Site as well as to request public comments on the cleanup plan. The Project Contact List includes owners and occupants of adjacent buildings and homes, principal administrators of nearby schools, hospitals and day care centers, the public water supplier that serves the area, established document repositories, the representative Community Board, City Council members, other elected representatives and any local Brownfield Opportunity Area (BOA) grantee organizations. Any member of the public or organization will be added to the Site Contact List on request. A copy of the Site Contact List is maintained by OER's project

manager. If you would like to be added to the Project Contact List, contact NYC OER at (212) 788-8841 or by email at brownfields@cityhall.nyc.gov.

Repositories. A document repository is maintained in the nearest public library that maintains evening and weekend hours. This document repository is intended to house, for community review, all principal documents generated during the cleanup program including Remedial Investigation plans and reports, Remedial Action work plans and reports, and all public notices and fact sheets produced during the lifetime of the remedial project. Broadway Housing Development Fund Company, Inc.will inspect the repositories to ensure that they are fully populated with project information. The repository for this project is:

Hamilton Grange Library

503 West 145th Street

New York, NY 10031-5101

212-926-2147

Hours of Operation:

Monday – 11am – 7pm; Tuesday – 11am – 6pm; Wednesday – 11am – 7pm; Thursday – 11am – 6pm; Friday – 10am – 5pm; Saturday – 10am – 5pm; Sunday – Closed

Digital Documentation. NYC OER strongly encourages the use of digital documents in repositories as a means of minimizing paper use while also increasing convenience in access and ease of use.

Public Notice and Public Comment. Public notice to all members of the Project Contact List is required at three major steps during the performance of the cleanup program (listed below) and at other points that may be required by OER. Notices will include Fact Sheets with descriptive project summaries, updates on recent and upcoming project activities, repository information, and important phone and email contact information. All notices will be prepared by Broadway Housing Development Fund Company, Inc., reviewed and approved by OER prior to distribution and mailed by Broadway Housing Development Fund Company, Inc.. Public comment is solicited in public notices for all work plans developed under the NYC Brownfield

Cleanup Program. Final review of all work plans by OER will consider all public comments. Approval will not be granted until the public comment period has been completed.

Citizen Participation Milestones. Public notice and public comment activities occur at several steps during a typical NYC BCP project. See flow chart on the following page, which identifies when during the NYC BCP public notices are issued: These steps include:

- **Public Notice of the availability of the Remedial Investigation Report and Remedial Action Work Plan and a 30-day public comment period on the Remedial Action Work Plan.**

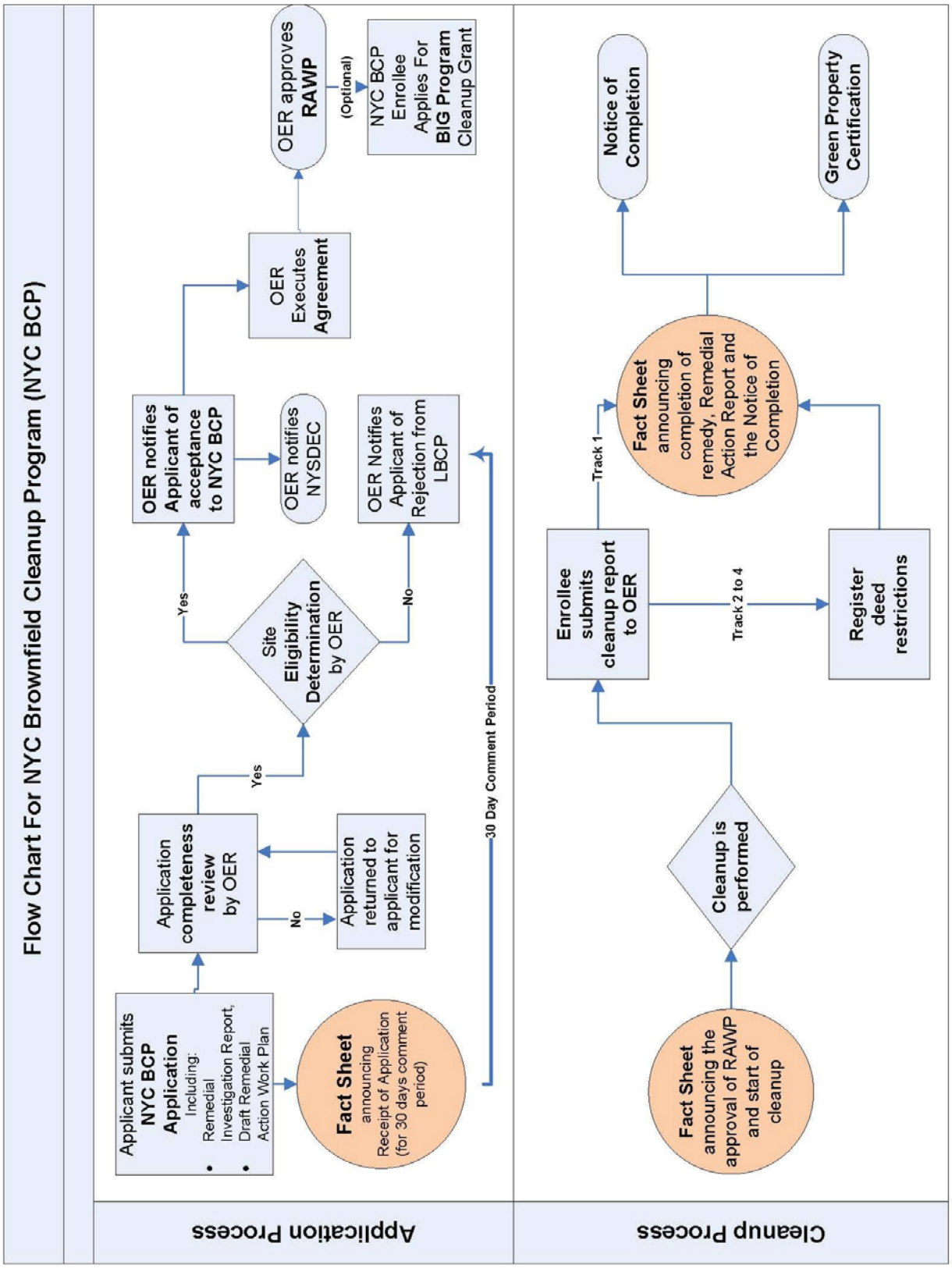
  Public notice in the form of a Fact Sheet is sent to all parties listed on the Site Contact List announcing the availability of the Remedial Investigation Report and Remedial Action Work Plan and the initiation of a 30-day public comment period on the Remedial Action Work Plan. The Fact Sheet summarizes the findings of the RIR and provides details of the RAWP. The public comment period will be extended an additional 15 days upon public request. A public meeting or informational session will be conducted by OER upon request.

- **Public Notice announcing the approval of the RAWP and the start of remediation**

  Public notice in the form of a Fact Sheet is sent to all parties listed on the Site Contact List announcing the approval of the RAWP and the start of remediation.

- **Public Notice announcing the completion of remediation, designation of Institutional and Engineering Controls and issuance of the Notice of Completion**

Public notice in the form of a Fact Sheet is sent to all parties listed on the Site Contact List announcing the completion of remediation, providing a list of all Institutional and Engineering Controls implemented for to the Site and announcing the issuance of the Notice of Completion.


Flow Chart For NYC Brownfield Cleanup Program (NYC BCP)
Application Process
Applicant submits NYC BCP Application
Including:
• Remedial Investigation Report,
• Draft Remedial Action Work Plan
Fact Sheet announcing Receipt of Application (for 30 days comment period)
Application completeness review by OER
No
Application returned to applicant for modification
Yes
Site Eligibility Determination by OER
Yes
OER notifies Applicant of acceptance to NYC BCP
OER notifies NYSDEC
OER Executes Agreement
OER approves RAWP
(Optional)
NYC BCP Enrollee Applies For BIG Program Cleanup Grant
No
OER Notifies Applicant of Rejection from LBCP
30 Day Comment Period
Cleanup Process
Fact Sheet announcing the approval of RAWP and start of cleanup
Cleanup is performed
Enrollee submits cleanup report to OER
Track 1
Track 2 to 4
Register deed restrictions
Fact Sheet announcing completion of remedy, Remedial Action Report and the Notice of Completion
Notice of Completion
Green Property Certification

APPENDIX 2

SUSTAINABILITY STATEMENT

This Sustainability Statement documents sustainable activities and green remediation efforts planned under this remedial action.

Reuse of Clean, Recyclable Materials. Reuse of clean, locally-derived recyclable materials reduces consumption of non-renewable virgin resources and can provide energy savings and greenhouse gas reduction.

An estimate of the quantity (in tons) of clean, non-virgin materials (reported by type of material) reused under this plan will be quantified and reported in the RAR.

Reduce Consumption of Virgin and Non-Renewable Resources. Reduced consumption of virgin and non-renewable resources lowers the overall environmental impact of the project on the region by conserving these resources.

An estimate of the quantity (in tons) of virgin and non-renewable resources, the use of which will be avoided under this plan, will be quantified and reported in the RAR.

Reduced Energy Consumption and Promotion of Greater Energy Efficiency. Reduced energy consumption lowers greenhouse gas emissions, improves local air quality, lessens in-city power generation requirements, can lower traffic congestion, and provides substantial cost savings.

Best efforts will be made to quantify energy efficiencies achieved during the remediation and will be reported in the Remedial Action Report (RAR). Where energy savings cannot be easily quantified, a gross indicator of the amount of energy saved or the means by which energy savings was achieved will be reported.

Conversion to Clean Fuels. Use of clean fuel improves NYC's air quality by reducing harmful emissions.

An estimate of the volume of clean fuels used during remedial activities will be quantified and reported in the RAR.

Recontamination Control. Recontamination after cleanup and redevelopment is completed undermines the value of work performed, may result in a property that is less protective of public health or the environment, and may necessitate additional cleanup work later or impede future redevelopment. Recontamination can arise from future releases that occur within the property or by influx of contamination from off-Site.

An estimate of the area of the Site that utilizes recontamination controls under this plan will be reported in the RAR in square feet.

Storm-water Retention. Storm-water retention improves water quality by lowering the rate of combined storm-water and sewer discharges to NYC's sewage treatment plants during periods of precipitation, and reduces the volume of untreated influent to local surface waters.

An estimate of the enhanced storm-water retention capability of the redevelopment project will be included in the RAR.

Linkage with Green Building. Green buildings provide a multitude of benefits to the city across a broad range of areas, such as reduction of energy consumption, conservation of resources, and reduction in toxic materials use.

The number of Green Buildings that are associated with this brownfield redevelopment property will be reported in the RAR. The total square footage of green building space created as a function of this brownfield redevelopment will be quantified for residential, commercial and industrial/manufacturing uses.

Paperless Brownfield Cleanup Program. Broadway Housing Development Fund, Inc. is participating in OER's Paperless Brownfield Cleanup Program. Under this program, submission of electronic documents will replace submission of hard copies for the review of project documents, communications and milestone reports.

Low-Energy Project Management Program. Broadway Housing Development Fund, Inc. is participating in OER's low-energy project management program. Under this program, whenever possible, meetings are held using remote communication technologies, such as videoconferencing and teleconferencing to reduce energy consumption and traffic congestion associated with personal transportation.

Trees and Plantings. Trees and other plantings provide habitat and add to NYC's environmental quality in a wide variety of ways. Native plant species and native habitat provide optimal support to local fauna, promote local biodiversity, and require less maintenance.

An estimate of the land area that will be vegetated, including the number of trees planted or preserved, will be reported in square feet in the RAR.

APPENDIX 3

SOIL/MATERIALS MANAGEMENT PLAN

1.1 SOIL SCREENING METHODS

Visual, olfactory and PID soil screening and assessment will be performed under the supervision of a Qualified Environmental Professional and will be reported in the RAR. Soil screening will be performed during invasive work performed during the remedy and development phases prior to issuance of the Notice of Completion.

1.2 STOCKPILE METHODS

Excavated soil from suspected areas of contamination (e.g., hot spots, USTs, drains, etc.) will be stockpiled separately and will be segregated from clean soil and construction materials. Stockpiles will be used only when necessary and will be removed as soon as practicable. While stockpiles are in place, they will be inspected daily, and before and after every storm event. Results of inspections will be recorded in a logbook and maintained at the Site and available for inspection by OER. Excavated soils will be stockpiled on, at minimum, double layers of 8-mil minimum sheeting, will be kept covered at all times with appropriately anchored plastic tarps, and will be routinely inspected. Broken or ripped tarps will be promptly replaced.

All stockpile activities will be compliant with applicable laws and regulations. Soil stockpile areas will be appropriately graded to control run-off in accordance with applicable laws and regulations. Stockpiles of excavated soils and other materials shall be located at least of 50 feet from the property boundaries, where possible. Hay bales or equivalent will surround soil stockpiles except for areas where access by equipment is required. Silt fencing and hay bales will be used as needed near catch basins, surface waters and other discharge points.

1.3 CHARACTERIZATION OF EXCAVATED MATERIALS

Soil/fill or other excavated media that is transported off-Site for disposal will be sampled in a manner required by the receiving facility, and in compliance with applicable laws and regulations. Soils proposed for reuse on-Site will be managed as defined in this plan.

1.4 MATERIALS EXCAVATION, LOAD-OUT AND DEPARTURE

The PE/QEP overseeing the remedial action will:

- oversee remedial work and the excavation and load-out of excavated material;
- ensure that there is a party responsible for the safe execution of invasive and other work performed under this work plan;
- ensure that Site development activities and development-related grading cuts will not interfere with, or otherwise impair or compromise the remedial activities proposed in this RAWP;
- ensure that the presence of utilities and easements on the Site has been investigated and that any identified risks from work proposed under this plan are properly addressed by appropriate parties;
- ensure that all loaded outbound trucks are inspected and cleaned if necessary before leaving the Site;
- ensure that all egress points for truck and equipment transport from the Site will be kept clean of Site-derived materials during Site remediation.

Locations where vehicles exit the Site shall be inspected daily for evidence of soil tracking off premises. Cleaning of the adjacent streets will be performed as needed to maintain a clean condition with respect to Site-derived materials.

Open and uncontrolled mechanical processing of historical fill and contaminated soil on-Site will not be performed without prior OER approval.

1.5 OFF-SITE MATERIALS TRANSPORT

Loaded vehicles leaving the Site will comply with all applicable materials transportation requirements (including appropriate covering, manifests, and placards) in accordance with applicable laws and regulations, including use of licensed haulers in accordance with 6 NYCRR Part 364. If loads contain wet material capable of causing leakage from trucks, truck liners will be used. Queuing of trucks will be performed on-Site, when possible in order to minimize off Site disturbance. Off-Site queuing will be minimized.

Outbound truck transport routes are as shown in the directions included as Appendix 9. This routing takes into account the following factors: (a) limiting transport through residential areas and past sensitive sites; (b) use of mapped truck routes; (c) minimizing off-Site queuing of trucks entering the facility; (d) limiting total distance to major highways; (e) promoting safety in access to highways; and (f) overall safety in transport. To the extent possible, all trucks loaded with Site materials will travel from the Site using these truck routes. Trucks will not stop or idle in the neighborhood after leaving the project Site.

1.6 MATERIALS DISPOSAL OFF-SITE

The following documentation will be established and reported by the PE/QEP for each disposal destination used in this project to document that the disposal of regulated material exported from the Site conforms with applicable laws and regulations: (1) a letter from the PE/QEP or Enrollee to each disposal facility describing the material to be disposed and requesting written acceptance of the material. This letter will state that material to be disposed is regulated material generated at an environmental remediation Site in Manhattan, New York under a governmental remediation program. The letter will provide the project identity and the name and phone number of the PE/QEP or Enrollee. The letter will include as an attachment a summary of all chemical data for the material being transported; and (2) a letter from each disposal facility stating it is in receipt of the correspondence (1, above) and is approved to accept the material. These documents will be included in the RAR.

The Remedial Action Report will include an itemized account of the destination of all material removed from the Site during this remedial action. Documentation associated with disposal of all material will include records and approvals for receipt of the material. This information will be presented in the RAR.

All impacted soil/fill or other waste excavated and removed from the Site will be managed as regulated material and will be disposed in accordance with applicable laws and regulations. Historic fill and contaminated soils taken off-Site will be handled as solid waste and will not be disposed at a Part 360-16 Registration Facility (also known as a Soil Recycling Facility).

Waste characterization will be performed for off-Site disposal in a manner required by the receiving facility and in conformance with its applicable permits. Waste characterization

sampling and analytical methods, sampling frequency, analytical results and QA/QC will be reported in the RAR. A manifest system for off-Site transportation of exported materials will be employed. Manifest information will be reported in the RAR. Hazardous wastes derived from on-Site will be stored, transported, and disposed of in compliance with applicable laws and regulations.

1.8 DEMARCATION

Demarcation will not be required due to attainment of Track 1 SCOs.

1.9 IMPORT OF BACKFILL SOIL FROM OFF-SITE SOURCES

This Section presents the requirements for imported fill materials to be used on the site, if any. All imported soils will meet OER-approved backfill and cover soil quality objectives for this Site. The backfill and cover soil quality objectives are listed in Table 1.

A process will be established to evaluate sources of backfill and cover soil to be imported to the Site, and will include an examination of source location, current and historical use(s), and any applicable documentation. Material from industrial sites, spill sites, environmental remediation sites or other potentially contaminated sites will not be imported to the Site.

The following potential sources may be used pending attainment of backfill and cover soil quality objectives:

- Clean soil from construction projects at non-industrial sites in compliance with applicable laws and regulations;
- Clean soil from roadway or other transportation-related projects in compliance with applicable laws and regulations;
- Clean recycled concrete aggregate (RCA) from facilities permitted or registered by the regulations of NYS DEC.

All materials received for import to the Site will be approved by a PE/QEP and will be in compliance with provisions in this RAWP. The RAR will report the source of the fill, evidence

that an inspection was performed on the source, chemical sampling results, frequency of testing, and a Site map indicating the locations where backfill or soil cover was placed.

Source Screening and Testing

Inspection of imported fill material will include visual, olfactory and PID screening for evidence of contamination. Materials imported to the Site will be subject to inspection, as follows:

- Trucks with imported fill material will be in compliance with applicable laws and regulations and will enter the Site at designated locations;
- The PE/QEP is responsible to ensure that every truck load of imported material is inspected for evidence of contamination; and
- Fill material will be free of solid waste including pavement materials, debris, stumps, roots, and other organic matter, as well as ashes, oil, perishables or foreign matter.

Composite samples of imported material will be taken at a minimum frequency of one sample for every 500 cubic yards of material. Once it is determined that the fill material meets imported backfill or cover soil chemical requirements and is non-hazardous, and lacks petroleum contamination, the material will be loaded onto trucks for delivery to the Site.

Recycled concrete aggregate (RCA) will be imported from facilities permitted or registered by NYSDEC. Facilities will be identified in the RAR. A PE/QEP is responsible to ensure that the facility is compliant with 6NYCRR Part 360 registration and permitting requirements for the period of acquisition of RCA. RCA imported from compliant facilities will not require additional testing, unless required by NYSDEC under its terms for operation of the facility. RCA imported to the Site must be derived from recognizable and uncontaminated concrete. RCA material is not acceptable for, and will not be used as cover material.

1.10 FLUIDS MANAGEMENT

All liquids to be removed from the Site, including dewatering fluids, will be handled, transported and disposed in accordance with applicable laws and regulations. Liquids discharged into the New York City sewer system will receive prior approval by New York City Department

of Environmental Protection (NYC DEP). The NYC DEP regulates discharges to the New York City sewers under Title 15, Rules of the City of New York Chapter 19. Discharge to the New York City sewer system will require an authorization and sampling data demonstrating that the groundwater meets the City's discharge criteria. The dewatering fluid will be pretreated as necessary to meet the NYC DEP discharge criteria. If discharge to the City sewer system is not appropriate, the dewatering fluids will be managed by transportation and disposal at an off-Site treatment facility.

Discharge of water generated during remedial construction to surface waters (i.e. a stream or river) is prohibited without a SPDES permit issued by New York State Department of Environmental Conservation.

1.11 STORM-WATER POLLUTION PREVENTION

Applicable laws and regulations pertaining to storm-water pollution prevention will be addressed during the remedial program. Erosion and sediment control measures identified in this RAWP (silt fences and barriers, and hay bale checks) will be installed around the entire perimeter of the remedial construction area and inspected once a week and after every storm event to ensure that they are operating appropriately. Discharge locations will be inspected to determine whether erosion control measures are effective in preventing significant impacts to receptors. Results of inspections will be recorded in a logbook and maintained at the Site and available for inspection by OER. All necessary repairs shall be made immediately. Accumulated sediments will be removed as required to keep the barrier and hay bale check functional. Undercutting or erosion of the silt fence toe anchor will be repaired immediately with appropriate backfill materials. Manufacturer's recommendations will be followed for replacing silt fencing damaged due to weathering.

1.12 CONTINGENCY PLAN

This contingency plan is developed for the remedial construction to address the discovery of unknown structures or contaminated media during excavation. Identification of unknown contamination source areas during invasive Site work will be promptly communicated to OER's Project Manager. Petroleum spills will be reported to the NYS DEC Spill Hotline. These findings

will be included in the daily report. If previously unidentified contaminant sources are found during on-Site remedial excavation or development-related excavation, sampling will be performed on contaminated source material and surrounding soils and reported to OER. Chemical analytical testing will be performed for TAL metals, TCL volatiles and semi-volatiles, TCL pesticides and PCBs, as appropriate.

1.13 ODOR, DUST AND NUISANCE CONTROL

Odor Control

All necessary means will be employed to prevent on- and off-Site odor nuisances. At a minimum, procedures will include: (a) limiting the area of open excavations; (b) shrouding open excavations with tarps and other covers; and (c) use of foams to cover exposed odorous soils. If odors develop and cannot otherwise be controlled, additional means to eliminate odor nuisances will include: (d) direct load-out of soils to trucks for off-Site disposal; and (e) use of chemical odorants in spray or misting systems.

This odor control plan is capable of controlling emissions of nuisance odors. If nuisance odors are identified, work will be halted and the source of odors will be identified and corrected. Work will not resume until all nuisance odors have been abated. OER will be notified of all odor complaint events. Implementation of all odor controls, including halt of work, will be the responsibility of the PE/QEP's certifying the Remedial Action Report.

Dust Control

Dust management during invasive on-Site work will include, at a minimum:

- Use of a dedicated water spray methodology for roads, excavation areas and stockpiles.
- Use of properly anchored tarps to cover stockpiles.
- Exercise extra care during dry and high-wind periods.
- Use of gravel or recycled concrete aggregate on egress and other roadways to provide a clean and dust-free road surface.

This dust control plan is capable of controlling emissions of dust. If nuisance dust emissions are identified, work will be halted and the source of dusts will be identified and corrected. Work will not resume until all nuisance dust emissions have been abated. OER will be notified of all dust complaint events. Implementation of all dust controls, including halt of work, will be the responsibility of the PE/QEP's responsible for certifying the Remedial Action Report.

Other Nuisances

Noise control will be exercised during the remedial program. All remedial work will conform, at a minimum, to NYC noise control standards.

Rodent control will be provided, during Site clearing and grubbing, and during the remedial program, as necessary, to prevent nuisances.

APPENDIX 4

HEALTH AND SAFETY PLAN

CONSTRUCTION HEALTH AND SAFETY PLAN

Sugar Hill
414 West 155th Street
New York, NY 10032
DEP Tracking #10DCP031M / 10DEPTECH074M

Prepared By:
ATC Associates Inc.
104 East 25th Street, 10th Floor
New York, New York 10010

Prepared For:
Ms. Mary Ann Villari
Broadway Housing Development Fund Company, Inc.
583 Riverside Drive, 7th Floor
New York, NY 10031

ATC ASSOCIATES, INC.
CONSTRUCTION HEALTH AND SAFETY PLAN (CHASP)
REVIEW AND APPROVAL

CLIENT: Broadway Housing Development Fund Company, Inc.

PROJECT NUMBER: 015.26789.0003

SITE NAME/LOCATION: Sugar Hill
414 West 155th Street
New York, NY 10032

PROJECT DESCRIPTION: Excavation and Pre-construction Activities for the Proposed Development of the Property

PREPARED BY: Matthew Mankovich
TITLE: Senior Project Manager

Senior Project Manager	Signature	Date
Matthew Mankovich		May 13, 2011
Reviewer's Name	**Signature**	**Date**
Michael G. Donovan, CIH		May 13, 2011

This Health and Safety Plan (Plan) has been written for the use of ATC Associates Inc. (ATC) and its employees. It may also be used as a guidance document by properly trained and experienced ATC subcontractors. However, ATC does not guarantee the health or safety of any person entering this Site.

Due to the potential hazardous nature of this Site and the activity occurring thereon, it is not possible to discover, evaluate, and provide protection for all possible hazards which may be encountered. Strict adherence to the health and safety guidelines set forth herein will reduce, but not eliminate, the potential for injury at this Site. The health and safety guidelines in this Plan were prepared specifically for this Site and should not be used on any other Site without prior research by trained health and safety specialists.

ATC claims no responsibility for use of this Plan by others. The Plan is written for the specific Site conditions, purposes, dates, and personnel specified and must be amended if these conditions change.

TABLE OF CONTENTS

TABLE OF CONTENTS

EMERGENCY INFORMATION

Site Emergencies Call:

Ambulance	**911**
Fire:	**911**
Police:	**911**
Nationwide Call Before You Dig	**811**
COMP-CARE (24 hour First-Aid)	**(800) 756-1130**
Poison Control Center:	**(800) 222-1222**
National Response Center:	**(800) 424-8802**

Spills:	**NYSDEC**	**800-457-7362**
	State Health Department	
	Environmental Health	**800-458-1158**

Hospital (212) 927-0112
New York Presbyterian Hospital
61 Haven Avenue, New York, NY 10032-2720

1. Head northwest on W 155th St toward St Nicholas Ave – 0.3 mile
2. Take the 3rd right onto Broadway – 0.8 mile
3. Turn left at W 171st St – 0.2 mile
4. Turn left at Haven Ave and Arrive at New York Presbyterian Hospital

Approximate distance: 1.4 mile
Approximate travel time: 4 minutes

EMERGENCY ASSEMBLY LOCATION: Parking lot along St. Nicholas Avenue adjacent to P.S. 28.

FIRST-AID MEASURES

The following contaminants may be present in the soil and/or groundwater at the site: Petroleum and non-petroleum related VOCs, SVOCs; metals; PCBs; and pesticides.

The following procedures will be used:

Eye Contact: Flush eye immediately with copious amount of water for a minimum of 15 minutes. Repeat until irritation is eliminated and seek medical attention.

Skin Contact: Wash exposed area with soap and water for at least 15 minutes. If dermatitis or severe reddening occurs, seek medical attention.

Inhalation: Move the person into fresh air. If symptoms persist, seek medical attention.

Ingestion: Do not induce vomiting. Seek immediate medical attention.

Important Numbers:

Client Contact: ……	Mary Ann Villair	212-568-2030
State Utility Locate Service: ……...	Dig Safely New York	800-962-7962
Site Utility Repair Contractor: ……	Consolidated Edison	800-752-6633
ATC Lifelines: ……	CompCare	800-756-1133

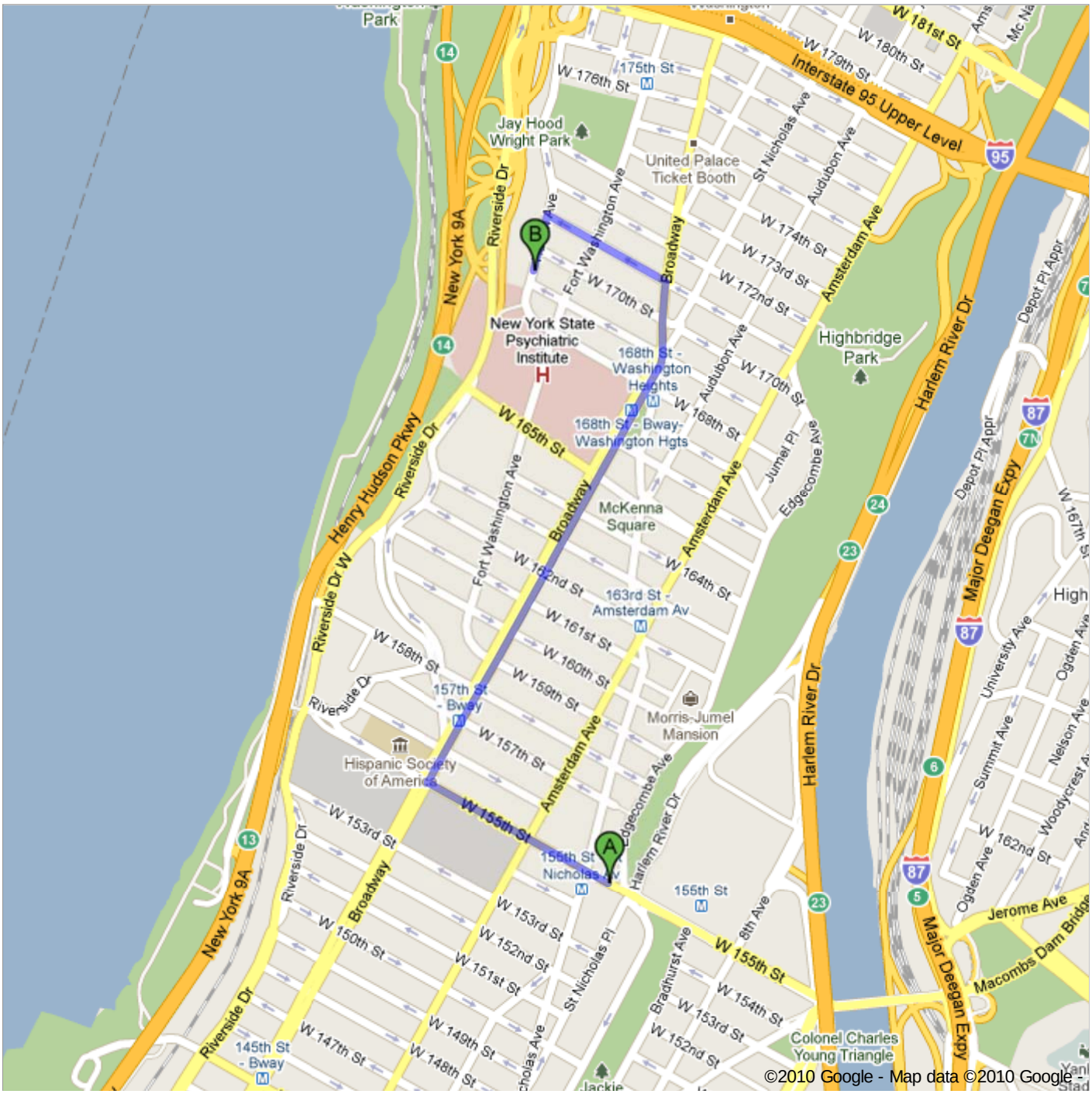
NOTE: For additional emergencies/important contacts, refer to the ATC Lifelines Card.

EMERGENCY MEDICAL ROUTE TO HOSPITAL

Google maps

Directions to 61 Haven Ave, New York, NY 10032
1.4 mi – about **4 mins**

Save trees. Go green!
Download Google Maps on your phone at **google.com/gmm**



414 W 155th St, New York, NY 10032

1.	Head **northwest** on **W 155th St** toward **St Nicholas Ave** About 1 min	go 0.3 mi total 0.3 mi
2.	Take the 3rd **right** onto **Broadway** About 2 mins	go 0.8 mi total 1.1 mi
3.	Turn **left** at **W 171st St** About 1 min	go 0.2 mi total 1.3 mi
4.	Turn **left** at **Haven Ave**	go 440 ft total 1.4 mi

61 Haven Ave, New York, NY 10032

These directions are for planning purposes only. You may find that construction projects, traffic, weather, or other events may cause conditions to differ from the map results, and you should plan your route accordingly. You must obey all signs or notices regarding your route.

Map data ©2010 Google

Directions weren't right? Please find your route on maps.google.com and click "Report a problem" at the bottom left.

1.0 - INTRODUCTION

1.1 Scope and Applicability of the Site Health and Safety Plan

This Construction Health and Safety Plan (CHASP) has been prepared by ATC Associates, Inc. (ATC) for the activities associated with the excavation and on-site handling of the material to be removed as part of the proposed construction at 414 West 155th Street, New York, NY (hereinafter referred to as the "Site).

The health and safety protocols established in this Plan are based on the ATC Employee Health and Safety Policy Manual, the Occupational Safety and Health Administration (OSHA) Regulations, past field experiences, specific Site conditions, and chemical hazards known or anticipated to be present from available Site data. The following Site Construction Health and Safety Plan (CHASP) are intended solely for use during the proposed activities described in the project documents and technical specifications. Specifications here in are subject to review and revision based on actual conditions encountered in the field during Site characterization activities. Such changes may be instituted by using the CHASP List of Approved Amendments and/or Changes (see Appendix C).

Before Site operations begin, all employees, including subcontractors for ATC covered by this plan, involved in these operations will have read and understood this CHASP and all revisions. All Site personnel have the authority to "Stop Work" if unsafe conditions are present or discovered during Site activities. Before work begins, all affected workers will sign the Construction Heath and Safety Plan Acknowledgment Form (see Appendix C). By signing this form, all individuals recognize the requirements of the CHASP, known or suspected hazards, and will adhere to the protocols required for the project Site.

1.2 Historical Overview

The Site is developed with a two-story building with a cellar that is utilized as a parking garage. The Site consists of an approximately 21,685 square feet lot. The Site building encompasses approximately 65,070 square feet, and based on the review of historical records, the Site building was constructed in 1929.

ATC performed a subsurface investigation in November 2010 and included the advancement of six soil borings, a geophysical survey, the collection of eight soil samples, and the preparation of a Phase II Environmental Site Investigation (ESI) report. Shallow bedrock was encountered in each of the six (6) soil borings. The soil samples were collected as follows: one (1) soil sample (consisting of one (1) grab sample and one (1) composite sample) was collected from Borings SB-01, SB-04, SB-05, and SB-06 where bedrock was encountered from 1 to 2 feet bgs and two (2) soil samples (each consisting of one (1) grab sample and one (1) composite sample) were collected from SB-02 and SB-03 where bedrock was encountered at 5.5 and 9 feet bgs, respectively. In addition, since groundwater was not encountered.
.
The Phase II ESI identified the following:

1. The subsurface soils consist of brown coarse to fine sand with trace gravel, underlain by rock fragments. Weathered bedrock (schist) was encountered at depths ranging from one (1) foot below ground surface (bgs) in the western portion of the basement to nine (9) feet bgs in the southeastern portion of the basement. A prior geotechnical investigation (Tectonic, May 2010) reported fill material from ground surface to approximately 7.5 feet bgs consisting of sand with varying gradations and amounts of silt and gravel and minor amounts of debris including brick and concrete. The Tectonic geotechnical investigation reported bedrock ranging in depth from 2 feet bgs in the western portion of the basement to 14.5 feet bgs in the southeastern portion of the basement.
2. Groundwater was not encountered in any of the borings advanced during the ATC Phase II

investigation. The Tectonic geotechnical investigation reported groundwater at 3.5 feet bgs in the northwestern portion of the basement and 5.2 feet bgs in the southeastern portion of the basement.

3. The geophysical survey found no evidence to suggest the presence of USTs in the areas of the Site investigated.
4. Semi-volatile organic compounds (SVOCs) were detected at concentrations exceeding the New York State Department of Environmental Conservation (NYSDEC) Technical and Administrative Guidance Memorandum #4046 (TAGM) Recommended Soil Cleanup Objectives (RSCOs), the NYSDEC Subpart 375-6: Remedial Program Unrestricted Use Soil Cleanup Objectives (SCOs) and Restricted Use-Protection of Public Health-Residential (Restricted-Residential) SCOs. The presence of SVOCs may be reflective of fill material.
5. Metals were detected at concentrations exceeding the TAGM RSCOs, Unrestricted Use SCOs, and/or Eastern USA Soil Background Levels. Their presence is attributed to natural (background) levels.
6. VOCs were not detected above applicable cleanup standards. PCBs and pesticides were not detected in the soil samples collected.

1.3 Visitors

All visitors to the Site must be instructed about the hazards of the activities that ATC or its subcontractors are performing. All visitors must sign the ATC Visitors Log (see Appendix C).

2.0 - PROJECT ORGANIZATION

All personnel and visitors who may enter work areas on this Site must comply with the requirements of this CHASP. All Site personnel have the authority to "Stop Work" if unsafe conditions are present. The specific responsibilities and authority of management, safety and health, and other personnel on this Site are detailed in the following sections.

2.1 Site Safety and Health Officer (SSHO)

The Site Safety and Health Officer (SSHO) have the responsibility and authority to develop and implement this CHASP and to verify compliance. The SSHO reports to the Project Manager; both must be designated prior to commencement of work. The SSHO is on-site during all work operations and has the responsibility to halt Site work if unsafe conditions are detected. The responsibilities of the SSHO at the Site include the following:

- Managing the health and safety functions on the Site;
- Ensuring Site monitoring, worker training, and effective selection and use of PPE;
- Conducting daily Tailgate Safety Meetings for Site personnel and subcontractors and summarize the training on the Tailgate Meeting Form (see Appendix C). The following topics should be covered during safety meetings:
  - Hazard Communication (i.e., MSDS location, and container labeling, chemical hazards of non-routine tasks)
  - Determine applicability of Standard Operating Procedures (SOP) in Section 8 and communicate procedures
  - Review Site safety requirements
  - Give refresher training on heat or cold stress (Section 5.2 and 5.3) when appropriate
  - Review Site emergency procedures
  - Discuss location and use of a rig kill switch for drilling/boring operations
- Conducting daily safety inspections of the Site looking for unsafe acts or conditions and providing corrective action as appropriate.

2.2 Site Supervisor

The Site Supervisor is responsible for field operations and reports to the Project Manager. The Site Supervisor is the On-site Coordinator and overseer of operations; both must be designated prior to commencement of work. It is the Site Supervisor's duty to maintain Site security, supervise the personnel on the Site, coordinate the activities of the subcontractor personnel, and check that the CHASP is followed and modified when necessary. The Site Supervisor's specific responsibilities include:

- Executing the work plan and schedule as detailed by the Project Manger
- Coordination with the SSHO on health and safety issues
- Ensuring Site work compliance with the requirements of the CHASP
- Before Site activities, contact the hospital emergency room, local fire department, and local police department, as applicable. If outside town, contact county officials and local emergency services.

2.3 Project Manager (PM)

The Project Manager (PM) has the primary responsibility for the fulfillment of the terms of the contract and overseeing operations for the purpose that includes meeting legal and safety requirements. It is the PM's responsibility to keep the project on schedule, within budget, and communicate with the Client regarding the progress toward specified goals.

The PM will inform the Regional Safety Coordinator of all CHASP modifications, violations, injuries, exposures, and near-miss situations. The PM responsibilities include:

- Provide personnel time to read and understand the Site Construction Health and Safety Plan (CHASP) before fieldwork.
- Conduct project start-up health and safety briefing for: Field personnel, the Site Supervisor, the project team.
- Check that each subcontractor is pre-approved and that each subcontractor's Site workers have appropriate HAZWOPER Training Certificates.
- Check that Site personnel, if required, have received Respiratory Protection Training, Fit testing, and physician's approval to wear a respirator.
- That hazards identified during any Site audits are corrected. If necessary for immediate hazards, shut down field operations if hazards can not be corrected or the hazards present an immediate threat to life and health.

2.4 Regional Safety Coordinator (RSC)

The Regional Safety Coordinator (RSC) is responsible for providing professional health and safety advice and oversight management to the project. The RSC will review and provide support for concerns regarding the health and safety of field personnel assigned to this project, including:

- If requested by the Project Manager, approval of Routine CHASP;,
- Approval of all Non-Routine CHASP;
- Review of incident reports, inspections, and air monitoring results;
- When required, the RSC will conduct a field audit of the Site to evaluate the adequacy of the program and implement the necessary changes through the CHASP.

2.5 Project Field Team

The Project Team includes technicians, engineers, scientists, geologists, and possibly subcontractors who perform field activities. Each individual team member will be responsible for understanding and personally complying with the CHASP and Site health and safety requirements. Project Team members will report health and safety violations to either the Site Supervisor or the SSHO. Health and safety responsibilities, as discussed in this Plan, which are shared by all Site personnel include:

- Complying with the requirements of the CHASP.
- Reporting unsafe acts or conditions
- Retain copies at the Site of the following health and safety records:
  - Current HAZWOPER Training Certificate.
  - Respiratory Protection Training Certificate and current fit test record for potential respirator users.
  - Physician's approval for hazardous-waste fieldwork and/or respirator use.
  - First-aid/CPR and blood borne pathogens training certificate.

3.0 – TASK/OPERATION HEALTH AND SAFETY RISK ANALYSIS SUMMARY

This chapter of the CHASP describes the safety and health hazards associated with the Site work and control measures selected to protect workers. The purpose of the Job Safety Analysis (JSA) is to identify the routine safety and health hazards associated with the routine Site tasks and operations. Using this information, appropriate control methods are selected to eliminate the identified risks or effectively control them.

3.1 Job Safety Analysis (JSA)

Each specific JSA appears on a separate copy of the spreadsheets in Appendix A. A single JSA may be used for a task/operation performed in multiple locations if the hazards, potential exposures, and controls are the same at each location.

3.2 Health Analysis and Chemical Risk Assessment

The principal chemical contaminants that may be present, based on the results of the Phase II ESI, include, but are not limited to, VOCs, SVOCs, metals, PCBs, and pesticides. Appendix B contains information from the National Institute for Occupational Safety and Health (NIOSH) Pocket Guide to Chemical Hazards about each of these chemicals. Additionally, the Hazard Communication Program (Policy No. 21) requires ATC to provide employees, contractors, subcontractors, and visitors with information on the health effects of these chemicals and necessary actions to protect against exposure. This information is transmitted through Material Safety Data Sheets (MSDS), the NIOSH Pocket Guide, container labels, training, and a written Hazard Communication program.

Site activities will adhere to the ATC Hazard Communication Program as described in the Policy. All Site personnel, including subcontractors, will be briefed on this Program as part of the Site orientation training before starting work. In accordance with this Program, the PM and Site Supervisor will check that each chemical brought to the Site is accompanied by its MSDS. A copy of each MSDS will be made available to each Site employee who may be potentially exposed to the chemical. In addition, the Site Supervisor will check that all subcontractors bring at least one copy of MSDS for each chemical they bring onto the Site. The Site Supervisor will also check that all chemical containers brought to the Site to determine if they are labeled as to its contents and appropriate hazard warnings.

3.3 Noise Hazards and Controls

Exposure to high levels of noise may occur when working near heavy equipment. Also, depending upon where the work is being performed, local equipment (e.g., airports, factory machines, etc.) may produce high levels of noise. Employees exposed to noise levels in excess of the action level of 85 decibels (A-weighted, Slow Response) will be included into the ATC Policy on Hearing Conservation (Policy No. 34). The SSHO may evaluate employee noise exposures using a Noise Survey Meter or a Noise Dosimeter. The RSC may conduct additional noise monitoring to determine the appropriate response to be taken. Employees will be provided with ear plugs and/or earmuffs when exposed to noise levels in excess of the 8-hour Permissible Exposure Limit (PEL) of 90 decibel (A-weighted, Slow Response). This hearing protection shall have a Noise Reduction Rating (NRR) to protect hearing in accordance with Policy No. 34, including the NRR de-rating factor of [(NRR-7)/2].

3.4 Biological Hazards

Site activities on this Site may expose workers to other hazards such as poisonous plants, insects, animals, and indigenous pathogens. Protective clothing and respiratory protection equipment, and being capable of identifying poisonous plants, animals, and insects, can greatly reduce the chances of exposure. Thoroughly washing any exposed body parts, clothing, and equipment will also protect against infections. If working in wooded/grassy areas, use appropriate insect repellants (containing DEET and/or Permethrin) and apply them per the manufacturers' directions.

4.0 - AIR MONITORING AND PERSONAL PROTECTIVE EQUIPMENT

4.1 Site Air Monitoring Requirements

To prevent exposure to hazardous conditions and aid in the selection of personal protective equipment, monitoring for the presence of airborne contaminants will occur when knowledge of the Site indicates their potential presence. One or more of the following direct-reading instruments may be used to aid in this determination. Photoionization Detectors (PID) and Flame Ionization Detectors (FID) measures non-specific organic gases and vapors. Combustible Gas Indicators (CGI) will detect explosive atmospheres. Oxygen (O_2) meters will detect fluctuations in oxygen concentrations. These instruments should be calibrated or bump tested daily and whenever the readings may be erratic. All readings should be recorded in the field log books.

Colorimetric detector tubes supplement PID and/or FID readings to measure specific gases and vapors. Other direct-reading instruments are available for use to monitor for the presence of specific airborne Site contaminants.

The breathing zone of the employee(s) anticipated to have the highest potential for exposure for each task will be monitored using an appropriate combination of some or all of these direct-reading instruments. Air monitoring should occur every 15 minutes during non-intrusive activities, or every 5 feet of penetration during intrusive activities. Site tasks and air monitoring requirements are shown in Table 4-1. Additional Site monitoring may occur at the discretion of the SSHO, Site Supervisor, or RSC.

NOTE: All air monitoring equipment must be calibrated as per manufacturer's instructions.

Table 4-1
Site Air Monitoring Requirements

Site Activity	Instrument	Frequency	Location	Caution
Soil Excavation	PID	Every 15 minutes (during the periodic site visits)	In breathing zone of person nearest activity	Communicate with equipment operator before sampling (if sampling is deemed necessary)

Air monitoring will be performed during the periodic Site visits. Air monitoring results obtained from the breathing zone during field activities will be recorded in field logbooks and the Air Quality Monitoring Record (see Appendix C). All such records will also include the location, date/time, weather conditions, person monitored, background concentration, and identification of specific contaminant whenever possible. Air monitoring information will be utilized to evaluate personnel exposure and assess the appropriateness of PPE for Site conditions. The PPE for the Site are discussed in Section 4.2. Photoionization detector (PID) readings measured in the employees breathing zone will be used to determine the level of protection required. PID readings refer to readings above background, which are sustained for at least 5 minutes and are measured during the performance of field tasks. PID readings are used for general screening.

4.2 Action Levels for Personal Protection Equipment

The first and foremost means of protecting employees from injuries or exposures is to eliminate the exposure. The general hierarchy for controlling potential exposures is: (1) Engineering Controls; (2) Administrative Controls; and (3) the use of PPE. PPE is a means of preventing injury or exposure when exposure elimination and/or other control means are not feasible.

The initial level of protection and the Action Levels at which the PPE will be upgraded are determined based on the identification of specific chemicals expected to be present at a Site and the established OSHA Permissible Exposure Levels (PEL) or ACGIH Threshold Limit Values (TLVs), whichever is lower. In the event more than one chemical is expected or exists at a Site, the most hazardous chemical will dictate the level of personal protection required. Table 4-2 shows the action levels for levels of personal protection equipment.

Table 4-2
Action Levels for Personal Protection Equipment

Monitoring Equipment	Hazard	Action Level Above Background	Action
PID/FID	Organic gas/vapor	< 10 ppm	Level D.
		10 to 50 ppm	Level C. Move upwind and continue air monitoring, cease operations, or use detector tube(s) for (contaminant) and reference Table 4-3 below.
		> 50 ppm	Immediate Withdrawal. Contact the PM and RSC for further instructions to proceed.

Detector tubes to be used are indicated for given ranges based upon the PID readings (Table 4-2). As appropriate, PID readings in conjunction with detector tubes will be utilized during the field activity and location anticipated having the highest level of contamination. This location will be selected by the Site Supervisor. If these measurements indicate exposure levels appropriate for Level D work, the use of detector tubes will be limited to situations where field conditions or activities have changed. Detector tubes will be available for use at the discretion of the Site Supervisor and the SSHO.

Any upgrading to higher levels of protection may require additional personal sampling using National Institute for Occupational Safety and Health (NIOSH) or Occupational Safety and Health Administration (OSHA) methods for the collection and analysis of airborne contaminants.

Air monitoring equipment used on the Site should be calibrated with the following:

Calibration/Response Check

Types	Frequency	Gas Standard
PID	Daily	100 ppm isobutylene in air

Field personnel, in conjunction with the Site Supervisor and SSHO, may choose to allow ventilation of vapors before resuming work (rather than using higher levels of PPE). If ventilation is conducted, additional air monitoring will be performed prior to the resumption of work to determine the level of PPE required.

4.3 Levels of Protection

Levels of protection for Site activities are described on the Site Air Monitoring Summary. The protection levels may include all or some of the following, based on work scope.

Level D:

- Work uniform – Long pants and shirt with sleeves (no tank tops) – refer to Policy No. 25 Personal Protective Equipment (Section 5.5)
- Disposable, inner nitrile gloves
- Chemical-resistant boots with steel toe
- Safety glasses with side shields
- High Visibility Reflective Vest Class 1, Class 2, or Class 3 (select based on Traffic speed)
- Hard hat
- Disposable, chemical-resistant outer boot covers*
- Hearing protection*
- Apply sun-block to any/all exposed skin when working outdoors

LEVEL C:

- Half-face or full-face, air purifying respirator (NIOSH approved)
- Disposable, hooded, chemical-resistant clothing
- Disposable, chemical-resistant outer gloves
- Disposable, inner nitrile gloves
- Chemical-resistant boots with steel toe
- Disposable boot covers
- Hard hat
- Safety Glasses with side shields
- High Visibility Reflective Vest Class 1, Class 2, or Class 3 (select based on Traffic speed)
- Coveralls*
- Hearing protection*

(* Optional Equipment, depending on conditions/exposures)

4.4 Respiratory Protection

Respiratory protection requirements are described in detail in the ATC Respiratory Protection Program. Basic rules of respiratory usage are listed below:

- Facial hair that interferes with a satisfactory fit of the mask-to-face seal is not allowed on personnel required to wear respirators.
- Respirator cartridges should be replaced after approximately 8-hours of continuous or intermittent usage, unless otherwise noted. Cartridges should also be replaced if they become damaged, after the expiration date is exceeded, if vapor smell breakthrough occurs, or if filters become clogged causing resistance to breathing.
- Contact lenses may be worn when respiratory protection is required, in conjunction with additional eye protection to protect against particles or splashes, provided there is no interference with the respirator seal.
- Respirators shall be cleaned and disinfected after each day's use or more often, if necessary.
- Prior to donning, respirators will be inspected for worn or deteriorated parts. Emergency respirators or self-contained devices will be inspected at least once a month and after each use.
- After donning, personnel should perform a positive and negative user fit-check to determine if a good seal has been achieved.
- Each employee shall make sure that they have an annual respirator fit test and respiratory protection training.

5.0 - HEALTH SURVEILLANCE PROGRAM

5.1 Employee Medical Examinations

All ATC employees involved in work at the Site will participate in ATC's Medical Surveillance Program administered by Health Resources. Additionally, when respirators are required (as determined by the SSHO and project manager), each employee will also have current respirator clearance.

A post project, follow-up exam may be required if an exposure incident is reported or an employee shows specific symptoms associated with the known or suspected hazardous chemicals. The RSC and the Project Manager will determine when post project exams are required.

5.2 Heat Stress Program

This procedure applies to all employees when heat stress conditions exist at project sites.

5.2.1 Training

The SSHO will have received acceptable training in first-aid and Cardiopulmonary Resuscitation (CPR), including training in heat-related illnesses. The SSHO shall also be trained on the requirements of the ATC Policy for Industrial Hygiene (Policy No. 23), which contains the requirement for Heat Stress monitoring. All workers should be capable of recognizing and treating the signs and symptoms of heat stress conditions. During potential heat stress conditions, ice should be readily available to rapidly cool victims.

5.2.2 Fluid Replacement

Water will be made available at the Site for employee fluid replacement. When heat stress is determined to be a problem by the SSHO, employees will be provided with balanced, electrolyte solutions to replace fluid and electrolyte loss. Employees will be provided with replacement fluids at a minimum rate of 8 ounces every 15 to 20 minutes per person.

5.2.3 Acclimatization

Acclimatization is a gradual physiological adaptation that improves an individual's ability to tolerate heat stress. Full-heat acclimatization requires up to 3 weeks of continued physical activity under heat-stress conditions similar to those anticipated for the work. Its loss begins when the work activity in the heat stress conditions is discontinued. A noticeable loss usually occurs within 3 – 4 days.

5.2.4 Rest Breaks

When heat stress conditions are applicable, all rest breaks should be taken out of the zone of exclusion into a cooler, shaded, rest area. If these conditions are not available, more frequent rest breaks will be taken.

5.2.5 Heat Stress Monitoring

Heat Stress and heat strain are conditions resulting from environmental factors including temperature, relative humidity, radiant heat transfer, and air movement, as they are affected by clothing. The primary objective of the heat stress management program is to prevent heat stroke which is life threatening and the most serious of the heat-induced disabilities. Extra caution should be taken for workers who are not acclimated to working in the heat.

The following Heat Stress Index (refer to ATC Policy No. 23) should be used as a guide to evaluate heat stress situations. If the Heat Stress exceeds 105° F, contact the RSC prior to work for detailed guidance.

Heat Stress Index

Temp. °F	Relative Humidity 10%	20%	30%	40%	50%	60%	70%	80%	90%
105	98	104	110	120	132				
102	97	101	108	117	125				
100	95	99	105	110	120	132			
98	93	97	101	106	110	125			
96	91	95	98	104	108	120	128		
94	89	93	95	100	105	111	122		
92	87	90	92	96	100	106	114	122	
90	85	88	90	92	96	100	106	114	122
88	82	86	87	89	93	95	100	106	115
86	80	84	85	87	90	92	96	100	109
84	78	81	83	85	86	89	91	95	99
82	77	79	80	81	84	86	89	91	95
80	75	77	78	79	81	83	85	86	89
78	72	75	77	78	79	80	81	83	85
76	70	72	75	76	77	77	77	78	79
74	68	70	73	74	75	75	75	76	77

NOTES: Add 10° F when protective clothing is being used; Add 10° F when in direct sunlight

HSI Temp	Category	Injury Threat
Above 130° F	Extreme Danger	No work unless emergency exists. Contact ATC RSC and Corporate Risk Management Department prior to proceeding. Heat cramps or exhaustion likely, heat stroke possible if exposure is prolonged and there is physical activity.
105° to 130° F	Danger	Contact RSC prior to proceeding. Requires strict adherence to ACGIH Heat Stress Guidelines, including use of on-site WBGT equipment. Heat cramps or exhaustion likely, heat stroke possible if exposure is prolonged and there is physical activity.
90° to 105° F	Extreme Caution	Heat cramps or exhaustion likely, heat stroke possible if exposure is prolonged and there is physical activity.
80° to 90° F	Caution	Heat cramps or exhaustion likely, heat stroke possible if exposure is prolonged and there is physical activity.
Below 80° F	Normal Range	Typical conditions for time of year. Little or no danger under normal circumstances. As always, anticipate problems and work safely.

5.3 Cold Stress Program

This procedure applies to all employees who perform field work in cold environments at risk of cold stress injury and intended to protect workers from the most severe effects of cold stress.

5.3.1 Training

ATC Site employees have been trained in cold stress as part of their HAZWOPER 40-hour initial training. Site workers will receive refresher training by the SSHO in cold stress safety and health procedures. The training program will include, as a minimum, instruction in the following areas:

- Proper first-aid treatment
- Proper clothing practices
- Proper eating and drinking habits
- Recognition of impending frostbite
- Recognition of the signs and symptoms of impending hypothermia or excessive cooling of the body when shivering does not occur
- Safe working practices

The SSHO will be trained in first-aid, CPR, and cold stress conditions.

5.3.2 Environmental Monitoring

Frostbite and hypothermia are two types of cold injury that personnel must be protected against during the performance of field duties. The objective is to prevent the deep body temperature from falling below 96.8° F and to prevent cold injury to body extremities. Two factors influence the development of a cold injury the ambient temperature, and wind velocity.

The SSHO will monitor environmental conditions by recording ambient temperature and estimated wind-speed. Information contained in Tables 5-1 and 5-2 will be used to evaluate the possibility of hypothermia among workers on-site.

5.3.3 Protective Clothing and Rest Breaks

Use appropriate cold weather clothing when temperatures are at or below 40°F as exposed skin surfaces must be protected. These protective items can include facemask, hand wear, and foot wear. Workers handling evaporative solvents during cold stress conditions will take special precautions to avoid soaking gloves and clothing because of the added danger of prolonged skin contact and evaporative cooling. Personnel will wear protective clothing appropriate for the level of cold and planned physical activity. The objective is to protect all parts of the body, with emphasis on the hands and feet. Eye protection against glare and ultraviolet light should be worn in snowy and icy conditions.

The work rate should not be so great as to cause heavy sweating that could result in wet clothing. If heavy work must be done, opportunities for rest breaks will be provided where workers have the opportunity to change into dry clothing. Conversely, plan work activities to minimize time spent sitting or standing still. Rest breaks should be taken in a warm, dry area. Windbreaks can also be used to shield the work area from the cooling effects of wind.

5.3.4 Identification and Treatment of Cold Stress

When frostbite, hypothermia, or other cold stress symptoms are suspected, treat the patient to relieve symptoms or transport them to the medical facility identified on page TC-4.

TABLE 5-1
Threshold Limit Values Work/Warm-up Schedule
for Four-Hour Shift*

Air-Temperature--Sunny Sky		No Noticeable Wind		5 mph Wind		10 mph Wind		15 mph Wind		20 mph Wind	
°C (approx.)	°F (approx.)	Max. Work Period	No. of Breaks	Max. Work Period	No. of Breaks	Max. Work Period	No. of Breaks	Max. Work Period	No. of Breaks	Max. Work Period	No. of Breaks
-26° to -28°	-15° to -19°	(Norm. Breaks) 1		(Norm. Breaks) 1		75 min	2	55 min	3	40 min	4
-29° to -31°	-20° to -24°	(Norm. Breaks) 1		75 min	2	55 min	3	40 min	4	30 min	5
-32° to -34°	-25° to -29°	75 min	2	55 min	3	40 min	4	30 min	5	Non-emergency work should cease	
-35° to -37°	-30° to -34°	55 min	3	40 min	4	30 min	5	Non-emergency work should cease		Non-emergency work should cease	
-38° to -39°	-35° to -39°	40 min	4	30 min	5	Non-emergency work should cease		Non-emergency work should cease		Non-emergency work should cease	
-40° to -42°	-40° to -44°	30 min	5	Non-emergency work should cease		Non-emergency work should cease		Non-emergency work should cease		Non-emergency work should cease	
-43° & below	-45° & below	Non-emergency work should cease		Non-emergency work should cease		Non-emergency work should cease		Non-emergency work should cease		Non-emergency work should cease	

*1. Schedule applies to any 4-hour work period with moderate to heavy work activity, with warm-up periods of ten. (10) Minutes in a warm location and with an extended break (e.g., lunch) at the end of the 4-hour work period in a warm location. For Light-to-Moderate Work (limited physical movement): apply the schedule on step lower. For example, at -35°C (-30°F) with no noticeable wind (Step 4), a worker at a job with little physical movement should have a maximum work period of 40 minutes with 4 breaks in a 4-hour period (Step 5).

2. The following is suggested as a guide for estimating wind velocity if accurate information is not available: 5 mph: light flag moves; 10 mph: light flag fully extended: 15 mph: raises a newspaper sheet: 20 mph: blowing and drifting snow.

3. If only the wind chill cooling rate is available, a rough rule of thumb for applying it rather than the temperature and wind velocity factors given above would be 1) special warm-up breaks should be initiated at a wind chill cooling rate of about 1750 watts per square meter (W/m^2); 2) all non-emergency work should have ceased at or before a wind chill of 2250 W/m^2. In general, the warm-up schedule provided above slightly under-compensates for the wind at the warmer temperatures, assuming acclimatization and clothing appropriate for winter work. On the other hand, the chart slightly overcompensates for the actual temperatures in the cooler ranges because windy conditions rarely prevail at extremely low temperatures.

4. TLVs apply only for workers in dry clothing.

* Adapted from Occupational Health & Safety Division, Saskatchewan Department of Labor.

TABLE 5-2
Cooling Power of Wind on Exposed Flesh Expressed as Equivalent Temperature (under calm conditions)*

Estimated Wind Speed (mph)	Actual Temperature Reading (degrees F)											
	50	40	30	20	10	0	-10	-20	-30	-40	-50	-60
	Equivalent chill Temperature (degrees F)											
calm	50	40	30	20	10	0	-10	-20	-30	-40	-50	-60
5	48	37	27	16	6	-5	-15	-26	-36	-47	-57	-68
10	40	28	16	4	-9	-24	-33	-46	-58	-70	-83	-95
15	36	22	9	-5	-18	-32	-45	-58	-72	-85	-99	-112
20	32	18	4	-10	-25	-39	-53	-67	-82	-96	-110	-121
25	30	16	0	-15	-29	-44	-59	-74	-88	-104	-118	-133
30	28	13	-2	-18	-33	-48	-63	-79	-94	-109	-125	-140
35	27	11	-4	-20	-35	-51	-67	-82	-98	-113	-129	-145
40	26	10	-6	-21	-37	-53	-69	-85	-100	-116	-132	-148
(Wind speeds > 40 mph have little additional effect)	LITTLE DANGER If < hr with dry skin. Maximum danger of false sense of security				INCREASING DANGER Danger from freezing of exposed flesh within one minute.			GREAT DANGER Flesh may freeze within 30 seconds.				
	Trench foot and immersion foot may occur at any point on this chart.											

* Developed by U.S. Army Research Institute of Environmental Medicine, Natick, MA

6.0 - SITE SECURITY AND CONTROL

6.1 Work Zones

Restricted Site areas will include, but not necessarily be limited to, the following zones:

- **Exclusion Zone or Hot Zone -** any area where contamination is either known or likely to be present in concentrations that could pose a threat to human health and safety or that potential for harm to personnel exists because of the type of work activities being conducted. Appropriate PPE and warning signs should be utilized in this area.
- **Contamination Reduction Zone -** any area where workers conduct personal and equipment decontamination.
- **Support Zone -** areas where access is controlled, but the chance to encounter hazardous materials or conditions are minimal.

Access to the work zones will be controlled by work zone delineators (e.g. traffic cones, flags, vehicles, DOT approved devices, temporary or permanent fencing, and/or safety barrier tape). Figure 6-1 is an example of a work zone. Additionally ATC employees should follow the requirements of the Employee Health and Safety Policy Manual, Policy No. 36, Work Zones in Traffic Areas for additional information.

In the event on-site personnel must upgrade their personal protective equipment, the work zones may require substantial modification in order to provide for the safety of nearby personnel not associated with this work. Any upgrade level will be communicated by the Site Supervisor to the PM. The PM will then inform the RSC of this occurrence.

Work Zone	Level of Protection	Required Protective Equipment (specify Exact type, e.g. nitrile gloves)	
Exclusion Zone	_____	Respirator:	Yes
		Filters/Cartridges:	Organic – N/A
		Boots:	Yes
		Inner Gloves:	Nitrile
		Outer Gloves:	Nitrile
		Protective Coverall:	Tyvek
		Hard Hat:	Yes
		Eye Protection:	Yes
		Other:	Reflective Vests, Hearing Protection where needed

Contamination Reduction Zone		Respirator:	
		Filters/Cartridges:	
		Boots:	Yes
		Inner Gloves:	
		Outer Gloves:	
		Protective Coverall:	
		Hard Hat:	Yes
		Eye Protection:	Yes
		Other:	

Exceptions and Modifications:

6.2 Buddy System

The Buddy System will be used at all times by field personnel in the Exclusion Zones. The Buddy System means that personnel work in pairs and stay in close visual contact to be able to observe one another and summon rapid assistance in case of emergency. No one is to perform fieldwork without the approval of the Branch Safety Officer and/or the Regional Safety Officer.

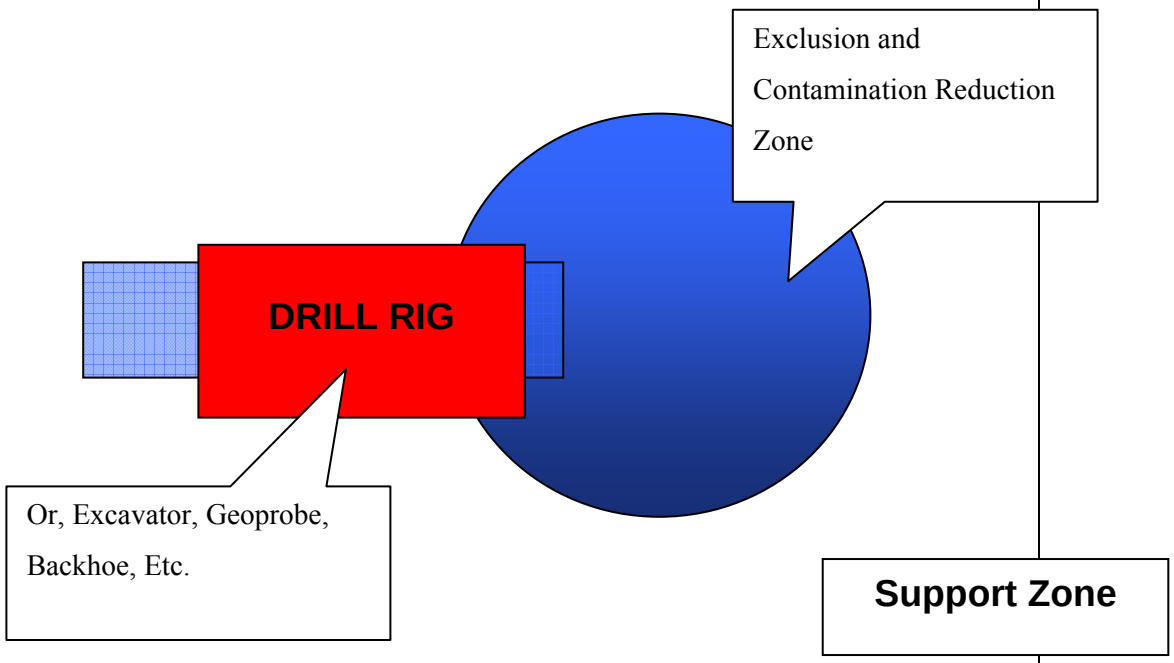
6.3 Site Communication

A loud and clear form of communication should be made available for Site personnel entering the work zones. Site communication may be in the form of hand signals, voice, or other communication devices. All forms of communication should be understood by all workers on the Site prior to starting work.

6.4 Roadway Work Zones

When ATC employee and subcontractors are required to perform Site operation in a city street or public right-of-way, a Traffic Control Plan may be required and included with this CHASP. Check with the State or local government Department of Transportation for when a traffic control plan is required. Traffic Control Plans will include Transition Areas, Activity Areas, and Termination Areas.

FIGURE 6-1
TYPICAL EXCLUSION ZONE



7.0 - DECONTAMINATION PROCEDURES

7.1 Personnel Decontamination

All personnel must complete appropriate decontamination procedures in a way that is responsive to actual Site conditions before leaving the Site. The decontamination of personnel and equipment will be performed within the exclusion and contamination reduction zones. Wash tubs containing an appropriate decon solution and soft bristle brushes will be used to decontaminate personal protective clothing and boots. Deionized water will be used for the final rinse. The SSHO will visually inspect all PPE and other equipment once decontamination procedures are completed. In general, the four types of decontamination solutions to be considered for PPE include:

- Water for removal of low-molecular weight hydrocarbons, inorganic compounds, salts, some organic acids, and other polar compounds.
- Dilute acids (vinegar) for removal of basic (caustic) compounds, amines, and hydrazine's.
- Dilute bases (soaps and detergents) for removal of acidic compounds, phenols, thiols, and some nitro and sulfonic compounds.
- Organic solvents for removal of nonpolar compounds (organic).

LEVEL D/LEVEL C

- Establish a segregated equipment drop
- Remove disposable, outer boot covers, if applicable
- Remove chemical resistant, outer gloves, if applicable
- Remove hard hat and goggles, safety glasses, or face shield
- Remove disposable, inner gloves
- Remove full-face air purifying respirator (Level C only)

Each individual will be responsible for inspecting and decontaminating their own respirator in accordance with the ATC Respiratory Protection Program (Policy No. 27).

At a minimum the hands and face of each employee must be thoroughly washed upon leaving the work area. Trash receptacles will be provided for all disposable clothing. Commercial laundries or cleaning establishments that decontaminate clothing or equipment will be informed of the potentially harmful effects of exposure.

Decontamination Solution: Soap and water, fresh rinse

STATION #1: Wash hands, dispose of outer gloves and coveralls

Equipment Required: Wash basin

STATION #2: NA

Equipment Required: NA

STATION #3: NA

Equipment Required: NA

STATION #4: NA

Equipment Required: NA

7.2 Equipment Decontamination

The subcontractor will decontaminate field equipment according to the work plan. This may include manual removal of gross contamination with shovels or other tools, followed by a high-pressure, hot water sprayer. Because decontamination at the high-pressure, hot water station poses the possibility of a splash and/or mist inhalation hazard, the task should be performed using Level D personal protective equipment at a minimum.

Field tool including split-barrel soil samplers, brass liners, and sample knives and trowels will be decontaminated. The field tools may be scrubbed visually clean using a detergent solution (Alconox/Liquinox) with water and a stiff, long-bristled scrub brush. Following the solution scrubbing, the tools may be rinsed with distilled water or isopropyl alcohol.

Equipment Decontamination

Gross Removal By:

X	Hand Scrubbing
	Cold High Pressure Wash
	Hot High Pressure Wash
	Steam Cleaning
	Other (specify)
	Clean Rinse
X	Decon solution (specify) ALCONOX

7.3 Disposition of Decontamination Wastes

All materials and equipment used for decontamination should be disposed of in accordance with local, State, and/or Federal Regulations. Clothing, tools, buckets, brushes, and all other equipment that is contaminated must be properly packaged and stored on the Site until disposal arrangements are finalized. Clothing not completely decontaminated on-site should be secured in plastic bags before being removed from the Site.

Decontamination Waste Water

Collection (specify how): Wash basin

Direct Discharge (specify how and where): 55-gallon drum

Pre-Treatment (specify): None

Disposal (specify how and where): Contractor

8.0 - STANDARD OPERATING PROCEDURES

The following Standard Operating Procedures (SOPs) will be applied to each location and activity where work is performed on a hazardous chemical site. As hazards increase or decrease on the Site, the applicability of each SOP must be determined by the SSHO with the approval of any changes by the Project Manager or the RSC.

8.1 Personnel Precautions

1. Eating, drinking, chewing gum or tobacco, smoking, and any practice that increases the probability of hand-to-mouth transfer and ingestion of material is prohibited in the exclusion and contamination reduction zone or in any area known to be contaminated.

2. When decontamination procedures for outer garments are in effect, the entire body should be thoroughly washed as soon as possible after the protective garment is removed.

3. Contact with contaminated or suspected contaminated surfaces should be avoided. When possible, do not walk through puddles, leachate, or discolored surfaces; kneel on the ground; or lean, sit, or place equipment on drums, containers, or the ground.

4. Medicines and alcohol can increase the effects from exposure to toxic chemicals. Personnel should not take prescribed drugs at hazardous waste operations where the potential for absorption, inhalation, or ingestion of toxic substances exists unless specifically approved by a qualified physician. Alcoholic beverage intake should be minimized or avoided.

5. All personnel must be familiar with Standard Operating Procedures and any additional instructions and information contained in this CHASP. All visitors and subcontractors will read the CHASP before entering the Site.

6. All personnel will be aware of symptoms for heat or cold stress.

7. All personnel will be familiar with the chemicals used on-site and the associated hazards as described in each respective MSDS. The MSDS for the chemicals on-site will be available and located in the company vehicle.

8.2 Operations

1. All personnel going to the Site must be adequately trained and thoroughly briefed on anticipated hazards, equipment, safety practices, emergency procedures, and communications.

2. Personnel on the Site must use the Buddy System when engaged in Level C work as specified in ATC Policy No. 35 (Hazwoper). The purpose of the Buddy System is to provide rapid assistance to employees in the event of an emergency.

3. Visual contact must be maintained between pairs of Site and safety personnel. Entry team members should remain close to assist each other during emergencies.

4. Personnel should practice unfamiliar operations before the actual procedure.

5. Entrance and exit locations must be designated, and emergency escape routes delineated. Warning signals for Site evacuation must be established by the SSHO before field activities.

6. Communications using radios, hand signals, or other means, must be maintained between initial entry members at all times. Emergency communications should be prearranged in case of radio failure, the necessity for evacuating the Site, or other reasons.

7. Wind indicators visible to all personnel should be strategically located throughout the Site.

8. Personnel and equipment in the contaminated area should be minimized, consistent with effective Site operations.

9. Work areas for various operational activities will be established.

10. Procedures for leaving a contaminated area will be planned and implemented before going to the Site. Work areas and decontamination procedures will be established based on expected Site conditions.

11. Frequent and regular inspections of Site operations will be conducted by the SSHO to check compliance with this CHASP. If changes in operation occur, the CHASP must be modified to reflect these changes.

12. All electrical equipment (power tools, extension cords, instruments, radios, etc.) will conform with ATC Policy No. 12 (Electrical) The SSHO will ensure that electrical equipment is free from recognized hazards that may cause physical harm to employees.

13. Fire prevention and protection (appropriate signs for flammable liquids, smoking areas, storage areas of combustible or flammable materials, etc.) will be according to ATC Policy No. 18, Fire Protection.

14. Site Tailgate Safety Meetings will be held daily to discuss anticipated Site conditions and daily activities. This meeting will be summarized in field logbooks and the Tailgate Safety Meeting Form (see Appendix C).

9.0 - CONTINGENCY PLAN

This chapter of the CHASP describes potential emergencies at this Site and the procedures for responding to those emergencies.

9.1 Medical Emergencies

1. The name, address, telephone number, travel distance, and travel time to the nearest medical treatment facility are found in the Emergency Information section (see Page TC-4) of this CHASP. A map and direction for locating the facility is available in the Emergency Information section (see Page TC-6) of this CHASP.

2. Emergency routes will be verified and driven before any Site activities. It may be quicker to transport a person with minor injuries than to wait for Emergency Medical Services (EMS) to respond. Check with the local authorities for response times. Life threatening emergency situations will only be handled by emergency medical services.

3. Before mobilization on-site, the Site Supervisor will contact the local hospital emergency room personnel, local fire department, and local police department to brief them regarding the scope and hazards associated with the scheduled fieldwork. If the Site is outside an established town, contact will be made with county officials and local emergency services.

4. An emergency first-aid kit with contents per ATC Policy No. 20 (First-Aid) will be readily available (if corrosive materials are present) on the Site, and personnel will have first-aid training. The first-aid kit also contains equipment necessary to protect first-aid providers against exposure to blood borne pathogens. All first-aid providers will have received Blood borne Pathogens training and can receive Hepatitis B vaccinations according to the ATC Policy No. 09 (Blood borne Pathogens) if exposed to bodily fluids.

5. Any person who becomes ill or injured in the exclusion zone must be decontaminated as well as possible with consideration to which risk will be greater, the spread of contamination or the health of the individual. If the injury or illness is minor, full decontamination (remove contaminated clothing and wash hands and face with soap and water, See Section 7.0) should be completed and first-aid administered before transport. If the patient's condition is serious, at least partial decontamination should be completed (i.e., complete disrobing of the victim and redressing in clean coveralls or wrapping in a blanket). First-aid should be administered while awaiting an ambulance or paramedics.

6. The following steps should be followed if an injury or illness case occurs:

   - Check the Scene.
   - If safe to do so, check the condition of the injured.
   - Call 911 if the victim is unconscious or your training dictates to do so.
   - Care for the injured. Always use “Universal Precautions”.
   - Call COMP-CARE (800) 756-1130, if the injury is non-life threatening. COMP-CARE will assist you with the location of the nearest clinic, if referral is needed.

7. Provisions must be made to identify the substance to which the worker has been exposed. This information must be given to medical personnel.

9.2 Emergency Equipment

1. A personal eyewash unit that meets ANSI Z358.1-1998, Section 6 will be available in each ATC field vehicle at the Site if corrosive chemicals (chemicals with a pH of <3 or >11) will be on-site.

2. An emergency first-aid kit with contents as per ATC Policy No. 20 (First-Aid). The Site Supervisor shall be trained and certified in first-aid and CPR.

3. An emergency spill cleanup kit will be available at the Site at all times. Unplanned releases will be reported to the SSHO and/or Site Supervisor as soon as possible.

4. Sufficient water and/or multipurpose dry chemical (Class A, B, and C) fire extinguishers, rated not less than 2A:10B: C will be maintained on the Site to cope with any situation until emergency services arrive.

9.3 Flammable Conditions

In the event that combustible vapors exceed 10 percent of the LEL or strong odors are detected in the borehole, the following actions should be taken:

- Continue investigation using extreme caution. Personal protective equipment may need to be upgraded.
- Allow vapors to dissipate or use intrinsically-safe mechanical ventilation.
- If atmospheric conditions do not change, call in the listed sequence:
  - Project Manager
  - Regional Safety Coordinator
  - Fire Department
- Provide answering personnel with the call back numbers, locations, directions, and situation assessment.

9.4 Site Evacuation Conditions

The following conditions will necessitate the cessation of field work in the area of concern, withdrawal from the work area, and revisions to this CHASP:

- Fires and/or explosions
- Unexploded ordnance is detected
- A major incident or injury occurs
- Flammable atmosphere readings above 10 percent LEL
- Oxygen readings above 23.5 percent oxygen concentration
- Oxygen readings at or below 19.5 percent oxygen concentration
- PID readings over 50 ppm sustained for more than 5 minutes

9.5 Emergency Communication System

Emergency contacts and telephone numbers are provided at the beginning of this CHASP. Field crews will have some communication device at each active work location. These may include radios, mobile telephones, or walkie-talkies. Such communication devices will have sufficient range to contact the field office and/or emergency services. If an emergency occurs on-site, the Site Supervisor is responsible for checking that appropriate emergency contact has been notified. At the time of the emergency response, the Site Supervisor or designee will brief the emergency personnel on the status of the emergency, including Site conditions.

Field personnel will use hand signals if there are noisy working conditions on the Site. The hand signals that will be used are shown below and will be reviewed by the SSHO during the on-site safety briefing.

Signal	**Meaning**
Hands on top of head	Need assistance
Grip partner′s wrist or place both hands around partner′s arm	Leave area immediately
Thumbs up	OK; I am all right
Thumbs down	No; Negative
Hand gripping throat	Cannot breathe; Out of air

9.6 Emergency Response Follow-Up

If there is an incident, near-miss, or emergency response, the SSHO will notify the Project Manager and Regional Safety Coordinator. The Project Manager or the Branch Safety Officer will complete a Supervisor's Investigation Report (SIR) (Policy No. 51; Appendix 51-1) and submit to the appropriate Regional distribution list. Prior to resuming work, a Site safety meeting should be held to discuss the circumstances surrounding the incident and what should be done to prevent a re-occurrence.

10.0 - EMPLOYEE TRAINING

10.1 Pre-Assignment and Annual Refresher Training

All ATC Employees and Subcontractors will participate in routine health and safety education and training programs. These programs are designed to provide employees with a thorough knowledge of hazardous materials, health and safety hazard potential, and Federal Occupational Safety and Health Administration (OSHA) requirements published in 29 Code of Federal Regulations (CFR) Part 1910. According to 29 CFR 1910.120(e), Site employees will have received 40 hours of initial Hazardous Waste Operations & Emergency Response (HAZWOPER) instruction and 24 hours of supervised field experience. Attending an annual 8-hour HAZWOPER refresher training session maintains this initial training. It is the responsibility of the Project Manager and each subcontractor's supervising manager to determine if the subcontractor staff meets these training requirements.

10.2 Site Supervisor's Training

On-site Managers and Supervisors on hazardous waste sites who are directly responsible for or who supervise workers engaged in hazardous wastes operations receive, in addition to the initial 40 HAZWOPER training, 8 additional hours of specialized supervisory training in compliance with the OSHA regulations. This training includes training on the employer's safety and health program and the associated employee training program, personal protective equipment program, spill containment program, and health hazards monitoring procedure and techniques.

10.3 Site Safety Training and Briefing Topics

The SSHO will conduct Site-specific health and safety briefing for field personnel before the start of all field work. Briefing attendees will include the Site Supervisor, the Project Team, and Subcontractor personnel. At the conclusion of the meeting, personnel are to sign the CHASP Agreement and Acknowledgement Form in the Appendices. As additional people are assigned to the Site, it is the responsibility of the SHSO to ensure that new personnel are briefed on health and safety protocols and ensure that they have reviewed and signed the CHASP Agreement and Acknowledgement Form. Items to be covered include:

- Site-specific health and safety rules
- Client-specific health and safety rules
- Health effects of various chemicals used on the Site
- Emergency response actions pertaining to operations on-Site

Additionally, daily Site Tailgate Safety Meetings will be conducted to review past activities, plan ahead for new or changed operations, to understand any near-miss and "lessons learned, establish safe working procedures for anticipated hazards, and provide pertinent safety and health training and motivation. The SSHO will complete the Tailgate Safety Meeting Form located in the Appendices.

10.4 Visitors

All visitors entering the designated work zones will be subject to all applicable health and safety requirements during field operations at the Site. All visitors to a work Site will be given the opportunity to review the CHASP, will be escorted at all times, and will be required to stay a safe distance from Site activities. The Site Supervisor and/or the SSHO will be responsible for briefing all visitors on the Site hazards, Site safety precautions, and the Site emergency response plan.

APPENDIX A
Job Safety Analysis (JSA)

Job Safety Analysis (JSA)

Date of Analysis: __12/10/2010___ JSA Conducted By: ___Matthew Mankovich_____ JSA No. _1_____

Job Title: Senior Project Manager _____ Department: _Environmental_____

Job Description: __Potential contact with impacted soil during excavation for proposed construction

Job Location: ____Sugar Hill – 414 West 155th Street, New York, NY 10032 _____

(1) Job Segments & Steps	(2) Potential Hazards	(3) Safe Procedures & Preventive Measures
Walking around construction site	• Direct Contact with soil	• Wear proper gloves, and other PPE
	• Tripping hazards	• Maintain a clear path between locations. • Limit the amount of tools or supplies that are carried so that you can still see the ground.
	• Heavy equipment	• Only approach after the spotter indicates it is safe to do so. • Wear a reflective vest • Don't assume that the operator sees you.
	• Excavation – falls and collapse	• Do not enter the excavation • Stay back at least 2 feet from the edge of the excavation.
Working near large machinery/equipment	• Being hit by equipment	• Only approach after the spotter indicates it is safe to do so. • Wear a reflective vest

APPENDIX B
Chemical Hazard Information

CHEMICAL LISTING

A

Acetaldehyde

Formula:	CAS#:	RTECS#:	IDLH:
CH_3CHO	75-07-0	AB1925000	Ca [2000 ppm]

Conversion: 1 ppm = 1.80 mg/m^3 **DOT:** 1089 129

Synonyms/Trade Names: Acetic aldehyde, Ethanal, Ethyl aldehyde

Exposure Limits:
NIOSH REL: Ca **OSHA PEL†:** TWA 200 ppm (360 mg/m^3)
See Appendix A
See Appendix C (Aldehydes)

Measurement Methods (see Table 1):
NIOSH 2018, 2538, 3507
OSHA 68

Physical Description: Colorless liquid or gas (above 69°F) with a pungent, fruity odor.

Chemical & Physical Properties:
MW: 44.1
BP: 69°F
Sol: Miscible
Fl.P: -36°F
IP: 10.22 eV
Sp.Gr: 0.79
VP: 740 mmHg
FRZ: -190°F
UEL: 60%
LEL: 4.0%
Class IA Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, acids, bases, alcohols, ammonia & amines, phenols, ketones, HCN, H_2S [**Note:** Prolonged contact with air may cause formation of peroxides that may explode and burst containers; easily undergoes polymerization.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, nose, throat; eye, skin burns; derm; conj; cough; CNS depres; delayed pulm edema; in animals: kidney, repro, terato effects; [carc]
TO: Eyes, skin, resp sys, kidneys, CNS, repro sys [in animals: nasal cancer]

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush prompt
Breath: Resp support
Swallow: Medical attention immed

Acetic acid

Formula:	CAS#:	RTECS#:	IDLH:
CH_3COOH	64-19-7	AF1225000	50 ppm

Conversion: 1 ppm = 2.46 mg/m^3 **DOT:** 2790 153 (10-80% acid); 2789 132 (>80% acid)

Synonyms/Trade Names: Acetic acid (aqueous), Ethanoic acid, Glacial acetic acid (pure compound), Methanecarboxylic acid [**Note:** Can be found in concentrations of 5-8% in vinegar.]

Exposure Limits:
NIOSH REL: TWA 10 ppm (25 mg/m^3) **OSHA PEL:** TWA 10 ppm (25 mg/m^3)
ST 15 ppm (37 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1603
OSHA ID186SG

Physical Description: Colorless liquid or crystals with a sour, vinegar-like odor. [**Note:** Pure compound is a solid below 62°F. Often used in an aqueous solution.]

Chemical & Physical Properties:
MW: 60.1
BP: 244°F
Sol: Miscible
Fl.P: 103°F
IP: 10.66 eV
Sp.Gr: 1.05
VP: 11 mmHg
FRZ: 62°F
UEL(200°F): 19.9%
LEL: 4.0%
Class II Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact (>10%)
Eyes: Prevent eye contact
Wash skin: When contam (>10%)
Remove: When wet or contam (>10%)
Change: N.R.
Provide: Eyewash (>5%)
Quick drench (>50%)

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
50 ppm: Sa:Cf£/PaprOv£/CcrFOv/GmFOv/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers (especially chromic acid, sodium peroxide & nitric acid), strong caustics [**Note:** Corrosive to metals.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Irrit eyes, skin, nose, throat; eye, skin burns; skin sens; dental erosion; black skin, hyperkeratosis; conj, lac; phar edema, chronic bron
TO: Eyes, skin, resp sys, teeth

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

Acetic anhydride	Formula: $(CH_3CO)_2O$	CAS#: 108-24-7	RTECS#: AK1925000	IDLH: 200 ppm

Conversion: 1 ppm = 4.18 mg/m^3 **DOT:** 1715 137

Synonyms/Trade Names: Acetic acid anhydride, Acetic oxide, Acetyl oxide, Ethanoic anhydride

Exposure Limits:
NIOSH REL: C 5 ppm (20 mg/m^3)
OSHA PEL†: TWA 5 ppm (20 mg/m^3)

Physical Description: Colorless liquid with a strong, pungent, vinegar-like odor.

Measurement Methods (see Table 1):
NIOSH 3506
OSHA 82, 102

Chemical & Physical Properties:
MW: 102.1
BP: 282°F
Sol: 12%
Fl.P: 120°F
IP: 10.00 eV
Sp.Gr: 1.08
VP: 4 mmHg
FRZ: -99°F
UEL: 10.3%
LEL: 2.7%
Class II Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
125 ppm: Sa:Cf£/PaprOv£
200 ppm: CcrFOv/GmFOv/PaprTOv£/ ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Water, alcohols, strong oxidizers (especially chromic acid), amines, strong caustics [**Note:** Corrosive to iron, steel & other metals. Reacts with water to form acetic acid.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Conj, lac, corn edema, opac, photo; nasal, phar irrit; cough, dysp, bron; skin burns, vesic, sens derm
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

Acetone	Formula: $(CH_3)_2CO$	CAS#: 67-64-1	RTECS#: AL3150000	IDLH: 2500 ppm [10%LEL]

Conversion: 1 ppm = 2.38 mg/m^3 **DOT:** 1090 127

Synonyms/Trade Names: Dimethyl ketone, Ketone propane, 2-Propanone

Exposure Limits:
NIOSH REL: TWA 250 ppm (590 mg/m^3)
OSHA PEL†: TWA 1000 ppm (2400 mg/m^3)

Physical Description: Colorless liquid with a fragrant, mint-like odor.

Measurement Methods (see Table 1):
NIOSH 1300, 2555, 3800
OSHA 69

Chemical & Physical Properties:
MW: 58.1
BP: 133°F
Sol: Miscible
Fl.P: 0°F
IP: 9.69 eV
Sp.Gr: 0.79
VP: 180 mmHg
FRZ: -140°F
UEL: 12.8%
LEL: 2.5%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
2500 ppm: CcrOv*/PaprOv*/GmFOv/ Sa*/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Oxidizers, acids

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, nose, throat; head, dizz, CNS depres; derm
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Acetone cyanohydrin

Formula:	CAS#:	RTECS#:	IDLH:
$CH_3C(OH)CNCH_3$	75-86-5	OD9275000	N.D.

Conversion: 1 ppm = 3.48 mg/m^3

DOT: 1541 155 (stabilized)

Synonyms/Trade Names: Cyanohydrin-2-propanone, 2-Cyano-2-propanol, α-Hydroxyisobutyronitrile, 2-Hydroxy-2-methyl-propionitrile, 2-Methyllactonitrile

Exposure Limits:
NIOSH REL: C 1 ppm (4 mg/m^3) [15-minute]
OSHA PEL: none

Measurement Methods (see Table 1):
NIOSH 2506

Physical Description: Colorless liquid with a faint odor of bitter almond. [**Note:** Forms cyanide in the body.]

Chemical & Physical Properties:
MW: 85.1
BP: 203°F
Sol: Miscible
Fl.P: 165°F
IP: ?
Sp.Gr(77°F): 0.93
VP: 0.8 mmHg
FRZ: -4°F
UEL: 12.0%
LEL: 2.2%
Class IIIA Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
10 ppm: Sa
25 ppm: Sa:Cf
50 ppm: ScbaF/SaF
250 ppm: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Sulfuric acid, caustics [**Note:** Slowly decomposes to acetone & HCN at room temperatures; rate is accelerated by an increase in pH, water content, or temperature.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, resp sys; dizz, lass, head, conf, convuls; liver, kidney inj; pulm edema, asphy
TO: Eyes, skin, resp sys, CNS, CVS, liver, kidneys, GI tract

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

Acetonitrile

Formula:	CAS#:	RTECS#:	IDLH:
CH_3CN	75-05-8	AL7700000	500 ppm

Conversion: 1 ppm = 1.68 mg/m^3

DOT: 1648 127

Synonyms/Trade Names: Cyanomethane, Ethyl nitrile, Methyl cyanide [**Note:** Forms cyanide in the body.]

Exposure Limits:
NIOSH REL: TWA 20 ppm (34 mg/m^3)
OSHA PEL†: TWA 40 ppm (70 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1606

Physical Description: Colorless liquid with an aromatic odor.

Chemical & Physical Properties:
MW: 41.1
BP: 179°F
Sol: Miscible
Fl.P(oc): 42°F
IP: 12.20 eV
Sp.Gr: 0.78
VP: 73 mmHg
FRZ: -49°F
UEL: 16.0%
LEL: 3.0%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.
Provide: Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
200 ppm: CcrOv/Sa
500 ppm: Sa:Cf/PaprOv/CcrFOv/GmFOv/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit nose, throat; asphy; nau, vomit; chest pain; lass; stupor, convuls; in animals: liver, kidney damage
TO: Resp sys, CVS, CNS, liver, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

2-Acetylaminofluorene	Formula: $C_{15}H_{13}NO$	CAS#: 53-96-3	RTECS#: AB9450000	IDLH: Ca [N.D.]
Conversion:	**DOT:**			

Synonyms/Trade Names: AAF, 2-AAF, 2-Acetaminofluorene, N-Acetyl-2-aminofluorene, FAA, 2-FAA, 2-Fluorenylacetamide

Exposure Limits:
NIOSH REL: Ca
See Appendix A
OSHA PEL: [1910.1014] See Appendix B

Measurement Methods (see Table 1):
None available

Physical Description: Tan, crystalline powder.

Chemical & Physical Properties:
MW: 223.3
BP: ?
Sol: Insoluble
Fl.P: ?
IP:?
Sp.Gr: ?
VP: ?
MLT: 381°F
UEL: ?
LEL: ?
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

See Appendix E (page 351)

Incompatibilities and Reactivities: None reported

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Reduced function of liver, kidneys, bladder, pancreas; [carc]
TO: Liver, bladder, kidneys, pancreas, skin [in animals: tumors of the liver, bladder, lungs, skin & pancreas]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Acetylene	Formula: HC≡CH	CAS#: 74-86-2	RTECS#: AO9600000	IDLH: N.D.
Conversion: 1 ppm = 1.06 mg/m^3	**DOT:** 1001 116			

Synonyms/Trade Names: Ethine, Ethyne [**Note:** A compressed gas used in the welding & cutting of metals.]

Exposure Limits:
NIOSH REL: C 2500 ppm (2662 mg/m^3)
OSHA PEL: none

Measurement Methods (see Table 1):
NIOSH
Acetylene Criteria Document

Physical Description: Colorless gas with a faint, ethereal odor. [**Note:** Commercial grade has a garlic-like odor. Shipped under pressure dissolved in acetone.]

Chemical & Physical Properties:
MW: 26.0
BP: Sublimes
Sol: 2%
Fl.P: NA (Gas)
IP: 11.40 eV
RGasD: 0.91
VP: 44.2 atm
FRZ: -119°F (Sublimes)
UEL: 100%
LEL: 2.5%
Flammable Gas

Personal Protection/Sanitation (see Table 2):
Skin: Frostbite
Eyes: Frostbite
Wash skin: N.R.
Remove: When wet (flamm)
Change: N.R.
Provide: Frostbite wash

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Zinc; oxygen & other oxidizing agents such as halogens [**Note:** Forms explosive acetylide compounds with copper, mercury, silver & brasses (containing more than 66% copper).]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con (liquid)
SY: Head, dizz; asphy; liquid: frostbite
TO: CNS, resp sys

First Aid (see Table 6):
Eye: Frostbite
Skin: Frostbite
Breath: Fresh air

Acetylene tetrabromide

Formula: $CHBr_2CHBr_2$ | **CAS#:** 79-27-6 | **RTECS#:** KI8225000 | **IDLH:** 8 ppm

Conversion: 1 ppm = 14.14 mg/m^3 | **DOT:** 2504 159

Synonyms/Trade Names: Symmetrical tetrabromoethane, TBE, Tetrabromoacetylene, Tetrabromoethane, 1,1,2,2-Tetrabromoethane

Exposure Limits:
NIOSH REL: See Appendix D
OSHA PEL: TWA 1 ppm (14 mg/m^3)

Physical Description: Pale-yellow liquid with a pungent odor similar to camphor or iodoform. [**Note:** A solid below 32°F.]

Measurement Methods (see Table 1):
NIOSH 2003

Chemical & Physical Properties:
MW: 345.7
BP: 474°F (Decomposes)
Sol: 0.07%
Fl.P: NA
IP: ?
Sp.Gr: 2.97
VP: 0.02 mmHg
FRZ: 32°F
UEL: NA
LEL: NA
Noncombustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
OSHA
8 ppm: Sa/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong caustics; hot iron; reducing metals such as aluminum, magnesium, and zinc

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, nose; anor, nau; head; abdom pain; jaun; leucyt; CNS depres
TO: Eyes, resp sys, liver, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush prompt
Breath: Resp support
Swallow: Medical attention immed

Acetylsalicyclic acid

Formula: $CH_3COOC_6H_4COOH$ | **CAS#:** 50-78-2 | **RTECS#:** VO0700000 | **IDLH:** N.D.

Conversion: | **DOT:**

Synonyms/Trade Names: o-Acetoxybenzoic acid, 2-Acetoxybenzoic acid, Aspirin

Exposure Limits:
NIOSH REL: TWA 5 mg/m^3
OSHA PEL†: none

Physical Description: Odorless, colorless to white, crystal-line powder. [aspirin]
[**Note:** Develops the vinegar-like odor of acetic acid on contact with moisture.]

Measurement Methods (see Table 1):
NIOSH 0500

Chemical & Physical Properties:
MW: 180.2
BP: 284°F (Decomposes)
Sol(77°F): 0.3%
Fl.P: NA
IP: NA
Sp.Gr: 1.35
VP: 0 mmHg (approx)
MLT: 275°F
UEL: NA
LEL: NA
MEC: 40 g/m^3
Combustible Powder; explosion hazard if dispersed in air.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: N.R.
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Solutions of alkali hydroxides or carbonates, strong oxidizers, moisture
[**Note:** Slowly hydrolyzes in moist air to salicyclic & acetic acids.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, upper resp sys; incr blood clotting time; nau, vomit; liver, kidney inj
TO: Eyes, skin, resp sys, blood, liver, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Resp support
Swallow: Medical attention immed

Acrolein	Formula: CH_2=CHCHO	CAS#: 107-02-8	RTECS#: AS1050000	IDLH: 2 ppm
Conversion: 1 ppm = 2.29 mg/m^3	**DOT:** 1092 131P (inhibited)			

Synonyms/Trade Names: Acraldehyde, Acrylaldehyde, Acrylic aldehyde, Allyl aldehyde, Propenal, 2-Propenal

Exposure Limits:
NIOSH REL: TWA 0.1 ppm (0.25 mg/m^3)
ST 0.3 ppm (0.8 mg/m^3)
See Appendix C (Aldehydes)
OSHA PEL†: TWA 0.1 ppm (0.25 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 2501
OSHA 52

Physical Description: Colorless or yellow liquid with a piercing, disagreeable odor.

Chemical & Physical Properties:
MW: 56.1
BP: 127°F
Sol: 40%
Fl.P: -15°F
IP: 10.13 eV
Sp.Gr: 0.84
VP: 210 mmHg
FRZ: -126°F
UEL: 31%
LEL: 2.8%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
2 ppm: Sa:Cf*/PaprOv*/CcrFOv/GmFOv/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Oxidizers, acids, alkalis, ammonia, amines [**Note:** Polymerizes readily unless inhibited--usually with hydroquinone. May form shock-sensitive peroxides over time.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, muc memb; decr pulm func; delayed pulm edema; chronic resp disease
TO: Eyes, skin, resp sys, heart

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

Acrylamide	Formula: CH_2=$CHCONH_2$	CAS#: 79-06-1	RTECS#: AS3325000	IDLH: Ca [60 mg/m^3]
Conversion:	**DOT:** 2074 153P			

Synonyms/Trade Names: Acrylamide monomer, Acrylic amide, Propenamide, 2-Propenamide

Exposure Limits:
NIOSH REL: Ca
TWA 0.03 mg/m^3 [skin]
See Appendix A
OSHA PEL†: TWA 0.3 mg/m^3 [skin]

Measurement Methods (see Table 1):
OSHA 21, PV2004

Physical Description: White crystalline, odorless solid.

Chemical & Physical Properties:
MW: 71.1
BP: 347-572°F (Decomposes)
Sol(86°F): 216%
Fl.P: 280°F
IP: 9.50 eV
Sp.Gr: 1.12
VP: 0.007 mmHg
MLT: 184°F
UEL: ?
LEL: ?
Combustible Solid (may also be dissolved in flammable liquids).

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers
[**Note:** May polymerize violently upon melting.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin; ataxia, numb limbs, pares; musc weak; absent deep tendon reflex; hand sweat; lass, drow; repro effects; [carc]
TO: Eyes, skin, CNS, PNS, repro sys [in animals: tumors of the lungs, testes, thyroid & adrenal glands]

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

Acrylic acid

Formula: CH_2=CHCOOH | **CAS#:** 79-10-7 | **RTECS#:** AS4375000 | **IDLH:** N.D.

Conversion: 1 ppm = 2.95 mg/m^3 | **DOT:** 2218 132P (inhibited)

Synonyms/Trade Names: Acroleic acid, Aqueous acrylic acid (technical grade is 94%), Ethylenecarboxylic acid, Glacial acrylic acid (98% in aqueous solution), 2-Propenoic acid

Exposure Limits:
NIOSH REL: TWA 2 ppm (6 mg/m^3) [skin]
OSHA PEL†: none

Measurement Methods (see Table 1):
OSHA 28, PV2005

Physical Description: Colorless liquid or solid (below 55°F) with a distinctive, acrid odor. [**Note:** Shipped with an inhibitor (e.g., hydroquinone) since it readily polymerizes.]

Chemical & Physical Properties:
MW: 72.1
BP: 286°F
Sol: Miscible
Fl.P: 121°F
IP: ?
Sp.Gr: 1.05
VP: 3 mmHg
FRZ: 55°F
UEL: 8.02%
LEL: 2.4%
Class II Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Oxidizers, amines, alkalis, ammonium hydroxide, chloro-sulfonic acid, oleum, ethylene diamine, ethyleneimine, 2-aminoethanol [**Note:** Corrosive to many metals.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, resp sys; eye, skin burns; skin sens; in animals: lung, liver, kidney inj
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

Acrylonitrile

Formula: CH_2=CHCN | **CAS#:** 107-13-1 | **RTECS#:** AT5250000 | **IDLH:** Ca [85 ppm]

Conversion: 1 ppm = 2.17 mg/m^3 | **DOT:** 1093 131P (inhibited)

Synonyms/Trade Names: Acrylonitrile monomer, AN, Cyanoethylene, Propenenitrile, 2-Propenenitrile, VCN, Vinyl cyanide

Exposure Limits:
NIOSH REL: Ca
TWA 1 ppm
C 10 ppm [15-minute] [skin]
See Appendix A
OSHA PEL: [1910.1045] TWA 2 ppm
C 10 ppm [15-minute] [skin]

Measurement Methods (see Table 1):
NIOSH 1604
OSHA 37

Physical Description: Colorless to pale-yellow liquid with an unpleasant odor. [**Note:** Odor can only be detected above the PEL.]

Chemical & Physical Properties:
MW: 53.1
BP: 171°F
Sol: 7%
Fl.P: 30°F
IP: 10.91 eV
Sp.Gr: 0.81
VP: 83 mmHg
FRZ: -116°F
UEL: 17%
LEL: 3.0%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

See Appendix E (page 351)

Incompatibilities and Reactivities: Strong oxidizers, acids & alkalis; bromine; amines [**Note:** Unless inhibited (usually with methylhydroquinone), may polymerize spontaneously or when heated or in presence of strong alkali. Attacks copper.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin; asphy; head; sneez; nau, vomit; lass, dizz; skin vesic; scaling derm; [carc]
TO: Eyes, skin, CVS, liver, kidneys, CNS [brain tumors, lung & bowel cancer]

First Aid (see Table 6):
Eye: Irr immed
Skin: Water wash immed
Breath: Resp support
Swallow: Medical attention immed

Adiponitrile

Formula: $NC(CH_2)_4CN$ | **CAS#:** 111-69-3 | **RTECS#:** AV2625000 | **IDLH:** N.D.

Conversion: 1 ppm = 4.43 mg/m^3 | **DOT:** 2205 153

Synonyms/Trade Names: 1,4-Dicyanobutane, Hexanedinitrile, Tetramethylene cyanide

Exposure Limits:
NIOSH REL: TWA 4 ppm (18 mg/m^3) **OSHA PEL:** none

Physical Description: Water-white, practically odorless, oily liquid.
[**Note:** A solid below 34°F. Forms cyanide in the body.]

Measurement Methods (see Table 1):
NIOSH
Nitriles Criteria Document

Chemical & Physical Properties:
MW: 108.2
BP: 563°F
Sol: 4.5%
Fl.P(oc): 199°F
IP: ?
Sp.Gr: 0.97
VP: 0.002 mmHg
FRZ: 34°F
UEL: 5.0%
LEL: 1.7%
Class IIIA Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH
40 ppm: Sa
100 ppm: Sa:Cf
200 ppm: ScbaF/SaF
250 ppm: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Oxidizers (e.g., perchlorates, nitrates), strong acids (e.g., sulfuric acid)
[**Note:** Decomposes above 194°F, forming hydrogen cyanide.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, resp sys; head, dizz, lass, conf, convuls; blurred vision; dysp; abdom pain, nau, vomit
TO: Eyes, skin, resp sys, CNS, CVS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Aldrin

Formula: $C_{12}H_8Cl_6$ | **CAS#:** 309-00-2 | **RTECS#:** IO2100000 | **IDLH:** Ca [25 mg/m^3]

Conversion: | **DOT:** 2761 151

Synonyms/Trade Names: HHDN, Octalene, 1,2,3,4,10,10-Hexachloro-1,4,4a,5,8,8a-hexahydro-endo-1,4-exo-5,8-dimethanonaphthalene

Exposure Limits:
NIOSH REL: Ca
TWA 0.25 mg/m^3 [skin]
See Appendix A
OSHA PEL: TWA 0.25 mg/m^3 [skin]

Physical Description: Colorless to dark-brown crystalline solid with a mild chemical odor. [**Note:** Formerly used as an insecticide.]

Measurement Methods (see Table 1):
NIOSH 5502

Chemical & Physical Properties:
MW: 364.9
BP: Decomposes
Sol: 0.003%
Fl.P: NA
IP: ?
Sp.Gr: 1.60
VP: 0.00008 mmHg
MLT: 219°F
UEL: NA
LEL: NA
Noncombustible Solid, but may be dissolved in flammable liquids.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Concentrated mineral acids, active metals, acid catalysts, acid oxidizing agents, phenol

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Head, dizz; nau, vomit, mal; myoclonic jerks of limbs; clonic, tonic convuls; coma; hema, azotemia; [carc]
TO: CNS, liver, kidneys, skin [in animals: tumors of the lungs, liver, thyroid & adrenal glands]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Allyl alcohol

Formula:	CAS#:	RTECS#:	IDLH:
$CH_2=CHCH_2OH$	107-18-6	BA5075000	20 ppm

Conversion: 1 ppm = 2.38 mg/m^3

DOT: 1098 131

Synonyms/Trade Names: AA, Allylic alcohol, Propenol, 1-Propen-3-ol, 2-Propenol, Vinyl carbinol

Exposure Limits:
NIOSH REL: TWA 2 ppm (5 mg/m^3)
ST 4 ppm (10 mg/m^3) [skin]
OSHA PEL†: TWA 2 ppm (5 mg/m^3) [skin]

Measurement Methods (see Table 1):
NIOSH 1402, 1405

Physical Description: Colorless liquid with a pungent, mustard-like odor.

Chemical & Physical Properties:
MW: 58.1
BP: 205°F
Sol: Miscible
Fl.P: 70°F
IP: 9.63 eV
Sp.Gr: 0.85
VP: 17 mmHg
FRZ: -200°F
UEL: 18.0%
LEL: 2.5%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.
Provide: Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
20 ppm: Sa:Cf*/PaprOv*/CcrFOv/GmFOv/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, acids, carbon tetrachloride
[**Note:** Polymerization may be caused by elevated temperatures, oxidizers, or peroxides.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Eye irrit, tissue damage; irrit upper resp sys, skin; pulm edema
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

Allyl chloride

Formula:	CAS#:	RTECS#:	IDLH:
$CH_2=CHCH_2Cl$	107-05-1	UC7350000	250 ppm

Conversion: 1 ppm = 3.13 mg/m^3

DOT: 1100 131

Synonyms/Trade Names: 3-Chloropropene, 1-Chloro-2-propene, 3-Chloropropylene

Exposure Limits:
NIOSH REL: TWA 1 ppm (3 mg/m^3)
ST 2 ppm (6 mg/m^3)
OSHA PEL†: TWA 1 ppm (3 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1000
OSHA 7

Physical Description: Colorless, brown, yellow, or purple liquid with a pungent, unpleasant odor.

Chemical & Physical Properties:
MW: 76.5
BP: 113°F
Sol: 0.4%
Fl.P: -25°F
IP: 10.05 eV
Sp.Gr: 0.94
VP: 295 mmHg
MLT: -210°F
UEL: 11.1%
LEL: 2.9%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.
Provide: Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
25 ppm: Sa:Cf*
50 ppm: ScbaF/SaF
250 ppm: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, acids, amines, iron & aluminum chlorides, magnesium, zinc

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, nose, muc memb; pulm edema; in animals: liver, kidney inj
TO: Eyes, skin, resp sys, liver, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Allyl glycidyl ether

Formula:	CAS#:	RTECS#:	IDLH:
$C_6H_{10}O_2$	106-92-3	RR0875000	50 ppm

Conversion: 1 ppm = 4.67 mg/m^3 **DOT:** 2219 129

Synonyms/Trade Names: AGE, 1-Allyloxy-2,3-epoxypropane, Glycidyl allyl ether, [(2-Propenyloxy)methyl] oxirane

Exposure Limits:
NIOSH REL: TWA 5 ppm (22 mg/m^3) [skin]
ST 10 ppm (44 mg/m^3)
OSHA PEL†: C 10 ppm (45 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 2545

Physical Description: Colorless liquid with a pleasant odor.

Chemical & Physical Properties:
MW: 114.2
BP: 309°F
Sol: 14%
Fl.P: 135°F
IP: ?
Sp.Gr: 0.97
VP: 2 mmHg
FRZ: -148°F [forms glass]
UEL: ?
LEL: ?
Class II Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash

Respirator Recommendations (see Tables 3 and 4):
NIOSH
50 ppm: CcrOv/PaprOv/
GmFOv/Sa/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, nose, resp sys; derm; pulm edema; narco; possible hemato, repro effects
TO: Eyes, skin, resp sys, blood, repro sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush prompt
Breath: Resp support
Swallow: Medical attention immed

Allyl propyl disulfide

Formula:	CAS#:	RTECS#:	IDLH:
$H_2C{=}CHCH_2S_2CH_2CH_2CH_3$	2179-59-1	JO0350000	N.D.

Conversion: 1 ppm = 6.07 mg/m^3 **DOT:**

Synonyms/Trade Names: 4,5-Dithia-1-octene, Onion oil, 2-Propenyl propyl disulfide, Propyl allyl disulfide

Exposure Limits:
NIOSH REL: TWA 2 ppm (12 mg/m^3)
ST 3 ppm (18 mg/m^3)
OSHA PEL†: TWA 2 ppm (12 mg/m^3)

Measurement Methods (see Table 1):
OSHA PV2086

Physical Description: Pale-yellow liquid with a strong & irritating onion-like odor. [**Note:** The chief volatile component of onion oil.]

Chemical & Physical Properties:
MW: 148.3
BP: ?
Sol: Insoluble
Fl.P: ?
IP: ?
Sp.Gr(59°F): 0.93
VP: ?
FRZ: 5°F
UEL: ?
LEL: ?
Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: Prevent eye contact
Wash skin: N.R.
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, nose, resp sys; lac
TO: Eyes, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

α-Alumina

Formula:	CAS#:	RTECS#:	IDLH:
Al_2O_3	1344-28-1	BD1200000	N.D.

Conversion:

DOT:

Synonyms/Trade Names: Alumina, Aluminum oxide, Aluminum trioxide [**Note:** α-Alumina is the main component of technical grade alumina. Corundum is natural Al_2O_3. Emery is an impure crystalline variety of Al_2O_3.]

Exposure Limits:
NIOSH REL: See Appendix D
OSHA PEL†: TWA 15 mg/m^3 (total)
TWA 5 mg/m^3 (resp)

Measurement Methods (see Table 1):
NIOSH 0500, 0600
OSHA ID109SG, ID198SG

Physical Description: White, odorless, crystalline powder.

Chemical & Physical Properties:
MW: 101.9
BP: 5396°F
Sol: Insoluble
Fl.P: NA
IP: NA
Sp.Gr: 4.0
VP: 0 mmHg (approx)
MLT: 3632°F
UEL: NA
LEL: NA
Noncombustible solid, but dusts may form explosive mixtures in air.

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Chlorine trifluoride, hot chlorinated rubber, acids, oxidizers [**Note:** Hydrogen gas may be formed when finely divided iron contacts moisture during crushing & milling operations.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, resp sys
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Blot/brush away
Breath: Fresh air
Swallow: Medical attention immed

Aluminum

Formula:	CAS#:	RTECS#:	IDLH:
Al	7429-90-5	BD0330000	N.D.

Conversion:

DOT: 1309 170 (powder, coated); 1396 138 (powder, uncoated); 9260 169 (molten)

Synonyms/Trade Names: Aluminium, Aluminum metal, Aluminum powder, Elemental aluminum

Exposure Limits:
NIOSH REL: TWA 10 mg/m^3 (total)
TWA 5 mg/m^3 (resp)
OSHA PEL: TWA 15 mg/m^3 (total)
TWA 5 mg/m^3 (resp)

Measurement Methods (see Table 1):
NIOSH 7013, 7300, 7301, 7303
OSHA ID121

Physical Description: Silvery-white, malleable, ductile, odorless metal.

Chemical & Physical Properties:
MW: 27.0
BP: 4221°F
Sol: Insoluble
Fl.P: NA
IP: NA
Sp.Gr: 2.70
VP: 0 mmHg (approx)
MLT: 1220°F
UEL: NA
LEL: NA
Combustible Solid, finely divided dust is easily ignited; may cause explosions.

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Strong oxidizers & acids, halogenated hydrocarbons
[**Note:** Corrodes in contact with acids & other metals. Ignition may occur if powders are mixed with halogens, carbon disulfide, or methyl chloride.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Irrit eyes, skin, resp sys
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Breath: Fresh air

Aluminum (pyro powders and welding fumes, as Al)	Formula:	CAS#:	RTECS#:	IDLH: N.D.
Conversion:	**DOT:** 1383 135 (powder, pyrophoric)			
Synonyms/Trade Names: Synonyms vary depending upon the specific aluminum compound.				
Exposure Limits: **NIOSH REL:** TWA 5 mg/m^3 **OSHA PEL†:** none				**Measurement Methods (see Table 1):** **NIOSH** 7300, 7301, 7303
Physical Description: Appearance and odor vary depending upon the specific aluminum compound.				
Chemical & Physical Properties: Properties vary depending upon the specific aluminum compound.	**Personal Protection/Sanitation (see Table 2):** **Skin:** N.R. **Eyes:** N.R. **Wash skin:** N.R. **Remove:** N.R. **Change:** N.R.		**Respirator Recommendations (see Tables 3 and 4):** Not available.	
Incompatibilities and Reactivities: Varies				
Exposure Routes, Symptoms, Target Organs (see Table 5): **ER:** Inh, Ing, Con **SY:** Irrit skin, resp sys; pulm fib **TO:** Skin, resp sys		**First Aid (see Table 6):** **Eye:** Irr immed **Skin:** Water flush immed **Breath:** Resp support **Swallow:** Medical attention immed		

Aluminum (soluble salts and alkyls, as Al)	Formula:	CAS#:	RTECS#:	IDLH: N.D.
Conversion:	**DOT:** 3051 135 (Aluminum alkyls)			
Synonyms/Trade Names: Synonyms vary depending upon the specific aluminum compound.				
Exposure Limits: **NIOSH REL:** TWA 2 mg/m^3 **OSHA PEL†:** none				**Measurement Methods (see Table 1):** **NIOSH** 7013, 7300, 7301, 7303 **OSHA** ID121
Physical Description: Appearance and odor vary depending upon the specific aluminum compound.				
Chemical & Physical Properties: Properties vary depending upon the specific aluminum compound.	**Personal Protection/Sanitation (see Table 2):** **Skin:** Prevent skin contact **Eyes:** Prevent eye contact **Wash skin:** When contam **Remove:** When wet or contam **Change:** Daily		**Respirator Recommendations (see Tables 3 and 4):** Not available.	
Incompatibilities and Reactivities: Varies				
Exposure Routes, Symptoms, Target Organs (see Table 5): **ER:** Inh, Ing, Con **SY:** Irrit skin, resp sys; skin burns **TO:** Skin, resp sys		**First Aid (see Table 6):** **Eye:** Irr immed **Skin:** Water flush immed **Breath:** Resp support **Swallow:** Medical attention immed		

4-Aminodiphenyl

Formula:	CAS#:	RTECS#:	IDLH:
$C_6H_5C_6H_4NH_2$	92-67-1	DU8925000	Ca [N.D.]

Conversion: **DOT:**

Synonyms/Trade Names: 4-Aminobiphenyl, p-Aminobiphenyl, p-Aminodiphenyl, 4-Phenylaniline

Exposure Limits:
NIOSH REL: Ca
See Appendix A
OSHA PEL: [1910.1011] See Appendix B

Measurement Methods (see Table 1):
NIOSH P&CAM269 (II-4)
OSHA 93

Physical Description: Colorless crystals with a floral odor.
[**Note:** Turns purple on contact with air.]

Chemical & Physical Properties:
MW: 169.2
BP: 576°F
Sol: Slight
Fl.P: ?
IP: ?
Sp.Gr: 1.16
VP(227°F): 1 mmHg
MLT: 127°F
UEL: ?
LEL: ?
Combustible Solid, but must be preheated before ignition possible.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

See Appendix E (page 351)

Incompatibilities and Reactivities: Oxidized by air

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Head, dizz; drow, dysp; ataxia, lass; methemo; urinary burning; acute hemorrhagic cystitis; [carc]
TO: Bladder, skin [bladder cancer]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

2-Aminopyridine

Formula:	CAS#:	RTECS#:	IDLH:
$NH_2C_5H_4N$	504-29-0	US1575000	5 ppm

Conversion: 1 ppm = 3.85 mg/m^3 **DOT:** 2671 153

Synonyms/Trade Names: α-Aminopyridine, α-Pyridylamine

Exposure Limits:
NIOSH REL: TWA 0.5 ppm (2 mg/m^3)
OSHA PEL: TWA 0.5 ppm (2 mg/m^3)

Measurement Methods (see Table 1):
NIOSH S158 (II-4)

Physical Description: White powder, leaflets, or crystals with a characteristic odor.

Chemical & Physical Properties:
MW: 94.1
BP: 411°F
Sol: >100%
Fl.P: 154°F
IP: 8.00 eV
Sp.Gr: ?
VP(77°F): 0.8 mmHg
MLT: 137°F
UEL: ?
LEL: ?
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
5 ppm: Sa*/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, nose, throat; head, dizz; excitement; nau; high BP; resp distress; lass; convuls; stupor
TO: CNS, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

Amitrole

Formula: $C_2H_4N_4$
CAS#: 61-82-5
RTECS#: XZ3850000
IDLH: Ca [N.D.]

Conversion:
DOT:

Synonyms/Trade Names: Aminotriazole; 3-Aminotriazole; 2-Amino-1,3,4-triazole; 3-Amino-1,2,4-triazole

Exposure Limits:
NIOSH REL: Ca
TWA 0.2 mg/m^3
See Appendix A
OSHA PEL†: none

Measurement Methods (see Table 1):
NIOSH 0500
OSHA PV2006

Physical Description: Colorless to white, crystalline powder. [herbicide]
[**Note:** Odorless when pure.]

Chemical & Physical Properties:
MW: 84.1
BP: ?
Sol(77°F): 28%
Fl.P: NA
IP: ?
Sp.Gr: 1.14
VP: <0.000008 mmHg
MLT: 318°F
UEL: NA
LEL: NA
Noncombustible Solid, but may be dissolved in flammable liquids.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: Daily
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Light (decomposes), strong oxidizers
[**Note:** Corrosive to iron, aluminum & copper.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin; dysp, musc spasms, ataxia, anor, salv, incr body temperature; lass, skin dryness, depres (thyroid func suppression)
TO: Eyes, skin, thyroid [in animals: liver, thyroid & pituitary gland tumors]

First Aid (see Table 6):
Eye: Irr immed
Skin: Water wash immed
Breath: Resp support
Swallow: Medical attention immed

Ammonia

Formula: NH_3
CAS#: 7664-41-7
RTECS#: BO0875000
IDLH: 300 ppm

Conversion: 1 ppm = 0.70 mg/m^3
DOT: 1005 125 (anhydrous); 2672 154 (10-35% solution); 2073 125 (>35-50% solution); 1005 125 (>50% solution)

Synonyms/Trade Names: Anhydrous ammonia, Aqua ammonia, Aqueous ammonia
[**Note:** Often used in an aqueous solution.]

Exposure Limits:
NIOSH REL: TWA 25 ppm (18 mg/m^3)
ST 35 ppm (27 mg/m^3)
OSHA PEL†: TWA 50 ppm (35 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 3800, 6015, 6016
OSHA ID188

Physical Description: Colorless gas with a pungent, suffocating odor.
[**Note:** Shipped as a liquefied compressed gas. Easily liquefied under pressure.]

Chemical & Physical Properties:
MW: 17.0
BP: -28°F
Sol: 34%
Fl.P: NA (Gas)
IP: 10.18 eV
RGasD: 0.60
VP: 8.5 atm
FRZ: -108°F
UEL: 28%
LEL: 15%
[**Note:** Although NH_3 does not meet the DOT definition of a Flammable Gas (for labeling purposes), it should be treated as one.]

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam (solution)
Remove: When wet or contam (solution)
Change: N.R.
Provide: Eyewash (>10%)
Quick drench (>10%)

Respirator Recommendations (see Tables 3 and 4):
NIOSH
250 ppm: CcrS*/Sa*
300 ppm: Sa:Cf*/PaprS*/CcrFS/GmFS/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, acids, halogens, salts of silver & zinc
[**Note:** Corrosive to copper & galvanized surfaces.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing (solution), Con (solution/liquid)
SY: Irrit eyes, nose, throat; dysp, wheez, chest pain; pulm edema; pink frothy sputum; skin burns, vesic; liquid: frostbite
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed (solution/liquid)
Skin: Water flush immed (solution/liquid)
Breath: Resp support
Swallow: Medical attention immed (solution)

Ammonium chloride fume

Formula:	CAS#:	RTECS#:	IDLH:
NH_4Cl	12125-02-9	BP4550000	N.D.

Conversion: **DOT:**

Synonyms/Trade Names: Ammonium chloride, Ammonium muriate fume, Sal ammoniac fume

Exposure Limits:
NIOSH REL: TWA 10 mg/m^3
ST 20 mg/m^3
OSHA PEL†: none

Measurement Methods (see Table 1):
OSHA ID188

Physical Description: Finely divided, odorless, white particulate dispersed in air.

Chemical & Physical Properties:
MW: 53.5
BP: Sublimes
Sol: 37%
Fl.P: NA
IP: NA
Sp.Gr: 1.53
VP(321°F): 1 mmHg
MLT: 662°F (Sublimes)
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Alkalis & their carbonates, lead & silver salts, strong oxidizers, ammonium nitrate, potassium chlorate, bromine trifluoride [**Note:** Corrodes most metals at high (i.e., fire) temperatures.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Irrit eyes, skin, resp sys; cough, dysp, pulm sens
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support

Ammonium sulfamate

Formula:	CAS#:	RTECS#:	IDLH:
$NH_4OSO_2NH_2$	7773-06-0	WO6125000	1500 mg/m^3

Conversion: **DOT:**

Synonyms/Trade Names: Ammate herbicide, Ammonium amidosulfonate, AMS, Monoammonium salt of sulfamic acid, Sulfamate

Exposure Limits:
NIOSH REL: TWA 10 mg/m^3 (total)
TWA 5 mg/m^3 (resp)
OSHA PEL†: TWA 15 mg/m^3 (total)
TWA 5 mg/m^3 (resp)

Measurement Methods (see Table 1):
NIOSH S348 (II-5)

Physical Description: Colorless to white crystalline, odorless solid. [herbicide]

Chemical & Physical Properties:
MW: 114.1
BP: 320°F (Decomposes)
Sol: 200%
Fl.P: NA
IP: ?
Sp.Gr: 1.77
VP: 0 mmHg (approx)
MLT: 268°F
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
50 mg/m^3: Qm
100 mg/m^3: 95XQ/Sa
250 mg/m^3: Sa:Cf/PaprHie
500 mg/m^3: SaT:Cf/PaprTHie/100F/ScbaF/SaF
1500 mg/m^3: Sa:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Acids, hot water
[**Note:** Elevated temperatures cause a highly exothermic reaction with water.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Irrit eyes, nose, throat; cough, dysp
TO: Eyes, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

n-Amyl acetate	Formula: $CH_3COO[CH_2]_4CH_3$	CAS#: 628-63-7	RTECS#: AJ9250000	IDLH: 1000 ppm
Conversion: 1 ppm = 5.33 mg/m^3	**DOT:** 1104 129			

Synonyms/Trade Names: Amyl acetic ester, Amyl acetic ether, 1-Pentanol acetate, Pentyl ester of acetic acid, Primary amyl acetate

Exposure Limits:
NIOSH REL: TWA 100 ppm (525 mg/m^3)
OSHA PEL: TWA 100 ppm (525 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1450, 2549
OSHA 7

Physical Description: Colorless liquid with a persistent banana-like odor.

Chemical & Physical Properties:
MW: 130.2
BP: 301°F
Sol: 0.2%
Fl.P: 77°F
IP: ?
Sp.Gr: 0.88
VP: 4 mmHg
FRZ: -95°F
UEL: 7.5%
LEL: 1.1%
Class IC Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
1000 ppm: CcrOv*/GmFOv/PaprOv*/Sa*/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Nitrates; strong oxidizers, alkalis & acids

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, nose; derm; possible CNS depres, narco
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush prompt
Breath: Resp support
Swallow: Medical attention immed

sec-Amyl acetate	Formula: $CH_3COOCH(CH_3)C_3H_7$	CAS#: 626-38-0	RTECS#: AJ2100000	IDLH: 1000 ppm
Conversion: 1 ppm = 5.33 mg/m^3	**DOT:** 1104 129			

Synonyms/Trade Names: 1-Methylbutyl acetate, 2-Pentanol acetate, 2-Pentyl ester of acetic acid

Exposure Limits:
NIOSH REL: TWA 125 ppm (650 mg/m^3)
OSHA PEL: TWA 125 ppm (650 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1450, 2549
OSHA 7

Physical Description: Colorless liquid with a mild odor.

Chemical & Physical Properties:
MW: 130.2
BP: 249°F
Sol: Slight
Fl.P: 89°F
IP: ?
Sp.Gr: 0.87
VP: 7 mmHg
FRZ: -109°F
UEL: 7.5%
LEL: 1%
Class IC Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
1000 ppm: CcrOv*/GmFOv/PaprOv*/Sa*/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Nitrates; strong oxidizers, alkalis & acids

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose; narco; derm; possible kidney, liver inj; possible CNS depres
TO: Eyes, skin, resp sys, kidneys, liver, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush prompt
Breath: Resp support
Swallow: Medical attention immed

Aniline (and homologs)

Formula: $C_6H_5NH_2$ | **CAS#:** 62-53-3 | **RTECS#:** BW6650000 | **IDLH:** Ca [100 ppm]

Conversion: 1 ppm = 3.81 mg/m^3 | **DOT:** 1547 153

Synonyms/Trade Names: Aminobenzene, Aniline oil, Benzenamine, Phenylamine

Exposure Limits:
NIOSH REL: Ca
See Appendix A
OSHA PEL†: TWA 5 ppm (19 mg/m^3) [skin]

Measurement Methods (see Table 1):
NIOSH 2002, 2017, 8317
OSHA PV2079

Physical Description: Colorless to brown, oily liquid with an aromatic amine-like odor. [**Note:** A solid below 21°F.]

Chemical & Physical Properties:
MW: 93.1
BP: 363°F
Sol: 4%
Fl.P: 158°F
IP: 7.70 eV
Sp.Gr: 1.02
VP: 0.6 mmHg
FRZ: 21°F
UEL: 11%
LEL: 1.3%
Class IIIA Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, strong acids, toluene diisocyanate, alkalis

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Head, lass, dizz; cyan; ataxia; dysp on effort; tacar; irrit eyes; methemo; cirr; [carc]
TO: Blood, CVS, eyes, liver, kidneys, resp sys [bladder cancer]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

o-Anisidine

Formula: $NH_2C_6H_4OCH_3$ | **CAS#:** 90-04-0 | **RTECS#:** BZ5410000 | **IDLH:** Ca [50 mg/m^3]

Conversion: | **DOT:** 2431 153

Synonyms/Trade Names: ortho-Aminoanisole, 2-Anisidine, o-Methoxyaniline
[**Note:** o-Anisidine has been used as a basis for many dyes.]

Exposure Limits:
NIOSH REL: Ca
0.5 mg/m^3 [skin]
See Appendix A
OSHA PEL: TWA 0.5 mg/m^3 [skin]

Measurement Methods (see Table 1):
NIOSH 2514

Physical Description: Red or yellow, oily liquid with an amine-like odor. [**Note:** A solid below 41°F.]

Chemical & Physical Properties:
MW: 123.2
BP: 437°F
Sol(77°F): 1%
Fl.P(oc): 244°F
IP: 7.44 eV
Sp.Gr: 1.10
VP: <0.1 mmHg
FRZ: 41°F
UEL: ?
LEL: ?
Class IIIB Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Head, dizz; cyan; RBC Heinz bodies; [carc]
TO: Blood, kidneys, liver, CVS, CNS [in animals: tumors of the thyroid gland, bladder & kidneys]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

p-Anisidine

Formula: $NH_2C_6H_4OCH_3$
CAS#: 104-94-9
RTECS#: BZ5450000
IDLH: 50 mg/m^3

Conversion:
DOT: 2431 153

Synonyms/Trade Names: para-Aminoanisole, 4-Anisidine, p-Methoxyaniline

Exposure Limits:
NIOSH REL: TWA 0.5 mg/m^3 [skin]
OSHA PEL: TWA 0.5 mg/m^3 [skin]

Measurement Methods (see Table 1):
NIOSH 2514

Physical Description: Yellow to brown, crystalline solid with an amine-like odor.

Chemical & Physical Properties:
MW: 123.2
BP: 475°F
Sol: Moderate
Fl.P: ?
IP: 7.44 eV
Sp.Gr: 1.07
VP(77°F): 0.006 mmHg
MLT: 135°F
UEL: ?
LEL: ?
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
5 mg/m^3: 95XQ/Sa
12.5 mg/m^3: Sa:Cf/PaprHie
25 mg/m^3: 100F/PaprTHie*/ScbaF/SaF
50 mg/m^3: Sa:Pd,Pp*
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Head, dizz; cyan; RBC Heinz bodies
TO: Blood, kidneys, liver, CVS, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Antimony

Formula: Sb
CAS#: 7440-36-0
RTECS#: CC4025000
IDLH: 50 mg/m^3 (as Sb)

Conversion:
DOT: 1549 157 (inorganic compounds, n.o.s.); 2871 170 (powder); 3141 157 (inorganic liquid compounds, n.o.s.)

Synonyms/Trade Names: Antimony metal, Antimony powder, Stibium

Exposure Limits:
NIOSH REL*: TWA 0.5 mg/m^3
OSHA PEL*: TWA 0.5 mg/m^3
[***Note:** The REL and PEL also apply to other antimony compounds (as Sb).]

Measurement Methods (see Table 1):
NIOSH 7301, 7303, P&CAM 261 (II-4)
OSHA ID121, ID125G, ID206

Physical Description: Silver-white, lustrous, hard, brittle solid; scale-like crystals; or a dark-gray, lustrous powder.

Chemical & Physical Properties:
MW: 121.8
BP: 2975°F
Sol: Insoluble
Fl.P: NA
IP: NA
Sp.Gr: 6.69
VP: 0 mmHg (approx)
MLT: 1166°F
UEL: NA
LEL: NA

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
5 mg/m^3: 95XQ/Sa
12.5 mg/m^3: Sa:Cf/PaprHie
25 mg/m^3: 100F/SaT:Cf/PaprTHie/ScbaF/SaF
50 mg/m^3: Sa:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Noncombustible Solid in bulk form, but a moderate explosion hazard in the form of dust when exposed to flame.

Incompatibilities and Reactivities: Strong oxidizers, acids, halogenated acids
[**Note:** Stibine is formed when antimony is exposed to nascent (freshly formed) hydrogen.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose, throat, mouth; cough; dizz; head; nau, vomit, diarr; stomach cramps; insom; anor; unable to smell properly
TO: Eyes, skin, resp sys, CVS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

ANTU	Formula: $C_{10}H_7NHC(NH_2)S$	CAS#: 86-88-4	RTECS#: YT9275000	IDLH: 100 mg/m^3
Conversion:	DOT: 1651 153			

Synonyms/Trade Names: α-Naphthyl thiocarbamide, 1-Naphthyl thiourea, α-Naphthyl thiourea

Exposure Limits:
NIOSH REL: TWA 0.3 mg/m^3
OSHA PEL: TWA 0.3 mg/m^3

Measurement Methods (see Table 1):
NIOSH S276 (II-5)

Physical Description: White crystalline or gray, odorless powder. [rodenticide]

Chemical & Physical Properties:
MW: 202.3
BP: Decomposes
Sol: 0.06%
Fl.P: NA
IP: ?
Sp.Gr: ?
VP: Low
MLT: 388°F
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
3 mg/m^3: CcrOv95/Sa
7.5 mg/m^3: Sa:Cf/PaprOvHie
15 mg/m^3: CcrFOv100/GmFOv100/ PaprTOvHie/SaT:Cf/ScbaF/SaF
100 mg/m^3: Sa:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, silver nitrate

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing
SY: After ingestion of large doses: vomit, dysp, cyan, coarse pulm rales; liver damage
TO: Resp sys, blood, liver

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

Arsenic (inorganic compounds, as As)	Formula: As (metal)	CAS#: 7440-38-2 (metal)	RTECS#: CG0525000 (metal)	IDLH: Ca [5 mg/m^3 (as As)]
Conversion:	DOT: 1558 152 (metal); 1562 152 (dust)			

Synonyms/Trade Names: **Arsenic metal:** Arsenia
Other synonyms vary depending upon the specific As compound. [**Note:** OSHA considers "Inorganic Arsenic" to mean copper acetoarsenite & all inorganic compounds containing arsenic except ARSINE.]

Exposure Limits:
NIOSH REL: Ca
C 0.002 mg/m^3 [15-minute]
See Appendix A
OSHA PEL: [1910.1018] TWA 0.010 mg/m^3

Measurement Methods (see Table 1):
NIOSH 7300, 7301, 7303, 9102, 7900
OSHA ID105

Physical Description: Metal: Silver-gray or tin-white, brittle, odorless solid.

Chemical & Physical Properties:
MW: 74.9
BP: Sublimes
Sol: Insoluble
Fl.P: NA
IP: NA
Sp.Gr: 5.73 (metal)
VP: 0 mmHg (approx)
MLT: 1135°F (Sublimes)
UEL: NA
LEL: NA

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFAg100/ScbaE

See Appendix E (page 351)

Metal: Noncombustible Solid in bulk form, but a slight explosion hazard in the form of dust when exposed to flame.

Incompatibilities and Reactivities: Strong oxidizers, bromine azide
[**Note:** Hydrogen gas can react with inorganic arsenic to form the highly toxic gas arsine.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Con, Ing
SY: Ulceration of nasal septum, derm, GI disturbances, peri neur, resp irrit, hyperpig of skin, [carc]
TO: Liver, kidneys, skin, lungs, lymphatic sys [lung & lymphatic cancer]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Arsenic (organic compounds, as As)	Formula:	CAS#:	RTECS#:	IDLH: N.D.
Conversion:	**DOT:**			

Synonyms/Trade Names: Synonyms vary depending upon the specific organic arsenic compound.

Exposure Limits:
NIOSH REL: none
OSHA PEL: TWA 0.5 mg/m^3

Physical Description: Appearance and odor vary depending upon the specific organic arsenic compound.

Measurement Methods (see Table 1):
NIOSH 5022

Chemical & Physical Properties:
Properties vary depending upon the specific organic arsenic compound.

Personal Protection/Sanitation (see Table 2):
Recommendations regarding personal protective clothing vary depending upon the specific compound.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Varies

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: In animals: irrit skin, possible derm; resp distress; diarr; kidney damage; musc tremor, convuls; possible GI tract, repro effects; possible liver damage
TO: Skin, resp sys, kidneys, CNS, liver, GI tract, repro sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Arsine	Formula: AsH_3	CAS#: 7784-42-1	RTECS#: CG6475000	IDLH: Ca [3 ppm]
Conversion: 1 ppm = 3.19 mg/m^3	**DOT:** 2188 119			

Synonyms/Trade Names: Arsenic hydride, Arsenic trihydride, Arseniuretted hydrogen, Arsenous hydride, Hydrogen arsenide

Exposure Limits:
NIOSH REL: Ca
C 0.002 mg/m^3 [15-minute]
See Appendix A
OSHA PEL: TWA 0.05 ppm (0.2 mg/m^3)

Physical Description: Colorless gas with a mild, garlic-like odor.
[**Note:** Shipped as a liquefied compressed gas.]

Measurement Methods (see Table 1):
NIOSH 6001
OSHA ID105

Chemical & Physical Properties:
MW: 78.0
BP: -81°F
Sol: 20%
Fl.P: NA (Gas)
IP: 9.89 eV
RGasD: 2.69
VP(70°F): 14.9 atm
FRZ: -179°F
UEL: 78%
LEL: 5.1%
Flammable Gas

Personal Protection/Sanitation (see Table 2):
Skin: Frostbite
Eyes: Frostbite
Wash skin: N.R.
Remove: When wet (flamm)
Change: N.R.
Provide: Frostbite wash

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, chlorine, nitric acid
[**Note:** Decomposes above 446°F. There is a high potential for the generation of arsine gas when inorganic arsenic is exposed to nascent (freshly formed) hydrogen.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con (liquid)
SY: Head, mal, lass, dizz; dysp; abdom, back pain; nau, vomit; bronze skin; hema; jaun; peri neur; liquid: frostbite; [carc]
TO: Blood, kidneys, liver [lung & lymphatic cancer]

First Aid (see Table 6):
Eye: Frostbite
Skin: Frostbite
Breath: Resp support

Asbestos

Formula: Hydrated mineral silicates
CAS#: 1332-21-4
RTECS#: CI6475000
IDLH: Ca [N.D.]

Conversion:
DOT: 2212 171 (blue, brown); 2590 171 (white)

Synonyms/Trade Names: Actinolite, Actinolite asbestos, Amosite (cummingtonite-grunerite), Anthophyllite, Anthophyllite asbestos, Chrysotile, Crocidolite (Riebeckite), Tremolite, Tremolite asbestos

Exposure Limits:
NIOSH REL: Ca
See Appendix A
See Appendix C
OSHA PEL: [1910.1001] [1926.1101] See Appendix C

Measurement Methods (see Table 1):
NIOSH 7400, 7402
OSHA ID160, ID191

Physical Description: White or greenish (chrysotile), blue (crocidolite), or gray-green (amosite) fibrous, odorless solids.

Chemical & Physical Properties:
MW: Varies
BP: Decomposes
Sol: Insoluble
Fl.P: NA
IP: NA
Sp.Gr: ?
VP: 0 mmHg (approx)
MLT: 1112°F (Decomposes)
UEL: NA
LEL: NA
Noncombustible Solids

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: Daily
Remove: N.R.
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

See Appendix E (page 351)

Incompatibilities and Reactivities: None reported

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Asbestosis (chronic exposure): dysp, interstitial fib, restricted pulm function, finger clubbing; irrit eyes; [carc]
TO: Resp sys, eyes [lung cancer]

First Aid (see Table 6):
Eye: Irr immed
Breath: Fresh air

Asphalt fumes

Formula:
CAS#: 8052-42-4
RTECS#: CI9900000
IDLH: Ca [N.D.]

Conversion:
DOT: 1999 130 (asphalt)

Synonyms/Trade Names: **Asphalt:** Asphaltum, Bitumen (European term), Petroleum asphalt, Petroleum bitumen, Road asphalt, Roofing asphalt

Exposure Limits:
NIOSH REL: Ca
C 5 mg/m^3 [15-minute]
See Appendix A
OSHA PEL: none

Measurement Methods (see Table 1):
NIOSH 5042

Physical Description: Fumes generated during the production or application of asphalt (a dark-brown to black cement-like substance manufactured by the vacuum distillation of crude petroleum oil).

Chemical & Physical Properties:
Properties vary depending upon the specific asphalt formulation or mixture.

Asphalt: Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: Daily
Remove: N.R.
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: None reported [**Note:** Asphalt becomes molten at about 200°F.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Con
SY: Irrit eyes, resp sys; [carc]
TO: Eyes, resp sys [in animals: skin tumors]

First Aid (see Table 6):
Eye: Irr immed
Breath: Resp support

Atrazine	Formula: $C_8H_{14}ClN_5$	CAS#: 1912-24-9	RTECS#: XY5600000	IDLH: N.D.
Conversion:	**DOT:** 2763 151 (triazine pesticide)			

Synonyms/Trade Names: 2-Chloro-4-ethylamino-6-isopropylamino-s-triazine; 6-Chloro-N-ethyl-N'-(1-methylethyl)-1,3,5-triazine-2,4-diamine

Exposure Limits:
NIOSH REL: TWA 5 mg/m^3
OSHA PEL†: none

Measurement Methods (see Table 1):
NIOSH 5602, 8315

Physical Description: Colorless or white, odorless, crystalline powder. [herbicide]

Chemical & Physical Properties:
MW: 215.7
BP: Decomposes
Sol: 0.003%
Fl.P: NA
IP: NA
Sp.Gr: 1.19
VP: 0.0000003 mmHg
MLT: 340°F
UEL: NA
LEL: NA
Noncombustible Solid, but may be mixed with flammable liquids.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Strong acids, strong bases

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin; derm, sens skin; dysp, lass, inco, salv; hypothermia; liver inj
TO: Eyes, skin, resp sys, CNS, liver

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Azinphos-methyl	Formula: $C_{10}H_{12}O_3PS_2N_3$ [$(CH_3O)_2P(S)SCH_2(N_3C_7H_4O)$]	CAS#: 86-50-0	RTECS#: TE1925000	IDLH: 10 mg/m^3
Conversion:	**DOT:** 2783 152 (organophosphorus pesticide, solid, toxic)			

Synonyms/Trade Names: O,O-Dimethyl-S-4-oxo-1,2,3-benzotriazin-3(4H)-ylmethyl phosphorodithioate; Guthion®; Methyl azinphos

Exposure Limits:
NIOSH REL: TWA 0.2 mg/m^3 [skin]
OSHA PEL: TWA 0.2 mg/m^3 [skin]

Measurement Methods (see Table 1):
NIOSH 5600
OSHA PV2087

Physical Description: Colorless crystals or a brown, waxy solid. [insecticide]

Chemical & Physical Properties:
MW: 317.3
BP: Decomposes
Sol: 0.003%
Fl.P: NA
IP: ?
Sp.Gr: 1.44
VP: 8 x 10^{-9} mmHg
MLT: 163°F
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
2 mg/m^3: CcrOv95/Sa
5 mg/m^3: Sa:Cf/PaprOvHie
10 mg/m^3: CcrFOv100/GmFOv100/ PaprTOvHie/SaT:Cf/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, acids

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Miosis; ache eyes; blurred vision, lac, rhin; head; chest tight, wheez, lar spasm; salv; cyan; anor; nau, vomit, diarr; sweat; twitch, para, convuls; low BP, card irreg
TO: Resp sys, CNS, CVS, blood chol

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

B

Barium chloride (as Ba)

Formula:	CAS#:	RTECS#:	IDLH:
$BaCl_2$	10361-37-2	CQ8750000	50 mg/m^3 (as Ba)

Conversion: **DOT:** 1564 154 (barium compound, n.o.s.)

Synonyms/Trade Names: Barium dichloride

Exposure Limits:
NIOSH REL*: TWA 0.5 mg/m^3
OSHA PEL*: TWA 0.5 mg/m^3
[***Note:** The REL and PEL also apply to other soluble barium compounds (as Ba) except Barium sulfate.]

Measurement Methods (see Table 1):
NIOSH 7056, 7303
OSHA ID121

Physical Description: White, odorless solid.

Chemical & Physical Properties:
MW: 208.2
BP: 2840°F
Sol: 38%
Fl.P: NA
IP: ?
Sp.Gr: 3.86
VP: Low
MLT: 1765°F
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
5 mg/m^3: 95XQ/Sa
12.5 mg/m^3: Sa:Cf/PaprHie
25 mg/m^3: 100F/SaT:Cf/PaprTHie/ ScbaF/SaF
50 mg/m^3: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Acids, oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, upper resp sys; skin burns; gastroenteritis; musc spasm; slow pulse, extrasystoles; hypokalemia
TO: Eyes, skin, resp sys, heart, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

Barium nitrate (as Ba)

Formula:	CAS#:	RTECS#:	IDLH:
$Ba(NO_3)_2$	10022-31-8	CQ9625000	50 mg/m^3 (as Ba)

Conversion: **DOT:** 1446 141

Synonyms/Trade Names: Barium dinitrate, Barium(II) nitrate (1:2), Barium salt of nitric acid

Exposure Limits:
NIOSH REL*: TWA 0.5 mg/m^3
OSHA PEL*: TWA 0.5 mg/m^3
[***Note:** The REL and PEL also apply to other soluble barium compounds (as Ba) except Barium sulfate.]

Measurement Methods (see Table 1):
NIOSH 7056
OSHA ID121

Physical Description: White, odorless solid.

Chemical & Physical Properties:
MW: 261.4
BP: Decomposes
Sol: 9%
Fl.P: NA
IP: ?
Sp.Gr: 3.24
VP: Low
MLT: 1094°F
UEL: NA
LEL: NA
Noncombustible Solid, but will accelerate the burning of combustible materials.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
5 mg/m^3: 95XQ/Sa
12.5 mg/m^3: Sa:Cf/PaprHie
25 mg/m^3: 100F/SaT:Cf/PaprTHie/ ScbaF/SaF
50 mg/m^3: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Acids, oxidizers, aluminum-magnesium alloys, (barium dioxide + zinc)
[**Note:** Contact with combustible material may cause fire.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, upper resp sys; skin burns; gastroenteritis; musc spasm; slow pulse, extrasystoles; hypokalemia
TO: Eyes, skin, resp sys, heart, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

Barium sulfate	Formula: $BaSO_4$	CAS#: 7727-43-7	RTECS#: CR0600000	IDLH: N.D.

Conversion: **DOT:** 1564 154 (barium compound, n.o.s.)

Synonyms/Trade Names: Artificial barite, Barite, Barium salt of sulfuric acid, Barytes (natural)

Exposure Limits:
NIOSH REL: TWA 10 mg/m^3 (total)
TWA 5 mg/m^3 (resp)
OSHA PEL†: TWA 15 mg/m^3 (total)
TWA 5 mg/m^3 (resp)

Measurement Methods (see Table 1):
NIOSH 0500, 0600

Physical Description: White or yellowish, odorless powder.

Chemical & Physical Properties:
MW: 233.4
BP: 2912°F (Decomposes)
Sol(64°F): 0.0002%
Fl.P: NA
IP: NA
Sp.Gr: 4.25-4.5
VP: 0 mmHg (approx)
MLT: 2876°F
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: Daily
Remove: N.R.
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Phosphorus, aluminum
[**Note:** Aluminum in the presence of heat can cause an explosion.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Irrit eyes, nose, upper resp sys; benign pneumoconiosis (baritosis)
TO: Eyes, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Resp support
Swallow: Medical attention immed

Benomyl	Formula: $C_{14}H_{18}N_4O_3$	CAS#: 17804-35-2	RTECS#: DD6475000	IDLH: N.D.

Conversion: **DOT:** 2757 151 (carbamate pesticide, solid)

Synonyms/Trade Names: Methyl 1-(butylcarbamoyl)-2-benzimidazolecarbamate

Exposure Limits:
NIOSH REL: See Appendix D
OSHA PEL†: TWA 15 mg/m^3 (total)
TWA 5 mg/m^3 (resp)

Measurement Methods (see Table 1):
NIOSH 0500, 0600
OSHA PV2107

Physical Description: White crystalline solid with a faint, acrid odor. [fungicide]
[**Note:** Decomposes without melting above 572°F.]

Chemical & Physical Properties:
MW: 290.4
BP: Decomposes
Sol: 0.0004%
Fl.P: NA
IP: NA
Sp.Gr: ?
VP: <0.00001 mmHg
MLT: >572°F (Decomposes)
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Heat, strong acids, strong alkalis

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, upper resp sys; skin sens; possible repro, terato effects
TO: Eyes, skin, resp sys, repro sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

B

Benzene

Formula:	CAS#:	RTECS#:	IDLH:
C_6H_6	71-43-2	CY1400000	Ca [500 ppm]

Conversion: 1 ppm = 3.19 mg/m^3 **DOT:** 1114 130

Synonyms/Trade Names: Benzol, Phenyl hydride

Exposure Limits:
NIOSH REL: Ca
TWA 0.1 ppm
ST 1 ppm
See Appendix A

OSHA PEL: [1910.1028]
TWA 1 ppm
ST 5 ppm
See Appendix F

Measurement Methods (see Table 1):
NIOSH 1500, 1501, 3700, 3800
OSHA 12, 1005

Physical Description: Colorless to light-yellow liquid with an aromatic odor. [**Note:** A solid below 42°F.]

Chemical & Physical Properties:
MW: 78.1
BP: 176°F
Sol: 0.07%
Fl.P: 12°F
IP: 9.24 eV
Sp.Gr: 0.88
VP: 75 mmHg
FRZ: 42°F
UEL: 7.8%
LEL: 1.2%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

See Appendix E (page 351)

Incompatibilities and Reactivities: Strong oxidizers, many fluorides & perchlorates, nitric acid

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, nose, resp sys; dizz; head, nau, staggered gait; anor, lass; derm; bone marrow depres; [carc]
TO: Eyes, skin, resp sys, blood, CNS, bone marrow [leukemia]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Benzenethiol

Formula:	CAS#:	RTECS#:	IDLH:
C_6H_5SH	108-98-5	DC0525000	N.D.

Conversion: 1 ppm = 4.51 mg/m^3 **DOT:** 2337 131

Synonyms/Trade Names: Mercaptobenzene, Phenyl mercaptan, Thiophenol

Exposure Limits:
NIOSH REL: C 0.1 ppm (0.5 mg/m^3) [15-minute]
OSHA PEL†: none

Measurement Methods (see Table 1):
OSHA PV2075

Physical Description: Water-white liquid with an offensive, garlic-like odor. [**Note:** A solid below 5°F.]

Chemical & Physical Properties:
MW: 110.2
BP: 336°F
Sol(77°F): 0.08%
Fl.P: 132°F
IP: 8.33 eV
Sp.Gr: 1.08
VP(65°F): 1 mmHg
FRZ: 5°F
UEL: ?
LEL: ?
Class II Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
1 ppm: CcrOv/Sa
2.5 ppm: Sa:Cf/PaprOv
5 ppm: CcrFOv/GmFOv/PaprTOv/ ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong acids & bases, calcium hypochlorite, alkali metals
[**Note:** Oxidizes on exposure to air.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, resp sys; derm; cyan; cough, wheez, dysp, pulm edema, pneu; head, dizz, CNS depres; nau, vomit; kidney, liver, spleen damage
TO: Eyes, skin, resp sys, CNS, kidneys, liver, spleen

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Benzidine

Formula: $NH_2C_6H_4C_6H_4NH_2$ | **CAS#:** 92-87-5 | **RTECS#:** DC9625000 | **IDLH:** Ca [N.D.]

Conversion: | **DOT:** 1885 153

Synonyms/Trade Names: Benzidine-based dyes; 4,4'-Bianiline; 4,4'-Biphenyldiamine; 1,1'-Biphenyl-4,4'-diamine; 4,4'-Diaminobiphenyl; p-Diaminodiphenyl [**Note:** Benzidine has been used as a basis for many dyes.]

Exposure Limits:
NIOSH REL: Ca
See Appendix A
See Appendix C

OSHA PEL: [1910.1010]
See Appendix B
See Appendix C

Measurement Methods (see Table 1):
NIOSH 5509
OSHA 65

Physical Description: Grayish-yellow, reddish-gray, or white crystalline powder. [**Note:** Darkens on exposure to air and light.]

Chemical & Physical Properties:
MW: 184.3
BP: 752°F
Sol(54°F): 0.04%
Fl.P: ?
IP: ?
Sp.Gr: 1.25
VP: Low
MLT: 239°F
UEL: ?
LEL: ?
Combustible Solid, but difficult to burn.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

See Appendix E (page 351)

Incompatibilities and Reactivities: Red fuming nitric acid

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Hema; secondary anemia from hemolysis; acute cystitis; acute liver disorders; derm; painful, irreg urination; [carc]
TO: Bladder, skin, kidneys, liver, blood [liver, kidney & bladder cancer]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Benzoyl peroxide

Formula: $(C_6H_5CO)_2O_2$ | **CAS#:** 94-36-0 | **RTECS#:** DM8575000 | **IDLH:** 1500 mg/m^3

Conversion: | **DOT:**

Synonyms/Trade Names: Benzoperoxide, Dibenzoyl peroxide

Exposure Limits:
NIOSH REL: TWA 5 mg/m^3
OSHA PEL: TWA 5 mg/m^3

Measurement Methods (see Table 1):
NIOSH 5009

Physical Description: Colorless to white crystals or a granular powder with a faint, benzaldehyde-like odor.

Chemical & Physical Properties:
MW: 242.2
BP: Decomposes explosively
Sol: <1%
Fl.P: 176°F
IP: ?
Sp.Gr: 1.33
VP: <1 mmHg
MLT: 217°F
UEL: ?
LEL: ?
Combustible Solid (easily ignited and burns very rapidly).

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
50 mg/m^3: 95XQ*/Sa*
125 mg/m^3: Sa:Cf*/PaprHie*
250 mg/m^3: 100F/PaprTHie*/ScbaF/SaF
1500 mg/m^3: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Combustible substances (wood, paper, etc.), acids, alkalis, alcohols, amines, ethers [**Note:** Containers may explode when heated. Extremely explosion-sensitive to shock, heat & friction.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, muc memb; sens derm
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

B

Benzyl chloride

Formula:	CAS#:	RTECS#:	IDLH:
$C_6H_5CH_2Cl$	100-44-7	XS8925000	10 ppm

Conversion: 1 ppm = 5.18 mg/m^3 **DOT:** 1738 156

Synonyms/Trade Names: Chloromethylbenzene, α-Chlorotoluene

Exposure Limits:
NIOSH REL: C 1 ppm (5 mg/m^3) [15-minute]
OSHA PEL: TWA 1 ppm (5 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1003
OSHA 7

Physical Description: Colorless to slightly yellow liquid with a pungent, aromatic odor.

Chemical & Physical Properties:
MW: 126.6
BP: 354°F
Sol: 0.05%
Fl.P: 153°F
IP: ?
Sp.Gr: 1.10
VP: 1 mmHg
FRZ: -38°F
UEL: ?
LEL: 1.1%
Class IIIA Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
10 ppm: CcrOvAg*/GmFOvAg/
PaprOvAg*/Sa*/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOvAg/ScbaE

Incompatibilities and Reactivities: Oxidizers, acids, copper, aluminum, magnesium, iron, zinc, tin [**Note:** Can polymerize when in contact with all common metals except nickel & lead. Hydrolyzes in H_2O to benzyl alcohol.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose; lass; irrity; head; skin eruption; pulm edema
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Beryllium & beryllium compounds (as Be)

Formula:	CAS#:	RTECS#:	IDLH:
Be (metal)	7440-41-7 (metal)	DS1750000 (metal)	Ca [4 mg/m^3 (as Be)]

Conversion: **DOT:** 1566 154 (compounds); 1567 134 (powder)

Synonyms/Trade Names: **Beryllium metal:** Beryllium
Other synonyms vary depending upon the specific beryllium compound.

Exposure Limits:
NIOSH REL: Ca
Not to exceed 0.0005 mg/m^3
See Appendix A
OSHA PEL: TWA 0.002 mg/m^3
C 0.005 mg/m^3 0.025 mg/m^3 [30-minute maximum peak]

Measurement Methods (see Table 1):
NIOSH 7102, 7300, 7301, 7303, 9102
OSHA ID125G, ID206

Physical Description: Metal: A hard, brittle, gray-white solid.

Chemical & Physical Properties:
MW: 9.0
BP: 4532°F
Sol: Insoluble
Fl.P: NA
IP: NA
Sp.Gr: 1.85 (metal)
VP: 0 mmHg (approx)
MLT: 2349°F
UEL: NA
LEL: NA

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: Daily
Remove: When wet or contam
Change: Daily
Provide: Eyewash

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Metal: Noncombustible Solid in bulk form, but a slight explosion hazard in the form of a powder or dust.

Incompatibilities and Reactivities: Acids, caustics, chlorinated hydrocarbons, oxidizers, molten lithium

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Berylliosis (chronic exposure): anor, low-wgt, lass, chest pain, cough, clubbing of fingers, cyan, pulm insufficiency; irrit eyes; derm; [carc]
TO: Eyes, skin, resp sys [lung cancer]

First Aid (see Table 6):
Eye: Irr immed
Breath: Fresh air

Bismuth telluride, doped with Selenium sulfide (as Bi_2Te_3)	Formula:	CAS#:	RTECS#:	IDLH: N.D.
Conversion:	DOT:			

Synonyms/Trade Names: Doped bismuth sesquitelluride, Doped bismuth telluride, Doped bismuth tritelluride, Doped tellurobismuthite [**Note:** Doped with selenium sulfide. Commercial mix may contain 80% Bi_2Te_3, 20% stannous telluride, plus some tellurium.]

Exposure Limits:
NIOSH REL: TWA 5 mg/m^3
OSHA PEL†: none

Measurement Methods (see Table 1):
NIOSH 0500
OSHA ID121

Physical Description: Gray, crystalline solid that has been enhanced (doped) with a small amount of selenium sulfide (SeS).
[**Note:** Doping alters the conductivity of a semiconductor.]

Chemical & Physical Properties:
Properties are unavailable but should be similar to Bismuth telluride, undoped.

Sp.Gr: ?

Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Strong oxidizers, moisture

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Irrit eyes, skin, upper resp sys; garlic breath; in animals: pulm lesions (nonfibrotic)
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Bismuth telluride, undoped	Formula: Bi_2Te_3	CAS#: 1304-82-1	RTECS#: EB3110000	IDLH: N.D.
Conversion:	DOT:			

Synonyms/Trade Names: Bismuth sesquitelluride, Bismuth telluride, Bismuth tritelluride, Tellurobismuthite

Exposure Limits:
NIOSH REL: TWA 10 mg/m^3 (total)
TWA 5 mg/m^3 (resp)
OSHA PEL: TWA 15 mg/m^3 (total)
TWA 5 mg/m^3 (resp)

Measurement Methods (see Table 1):
NIOSH 0500, 0600
OSHA ID121

Physical Description: Gray, crystalline solid.

Chemical & Physical Properties:
MW: 800.8
BP: ?
Sol: Insoluble
Fl.P: NA
IP: NA
Sp.Gr: 7.7
VP: 0 mmHg (approx)
MLT: 1063°F
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Strong oxidizers (e.g., bromine, chlorine, or fluorine), moisture, nitric acid (decomposes)

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Irrit eyes, skin, upper resp sys; garlic breath
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

B

Borates, tetra, sodium salts (Anhydrous)	Formula: $Na_2B_4O_7$	CAS#: 1330-43-4	RTECS#: ED4588000	IDLH: N.D.
Conversion:	DOT:			

Synonyms/Trade Names: Anhydrous borax, Borax dehydrated, Disodium salt of boric acid, Disodium tetrabromate, Fused borax, Sodium borate (anhydrous), Sodium tetraborate

Exposure Limits:
NIOSH REL: TWA 1 mg/m^3
OSHA PEL†: none

Physical Description: White to gray, odorless powder. [herbicide]
[**Note:** Becomes opaque on exposure to air.]

Measurement Methods (see Table 1):
NIOSH 0500
OSHA ID125G

Chemical & Physical Properties:
MW: 201.2
BP: 2867°F (Decomposes)
Sol: 4%
Fl.P: NA
IP: NA
Sp.Gr: 2.37
VP: 0 mmHg (approx)
MLT: 1366°F
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: Daily
Remove: N.R.
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Moisture [**Note:** Forms partial hydrate in moist air.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, upper resp sys; derm; epis; cough, dysp
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Resp support
Swallow: Medical attention immed

Borates, tetra, sodium salts (Decahydrate)	Formula: $Na_2B_4O_7{\times}10H_2O$	CAS#: 1303-96-4	RTECS#: VZ2275000	IDLH: N.D.
Conversion:	DOT:			

Synonyms/Trade Names: Borax, Borax decahydrate, Sodium borate decahydrate, Sodium tetraborate decahydrate

Exposure Limits:
NIOSH REL: TWA 5 mg/m^3
OSHA PEL†: none

Physical Description: White, odorless, crystalline solid. [herbicide]
[**Note:** Becomes anhydrous at 608°F.]

Measurement Methods (see Table 1):
NIOSH 0500
OSHA ID125G

Chemical & Physical Properties:
MW: 381.4
BP: 608°F
Sol: 6%
Fl.P: NA
IP: NA
Sp.Gr: 1.73
VP: 0 mmHg (approx)
MLT: 167°F
UEL: NA
LEL: NA
Noncombustible Solid (an inherent fire retardant).

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: Daily
Remove: N.R.
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Zirconium, strong acids, metallic salts

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, upper resp sys; derm; epis; cough, dysp
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Resp support
Swallow: Medical attention immed

Borates, tetra, sodium salts (Pentahydrate)	Formula: $Na_2B_4O_7 \times 5H_2O$	CAS#: 12179-04-3	RTECS#: VZ2540000	IDLH: N.D.
Conversion:	**DOT:**			

Synonyms/Trade Names: Borax pentahydrate, Sodium borate pentahydrate, Sodium tetraborate pentahydrate

Exposure Limits:
NIOSH REL: TWA 1 mg/m^3
OSHA PEL†: none

Physical Description: Colorless or white, odorless crystals or free-flowing powder. [herbicide] [**Note:** Begins to lose water of hydration at 252°F.]

Measurement Methods (see Table 1):
NIOSH 0500
OSHA ID125G

Chemical & Physical Properties:
MW: 291.4
BP: ?
Sol: 3%
Fl.P: NA
IP: NA
Sp.Gr: 1.82
VP: 0 mmHg (approx)
MLT: 392°F
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: Daily
Remove: N.R.
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: None reported
[**Note:** See the reactivities & incompatibilities reported for the related substance Borax decahydrate above.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, upper resp sys; derm; epis; cough, dysp
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Resp support
Swallow: Medical attention immed

Boron oxide	Formula: B_2O_3	CAS#: 1303-86-2	RTECS#: ED7900000	IDLH: 2000 mg/m^3
Conversion:	**DOT:**			

Synonyms/Trade Names: Boric anhydride, Boric oxide, Boron trioxide

Exposure Limits:
NIOSH REL: TWA 10 mg/m^3
OSHA PEL†: TWA 15 mg/m^3

Physical Description: Colorless, semitransparent lumps or hard, white, odorless crystals.

Measurement Methods (see Table 1):
NIOSH 0500

Chemical & Physical Properties:
MW: 69.6
BP: 3380°F
Sol: 3%
Fl.P: NA
IP: 13.50 eV
Sp.Gr: 2.46
VP: 0 mmHg (approx)
MLT: 842°F
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
50 mg/m^3: Qm*
100 mg/m^3: 95XQ*/Sa*
250 mg/m^3: Sa:Cf*/PaprHie*
500 mg/m^3: 100F/PaprTHie*/ScbaF/SaF
2000 mg/m^3: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Water [**Note:** Reacts slowly with water to form boric acid.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, resp sys; cough; conj; skin eryt
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush prompt
Breath: Fresh air
Swallow: Medical attention immed

B

Boron tribromide	Formula: BBr_3	CAS#: 10294-33-4	RTECS#: ED7400000	IDLH: N.D.
Conversion: 1 ppm = 10.25 mg/m^3	**DOT:** 2692 157			

Synonyms/Trade Names: Boron bromide, Tribromoborane

Exposure Limits:
NIOSH REL: C 1 ppm (10 mg/m^3)
OSHA PEL†: none

Measurement Methods (see Table 1):
None available

Physical Description: Colorless, fuming liquid with a sharp, irritating odor.

Chemical & Physical Properties:
MW: 250.5
BP: 194°F
Sol: Decomposes
Fl.P: NA
IP: 9.70 eV
Sp.Gr(65°F): 2.64
VP(57°F): 40 mmHg
FRZ: -51°F
UEL: NA
LEL: NA
Noncombustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Moisture, water, heat, potassium, sodium, alcohols
[**Note:** Attacks metals, wood & rubber. Reacts with water to form boric acid and hydrogen bromide.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, resp sys; eye, skin burns; dysp, pulm edema
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

Boron trifluoride	Formula: BF_3	CAS#: 7637-07-2	RTECS#: ED2275000	IDLH: 25 ppm
Conversion: 1 ppm = 2.77 mg/m^3	**DOT:** 1008 125			

Synonyms/Trade Names: Boron fluoride, Trifluoroborane

Exposure Limits:
NIOSH REL: C 1 ppm (3 mg/m^3)
OSHA PEL: C 1 ppm (3 mg/m^3)

Measurement Methods (see Table 1):
None available

Physical Description: Colorless gas with a pungent, suffocating odor.
[**Note:** Forms dense white fumes in moist air. Shipped as a nonliquefied compressed gas.]

Chemical & Physical Properties:
MW: 67.8
BP: -148°F
Sol: 106% (in cold H_2O)
Fl.P: NA
IP: 15.50 eV
RGasD: 2.38
VP: >50 atm
FRZ: -196°F
UEL: NA
LEL: NA
Nonflammable Gas

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
10 ppm: Sa*
25 ppm: Sa:Cf*/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS/ScbaE

Incompatibilities and Reactivities: Alkali metals, calcium oxide
[**Note:** Hydrolyzes in moist air or hot water to form boric acid, hydrogen fluoride & fluoboric acid.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Irrit eyes, skin, nose, resp sys; epis; eye, skin burns; in animals: pneu; kidney damage
TO: Eyes, skin, resp sys, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support

Bromacil

Formula: $C_9H_{13}BrN_2O_2$ | **CAS#:** 314-40-9 | **RTECS#:** YQ9100000 | **IDLH:** N.D.

Conversion: 1 ppm = 10.68 mg/m^3 | **DOT:**

Synonyms/Trade Names: 5-Bromo-3-sec-butyl-6-methyluracil, 5-Bromo-6-methyl-3-(1-methylpropyl)uracil

Exposure Limits:
NIOSH REL: TWA 1 ppm (10 mg/m^3)
OSHA PEL†: none

Measurement Methods (see Table 1):
NIOSH 0500

Physical Description: Odorless, colorless to white, crystalline solid. [herbicide]
[**Note:** Commercially available as a wettable powder or in liquid formulations.]

Chemical & Physical Properties:
MW: 261.2
BP: Sublimes
Sol(77°F): 0.08%
Fl.P: NA
IP: ?
Sp.Gr: 1.55
VP(212°F): 0.0008 mmHg
MLT: 317°F (Sublimes)
UEL: NA
LEL: NA
Noncombustible Solid, but may be dissolved in flammable liquids.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Strong acids (decomposes slowly), oxidizers, heat, sparks, open flames

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, upper resp sys; in animals: thyroid inj
TO: Eyes, skin, resp sys, thyroid

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Bromine

Formula: Br_2 | **CAS#:** 7726-95-6 | **RTECS#:** EF9100000 | **IDLH:** 3 ppm

Conversion: 1 ppm = 6.54 mg/m^3 | **DOT:** 1744 154

Synonyms/Trade Names: Molecular bromine

Exposure Limits:
NIOSH REL: TWA 0.1 ppm (0.7 mg/m^3)
ST 0.3 ppm (2 mg/m^3)
OSHA PEL†: TWA 0.1 ppm (0.7 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 6011
OSHA ID108

Physical Description: Dark reddish-brown, fuming liquid with suffocating, irritating fumes.

Chemical & Physical Properties:
MW: 159.8
BP: 139°F
Sol: 4%
Fl.P: NA
IP: 10.55 eV
Sp.Gr: 3.12
VP: 172 mmHg
FRZ: 19°F
UEL: NA
LEL: NA
Noncombustible Liquid, but accelerates the burning of combustibles.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
2.5 ppm: Sa:Cf£/PaprS¿£
3 ppm: CcrFS¿/GmFS¿/PaprTS¿£/ ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS¿/ScbaE

Incompatibilities and Reactivities: Combustible organics (sawdust, wood, cotton, straw, etc.), aluminum, readily oxidizable materials, ammonia, hydrogen, acetylene, phosphorus, potassium, sodium
[**Note:** Corrodes iron, steel, stainless steel & copper.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Dizz, head; lac, epis; cough, feeling of oppression, pulm edema, pneu; abdom pain, diarr; measle-like eruptions; eye, skin burns
TO: Resp sys, eyes, CNS, skin

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

B

Bromine pentafluoride

Formula:	CAS#:	RTECS#:	IDLH:
BrF_5	7789-30-2	EF9350000	N.D.

Conversion: 1 ppm = 7.15 mg/m^3 **DOT:** 1745 144

Synonyms/Trade Names: Bromine fluoride

Exposure Limits:
NIOSH REL: TWA 0.1 ppm (0.7 mg/m^3)
OSHA PEL†: none

Physical Description: Colorless to pale-yellow, fuming liquid with a pungent odor. [**Note:** A colorless gas above 105°F. Shipped as a compressed gas.]

Measurement Methods (see Table 1):
None available

Chemical & Physical Properties:
MW: 174.9
BP: 105°F
Sol: Reacts violently
Fl.P: NA
IP: ?
Sp.Gr: 2.48
VP: 328 mmHg
FRZ: -77°F
UEL: NA
LEL: NA
Noncombustible Liquid, but a very powerful oxidizer.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Acids, halogens, arsenic, selenium, sulfur, glass, organic materials, water [**Note:** Reacts with all elements except inert gases, nitrogen & oxygen.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, resp sys; corn nec; skin burns; cough, dysp, pulm edema; liver, kidney inj
TO: Eyes, skin, resp sys, liver, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

Bromoform

Formula:	CAS#:	RTECS#:	IDLH:
$CHBr_3$	75-25-2	PB5600000	850 ppm

Conversion: 1 ppm = 10.34 mg/m^3 **DOT:** 2515 159

Synonyms/Trade Names: Methyl tribromide, Tribromomethane

Exposure Limits:
NIOSH REL: TWA 0.5 ppm (5 mg/m^3) [skin]
OSHA PEL: TWA 0.5 ppm (5 mg/m^3) [skin]

Physical Description: Colorless to yellow liquid with a chloroform-like odor. [**Note:** A solid below 47°F.]

Measurement Methods (see Table 1):
NIOSH 1003
OSHA 7

Chemical & Physical Properties:
MW: 252.8
BP: 301°F
Sol: 0.1%
Fl.P: NA
IP: 10.48 eV
Sp.Gr: 2.89
VP: 5 mmHg
FRZ: 47°F
UEL: NA
LEL: NA
Noncombustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
12.5 ppm: Sa:Cf£/PaprOv£
25 ppm: CcrFOv/GmFOv/PaprTOv£/ ScbaF/SaF
850 ppm: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Lithium, sodium, potassium, calcium, aluminum, zinc, magnesium, strong caustics, acetone [**Note:** Gradually decomposes, acquiring yellow color; air & light accelerate decomposition.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, resp sys; CNS depres; liver, kidney damage
TO: Eyes, skin, resp sys, CNS, liver, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

1,3-Butadiene

Formula: $CH_2=CHCH=CH_2$
CAS#: 106-99-0
RTECS#: EI9275000
IDLH: Ca [2000 ppm] [10%LEL]

Conversion: 1 ppm = 2.21 mg/m^3
DOT: 1010 116P (inhibited)

Synonyms/Trade Names: Biethylene, Bivinyl, Butadiene, Divinyl, Erythrene, Vinylethylene

Exposure Limits:
NIOSH REL: Ca
See Appendix A
OSHA PEL: [1910.1051] TWA 1 ppm
ST 5 ppm

Measurement Methods (see Table 1):
NIOSH 1024
OSHA 56

Physical Description: Colorless gas with a mild aromatic or gasoline-like odor.
[**Note:** A liquid below 24°F. Shipped as a liquefied compressed gas.]

Chemical & Physical Properties:
MW: 54.1
BP: 24°F
Sol: Insoluble
Fl.P: NA (Gas)
-105°F (Liquid)
IP: 9.07 eV
RGasD: 1.88
Sp.Gr: 0.65 (Liquid at 24°F)
VP: 2.4 atm
FRZ: -164°F
UEL: 12.0%
LEL: 2.0%
Flammable Gas

Personal Protection/Sanitation (see Table 2):
Skin: Frostbite
Eyes: Frostbite
Wash skin: N.R.
Remove: When wet (flamm)
Change: N.R.
Provide: Frostbite wash

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS/ScbaE

See Appendix E (page 351)

Incompatibilities and Reactivities: Phenol, chlorine dioxide, copper, crotonaldehyde [**Note:** May contain inhibitors (e.g., tributylcatechol) to prevent self-polymerization. May form explosive peroxides upon exposure to air.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con (liquid)
SY: Irrit eyes, nose, throat; drow, dizz; liquid: frostbite; terato, repro effects; [carc]
TO: Eyes, resp sys, CNS, repro sys [hemato cancer]

First Aid (see Table 6):
Eye: Frostbite
Skin: Frostbite
Breath: Resp support

n-Butane

Formula: $CH_3CH_2CH_2CH_3$
CAS#: 106-97-8
RTECS#: EJ4200000
IDLH: N.D.

Conversion: 1 ppm = 2.38 mg/m^3
DOT: 1011 115; 1075 115

Synonyms/Trade Names: normal-Butane, Butyl hydride, Diethyl, Methylethylmethane
[**Note:** Also see specific listing for Isobutane.]

Exposure Limits:
NIOSH REL: TWA 800 ppm (1900 mg/m^3)
OSHA PEL†: none

Measurement Methods (see Table 1):
OSHA 56

Physical Description: Colorless gas with a gasoline-like or natural gas odor.
[**Note:** Shipped as a liquefied compressed gas. A liquid below 31°F.]

Chemical & Physical Properties:
MW: 58.1
BP: 31°F
Sol: Slight
Fl.P: NA (Gas)
IP: 10.63 eV
RGasD: 2.11
Sp.Gr: 0.6 (Liquid at 31°F)
VP: 2.05 atm
FRZ: -217°F
UEL: 8.4%
LEL: 1.6%
Flammable Gas

Personal Protection/Sanitation (see Table 2):
Skin: Frostbite
Eyes: Frostbite
Wash skin: N.R.
Remove: When wet (flamm)
Change: N.R.
Provide: Frostbite wash

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Strong oxidizers (e.g., nitrates and perchlorates), chlorine, fluorine, (nickel carbonyl + oxygen)

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con (liquid)
SY: Drow, narco, asphy; liquid: frostbite
TO: CNS

First Aid (see Table 6):
Eye: Frostbite
Skin: Frostbite
Breath: Resp support

B

2-Butanone

Formula:	CAS#:	RTECS#:	IDLH:
$CH_3COCH_2CH_3$	78-93-3	EL6475000	3000 ppm

Conversion: 1 ppm = 2.95 mg/m^3 **DOT:** 1193 127

Synonyms/Trade Names: Ethyl methyl ketone, MEK, Methyl acetone, Methyl ethyl ketone

Exposure Limits:
NIOSH REL: TWA 200 ppm (590 mg/m^3)
ST 300 ppm (885 mg/m^3)
OSHA PEL†: TWA 200 ppm (590 mg/m^3)

Physical Description: Colorless liquid with a moderately sharp, fragrant, mint- or acetone-like odor.

Measurement Methods (see Table 1):
NIOSH 2500, 2555, 3800
OSHA 16, 84, 1004

Chemical & Physical Properties:
MW: 72.1
BP: 175°F
Sol: 28%
Fl.P: 16°F
IP: 9.54 eV
Sp.Gr: 0.81
VP: 78 mmHg
FRZ: -123°F
UEL(200°F): 11.4%
LEL(200°F): 1.4%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.
Provide: Eyewash

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
3000 ppm: Sa:Cf£/PaprOv£/CcrFOv/GmFOv/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, amines, ammonia, inorganic acids, caustics, isocyanates, pyridines

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose; head; dizz; vomit; derm
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water wash immed
Breath: Fresh air
Swallow: Medical attention immed

2-Butoxyethanol

Formula:	CAS#:	RTECS#:	IDLH:
$C_4H_9OCH_2CH_2OH$	111-76-2	KJ8575000	700 ppm

Conversion: 1 ppm = 4.83 mg/m^3 **DOT:** 2369 152

Synonyms/Trade Names: Butyl Cellosolve®, Butyl oxitol, Dowanol® EB, EGBE, Ektasolve EB®, Ethylene glycol monobutyl ether, Jeffersol EB

Exposure Limits:
NIOSH REL: TWA 5 ppm (24 mg/m^3) [skin]
OSHA PEL†: TWA 50 ppm (240 mg/m^3) [skin]

Physical Description: Colorless liquid with a mild, ether-like odor.

Measurement Methods (see Table 1):
NIOSH 1403
OSHA 83

Chemical & Physical Properties:
MW: 118.2
BP: 339°F
Sol: Miscible
Fl.P: 143°F
IP: 10.00 eV
Sp.Gr: 0.90
VP: 0.8 mmHg
FRZ: -107°F
UEL(275°F): 12.7%
LEL(200°F): 1.1%
Class IIIA Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
50 ppm: CcrOv*/Sa*
125 ppm: Sa:Cf*/PaprOv*
250 ppm: CcrFOv/GmFOv/PaprTOv*/ScbaF/SaF
700 ppm: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, strong caustics

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, nose, throat; hemolysis, hema; CNS depres, head; vomit
TO: Eyes, skin, resp sys, CNS, hemato sys, blood, kidneys, liver, lymphoid sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

2-Butoxyethanol acetate

Formula: $C_4H_9O(CH_2)_2OCOCH_3$
CAS#: 112-07-2
RTECS#: KJ8925000
IDLH: N.D.

Conversion: 1 ppm = 6.55 mg/m^3
DOT:

Synonyms/Trade Names: 2-Butoxyethyl acetate, Butyl Cellosolve® acetate, Butyl glycol acetate, EGBEA, Ektasolve EB® acetate, Ethylene glycol monobutyl ether acetate

Exposure Limits:
NIOSH REL: TWA 5 ppm (33 mg/m^3)
OSHA PEL: none

Measurement Methods (see Table 1):
OSHA 83

Physical Description: Colorless liquid with a pleasant, sweet, fruity odor.

Chemical & Physical Properties:
MW: 160.2
BP: 378°F
Sol: 1.5%
Fl.P: 160°F
IP: ?
Sp.Gr: 0.94
VP: 0.3 mmHg
FRZ: -82°F
UEL(275°F): 8.54%
LEL(200°F): 0.88%
Class IIIA Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
50 ppm: CcrOv*/Sa*
125 ppm: Sa:Cf*/PaprOv*
250 ppm: CcrFOv/GmFOv/PaprTOv*/ ScbaF/SaF
700 ppm: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, nose, throat; hemolysis, hema; CNS depres, head; vomit
TO: Eyes, skin, resp sys, CNS, hemato sys, blood, kidneys, liver, lymphoid sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

n-Butyl acetate

Formula: $CH_3COO[CH_2]_3CH_3$
CAS#: 123-86-4
RTECS#: AF7350000
IDLH: 1700 ppm [10%LEL]

Conversion: 1 ppm = 4.75 mg/m^3
DOT: 1123 129

Synonyms/Trade Names: Butyl acetate, n-Butyl ester of acetic acid, Butyl ethanoate

Exposure Limits:
NIOSH REL: TWA 150 ppm (710 mg/m^3)
ST 200 ppm (950 mg/m^3)
OSHA PEL†: TWA 150 ppm (710 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1450
OSHA 7

Physical Description: Colorless liquid with a fruity odor.

Chemical & Physical Properties:
MW: 116.2
BP: 258°F
Sol: 1%
Fl.P: 72°F
IP: 10.00 eV
Sp.Gr: 0.88
VP: 10 mmHg
FRZ: -107°F
UEL: 7.6%
LEL: 1.7%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
1500 ppm: CcrOv*/Sa*
1700 ppm: Sa:Cf*/PaprOv*/CcrFOv/ GmFOv/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Nitrates; strong oxidizers, alkalis & acids

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, upper resp sys; head, drow, narco
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush prompt
Breath: Resp support
Swallow: Medical attention immed

B

sec-Butyl acetate	Formula: $CH_3COOCH(CH_3)CH_2CH_3$	CAS#: 105-46-4	RTECS#: AF7380000	IDLH: 1700 ppm [10%LEL]
Conversion: 1 ppm = 4.75 mg/m^3	**DOT:** 1123 129			

Synonyms/Trade Names: sec-Butyl ester of acetic acid, 1-Methylpropyl acetate

Exposure Limits:
NIOSH REL: TWA 200 ppm (950 mg/m^3)
OSHA PEL: TWA 200 ppm (950 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1450
OSHA 7

Physical Description: Colorless liquid with a pleasant, fruity odor.

Chemical & Physical Properties:
MW: 116.2
BP: 234°F
Sol: 0.8%
Fl.P: 62°F
IP: 9.91 eV
Sp.Gr: 0.86
VP: 10 mmHg
FRZ: -100°F
UEL: 9.8%
LEL: 1.7%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
1700 ppm: Sa:Cf£/PaprOv£/CcrFOv/GmFOv/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Nitrates; strong oxidizers, alkalis & acids

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes; head; drow; dryness upper resp sys, skin; narco
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush prompt
Breath: Resp support
Swallow: Medical attention immed

tert-Butyl acetate	Formula: $CH_3COOC(CH_3)_3$	CAS#: 540-88-5	RTECS#: AF7400000	IDLH: 1500 ppm [10%LEL]
Conversion: 1 ppm = 4.75 mg/m^3	**DOT:** 1123 129			

Synonyms/Trade Names: tert-Butyl ester of acetic acid

Exposure Limits:
NIOSH REL: TWA 200 ppm (950 mg/m^3)
OSHA PEL: TWA 200 ppm (950 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1450
OSHA 7

Physical Description: Colorless liquid with a fruity odor.

Chemical & Physical Properties:
MW: 116.2
BP: 208°F
Sol: Insoluble
Fl.P: 72°F
IP: ?
Sp.Gr: 0.87
VP: ?
FRZ: ?
UEL: ?
LEL: 1.5%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
1500 ppm: Sa:Cf£/PaprOv£/CcrFOv/GmFOv/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Nitrates; strong oxidizers, alkalis & acids

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Itch, inflamm eyes; irrit upper resp tract; head; narco; derm
TO: Resp sys, eyes, skin, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush prompt
Breath: Resp support
Swallow: Medical attention immed

Butyl acrylate	Formula: $CH_2=CHCOOC_4H_9$	CAS#: 141-32-2	RTECS#: UD3150000	IDLH: N.D.
Conversion: 1 ppm = 5.24 mg/m^3	**DOT:** 2348 130P			

Synonyms/Trade Names: n-Butyl acrylate, Butyl ester of acrylic acid, Butyl-2-propenoate

Exposure Limits:
NIOSH REL: TWA 10 ppm (55 mg/m^3)
OSHA PEL†: none

Measurement Methods (see Table 1):
OSHA PV2011

Physical Description: Clear, colorless liquid with a strong, fruity odor. [**Note:** Highly reactive; may contain an inhibitor to prevent spontaneous polymerization.]

Chemical & Physical Properties:
MW: 128.2
BP: 293°F
Sol: 0.1%
Fl.P: 103°F
IP: ?
Sp.Gr: 0.89
VP: 4 mmHg
FRZ: -83°F
UEL: 9.9%
LEL: 1.5%
Class II Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Strong acids & alkalis, amines, halogens, hydrogen compounds, oxidizers, heat, flame, sunlight [**Note:** Polymerizes readily on heating.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, upper resp sys; sens derm; dysp
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

n-Butyl alcohol	Formula: $CH_3CH_2CH_2CH_2OH$	CAS#: 71-36-3	RTECS#: EO1400000	IDLH: 1400 ppm [10%LEL]
Conversion: 1 ppm = 3.03 mg/m^3	**DOT:** 1120 129			

Synonyms/Trade Names: 1-Butanol, n-Butanol, Butyl alcohol, 1-Hydroxybutane, n-Propyl carbinol

Exposure Limits:
NIOSH REL: C 50 ppm (150 mg/m^3) [skin]
OSHA PEL†: TWA 100 ppm (300 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1401, 1405
OSHA 7

Physical Description: Colorless liquid with a strong, characteristic, mildly alcoholic odor.

Chemical & Physical Properties:
MW: 74.1
BP: 243°F
Sol: 9%
Fl.P: 84°F
IP: 10.04 eV
Sp.Gr: 0.81
VP: 6 mmHg
FRZ: -129°F
UEL: 11.2%
LEL: 1.4%
Class IC Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
1250 ppm: Sa:Cf£/PaprOv£
1400 ppm: CcrFOv/GmFOv/PaprTOv£/ ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, strong mineral acids, alkali metals, halogens

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, nose, throat; head, dizz, drow; corn inflamm, blurred vision, lac, photo; derm; possible auditory nerve damage, hearing loss; CNS depres
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush prompt
Breath: Resp support
Swallow: Medical attention immed

B

sec-Butyl alcohol

Formula:	CAS#:	RTECS#:	IDLH:
$CH_3CH(OH)CH_2CH_3$	78-92-2	EO1750000	2000 ppm

Conversion: 1 ppm = 3.03 mg/m^3 **DOT:** 1120 129

Synonyms/Trade Names: 2-Butanol, Butylene hydrate, 2-Hydroxybutane, Methyl ethyl carbinol

Exposure Limits:
NIOSH REL: TWA 100 ppm (305 mg/m^3)
ST 150 ppm (455 mg/m^3)
OSHA PEL†: TWA 150 ppm (450 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1401, 1405
OSHA 7

Physical Description: Colorless liquid with a strong, pleasant odor.

Chemical & Physical Properties:
MW: 74.1
BP: 211°F
Sol: 16%
Fl.P: 75°F
IP: 10.10 eV
Sp.Gr: 0.81
VP: 12 mmHg
FRZ: -175°F
UEL(212°F): 9.8%
LEL(212°F): 1.7%
Class IC Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
1000 ppm: CcrOv*/Sa*
2000 ppm: Sa:Cf*/PaprOv*/CcrFOv/GmFOv/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, organic peroxides, perchloric & permonosulfuric acids

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose, throat; narco
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush prompt
Breath: Resp support
Swallow: Medical attention immed

tert-Butyl alcohol

Formula:	CAS#:	RTECS#:	IDLH:
$(CH_3)_3COH$	75-65-0	EO1925000	1600 ppm

Conversion: 1 ppm = 3.03 mg/m^3 **DOT:** 1120 129

Synonyms/Trade Names: 2-Methyl-2-propanol, Trimethyl carbinol

Exposure Limits:
NIOSH REL: TWA 100 ppm (300 mg/m^3)
ST 150 ppm (450 mg/m^3)
OSHA PEL†: TWA 100 ppm (300 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1400
OSHA 7

Physical Description: Colorless solid or liquid (above 77°F) with a camphor-like odor. [**Note:** Often used in aqueous solutions.]

Chemical & Physical Properties:
MW: 74.1
BP: 180°F
Sol: Miscible
Fl.P: 52°F
IP: 9.70 eV
Sp.Gr: 0.79 (Solid)
VP(77°F): 42 mmHg
FRZ: 78°F
UEL: 8.0%
LEL: 2.4%
Combustible Solid
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
1600 ppm: Sa:Cf£/PaprOv£/CcrFOv/GmFOv/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong mineral acids, strong hydrochloric acid, oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose, throat; drow, narco
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush prompt
Breath: Resp support
Swallow: Medical attention immed

n-Butylamine

Formula: $CH_3CH_2CH_2CH_2NH_2$ | **CAS#:** 109-73-9 | **RTECS#:** EO2975000 | **IDLH:** 300 ppm

Conversion: 1 ppm = 2.99 mg/m^3 | **DOT:** 1125 132

Synonyms/Trade Names: 1-Aminobutane, Butylamine

Exposure Limits:
NIOSH REL: C 5 ppm (15 mg/m^3) [skin]
OSHA PEL: C 5 ppm (15 mg/m^3) [skin]

Measurement Methods (see Table 1):
NIOSH 2012

Physical Description: Colorless liquid with a fishy, ammonia-like odor.

Chemical & Physical Properties:
MW: 73.2
BP: 172°F
Sol: Miscible
Fl.P: 10°F
IP: 8.71 eV
Sp.Gr: 0.74
VP: 82 mmHg
FRZ: -58°F
UEL: 9.8%
LEL: 1.7%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
50 ppm: CcrS*/Sa*
125 ppm: Sa:Cf*/PaprS*
250 ppm: CcrFS/GmFS/PaprTS*/ ScbaF/SaF
300 ppm: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, strong acids
[**Note:** May corrode some metals in presence of water.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, nose, throat; head; skin flush, burns
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

tert-Butyl chromate

Formula: $[(CH_3)_3CO]_2CrO_2$ | **CAS#:** 1189-85-1 | **RTECS#:** GB2900000 | **IDLH:** Ca [15 mg/m^3 {as Cr(VI)}]

Conversion: | **DOT:**

Synonyms/Trade Names: di-tert-Butyl ester of chromic acid

Exposure Limits:
NIOSH REL: Ca
TWA 0.001 mg Cr(VI)/m^3
See Appendix A
See Appendix C
OSHA PEL: C 0.1 mg CrO_3/m^3 [skin]
See Appendix C

Measurement Methods (see Table 1):
NIOSH 7604
OSHA ID103, ID215

Physical Description: Liquid. [**Note:** Solidifies at 32-23°F.]

Chemical & Physical Properties:
MW: 230.3
BP: ?
Sol: ?
Fl.P: ?
IP: ?
Sp.Gr: ?
VP: ?
FRZ: 32-23°F
UEL: ?
LEL: ?

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Reducing agents, moisture, acids, alcohols, hydrazine, combustible materials

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, resp sys; eye, skin burns; drow, musc weak; skin ulcers; lung changes; [carc]
TO: Eyes, skin, resp sys, CNS [lung cancer]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

B

n-Butyl glycidyl ether

Formula:	CAS#:	RTECS#:	IDLH:
$C_7H_{14}O_2$	2426-08-6	TX4200000	250 ppm

Conversion: 1 ppm = 5.33 mg/m^3 **DOT:**

Synonyms/Trade Names: BGE; 1,2-Epoxy-3-butoxypropane

Exposure Limits:
NIOSH REL: C 5.6 ppm (30 mg/m^3) [15-minute]
OSHA PEL†: TWA 50 ppm (270 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1616
OSHA 7

Physical Description: Colorless liquid with an irritating odor.

Chemical & Physical Properties:
MW: 130.2
BP: 327°F
Sol: 2%
Fl.P: 130°F
IP: ?
Sp.Gr: 0.91
VP(77°F): 3 mmHg
FRZ: ?
UEL: ?
LEL: ?
Class II Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
56 ppm: CcrOv*/Sa*
140 ppm: Sa:Cf*/PaprOv*
250 ppm: CcrFOv/GmFOv/PaprTOv*/ ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, strong caustics

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose; skin sens; narco; possible hemato effects; CNS depres
TO: Eyes, skin, resp sys, CNS, blood

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

n-Butyl lactate

Formula:	CAS#:	RTECS#:	IDLH:
$CH_3CH(OH)COOC_4H_9$	138-22-7	OD4025000	N.D.

Conversion: 1 ppm = 5.98 mg/m^3 **DOT:** 1993 128 (combustible liquid, n.o.s.)

Synonyms/Trade Names: Butyl ester of 2-hydroxypropanoic acid, Butyl ester of lactic acid, Butyl lactate

Exposure Limits:
NIOSH REL: TWA 5 ppm (25 mg/m^3)
OSHA PEL†: none

Measurement Methods (see Table 1):
None available

Physical Description: Clear, colorless to white liquid with a mild, transient odor.

Chemical & Physical Properties:
MW: 146.2
BP: 370°F
Sol: Slight
Fl.P: 160°F
IP: ?
Sp.Gr: 0.98
VP: 0.4 mmHg
FRZ: -45°F
UEL: ?
LEL: 1.15%
Class IIIA Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Strong acids & bases, strong oxidizers, heat, sparks, open flames

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose, throat; drow, head, CNS depres; nau, vomit
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

n-Butyl mercaptan

Formula:	CAS#:	RTECS#:	IDLH:
$CH_3CH_2CH_2CH_2SH$	109-79-5	EK6300000	500 ppm

Conversion: 1 ppm = 3.69 mg/m^3

DOT: 2347 130

Synonyms/Trade Names: Butanethiol, 1-Butanethiol, n-Butanethiol, 1-Mercaptobutane

Exposure Limits:
NIOSH REL: C 0.5 ppm (1.8 mg/m^3) [15-minute]
OSHA PEL†: TWA 10 ppm (35 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 2525, 2542

Physical Description: Colorless liquid with a strong, garlic-, cabbage-, or skunk-like odor.

Chemical & Physical Properties:
MW: 90.2
BP: 209°F
Sol: 0.06%
Fl.P: 35°F
IP: 9.15 eV
Sp.Gr: 0.83
VP: 35 mmHg
FRZ: -176°F
UEL: ?
LEL: ?
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
5 ppm: CcrOv/Sa
12.5 ppm: Sa:Cf/PaprOv
25 ppm: CcrFOv/GmFOv/PaprTOv/ScbaF/SaF
500 ppm: Sa:Pd,Pp*
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers (such as dry bleaches), acids

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin; musc weak, mal, sweat, nau, vomit, head, conf; in animals: narco, inco, lass; cyan, pulm irrit; liver, kidney damage
TO: Eyes, skin, resp sys, CNS, liver, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

o-sec-Butylphenol

Formula:	CAS#:	RTECS#:	IDLH:
$CH_3CH_2CH(CH_3)C_6H_4OH$	89-72-5	SJ8920000	N.D.

Conversion: 1 ppm = 6.14 mg/m^3

DOT:

Synonyms/Trade Names: 2-sec-Butylphenol; 2-(1-Methylpropyl)phenol

Exposure Limits:
NIOSH REL: TWA 5 ppm (30 mg/m^3) [skin]
OSHA PEL†: none

Measurement Methods (see Table 1):
None available

Physical Description: Colorless liquid or solid (below 61°F).

Chemical & Physical Properties:
MW: 150.2
BP: 227°F
Sol: Insoluble
Fl.P: 225°F
IP: ?
Sp.Gr: 0.89
VP: Low
FRZ: 61°F
UEL: ?
LEL: ?
Class IIB Combustible Liquid
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: None reported

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, resp sys; skin burns
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap flush immed
Breath: Resp support
Swallow: Medical attention immed

B

p-tert-Butyltoluene

Formula:	CAS#:	RTECS#:	IDLH:
$(CH_3)_3CC_6H_4CH_3$	98-51-1	XS8400000	100 ppm

Conversion: 1 ppm = 6.07 mg/m^3 **DOT:** 2667 152

Synonyms/Trade Names: 4-tert-Butyltoluene, 1-Methyl-4-tert-butylbenzene

Exposure Limits:
NIOSH REL: TWA 10 ppm (60 mg/m^3)
ST 20 ppm (120 mg/m^3)
OSHA PEL†: TWA 10 ppm (60 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1501
OSHA 7

Physical Description: Colorless liquid with a distinct aromatic odor, somewhat like gasoline.

Chemical & Physical Properties:
MW: 148.3
BP: 379°F
Sol: Insoluble
Fl.P: 155°F
IP: 8.28 eV
Sp.Gr: 0.86
VP(77°F): 0.7 mmHg
FRZ: -62°F
UEL: ?
LEL: ?
Class IIIA Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
100 ppm: Sa:Cf£/PaprOv£/CcrFOv/GmFOv/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin; dry nose, throat; head; low BP, tacar, abnor CVS stress; CNS, hemato depres; metallic taste; liver, kidney inj
TO: Eyes, skin, resp sys, CVS, CNS, bone marrow, liver, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush prompt
Breath: Resp support
Swallow: Medical attention immed

n-Butyronitrile

Formula:	CAS#:	RTECS#:	IDLH:
$CH_3CH_2CH_2CN$	109-74-0	ET8750000	N.D.

Conversion: 1 ppm = 2.83 mg/m^3 **DOT:** 2411 131

Synonyms/Trade Names: Butanenitrile, Butyronitrile, 1-Cyanopropane, Propyl cyanide, n-Propyl cyanide

Exposure Limits:
NIOSH REL: TWA 8 ppm (22 mg/m^3)
OSHA PEL: none

Measurement Methods (see Table 1):
NIOSH 1606 (adapt)

Physical Description: Colorless liquid with a sharp, suffocating odor.
[**Note:** Forms cyanide in the body.]

Chemical & Physical Properties:
MW: 69.1
BP: 244°F
Sol(77°F): 3%
Fl.P: 62°F
IP: 11.67 eV
Sp.Gr: 0.81
VP: 14 mmHg
FRZ: -170°F
UEL: ?
LEL: 1.65%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.
Provide: Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
80 ppm: CcrOv/Sa
200 ppm: Sa:Cf/PaprOv
400 ppm: CcrFOv/GmFOv/PaprTOv/ScbaF/SaF
1000 ppm: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers & reducing agents, strong acids & bases

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, resp sys; head, dizz, lass, conf, convuls; dysp; abdom pain, nau, vomit
TO: Eyes, skin, resp sys, CNS, CVS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

C

Cadmium dust (as Cd)	Formula: Cd (metal)	CAS#: 7440-43-9 (metal)	RTECS#: EU9800000 (metal)	IDLH: Ca [9 mg/m^3 (as Cd)]
Conversion:	**DOT:** 2570 154 (cadmium compound)			

Synonyms/Trade Names: **Cadmium metal:** Cadmium
Other synonyms vary depending upon the specific cadmium compound.

Exposure Limits:
NIOSH REL*: Ca
See Appendix A
OSHA PEL*: [1910.1027] TWA 0.005 mg/m^3
[***Note:** The REL and PEL apply to all Cadmium compounds (as Cd).]

Measurement Methods (see Table 1):
NIOSH 7048, 7300, 7301, 7303, 9102
OSHA ID121, ID125G, ID189, ID206

Physical Description: Metal: Silver-white, blue-tinged lustrous, odorless solid.

Chemical & Physical Properties:
MW: 112.4
BP: 1409°F
Sol: Insoluble
Fl.P: NA
IP: NA
Sp.Gr: 8.65 (metal)
VP: 0 mmHg (approx)
MLT: 610°F
UEL: NA
LEL: NA
Metal: Noncombustible Solid in bulk form, but will burn in powder form.

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: Daily
Remove: N.R.
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

See Appendix E (page 351)

Incompatibilities and Reactivities: Strong oxidizers; elemental sulfur, selenium & tellurium

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing
SY: Pulm edema, dysp, cough, chest tight, subs pain; head; chills, musc aches; nau, vomit, diarr; anos, emphy, prot, mild anemia; [carc]
TO: Resp sys, kidneys, prostate, blood [prostatic & lung cancer]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Resp support
Swallow: Medical attention immed

Cadmium fume (as Cd)	Formula: CdO/Cd	CAS#: 1306-19-0 (CdO)	RTECS#: EV1930000 (CdO)	IDLH: Ca [9 mg/m^3 (as Cd)]
Conversion:	**DOT:**			

Synonyms/Trade Names: **CdO:** Cadmium monoxide, Cadmium oxide fume **Cd:** Cadmium

Exposure Limits:
NIOSH REL*: Ca
See Appendix A
OSHA PEL*: [1910.1027] TWA 0.005 mg/m^3
[***Note:** The REL and PEL apply to all Cadmium compounds (as Cd).]

Measurement Methods (see Table 1):
NIOSH 7048, 7300, 7301, 7303
OSHA ID121, ID125G, ID189, ID206

Physical Description: Odorless, yellow-brown, finely divided particulate dispersed in air. [**Note:** See listing for Cadmium dust for properties of Cd.]

Chemical & Physical Properties:
MW: 128.4
BP: Decomposes
Sol: Insoluble
Fl.P: NA
IP: NA
Sp.Gr: 8.15 (crystalline form)
6.95 (amorphous form)
VP: 0 mmHg (approx)
MLT: 2599°F
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: Daily
Remove: N.R.
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

See Appendix E (page 351)

Incompatibilities and Reactivities: Not applicable

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh
SY: Pulm edema, dysp, cough, chest tight, subs pain; head; chills, musc aches; nau, vomit, diarr; emphy, prot, anos, mild anemia; [carc]
TO: Resp sys, kidneys, blood [prostatic & lung cancer]

First Aid (see Table 6):
Breath: Resp support

C

Calcium arsenate (as As)	Formula: $Ca_3(AsO_4)_2$	CAS#: 7778-44-1	RTECS#: CG0830000	IDLH: Ca [5 mg/m^3 (as As)]
Conversion:	DOT: 1573 151			

Synonyms/Trade Names: Calcium salt (2:3) of arsenic acid, Cucumber dust, Tricalcium arsenate, Tricalcium ortho-arsenate [**Note:** Also see specific listing for Arsenic (inorganic compounds, as As).]

Exposure Limits:
NIOSH REL: Ca
C 0.002 mg/m^3 [15-minute]
See Appendix A
OSHA PEL: [1910.1018] TWA 0.010 mg/m^3

Measurement Methods (see Table 1):
NIOSH 7900
OSHA ID105

Physical Description: Colorless to white, odorless solid. [insecticide/herbicide]

Chemical & Physical Properties:
MW: 398.1
BP: Decomposes
Sol(77°F): 0.01%
Fl.P: NA
IP: NA
Sp.Gr: 3.62
VP: 0 mmHg (approx)
MLT: ?
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: None reported
[**Note:** Produces toxic fumes of arsenic when heated to decomposition.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Lass; GI dist; peri neur; skin hyperpig, palmar planter hyperkeratoses; derm; [carc]; in animals: liver damage
TO: Eyes, resp sys, liver, skin, CNS, lymphatic sys [lymphatic & lung cancer]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

Calcium carbonate	Formula: $CaCO_3$	CAS#: 1317-65-3	RTECS#: EV9580000	IDLH: N.D.
Conversion:	DOT:			

Synonyms/Trade Names: Calcium salt of carbonic acid
[**Note:** Occurs in nature as as limestone, chalk, marble, dolomite, aragonite, calcite & oyster shells.]

Exposure Limits:
NIOSH REL: TWA 10 mg/m^3 (total)
TWA 5 mg/m^3 (resp)
OSHA PEL: TWA 15 mg/m^3 (total)
TWA 5 mg/m^3 (resp)

Measurement Methods (see Table 1):
NIOSH 7020, 7303
OSHA ID121

Physical Description: White, odorless powder or colorless crystals.

Chemical & Physical Properties:
MW: 100.1
BP: Decomposes
Sol: 0.001%
Fl.P: NA
IP: NA
Sp.Gr: 2.7-2.95
VP: 0 mmHg (approx)
MLT: 1517-2442°F (Decomposes)
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Acids, alum, ammonium salts, mercury & hydrogen, fluorine, magnesium

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Irrit eyes, skin, resp sys; cough
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Fresh air

Calcium cyanamide

Formula: $CaCN_2$ | **CAS#:** 156-62-7 | **RTECS#:** GS6000000 | **IDLH:** N.D.

Conversion: | **DOT:** 1403 138 (with >0.1% calcium carbide)

Synonyms/Trade Names: Calcium carbimide, Cyanamide, Lime nitrogen, Nitrogen lime
[**Note:** Cyanamide is also a synonym for Hydrogen cyanamide, NH_2CN.]

Exposure Limits:
NIOSH REL: TWA 0.5 mg/m^3
OSHA PEL†: none

Measurement Methods (see Table 1):
NIOSH 0500

Physical Description: Colorless, gray, or black crystals or powder. [fertilizer]
[**Note:** Commercial grades may contain calcium carbide.]

Chemical & Physical Properties:
MW: 80.1
BP: Sublimes
Sol: Insoluble
Fl.P: NA
IP: NA
Sp.Gr: 2.29
VP: 0 mmHg (approx)
MLT: 2444°F
UEL: NA
LEL: NA
Noncombustible Solid, but a fire risk if it contains calcium carbide.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Water
[**Note:** May polymerize in water or alkaline solutions to dicyanamide. Decomposes in water to form acetylene & ammonia.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, resp sys; head, dizz, rapid breath, low BP, nau, vomit; skin burns, sens; cough; Antabuse-like effects
TO: Eyes, skin, resp sys, vasomotor sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap flush immed
Breath: Resp support
Swallow: Medical attention immed

Calcium hydroxide

Formula: $Ca(OH)_2$ | **CAS#:** 1305-62-0 | **RTECS#:** EW2800000 | **IDLH:** N.D.

Conversion: | **DOT:**

Synonyms/Trade Names: Calcium hydrate, Caustic lime, Hydrated lime, Slaked lime

Exposure Limits:
NIOSH REL: TWA 5 mg/m^3
OSHA PEL: TWA 15 mg/m^3 (total)
TWA 5 mg/m^3 (resp)

Measurement Methods (see Table 1):
NIOSH 7020
OSHA ID121

Physical Description: White, odorless powder.
[**Note:** Readily absorbs CO_2 from the air to form calcium carbonate.]

Chemical & Physical Properties:
MW: 74.1
BP: Decomposes
Sol(32°F): 0.2%
Fl.P: NA
IP: NA
Sp.Gr: 2.24
VP: 0 mmHg (approx)
MLT: 1076°F (Decomposes) (Loses H_2O)
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Maleic anhydride, phosphorus, nitroethane, nitromethane, nitroparaffins, nitropropane [**Note:** Attacks some metals.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, upper resp sys; eye, skin burns; skin vesic; cough, bron, pneu
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap flush immed
Breath: Resp support
Swallow: Medical attention immed

C

Calcium oxide	Formula: CaO	CAS#: 1305-78-8	RTECS#: EW3100000	IDLH: 25 mg/m^3

Conversion: **DOT:** 1910 157

Synonyms/Trade Names: Burned lime, Burnt lime, Lime, Pebble lime, Quick lime, Unslaked lime

Exposure Limits:
NIOSH REL: TWA 2 mg/m^3
OSHA PEL: TWA 5 mg/m^3

Physical Description: White or gray, odorless lumps or granular powder.

Measurement Methods (see Table 1):
NIOSH 7020, 7303
OSHA ID121

Chemical & Physical Properties:
MW: 56.1
BP: 5162°F
Sol: Reacts
Fl.P: NA
IP: NA
Sp.Gr: 3.34
VP: 0 mmHg (approx)
MLT: 4662°F
UEL: NA
LEL: NA
Noncombustible Solid, but will support combustion by liberation of oxygen.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
10 mg/m^3: Qm
20 mg/m^3: 95XQ/Sa
25 mg/m^3: Sa:Cf/PaprHie/100F/ ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Water (liberates heat), fluorine, ethanol
[**Note:** Reacts with water to form calcium hydroxide.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, upper resp tract; ulcer, perf nasal septum; pneu; derm
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

Calcium silicate	Formula: $CaSiO_3$	CAS#: 1344-95-2	RTECS#: VV9150000	IDLH: N.D.

Conversion: **DOT:**

Synonyms/Trade Names: Calcium hydrosilicate, Calcium metasilicate, Calcium monosilicate, Calcium salt of silicic acid, Wollastonite (mineral)

Exposure Limits:
NIOSH REL: TWA 10 mg/m^3 (total)
TWA 5 mg/m^3 (resp)
OSHA PEL: TWA 15 mg/m^3 (total)
TWA 5 mg/m^3 (resp)

Physical Description: White or cream-colored, free-flowing powder.
[**Note:** The commercial product is prepared from diatomaceous earth & lime.]

Measurement Methods (see Table 1):
NIOSH 7020
OSHA ID121

Chemical & Physical Properties:
MW: 116.2
BP: ?
Sol: 0.01%
Fl.P: NA
IP: NA
Sp.Gr: 2.9
VP: 0 mmHg (approx)
MLT: 2804°F
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: None reported
[**Note:** After prolonged contact with water, solution reverts to soluble calcium salts & amorphous silica.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Irrit eyes, skin, upper resp sys
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Fresh air

C

Calcium sulfate	Formula: $CaSO_4$	CAS#: 7778-18-9	RTECS#: WS6920000	IDLH: N.D.
Conversion:	DOT:			

Synonyms/Trade Names: Anhydrous calcium sulfate, Anhydrous gypsum, Anhydrous sulfate of lime, Calcium salt of sulfuric acid [**Note:** Gypsum is the dihydrate form & Plaster of Paris is the hemihydrate form.]

Exposure Limits:
NIOSH REL: TWA 10 mg/m^3 (total)
TWA 5 mg/m^3 (resp)
OSHA PEL: TWA 15 mg/m^3 (total)
TWA 5 mg/m^3 (resp)

Measurement Methods (see Table 1):
NIOSH 0500, 0600

Physical Description: Odorless, white powder or colorless, crystalline solid. [**Note:** May have blue, gray, or reddish tinge.]

Chemical & Physical Properties:
MW: 136.1
BP: Decomposes
Sol: 0.3%
Fl.P: NA
IP: NA
Sp.Gr: 2.96
VP: 0 mmHg (approx)
MLT: 2840°F (Decomposes)
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Diazomethane, aluminum, phosphorus, water
[**Note:** Hygroscopic (i.e., absorbs moisture from the air). Reacts with water to form Gypsum & Plaster of Paris.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Irrit eyes, skin, upper resp sys; conj; rhinitis, epis
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Fresh air

Camphor (synthetic)	Formula: $C_{10}H_{16}O$	CAS#: 76-22-2	RTECS#: EX1225000	IDLH: 200 mg/m^3
Conversion:	DOT: 2717 133			

Synonyms/Trade Names: 2-Camphonone, Gum camphor, Laurel camphor, Synthetic camphor

Exposure Limits:
NIOSH REL: TWA 2 mg/m^3
OSHA PEL: TWA 2 mg/m^3

Measurement Methods (see Table 1):
NIOSH 1301, 2553
OSHA 7

Physical Description: Colorless or white crystals with a penetrating, aromatic odor.

Chemical & Physical Properties:
MW: 152.3
BP: 399°F
Sol: Insoluble
Fl.P: 150°F
IP: 8.76 eV
Sp.Gr: 0.99
VP: 0.2 mmHg
MLT: 345°F
UEL: 3.5%
LEL: 0.6%
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
50 mg/m^3: Sa:Cf£/PaprOvHie£
100 mg/m^3: CcrFOv100/GmFOv100/ PaprTOvHie£/ScbaF/SaF
200 mg/m^3: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Strong oxidizers (especially chromic anhydride & potassium permanganate)

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, muc memb; nau, vomit, diarr; head, dizz, excitement, epilep convuls
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

C

Caprolactam

Formula:	CAS#:	RTECS#:	IDLH:
$C_2H_{11}NO$	105-60-2	CM3675000	N.D.

Conversion: 1 ppm = 4.63 mg/m^3

DOT:

Synonyms/Trade Names: Aminocaproic lactam, epsilon-Caprolactam, Hexahydro-2H-azepin-2-one, 2-Oxohexamethyleneimine

Exposure Limits:
NIOSH REL: Dust: TWA 1 mg/m^3
ST 3 mg/m^3
Vapor: TWA 0.22 ppm (1 mg/m^3)
ST 0.66 ppm (3 mg/m^3)
OSHA PEL†: none

Measurement Methods (see Table 1):
OSHA PV2012

Physical Description: White, crystalline solid or flakes with an unpleasant odor.
[**Note:** Significant vapor concentrations would be expected only at elevated temperatures.]

Chemical & Physical Properties:
MW: 113.2
BP: 515°F
Sol: 53%
Fl.P: 282°F
IP: ?
Sp.Gr: 1.01
VP: 0.00000008 mmHg
MLT: 156°F
UEL: 8.0%
LEL: 1.4%
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Strong oxidizers, (acetic acid + dinitrogen trioxide)

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit skin, eyes, resp sys; epis; derm, skin sens; asthma; irrity, conf, dizz, head; abdom cramps, diarr, nau, vomit; liver, kidney inj
TO: Eyes, skin, resp sys, CNS, CVS, liver, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water wash immed
Breath: Resp support
Swallow: Medical attention immed

Captafol

Formula:	CAS#:	RTECS#:	IDLH:
$C_{10}H_9Cl_{14}NO_2S$	2425-06-1	GW4900000	Ca [N.D.]

Conversion:

DOT:

Synonyms/Trade Names: Captofol; Difolatan®; N-((1,1,2,2-Tetrachloroethyl)thio)-4-cyclohexene-1,2-dicarboximide

Exposure Limits:
NIOSH REL: Ca
TWA 0.1 mg/m^3 [skin]
See Appendix A
OSHA PEL†: none

Measurement Methods (see Table 1):
NIOSH 0500

Physical Description: White, crystalline solid with a slight, characteristic pungent odor. [fungicide]
[**Note:** Available commercially as a wettable powder or in liquid form.]

Chemical & Physical Properties:
MW: 349.1
BP: Decomposes
Sol: 0.0001%
Fl.P: NA
IP: NA
Sp.Gr: ?
VP: 0.000008 mmHg
MLT: 321°F (Decomposes)
UEL: NA
LEL: NA
Noncombustible Solid, but may be dissolved in flammable liquids.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Acids, acid vapors, strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, resp sys; derm, skin sens; conj; bron, wheez; diarr, vomit; liver, kidney inj; high BP; in animals: terato effects; [carc]
TO: Eyes, skin, resp sys, CNS, liver, kidneys, CVS [in animals: tumors at many sites]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

C

Captan	**Formula:** $C_9H_8Cl_3NO_2S$	**CAS#:** 133-06-2	**RTECS#:** GW5075000	**IDLH:** Ca [N.D.]
Conversion:	**DOT:**			

Synonyms/Trade Names: Captane; N-Trichloromethylmercapto-4-cyclohexene-1,2-dicarboximide

Exposure Limits:
NIOSH REL: Ca
TWA 5 mg/m^3
See Appendix A
OSHA PEL†: none

Measurement Methods (see Table 1):
NIOSH 5601, 9202, 9205

Physical Description: Odorless, white, crystalline powder. [fungicide]
[**Note:** Commercial product is a yellow powder with a pungent odor.]

Chemical & Physical Properties:
MW: 300.6
BP: Decomposes
Sol(77°F): 0.0003%
Fl.P: ?
IP: NA
Sp.Gr: 1.74
VP: 0 mmHg (approx)
MLT: 352°F (Decomposes)
UEL: ?
LEL: ?
Combustible Solid; may be dissolved in flammable liquids.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong alkaline materials (e.g., hydrated lime) [**Note:** Corrosive to metals.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, upper resp sys; blurred vision; derm, skin sens; dysp; diarr, vomit; [carc]
TO: Eyes, skin, resp sys, GI tract, liver, kidneys [in animals: duodenal tumors]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Carbaryl	**Formula:** $CH_3NHCOOC_{10}H_7$	**CAS#:** 63-25-2	**RTECS#:** EC5950000	**IDLH:** 100 mg/m^3
Conversion:	**DOT:** 2757 151			

Synonyms/Trade Names: α-Naphthyl N-methyl-carbamate, 1-Naphthyl N-Methyl-carbamate, Sevin®

Exposure Limits:
NIOSH REL: TWA 5 mg/m^3
OSHA PEL: TWA 5 mg/m^3

Measurement Methods (see Table 1):
NIOSH 5006, 5601
OSHA 63

Physical Description: White or gray, odorless solid. [pesticide]

Chemical & Physical Properties:
MW: 201.2
BP: Decomposes
Sol: 0.01%
Fl.P: NA
IP: ?
Sp.Gr: 1.23
VP(77°F): <0.00004 mmHg
MLT: 293°F
UEL: NA
LEL: NA
Noncombustible Solid, but may be dissolved in flammable liquids.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
50 mg/m^3: Sa*
100 mg/m^3: Sa:Cf*/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, strongly alkaline pesticides

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Miosis, blurred vision, tear; rhin, salv; sweat; abdom cramps, nau, vomit, diarr; tremor; cyan; convuls; irrit skin; possible repro effects
TO: Resp sys, CNS, CVS, skin, blood chol, repro sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

C

Carbofuran	Formula: $C_{12}H_{15}NO_3$	CAS#: 1563-66-2	RTECS#: FB9450000	IDLH: N.D.
Conversion:	DOT: 2757 151			

Synonyms/Trade Names: 2,3-Dihydro-2,2-dimethyl-7-benzofuranyl methylcarbamate; Furacarb®; Furadan®

Exposure Limits:
NIOSH REL: TWA 0.1 mg/m^3
OSHA PEL†: none

Physical Description: Odorless, white or grayish, crystalline solid. [insecticide]
[**Note:** May be dissolved in a liquid carrier.]

Measurement Methods (see Table 1):
NIOSH 5601

Chemical & Physical Properties:
MW: 221.3
BP: ?
Sol(77°F): 0.07%
Fl.P: NA
IP: NA
Sp.Gr: 1.18
VP(77°F): 0.000003 mmHg
MLT: 304°F
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Alkaline substances, acid, strong oxidizers (e.g., perchlorates, peroxides, chlorates, nitrates, permanganates)

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Miosis, blurred vision; sweat, salv, abdom cramps, diarr, head, nau, vomit; lass, musc twitch, inco, convuls
TO: CNS, PNS, blood chol

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap flush immed
Breath: Fresh air
Swallow: Medical attention immed

Carbon black	Formula: C	CAS#: 1333-86-4	RTECS#: FF5800000	IDLH: 1750 mg/m^3
Conversion:	DOT:			

Synonyms/Trade Names: Acetylene black, Channel black, Furnace black, Lamp black, Thermal black

Exposure Limits:
NIOSH REL: TWA 3.5 mg/m^3
Carbon black in presence of polycyclic aromatic hydrocarbons (PAHs):
Ca
TWA 0.1 mg PAHs/m^3
See Appendix A
See Appendix C
OSHA PEL: TWA 3.5 mg/m^3

Physical Description: Black, odorless solid.

Measurement Methods (see Table 1):
NIOSH 5000
OSHA ID196

Chemical & Physical Properties:
MW: 12.0
BP: Sublimes
Sol: Insoluble
Fl.P: NA
IP: NA
Sp.Gr: 1.8-2.1
VP: 0 mmHg (approx)
MLT: Sublimes
UEL: NA
LEL: NA
Combustible Solid that may contain flammable hydrocarbons.

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: Prevent eye contact
Wash skin: Daily
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
17.5 mg/m^3: Qm
35 mg/m^3: 95XQ/Sa
87.5 mg/m^3: Sa:Cf/PaprHie
175 mg/m^3: 100F/PaprTHie/ScbaF/SaF
1750 mg/m^3: Sa:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

In presence of polycyclic aromatic hydrocarbons:
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Strong oxidizers such as chlorates, bromates & nitrates

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Cough; irrit eyes; in presence of polycyclic aromatic hydrocarbons: [carc]
TO: Resp sys, eyes [lymphatic cancer (in presence of PAHs)]

First Aid (see Table 6):
Eye: Irr prompt
Breath: Fresh air

Carbon dioxide

Formula: CO_2 | **CAS#:** 124-38-9 | **RTECS#:** FF6400000 | **IDLH:** 40,000 ppm

Conversion: 1 ppm = 1.80 mg/m^3

DOT: 1013 120; 1845 120 (dry ice); 2187 120 (liquid)

Synonyms/Trade Names: Carbonic acid gas, Dry ice [**Note:** Normal constituent of air (about 300 ppm)].

Exposure Limits:
NIOSH REL: TWA 5000 ppm (9000 mg/m^3)
ST 30,000 ppm (54,000 mg/m^3)
OSHA PEL†: TWA 5000 ppm (9000 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 6603
OSHA ID172

Physical Description: Colorless, odorless gas.
[**Note:** Shipped as a liquefied compressed gas. Solid form is utilized as dry ice.]

Chemical & Physical Properties:
MW: 44.0
BP: Sublimes
Sol(77°F): 0.2%
Fl.P: NA
IP: 13.77 eV
RGasD: 1.53
VP: 56.5 atm
MLT: -109°F (Sublimes)
UEL: NA
LEL: NA
Nonflammable Gas

Personal Protection/Sanitation (see Table 2):
Skin: Frostbite
Eyes: Frostbite
Wash skin: N.R.
Remove: N.R.
Change: N.R.
Provide: Frostbite wash

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
40,000 ppm: Sa/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: ScbaE

Incompatibilities and Reactivities: Dusts of various metals, such as magnesium, zirconium, titanium, aluminum, chromium & manganese are ignitable and explosive when suspended in carbon dioxide. Forms carbonic acid in water.

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con (liquid/solid)
SY: Head, dizz, restless, pares; dysp; sweat, mal; incr heart rate, card output, BP; coma; asphy; convuls; frostbite (liq, dry ice)
TO: Resp sys, CVS

First Aid (see Table 6):
Eye: Frostbite
Skin: Frostbite
Breath: Resp support

Carbon disulfide

Formula: CS_2 | **CAS#:** 75-15-0 | **RTECS#:** FF6650000 | **IDLH:** 500 ppm

Conversion: 1 ppm = 3.11 mg/m^3

DOT: 1131 131

Synonyms/Trade Names: Carbon bisulfide

Exposure Limits:
NIOSH REL: TWA 1 ppm (3 mg/m^3)
ST 10 ppm (30 mg/m^3) [skin]
OSHA PEL†: TWA 20 ppm
C 30 ppm
100 ppm (30-minute maximum peak)

Measurement Methods (see Table 1):
NIOSH 1600, 3800

Physical Description: Colorless to faint-yellow liquid with a sweet ether-like odor.
[**Note:** Reagent grades are foul smelling.]

Chemical & Physical Properties:
MW: 76.1
BP: 116°F
Sol: 0.3%
Fl.P: -22°F
IP: 10.08 eV
Sp.Gr: 1.26
VP: 297 mmHg
FRZ: -169°F
UEL: 50.0%
LEL: 1.3%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
10 ppm: CcrOv/Sa
25 ppm: Sa:Cf/PaprOv
50 ppm: CcrFOv/GmFOv/PaprTOv/ ScbaF/SaF
500 ppm: Sa:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers; chemically-active metals such as sodium, potassium & zinc; azides; rust; halogens; amines
[**Note:** Vapors may be ignited by contact with an ordinary light bulb.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Dizz, head, poor sleep, lass, anxi, anor, low-wgt; psychosis; polyneur; Parkinson-like syndrome; ocular changes; coronary heart disease; gastritis; kidney, liver inj; eye, skin burns; derm; repro effects
TO: CNS, PNS, CVS, eyes, kidneys, liver, skin, repro sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

C

Carbon monoxide	Formula: CO	CAS#: 630-08-0	RTECS#: FG3500000	IDLH: 1200 ppm

Conversion: 1 ppm = 1.15 mg/m^3

DOT: 1016 119; 9202 168 (cryogenic liquid)

Synonyms/Trade Names: Carbon oxide, Flue gas, Monoxide

Exposure Limits:
NIOSH REL: TWA 35 ppm (40 mg/m^3)
C 200 ppm (229 mg/m^3)
OSHA PEL†: TWA 50 ppm (55 mg/m^3)

Physical Description: Colorless, odorless gas.
[**Note:** Shipped as a nonliquefied or liquefied compressed gas.]

Measurement Methods (see Table 1):
NIOSH 6604
OSHA ID209, ID210

Chemical & Physical Properties:
MW: 28.0
BP: -313°F
Sol: 2%
Fl.P: NA (Gas)
IP: 14.01 eV
RGasD: 0.97
VP: >35 atm
MLT: -337°F
UEL: 74%
LEL: 12.5%
Flammable Gas

Personal Protection/Sanitation (see Table 2):
Skin: Frostbite
Eyes: Frostbite
Wash skin: N.R.
Remove: When wet (flamm)
Change: N.R.
Provide: Frostbite wash

Respirator Recommendations (see Tables 3 and 4):
NIOSH
350 ppm: Sa
875 ppm: Sa:Cf
1200 ppm: GmFS†/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS†/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, bromine trifluoride, chlorine trifluoride, lithium

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con (liquid)
SY: Head, tachypnea, nau, lass, dizz, conf, halu; cyan; depres S-T segment of electrocardiogram, angina, syncope
TO: CVS, lungs, blood, CNS

First Aid (see Table 6):
Eye: Frostbite
Skin: Frostbite
Breath: Resp support

Carbon tetrabromide	Formula: CBr_4	CAS#: 558-13-4	RTECS#: FG4725000	IDLH: N.D.

Conversion: 1 ppm = 13.57 mg/m^3

DOT: 2516 151

Synonyms/Trade Names: Carbon bromide, Methane tetrabromide, Tetrabromomethane

Exposure Limits:
NIOSH REL: TWA 0.1 ppm (1.4 mg/m^3)
ST 0.3 ppm (4 mg/m^3)
OSHA PEL†: none

Physical Description: Colorless to yellow-brown crystals with a slight odor.

Measurement Methods (see Table 1):
None available

Chemical & Physical Properties:
MW: 331.7
BP: 374°F
Sol: 0.02%
Fl.P: NA
IP: 10.31 eV
Sp.Gr: 3.42
VP(205°F): 40 mmHg
MLT: 194°F
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: Prevent eye contact
Wash skin: Daily
Remove: N.R.
Change: Daily
Provide: Eyewash

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Strong oxidizers, hexacyclohexyldilead, lithium

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, resp sys; lac; lung, liver, kidney inj; in animals: corn damage
TO: Eyes, skin, resp sys, liver, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

Carbon tetrachloride

Formula: CCl_4 | **CAS#:** 56-23-5 | **RTECS#:** FG4900000 | **IDLH:** Ca [200 ppm]

Conversion: 1 ppm = 6.29 mg/m^3 | **DOT:** 1846 151

Synonyms/Trade Names: Carbon chloride, Carbon tet, Freon® 10, Halon® 104, Tetrachloromethane

Exposure Limits:
NIOSH REL: Ca
ST 2 ppm (12.6 mg/m^3) [60-minute]
See Appendix A
OSHA PEL†: TWA 10 ppm
C 25 ppm
200 ppm (5-minute maximum peak in any 4 hours)

Measurement Methods (see Table 1):
NIOSH 1003
OSHA 7

Physical Description: Colorless liquid with a characteristic ether-like odor.

Chemical & Physical Properties:
MW: 153.8
BP: 170°F
Sol: 0.05%
Fl.P: NA
IP: 11.47 eV
Sp.Gr: 1.59
VP: 91 mmHg
FRZ: -9°F
UEL: NA
LEL: NA
Noncombustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Chemically-active metals such as sodium, potassium & magnesium; fluorine; aluminum [**Note:** Forms highly toxic phosgene gas when exposed to flames or welding arcs.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin; CNS depres; nau, vomit; liver, kidney inj; drow, dizz, inco; [carc]
TO: CNS, eyes, lungs, liver, kidneys, skin [in animals: liver cancer]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Carbonyl fluoride

Formula: COF_2 | **CAS#:** 353-50-4 | **RTECS#:** FG6125000 | **IDLH:** N.D.

Conversion: 1 ppm = 2.70 mg/m^3 | **DOT:** 2417 125

Synonyms/Trade Names: Carbon difluoride oxide, Carbon fluoride oxide, Carbon oxyfluoride, Carbonyl difluoride, Fluoroformyl fluoride, Fluorophosgene

Exposure Limits:
NIOSH REL: TWA 2 ppm (5 mg/m^3)
ST 5 ppm (15 mg/m^3)
OSHA PEL†: none

Measurement Methods (see Table 1):
None available

Physical Description: Colorless gas with a pungent and very irritating odor. [**Note:** Shipped as a liquefied compressed gas.]

Chemical & Physical Properties:
MW: 66.0
BP: -118°F
Sol: Reacts
Fl.P: NA
IP: 13.02 eV
RGasD: 2.29
VP: 55.4 atm
FRZ: -173°F
UEL: NA
LEL: NA
Nonflammable Gas

Personal Protection/Sanitation (see Table 2):
Skin: Frostbite
Eyes: Frostbite
Wash skin: N.R.
Remove: N.R.
Change: N.R.
Provide: Frostbite wash

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Heat, moisture, hexafluoroisopropylideneamino-lithium
[**Note:** Reacts with water to form hydrogen fluoride & carbon dioxide.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Irrit eyes, skin, muc memb, resp sys; eye, skin burns; lac; cough, pulm edema, dysp; chronic exposure: GI pain, musc fib, skeletal fluorosis; liquid: frostbite
TO: Eyes, skin, resp sys, bone

First Aid (see Table 6):
Eye: Frostbite
Skin: Frostbite
Breath: Resp support

C

Catechol	Formula: $C_6H_4(OH)_2$	CAS#: 120-80-9	RTECS#: UX1050000	IDLH: N.D.
Conversion: 1 ppm = 4.50 mg/m^3	**DOT:**			

Synonyms/Trade Names: 1,2-Benzenediol; o-Benzenediol; 1,2-Dihydroxybenzene; o-Dihydroxybenzene; 2-Hydroxyphenol; Pyrocatechol

Exposure Limits:
NIOSH REL: TWA 5 ppm (20 mg/m^3) [skin]
OSHA PEL†: none

Measurement Methods (see Table 1):
OSHA PV2014

Physical Description: Colorless, crystalline solid with a faint odor.
[**Note:** Discolors to brown in air & light.]

Chemical & Physical Properties:
MW: 110.1
BP: 474°F
Sol: 44%
Fl.P: 261°F
IP: ?
Sp.Gr: 1.34
VP(244°F): 10 mmHg
MLT: 221°F
UEL: ?
LEL: 1.4%
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Strong oxidizers, nitric acid

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, resp sys; skin sens, derm; lac, burns eyes; convuls, incr BP, kidney inj
TO: Eyes, skin, resp sys, CNS, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water wash immed
Breath: Resp support
Swallow: Medical attention immed

Cellulose	Formula: $(C_6H_{10}O_5)_n$	CAS#: 9004-34-6	RTECS#: FJ5691460	IDLH: N.D.
Conversion:	**DOT:**			

Synonyms/Trade Names: Hydroxycellulose, Pyrocellulose

Exposure Limits:
NIOSH REL: TWA 10 mg/m^3 (total)
TWA 5 mg/m^3 (resp)
OSHA PEL: TWA 15 mg/m^3 (total)
TWA 5 mg/m^3 (resp)

Measurement Methods (see Table 1):
NIOSH 0500, 0600, 7404

Physical Description: Odorless, white substance.
[**Note:** The principal fiber cell wall material of vegetable tissues (wood, cotton, flax, grass, etc.).]

Chemical & Physical Properties:
MW: 160,000-560,000
BP: Decomposes
Sol: Insoluble
Fl.P: NA
IP: NA
Sp.Gr: 1.27-1.61
VP: 0 mmHg (approx)
MLT: 500-518°F (Decomposes)
UEL: NA
LEL: NA
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Water, bromine pentafluoride, sodium nitrate, fluorine, strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Irrit eyes, skin, muc memb
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Fresh air

Cesium hydroxide	**Formula:** CsOH	**CAS#:** 21351-79-1	**RTECS#:** FK9800000	**IDLH:** N.D.
Conversion:	**DOT:** 2682 157; 2681 154 (solution)			

Synonyms/Trade Names: Cesium hydrate, Cesium hydroxide dimer

Exposure Limits:
NIOSH REL: TWA 2 mg/m^3
OSHA PEL†: none

Measurement Methods (see Table 1):
None available

Physical Description: Colorless or yellowish, crystalline solid.
[**Note:** Hygroscopic (i.e., absorbs moisture from the air).]

Chemical & Physical Properties:
MW: 149.9
BP: ?
Sol(59°F): 395%
Fl.P: NA
IP: NA
Sp.Gr: 3.68
VP: 0 mmHg (approx)
MLT: 522°F
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Water, acids, CO_2, metals (e.g., Al, Pb, Sn, Zn), oxygen
[**Note:** CsOH is a strong base, causing the generation of considerable heat in contact with water or moisture.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, upper resp sys; eye, skin burns
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

Chlordane	**Formula:** $C_{10}H_6Cl_8$	**CAS#:** 57-74-9	**RTECS#:** PB9800000	**IDLH:** Ca [100 mg/m^3]
Conversion:	**DOT:** 2996 151			

Synonyms/Trade Names: Chlordan; Chlordano;
1,2,4,5,6,7,8,8-Octachloro-3a,4,7,7a-tetrahydro-4,7-methanoindane

Exposure Limits:
NIOSH REL: Ca
TWA 0.5 mg/m^3 [skin]
See Appendix A
OSHA PEL: TWA 0.5 mg/m^3 [skin]

Measurement Methods (see Table 1):
NIOSH 5510
OSHA 67

Physical Description: Amber-colored, viscous liquid with a pungent, chlorine-like odor. [insecticide]

Chemical & Physical Properties:
MW: 409.8
BP: Decomposes
Sol: 0.0001%
Fl.P: NA
IP: ?
Sp.Gr(77°F): 1.6
VP: 0.00001 mmHg
FRZ: 217-228°F
UEL: NA
LEL: NA
Noncombustible Liquid, but may be utilized in flammable solutions.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, alkaline reagents

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Blurred vision; conf; ataxia, delirium; cough; abdom pain, nau, vomit, diarr; irrity, tremor, convuls; anuria; in animals: lung, liver, kidney damage; [carc]
TO: CNS, eyes, lungs, liver, kidneys [in animals: liver cancer]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

C

Chlorinated camphene	Formula: $C_{10}H_{10}Cl_8$	CAS#: 8001-35-2	RTECS#: XW5250000	IDLH: Ca [200 mg/m^3]
Conversion:	DOT: 2761 151			

Synonyms/Trade Names: Chlorocamphene, Octachlorocamphene, Polychlorocamphene, Toxaphene

Exposure Limits:
NIOSH REL: Ca [skin]
See Appendix A
OSHA PEL†: TWA 0.5 mg/m^3 [skin]

Physical Description: Amber, waxy solid with a mild, piney, chlorine- and camphor-like odor. [insecticide]

Measurement Methods (see Table 1):
NIOSH 5039

Chemical & Physical Properties:
MW: 413.8
BP: Decomposes
Sol: 0.0003%
Fl.P: NA
IP: ?
Sp.Gr: 1.65
VP(77°F): 0.4 mmHg
MLT: 149-194°F
UEL: NA
LEL: NA
Noncombustible Solid, but may be dissolved in flammable liquids.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Strong oxidizers [**Note:** Slightly corrosive to metals under moist conditions.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Nau, conf, agitation, tremor, convuls, uncon; dry, red skin; [carc]
TO: CNS, skin [in animals: liver cancer]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

Chlorinated diphenyl oxide	Formula: $C_{12}H_{10-n}Cl_nO$	CAS#:	RTECS#:	IDLH: 5 mg/m^3
Conversion:	DOT:			

Synonyms/Trade Names: Synonyms depend on the degree of chlorination of diphenyl oxide [$(C_6H_5)_2O$], ranging from monochlorodiphenyl oxide [$(C_6H_4Cl)O(C_6H_5)$] to decachlorodiphenyl oxide [$(C_6Cl_5)O(C_6Cl_5)$].

Exposure Limits:
NIOSH REL: TWA 0.5 mg/m^3
OSHA PEL: TWA 0.5 mg/m^3

Physical Description: Appearance and odor vary depending upon the specific compound.

Measurement Methods (see Table 1):
NIOSH 5025

Chemical & Physical Properties:
Properties vary depending upon the specific compound.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
5 mg/m^3: Sa/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOvAg100/ScbaE

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Acne-form derm, liver damage
TO: Skin, liver

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

C

Chlorine

Formula: Cl_2 | **CAS#:** 7782-50-5 | **RTECS#:** FO2100000 | **IDLH:** 10 ppm

Conversion: 1 ppm = 2.90 mg/m^3 | **DOT:** 1017 124

Synonyms/Trade Names: Molecular chlorine

Exposure Limits:
NIOSH REL: C 0.5 ppm (1.45 mg/m^3) [15-minute]
OSHA PEL†: C 1 ppm (3 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 6011
OSHA ID101, ID126SGX

Physical Description: Greenish-yellow gas with a pungent, irritating odor. [**Note:** Shipped as a liquefied compressed gas.]

Chemical & Physical Properties:
MW: 70.9
BP: -29°F
Sol: 0.7%
Fl.P: NA
IP: 11.48 eV
RGasD: 2.47
VP: 6.8 atm
FRZ: -150°F
UEL: NA
LEL: NA
Nonflammable Gas, but a strong oxidizer.

Personal Protection/Sanitation (see Table 2):
Skin: Frostbite
Eyes: Frostbite
Wash skin: N.R.
Remove: N.R.
Change: N.R.
Provide: Frostbite wash

Respirator Recommendations (see Tables 3 and 4):
NIOSH
5 ppm: CcrS*/Sa*
10 ppm: Sa:Cf*/PaprS*/CcrFS/GmFS/ ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS/ScbaE

Incompatibilities and Reactivities: Reacts explosively or forms explosive compounds with many common substances such as acetylene, ether, turpentine, ammonia, fuel gas, hydrogen & finely divided metals.

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Burning of eyes, nose, mouth; lac, rhin; cough, choking, subs pain; nau, vomit; head, dizz; syncope; pulm edema; pneu; hypox; derm; liquid: frostbite
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Frostbite
Skin: Frostbite
Breath: Resp support

Chlorine dioxide

Formula: ClO_2 | **CAS#:** 10049-04-4 | **RTECS#:** FO3000000 | **IDLH:** 5 ppm

Conversion: 1 ppm = 2.76 mg/m^3 | **DOT:** 9191 143 (hydrate, frozen)

Synonyms/Trade Names: Chlorine oxide, Chlorine peroxide

Exposure Limits:
NIOSH REL: TWA 0.1 ppm (0.3 mg/m^3)
ST 0.3 ppm (0.9 mg/m^3)
OSHA PEL†: TWA 0.1 ppm (0.3 mg/m^3)

Measurement Methods (see Table 1):
OSHA ID126SGX, ID202

Physical Description: Yellow to red gas or a red-brown liquid (below 52°F) with an unpleasant odor similar to chlorine and nitric acid.

Chemical & Physical Properties:
MW: 67.5
BP: 52°F
Sol(77°F): 0.3%
Fl.P: NA (Gas) ? (Liquid)
IP: 10.36 eV
RGasD: 2.33
Sp.Gr: 1.6 (Liquid at 32°F)
VP: >1 atm
FRZ: -74°F
UEL: ?
LEL: ?
Flammable Gas, Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact (liquid)
Eyes: Prevent eye contact (liquid)
Wash skin: When contam (liquid)
Remove: When wet (flamm)
Change: N.R.
Provide: Eyewash (liquid)
Quick drench (liquid)

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
1 ppm: CcrS/Sa
2.5 ppm: Sa:Cf£/PaprS£
5 ppm: CcrFS/GmFS/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS¿/ScbaE

Incompatibilities and Reactivities: Organic materials, heat, phosphorus, potassium hydroxide, sulfur, mercury, carbon monoxide [**Note:** Unstable in light. A powerful oxidizer.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing (liquid), Con
SY: Irrit eyes, nose, throat; cough, wheez, bron, pulm edema; chronic bron
TO: Eyes, resp sys

First Aid (see Table 6):
Eye: Irr immed (liquid)
Skin: Soap wash immed (liquid)
Breath: Resp support
Swallow: Medical attention immed (liquid)

C

Chlorine trifluoride	Formula: ClF_3	CAS#: 7790-91-2	RTECS#: FO2800000	IDLH: 20 ppm
Conversion: 1 ppm = 3.78 mg/m^3	**DOT:** 1749 124			

Synonyms/Trade Names: Chlorine fluoride, Chlorotrifluoride

Exposure Limits:
NIOSH REL: C 0.1 ppm (0.4 mg/m^3)
OSHA PEL: C 0.1 ppm (0.4 mg/m^3)

Measurement Methods (see Table 1):
None available

Physical Description: Colorless gas or a greenish-yellow liquid (below 53°F) with a somewhat sweet, suffocating odor. [**Note:** Shipped as a liquefied compressed gas.]

Chemical & Physical Properties:
MW: 92.5
BP: 53°F
Sol: Reacts
Fl.P: NA
IP: 13.00 eV
RGasD: 3.21
Sp.Gr: 1.77 (Liquid at 53°F)
VP: 1.4 atm
FRZ: -105°F
UEL: NA
LEL: NA
Nonflammable Gas
Noncombustible Liquid, but contact with organic materials may result in SPONTANEOUS ignition.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam (liquid)
Remove: When wet or contam (liquid)
Change: N.R.
Provide: Eyewash (liquid)
Quick drench (liquid)

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
2.5 ppm: Sa:Cf£
5 ppm: ScbaF/SaF
20 ppm: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS/ScbaE

Incompatibilities and Reactivities: Oxidizers, water, acids, combustible materials, sand, glass, metals (corrosive)
[**Note:** Reacts with water to form chlorine & hydrofluoric acid.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing (liquid), Con
SY: Eye, skin burns (liq or high vap conc); resp irrit; in animals: lac, corn ulcer; pulm edema
TO: Skin, eyes, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed (liquid)

Chloroacetaldehyde	Formula: $ClCH_2CHO$	CAS#: 107-20-0	RTECS#: AB2450000	IDLH: 45 ppm
Conversion: 1 ppm = 3.21 mg/m^3	**DOT:** 2232 153			

Synonyms/Trade Names: Chloroacetaldehyde (40% aqueous solution), 2-Chloroacetaldehyde, 2-Chloroethanal

Exposure Limits:
NIOSH REL: C 1 ppm (3 mg/m^3)
OSHA PEL: C 1 ppm (3 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 2015
OSHA 76

Physical Description: Colorless liquid with an acrid, penetrating odor.
[**Note:** Typically found as a 40% aqueous solution.]

Chemical & Physical Properties:
MW: 78.5
BP: 186°F
Sol: Miscible
Fl.P: 190°F (40% solution)
IP: 10.61 eV
Sp.Gr: 1.19 (40% solution)
VP: 100 mmHg
FRZ: -3°F (40% solution)
UEL: ?
LEL: ?
Class IIIA Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
10 ppm: CcrOv*/Sa*
25 ppm: Sa:Cf*/PaprOv*
45 ppm: CcrFOv/GmFOv/PaprTOv*/ ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Oxidizers, acids

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit skin, eyes, muc memb; skin burns; eye damage; pulm edema; skin, resp sys sens
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

α-Chloroacetophenone

Formula:	CAS#:	RTECS#:	IDLH:
$C_6H_5COCH_2Cl$	532-27-4	AM6300000	15 mg/m^3

Conversion: 1 ppm = 6.32 mg/m^3

DOT: 1697 153

Synonyms/Trade Names: 2-Chloroacetophenone, Chloromethyl phenyl ketone, Mace®, Phenacyl chloride, Phenyl chloromethyl ketone, Tear gas

Exposure Limits:
NIOSH REL: TWA 0.3 mg/m^3 (0.05 ppm)
OSHA PEL: TWA 0.3 mg/m^3 (0.05 ppm)

Measurement Methods (see Table 1):
NIOSH P&CAM291 (II-5)

Physical Description: Colorless to gray crystalline solid with a sharp, irritating odor.

Chemical & Physical Properties:
MW: 154.6
BP: 472°F
Sol: Insoluble
Fl.P: 244°F
IP: 9.44 eV
Sp.Gr: 1.32
VP: 0.005 mmHg
MLT: 134°F
UEL: ?
LEL: ?
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
3 mg/m^3: CcrOv95/Sa
7.5 mg/m^3: Sa:Cf£/PaprOvHie£
15 mg/m^3: CcrFOv100/GmFS100/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS100/ScbaE

Incompatibilities and Reactivities: Water, steam, strong oxidizers [**Note:** Slowly corrodes metals.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, resp sys; pulm edema
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Chloroacetyl chloride

Formula:	CAS#:	RTECS#:	IDLH:
$ClCH_2COCl$	79-04-9	AO6475000	N.D.

Conversion: 1 ppm = 4.62 mg/m^3

DOT: 1752 156

Synonyms/Trade Names: Chloroacetic acid chloride, Chloroacetic chloride, Monochloroacetyl chloride

Exposure Limits:
NIOSH REL: TWA 0.05 ppm (0.2 mg/m^3)
OSHA PEL†: none

Measurement Methods (see Table 1):
None available

Physical Description: Colorless to yellowish liquid with a strong, pungent odor.

Chemical & Physical Properties:
MW: 112.9
BP: 223°F
Sol: Decomposes
Fl.P: NA
IP: 10.30 eV
Sp.Gr: 1.42
VP: 19 mmHg
FRZ: -7°F
UEL: NA
LEL: NA
Noncombustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Water, alcohols, bases, metals (corrosive), amines
[**Note:** Decomposes in water to form chloroacetic acid & hydrogen chloride gas.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, resp sys; eye, skin burns; cough, wheez, dysp; lac
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

C

Chlorobenzene	Formula: C_6H_5Cl	CAS#: 108-90-7	RTECS#: CZ0175000	IDLH: 1000 ppm
Conversion: 1 ppm = 4.61 mg/m^3	**DOT:** 1134 130			

Synonyms/Trade Names: Benzene chloride, Chlorobenzol, MCB, Monochlorobenzene, Phenyl chloride

Exposure Limits:
NIOSH REL: See Appendix D
OSHA PEL: TWA 75 ppm (350 mg/m^3)

Physical Description: Colorless liquid with an almond-like odor.

Measurement Methods (see Table 1):
NIOSH 1003
OSHA 7

Chemical & Physical Properties:
MW: 112.6
BP: 270°F
Sol: 0.05%
Fl.P: 82°F
IP: 9.07 eV
Sp.Gr: 1.11
VP: 9 mmHg
FRZ: -50°F
UEL: 9.6%
LEL: 1.3%
Class IC Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
OSHA
1000 ppm: Sa:Cf£/PaprOv£/CcrFOv/GmFOv/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose; drow, inco; CNS depres; in animals: liver, lung, kidney inj
TO: Eyes, skin, resp sys, CNS, liver

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

o-Chlorobenzylidene malononitrile	Formula: $ClC_6H_4CH{=}C(CN)_2$	CAS#: 2698-41-1	RTECS#: OO3675000	IDLH: 2 mg/m^3
Conversion: 1 ppm = 7.71 mg/m^3	**DOT:** 2810 153			

Synonyms/Trade Names: 2-Chlorobenzalmalonitrile, CS, OCBM

Exposure Limits:
NIOSH REL: C 0.05 ppm (0.4 mg/m^3) [skin]
OSHA PEL†: TWA 0.05 ppm (0.4 mg/m^3)

Physical Description: White crystalline solid with a pepper-like odor.

Measurement Methods (see Table 1):
NIOSH P&CAM304 (II-5)

Chemical & Physical Properties:
MW: 188.6
BP: 590-599°F
Sol: Insoluble
Fl.P: ?
IP: ?
Sp.Gr: ?
VP: 0.00003 mmHg
MLT: 203-205°F
UEL: ?
LEL: ?
MEC: 25 g/m^3
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
2 mg/m^3: Sa:Cf£/GmFS100/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS100/ScbaE

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Pain, burn eyes, lac, conj; eryt eyelids, blepharospasm; irrit throat, cough, chest tight; head; eryt, vesic skin
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

C

Chlorobromomethane

Formula: CH_2BrCl | **CAS#:** 74-97-5 | **RTECS#:** PA5250000 | **IDLH:** 2000 ppm

Conversion: 1 ppm = 5.29 mg/m^3 | **DOT:** 1887 160

Synonyms/Trade Names: Bromochloromethane, CB, CBM, Fluorocarbon 1011, Halon® 1011, Methyl chlorobromide

Exposure Limits:
NIOSH REL: TWA 200 ppm (1050 mg/m^3)
OSHA PEL: TWA 200 ppm (1050 mg/m^3)

Physical Description: Colorless to pale-yellow liquid with a chloroform-like odor. [**Note:** May be used as a fire extinguishing agent.]

Measurement Methods (see Table 1):
NIOSH 1003

Chemical & Physical Properties:
MW: 129.4
BP: 155°F
Sol: Insoluble
Fl.P: NA
IP: 10.77 eV
Sp.Gr: 1.93
VP: 115 mmHg
FRZ: -124°F
UEL: NA
LEL: NA
Noncombustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
2000 ppm: Sa:Cf£/PaprOv£/CcrFOv/GmFOv/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Chemically-active metals such as calcium, powdered aluminum, zinc, and magnesium

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, throat; conf, dizz, CNS depres; pulm edema
TO: Eyes, skin, resp sys, liver, kidneys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

Chlorodifluoromethane

Formula: $CHClF_2$ | **CAS#:** 75-45-6 | **RTECS#:** PA6390000 | **IDLH:** N.D.

Conversion: 1 ppm = 3.54 mg/m^3 | **DOT:** 1018 126

Synonyms/Trade Names: Difluorochloromethane, Fluorocarbon-22, Freon® 22, Genetron® 22, Monochlorodifluoromethane, Refrigerant 22

Exposure Limits:
NIOSH REL: TWA 1000 ppm (3500 mg/m^3)
ST 1250 ppm (4375 mg/m^3)
OSHA PEL†: none

Physical Description: Colorless gas with a faint, sweetish odor. [**Note:** Shipped as a liquefied compressed gas.]

Measurement Methods (see Table 1):
NIOSH 1018

Chemical & Physical Properties:
MW: 86.5
BP: -41°F
Sol(77°F): 0.3%
Fl.P: NA
IP: 12.45 eV
RGasD: 3.11
VP: 9.4 atm
FRZ: -231°F
UEL: NA
LEL: NA
Nonflammable Gas

Personal Protection/Sanitation (see Table 2):
Skin: Frostbite
Eyes: Frostbite
Wash skin: N.R.
Remove: N.R.
Change: N.R.
Provide: Frostbite wash

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Alkalis, alkaline earth metals (e.g., powdered aluminum, sodium, potassium, zinc)

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con (liquid)
SY: Irrit resp sys; conf, drow, ringing in ears; heart palp, card arrhy; asphy; liver, kidney, spleen inj; liquid: frostbite
TO: Resp sys, CVS, CNS, liver, kidneys, spleen

First Aid (see Table 6):
Eye: Frostbite
Skin: Frostbite
Breath: Resp support

C

Chlorodiphenyl (42% chlorine)	Formula: $C_6H_4ClC_6H_3Cl_2$ (approx)	CAS#: 53469-21-9	RTECS#: TQ1356000	IDLH: Ca [5 mg/m^3]
Conversion:	DOT: 2315 171			

Synonyms/Trade Names: Aroclor® 1242, PCB, Polychlorinated biphenyl

Exposure Limits:
NIOSH REL*: Ca
TWA 0.001 mg/m^3
See Appendix A
[***Note:** The REL also applies to other PCBs.]
OSHA PEL: TWA 1 mg/m^3 [skin]

Measurement Methods (see Table 1):
NIOSH 5503
OSHA PV2089

Physical Description: Colorless to light-colored, viscous liquid with a mild, hydrocarbon odor.

Chemical & Physical Properties:
MW: 258 (approx)
BP: 617-691°F
Sol: Insoluble
Fl.P: NA
IP: ?
Sp.Gr(77°F): 1.39
VP: 0.001 mmHg
FRZ: -2°F
UEL: NA
LEL: NA

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Nonflammable Liquid, but exposure in a fire results in the formation of a black soot containing PCBs, polychlorinated dibenzofurans & chlorinated dibenzo-p-dioxins.

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes; chloracne; liver damage; repro effects; [carc]
TO: Skin, eyes, liver, repro sys [in animals: tumors of the pituitary gland & liver, leukemia]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Chlorodiphenyl (54% chlorine)	Formula: $C_6H_3Cl_2C_6H_2Cl_3$ (approx)	CAS#: 11097-69-1	RTECS#: TQ1360000	IDLH: Ca [5 mg/m^3]
Conversion:	DOT: 2315 171			

Synonyms/Trade Names: Aroclor® 1254, PCB, Polychlorinated biphenyl

Exposure Limits:
NIOSH REL*: Ca
TWA 0.001 mg/m^3
See Appendix A
[***Note:** The REL also applies to other PCBs.]
OSHA PEL: TWA 0.5 mg/m^3 [skin]

Measurement Methods (see Table 1):
NIOSH 5503
OSHA PV2088

Physical Description: Colorless to pale-yellow, viscous liquid or solid (below 50°F) with a mild, hydrocarbon odor.

Chemical & Physical Properties:
MW: 326 (approx)
BP: 689-734°F
Sol: Insoluble
Fl.P: NA
IP: ?
Sp.Gr(77°F): 1.38
VP: 0.00006 mmHg
FRZ: 50°F
UEL: NA
LEL: NA

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Nonflammable Liquid, but exposure in a fire results in the formation of a black soot containing PCBs, polychlorinated dibenzofurans, and chlorinated dibenzo-p-dioxins.

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, chloracne; liver damage; repro effects; [carc]
TO: Skin, eyes, liver, repro sys [in animals: tumors of the pituitary gland & liver, leukemia]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

C

Chloroform	Formula: $CHCl_3$	CAS#: 67-66-3	RTECS#: FS9100000	IDLH: Ca [500 ppm]
Conversion: 1 ppm = 4.88 mg/m^3	**DOT:** 1888 151			

Synonyms/Trade Names: Methane trichloride, Trichloromethane

Exposure Limits:
NIOSH REL: Ca
ST 2 ppm (9.78 mg/m^3) [60-minute]
See Appendix A
OSHA PEL†: C 50 ppm (240 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1003

Physical Description: Colorless liquid with a pleasant odor.

Chemical & Physical Properties:
MW: 119.4
BP: 143°F
Sol(77°F): 0.5%
Fl.P: NA
IP: 11.42 eV
Sp.Gr: 1.48
VP: 160 mmHg
FRZ: -82°F
UEL: NA
LEL: NA
Noncombustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong caustics; chemically-active metals such as aluminum or magnesium powder, sodium & potassium; strong oxidizers [**Note:** When heated to decomposition, forms phosgene gas.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin; dizz, mental dullness, nau, conf; head, lass; anes; enlarged liver; [carc]
TO: Liver, kidneys, heart, eyes, skin, CNS [in animals: liver & kidney cancer]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

bis-Chloromethyl ether	Formula: $(CH_2Cl)_2O$	CAS#: 542-88-1	RTECS#: KN1575000	IDLH: Ca [N.D.]
Conversion:	**DOT:** 2249 131			

Synonyms/Trade Names: BCME, bis-CME, Chloromethyl ether, Dichlorodimethyl ether, Dichloromethyl ether, Oxybis(chloromethane)

Exposure Limits:
NIOSH REL: Ca
See Appendix A
OSHA PEL: [1910.1008]
See Appendix B

Measurement Methods (see Table 1):
OSHA 10

Physical Description: Colorless liquid with a suffocating odor.

Chemical & Physical Properties:
MW: 115.0
BP: 223°F
Sol: Reacts
Fl.P: <66°F
IP: ?
Sp.Gr: 1.32
VP(72°F): 30 mmHg
FRZ: -43°F
UEL: ?
LEL: ?
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet (flamm)
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

See Appendix E (page 351)

Incompatibilities and Reactivities: Acids, water
[**Note:** Reacts with water to form hydrochloric acid & formaldehyde.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, muc memb, resp sys; pulm congestion, edema; corn damage, nec; decr pulm function, cough, dysp, wheez; blood-stained sputum, bronchial secretions; [carc]
TO: Eyes, skin, resp sys [lung cancer]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

C

Chloromethyl methyl ether	Formula: CH_3OCH_2Cl	CAS#: 107-30-2	RTECS#: KN6650000	IDLH: Ca [N.D.]
Conversion:	**DOT:** 1239 131			

Synonyms/Trade Names: Chlorodimethyl ether, Chloromethoxymethane, CMME, Dimethylchloroether, Methylchloromethyl ether

Exposure Limits:
NIOSH REL: Ca
See Appendix A
OSHA PEL: [1910.1006]
See Appendix B

Measurement Methods (see Table 1):
NIOSH P&CAM220 (II-1)
OSHA 10

Physical Description: Colorless liquid with an irritating odor.

Chemical & Physical Properties:
MW: 80.5
BP: 138°F
Sol: Reacts
Fl.P(oc): 32°F
IP: 10.25 eV
Sp.Gr: 1.06
VP(70°F): 192 mmHg
FRZ: -154°F
UEL: ?
LEL: ?
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet (flamm)
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

See Appendix E (page 351)

Incompatibilities and Reactivities: Water [**Note:** Reacts with water to form hydrochloric acid & formaldehyde.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, muc memb; pulm edema, pulm congestion, pneu; skin burns, nec; cough, wheez, pulm congestion; blood stained-sputum; low-wgt; bronchial secretions; [carc]
TO: Eyes, skin, resp sys [in animals: skin & lung cancer]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

1-Chloro-1-nitropropane	Formula: $CH_3CH_2CHClNO_2$	CAS#: 600-25-9	RTECS#: TX5075000	IDLH: 100 ppm
Conversion: 1 ppm = 5.06 mg/m^3	**DOT:**			

Synonyms/Trade Names: Korax®, Lanstan®

Exposure Limits:
NIOSH REL: TWA 2 ppm (10 mg/m^3)
OSHA PEL†: TWA 20 ppm (100 mg/m^3)

Measurement Methods (see Table 1):
NIOSH S211 (II-5)

Physical Description: Colorless liquid with an unpleasant odor. [fungicide]

Chemical & Physical Properties:
MW: 123.6
BP: 289°F
Sol: 0.5%
Fl.P(oc): 144°F
IP: 9.90 eV
Sp.Gr: 1.21
VP(77°F): 6 mmHg
FRZ: ?
UEL: ?
LEL: ?
Class IIIA Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
20 ppm: Sa*
50 ppm: Sa:Cf*/PaprOv*
100 ppm: CcrFOv/GmFOv/PaprTOv*/ ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, acids

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: In animals: irrit eyes; pulm edema; liver, kidney, heart damage
TO: Resp sys, liver, kidneys, CVS, eyes

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Resp support
Swallow: Medical attention immed

C

Chloropentafluoroethane	Formula: $CClF_2CF_3$	CAS#: 76-15-3	RTECS#: KH7877500	IDLH: N.D.
Conversion: 1 ppm = 6.32 mg/m^3	**DOT:** 1020 126			

Synonyms/Trade Names: Fluorocarbon-115, Freon® 115, Genetron® 115, Halocarbon 115, Monochloropentafluoroethane

Exposure Limits:
NIOSH REL: TWA 1000 ppm (6320 mg/m^3)
OSHA PEL†: none

Measurement Methods (see Table 1):
None available

Physical Description: Colorless gas with a slight, ethereal odor.
[**Note:** Shipped as a liquefied compressed gas.]

Chemical & Physical Properties:
MW: 154.5
BP: -38°F
Sol(77°F): 0.006%
Fl.P: NA
IP: 12.96 eV
RGasD: 5.55
VP(70°F): 7.9 atm
FRZ: -223°F
UEL: NA
LEL: NA
Nonflammable Gas

Personal Protection/Sanitation (see Table 2):
Skin: Frostbite
Eyes: Frostbite
Wash skin: N.R.
Remove: N.R.
Change: N.R.
Provide: Frostbite wash

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Alkalis, alkaline earth metals (e.g., aluminum powder, sodium, potassium, zinc)

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con (liquid)
SY: Dysp; dizz, inco, narco; nau, vomit; heart palp, card arrhy, asphy; liquid: frostbite, derm
TO: Skin, CNS, CVS

First Aid (see Table 6):
Eye: Frostbite
Skin: Frostbite
Breath: Resp support

Chloropicrin	Formula: CCl_3NO_2	CAS#: 76-06-2	RTECS#: PB6300000	IDLH: 2 ppm
Conversion: 1 ppm = 6.72 mg/m^3	**DOT:** 1580 154; 1583 154 (mixture, n.o.s.)			

Synonyms/Trade Names: Nitrochloroform, Nitrotrichloromethane, Trichloronitromethane

Exposure Limits:
NIOSH REL: TWA 0.1 ppm (0.7 mg/m^3)
OSHA PEL: TWA 0.1 ppm (0.7 mg/m^3)

Measurement Methods (see Table 1):
None available

Physical Description: Colorless to faint-yellow, oily liquid with an intensely irritating odor. [pesticide]

Chemical & Physical Properties:
MW: 164.4
BP: 234°F
Sol: 0.2%
Fl.P: NA
IP: ?
Sp.Gr: 1.66
VP: 18 mmHg
FRZ: -93°F
UEL: NA
LEL: NA
Noncombustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
2 ppm: Sa:Cf£/PaprOv£/CcrFOv/GmFOv/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers
[**Note:** The material may explode when heated under confinement.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, resp sys; lac; cough, pulm edema; nau, vomit
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

C

β-Chloroprene

Formula: CH_2=CClCH=CH_2 | **CAS#:** 126-99-8 | **RTECS#:** EI9625000 | **IDLH:** Ca [300 ppm]

Conversion: 1 ppm = 3.62 mg/m^3 | **DOT:** 1991 131P (inhibited)

Synonyms/Trade Names: 2-Chloro-1,3-butadiene; Chlorobutadiene; Chloroprene

Exposure Limits:
NIOSH REL: Ca
C 1 ppm (3.6 mg/m^3) [15-minute]
See Appendix A
OSHA PEL†: TWA 25 ppm (90 mg/m^3) [skin]

Measurement Methods (see Table 1):
NIOSH 1002
OSHA 112

Physical Description: Colorless liquid with a pungent, ether-like odor.

Chemical & Physical Properties:
MW: 88.5
BP: 139°F
Sol: Slight
Fl.P: -4°F
IP: 8.79 eV
Sp.Gr: 0.96
VP: 188 mmHg
FRZ: -153°F
UEL: 11.3%
LEL: 1.9%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Peroxides & other oxidizers
[**Note:** Polymerizes at room temperature unless inhibited with antioxidants.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, resp sys; anxi, irrity; derm; alopecia; repro effects; [carc]
TO: Eyes, skin, resp sys, repro sys [lung & skin cancer]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

o-Chlorostyrene

Formula: $ClC_6H_4CH=CH_2$ | **CAS#:** 2039-87-4 | **RTECS#:** WL4160000 | **IDLH:** N.D.

Conversion: 1 ppm = 5.67 mg/m^3 | **DOT:**

Synonyms/Trade Names: 2-Chlorostyrene, ortho-Chlorostyrene, 1-Chloro-2-ethenylbenzene

Exposure Limits:
NIOSH REL: TWA 50 ppm (285 mg/m^3)
ST 75 ppm (428 mg/m^3)
OSHA PEL†: none

Measurement Methods (see Table 1):
None available

Physical Description: Colorless liquid.

Chemical & Physical Properties:
MW: 138.6
BP: 372°F
Sol: Insoluble
Fl.P: 138°F
IP: ?
Sp.Gr: 1.10
VP(77°F): 0.96 mmHg
FRZ: -82°F
UEL: ?
LEL: ?
Class II Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: None reported

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: In animals: irrit eyes, skin; hema, prot, acidosis; enlarged liver, jaun
TO: Eyes, skin, liver, kidneys, CNS, PNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Resp support
Swallow: Medical attention immed

C

o-Chlorotoluene

Formula:	CAS#:	RTECS#:	IDLH:
$ClC_6H_4CH_3$	95-49-8	XS9000000	N.D.

Conversion: 1 ppm = 5.18 mg/m^3

DOT: 2238 129

Synonyms/Trade Names: 1-Chloro-2-methylbenzene, 2-Chloro-1-methylbenzene, 2-Chlorotoluene, o-Tolyl chloride

Exposure Limits:
NIOSH REL: TWA 50 ppm (250 mg/m^3)
ST 75 ppm (375 mg/m^3)
OSHA PEL†: none

Measurement Methods (see Table 1):
None available

Physical Description: Colorless liquid with an aromatic odor.

Chemical & Physical Properties:
MW: 126.6
BP: 320°F
Sol(77°F): 0.009%
Fl.P: 96°F
IP: 8.83 eV
Sp.Gr: 1.08
VP(77°F): 4 mmHg
FRZ: -31°F
UEL: ?
LEL: ?
Class IC Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.
Provide: Eyewash

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Acids, alkalis, oxidizers, reducing materials, water

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, muc memb; derm; drow, inco, anes; cough; liver, kidney inj
TO: Eyes, skin, resp sys, CNS, liver, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

2-Chloro-6-trichloromethyl pyridine

Formula:	CAS#:	RTECS#:	IDLH:
$ClC_5H_3NCCl_3$	1929-82-4	US7525000	N.D.

Conversion:

DOT:

Synonyms/Trade Names: 2-Chloro-6-(trichloro-methyl)pyridine; Nitrapyrin; N-serve®; 2,2,2,6-Tetrachloro-2-picoline

Exposure Limits:
NIOSH REL: TWA 10 mg/m^3 (total)
ST 20 mg/m^3 (total)
TWA 5 mg/m^3 (resp)
OSHA PEL: TWA 15 mg/m^3 (total)
TWA 5 mg/m^3 (resp)

Measurement Methods (see Table 1):
None available

Physical Description: Colorless or white, crystalline solid with a mild, sweet odor.

Chemical & Physical Properties:
MW: 230.9
BP: ?
Sol: Insoluble
Fl.P: ?
IP: ?
Sp.Gr: ?
VP(73°F): 0.003 mmHg
MLT: 145°F
UEL: ?
LEL: ?
Combustible Solid [Explosive]

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Aluminum, magnesium
[**Note:** Emits oxides of nitrogen and chloride ion when heated to decomposition.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: No adverse effects noted in ingestion studies with animals.
TO: Eyes, skin

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

C

Chlorpyrifos

Formula: $C_9H_{11}Cl_3NO_3PS$ | **CAS#:** 2921-88-2 | **RTECS#:** TF6300000 | **IDLH:** N.D.

Conversion: | **DOT:** 2783 152

Synonyms/Trade Names: Chlorpyrifos-ethyl; O,O-Diethyl O-3,5,6-trichloro-2-pyridyl phosphorothioate; Dursban®

Exposure Limits:
NIOSH REL: TWA 0.2 mg/m^3
ST 0.6 mg/m^3 [skin]
OSHA PEL†: none

Measurement Methods (see Table 1):
NIOSH 5600 **OSHA** 62

Physical Description: Colorless to white, crystalline solid with a mild, mercaptan-like odor. [pesticide]
[**Note:** Commercial formulations may be combined with combustible liquids.]

Chemical & Physical Properties:
MW: 350.6
BP: 320°F (Decomposes)
Sol: 0.0002%
Fl.P: ?
IP: ?
Sp.Gr: 1.40 (Liquid at 110°F)
VP: 0.00002 mmHg
MLT: 108°F
UEL: ?
LEL: ?
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Strong acids, caustics, amines
[**Note:** Corrosive to copper & brass.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Wheez, lar spasms, salv; bluish lips, skin; miosis, blurred vision; nau, vomit, abdom cramps, diarr
TO: Resp sys, CNS, PNS, plasma chol

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Chromic acid and chromates

Formula: CrO_3 (acid) | **CAS#:** 1333-82-0 (CrO_3) | **RTECS#:** GB6650000 (CrO_3) | **IDLH:** Ca [15 mg/m^3 {as Cr(VI)}]

Conversion: | **DOT:** 1755 154 (acid solution); 1463 141 (acid, solid)

Synonyms/Trade Names: **Chromic acid (CrO_3):** Chromic anhydride, Chromic oxide, Chromium(VI) oxide (1:3), Chromium trioxide. Synonyms of chromates (i.e., chromium(VI) compounds) such as zinc chromate vary depending upon the specific compound.

Exposure Limits:
NIOSH REL (as Cr): Ca
TWA 0.001 mg/m^3
See Appendix A
See Appendix C
OSHA PEL (as CrO_3): C 0.1 mg/m^3 See Appendix C

Measurement Methods (see Table 1):
NIOSH 7600, 7604, 7605
OSHA ID103, ID215, W4001

Physical Description: CrO_3: Dark-red, odorless flakes or powder.
[**Note:** Often used in an aqueous solution (H_2CrO_4).]

Chemical & Physical Properties:
MW: 100.0
BP: 482°F (Decomposes)
Sol: 63%
Fl.P: NA
IP: NA
Sp.Gr: 2.70 (CrO_3)
VP: Very low
MLT: 387°F (Decomposes)
UEL: NA
LEL: NA
CrO_3: Noncombustible Solid, but will accelerate the burning of combustible materials.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Combustible, organic, or other readily oxidizable materials (paper, wood, sulfur, aluminum, plastics, etc.); corrosive to metals

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit resp sys; nasal septum perf; liver, kidney damage; leucyt, leupen, eosin; eye inj, conj; skin ulcer, sens derm; [carc]
TO: Blood, resp sys, liver, kidneys, eyes, skin [lung cancer]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap flush immed
Breath: Resp support
Swallow: Medical attention immed

C

Chromium(II) compounds (as Cr)	Formula:	CAS#:	RTECS#:	IDLH: 250 mg/m^3 [as Cr(II)]
Conversion:	**DOT:**			

Synonyms/Trade Names: Synonyms vary depending upon the specific Chromium(II) compound.
[**Note:** Chromium(II) compounds include soluble chromous salts.]

Exposure Limits:	Measurement Methods (see Table 1):
NIOSH REL: TWA 0.5 mg/m^3 See Appendix C **OSHA PEL:** TWA 0.5 mg/m^3 See Appendix C	**NIOSH** 7024, 7300, 7301, 7303, 9102 **OSHA** ID121, ID125G

Physical Description: Appearance and odor vary depending upon the specific compound.

Chemical & Physical Properties:	Personal Protection/Sanitation (see Table 2):	Respirator Recommendations (see Tables 3 and 4):
Properties vary depending upon the specific compound.	**Skin:** Prevent skin contact **Eyes:** Prevent eye contact **Wash skin:** When contam **Remove:** When wet or contam **Change:** N.R.	**NIOSH/OSHA** **2.5 mg/m^3:** Qm* **5 mg/m^3:** 95XQ*/Sa* **12.5 mg/m^3:** Sa:Cf*/PaprHie* **25 mg/m^3:** 100F/PaprTHie*/ScbaF/SaF **250 mg/m^3:** SaF:Pd,Pp **§:** ScbaF:Pd,Pp/SaF:Pd,Pp:AScba **Escape:** 100F/ScbaE

Incompatibilities and Reactivities: Varies

Exposure Routes, Symptoms, Target Organs (see Table 5):	First Aid (see Table 6):
ER: Inh, Ing, Con **SY:** Irrit eyes; sens derm **TO:** Eyes, skin	**Eye:** Irr immed **Skin:** Water flush prompt **Breath:** Resp support **Swallow:** Medical attention immed

Chromium(III) compounds (as Cr)	Formula:	CAS#:	RTECS#:	IDLH: 25 mg/m^3 [as Cr(III)]
Conversion:	**DOT:**			

Synonyms/Trade Names: Synonyms vary depending upon the specific Chromium(III) compound.
[**Note:** Chromium(III) compounds include soluble chromic salts.]

Exposure Limits:	Measurement Methods (see Table 1):
NIOSH REL: TWA 0.5 mg/m^3 See Appendix C **OSHA PEL:** TWA 0.5 mg/m^3 See Appendix C	**NIOSH** 7024, 7300, 7301, 7303, 9102 **OSHA** ID121, ID125G

Physical Description: Appearance and odor vary depending upon the specific compound.

Chemical & Physical Properties:	Personal Protection/Sanitation (see Table 2):	Respirator Recommendations (see Tables 3 and 4):
Properties vary depending upon the specific compound.	**Skin:** Prevent skin contact **Eyes:** Prevent eye contact **Wash skin:** When contam **Remove:** When wet or contam **Change:** N.R.	**NIOSH/OSHA** **2.5 mg/m^3:** Qm* **5 mg/m^3:** 95XQ*/Sa* **12.5 mg/m^3:** Sa:Cf*/PaprHie* **25 mg/m^3:** 100F/PaprTHie*/ScbaF/SaF **§:** ScbaF:Pd,Pp/SaF:Pd,Pp:AScba **Escape:** 100F/ScbaE

Incompatibilities and Reactivities: Varies

Exposure Routes, Symptoms, Target Organs (see Table 5):	First Aid (see Table 6):
ER: Inh, Ing, Con **SY:** Irrit eyes; sens derm **TO:** Eyes, skin	**Eye:** Irr immed **Skin:** Water flush prompt **Breath:** Resp support **Swallow:** Medical attention immed

C

Chromium metal

Formula: Cr | **CAS#:** 7440-47-3 | **RTECS#:** GB4200000 | **IDLH:** 250 mg/m^3 (as Cr)

Conversion: | **DOT:**

Synonyms/Trade Names: Chrome, Chromium

Exposure Limits:
NIOSH REL: TWA 0.5 mg/m^3
See Appendix C
OSHA PEL*: TWA 1 mg/m^3
See Appendix C
[***Note:** The PEL also applies to insoluble chromium salts.]

Measurement Methods (see Table 1):
NIOSH 7024, 7300, 7301, 7303, 9102
OSHA ID121, ID125G

Physical Description: Blue-white to steel-gray, lustrous, brittle, hard, odorless solid.

Chemical & Physical Properties:
MW: 52.0
BP: 4788°F
Sol: Insoluble
Fl.P: NA
IP: NA
Sp.Gr: 7.14
VP: 0 mmHg (approx)
MLT: 3452°F
UEL: NA
LEL: NA
Noncombustible Solid in bulk form, but finely divided dust burns rapidly if heated in a flame.

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
2.5 mg/m^3: Qm*
5 mg/m^3: 95XQ*/Sa*
12.5 mg/m^3: Sa:Cf*/PaprHie*
25 mg/m^3: 100F/PaprTHie*/ ScbaF/SaF
250 mg/m^3: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Strong oxidizers (such as hydrogen peroxide), alkalis

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin; lung fib (histologic)
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Resp support
Swallow: Medical attention immed

Chromyl chloride

Formula: $Cr(OCl)_2$ | **CAS#:** 14977-61-8 | **RTECS#:** GB5775000 | **IDLH:** Ca [N.D.]

Conversion: | **DOT:** 1758 137

Synonyms/Trade Names: Chlorochromic anhydride, Chromic oxychloride, Chromium chloride oxide, Chromium dichloride dioxide, Chromium dioxide dichloride, Chromium dioxychloride, Chromium oxychloride, Dichlorodioxochromium

Exposure Limits:
NIOSH REL: Ca 0.001 mg Cr(VI)/m^3
See Appendix A, See Appendix C
OSHA PEL: none

Measurement Methods (see Table 1):
None available

Physical Description: Deep-red liquid with a musty, burning, acrid odor. [**Note:** Fumes in moist air.]

Chemical & Physical Properties:
MW: 154.9
BP: 243°F
Sol: Reacts
Fl.P: NA
IP: 12.60 eV
Sp.Gr(77°F): 1.91
VP: 20 mmHg
FRZ: -142°F
UEL: NA
LEL: NA
Noncombustible Liquid, but a powerful oxidizer.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Water, combustible substances, halides, phosphorus, turpentine [**Note:** Reacts violently in water; forms chromic acid, chromic chloride, hydrochloric acid & chlorine. Corrodes common metals.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, upper resp sys; eye, skin burns [carc]
TO: Eyes, skin, resp sys [lung cancer]

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

C

Clopidol	Formula: $C_7H_7Cl_2NO$	CAS#: 2971-90-6	RTECS#: UU7711500	IDLH: N.D.
Conversion:	DOT:			

Synonyms/Trade Names: Coyden®; 3,5-Dichloro-2,6-dimethyl-4-pyridinol

Exposure Limits:
NIOSH REL: TWA 10 mg/m^3 (total)
ST 20 mg/m^3 (total)
TWA 5 mg/m^3 (resp)
OSHA PEL: TWA 15 mg/m^3 (total)
TWA 5 mg/m^3 (resp)

Measurement Methods (see Table 1):
NIOSH 0500, 0600

Physical Description: White to light-brown, crystalline solid.

Chemical & Physical Properties:
MW: 192.1
BP: ?
Sol: Insoluble
Fl.P: NA
IP: ?
Sp.Gr: ?
VP: ?
MLT: >608°F
UEL: NA
LEL: NA
Noncombustible Solid, but dust may explode in cloud form.

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: None reported

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Irrit eyes, skin, nose, throat; cough
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Fresh air

Coal dust	Formula:	CAS#:	RTECS#: GF8281000	IDLH: N.D.
Conversion:	DOT: 1361 133			

Synonyms/Trade Names: Anthracite coal dust, Bituminous coal dust, Lignite coal dust

Exposure Limits:
NIOSH REL: See Appendix D
OSHA PEL†: TWA 2.4 mg/m^3 [respirable, <5% SiO_2]
TWA (10 mg/m^3)/(%SiO_2 + 2) [respirable, ≥ 5% SiO_2]
See Appendix C (Mineral Dusts)

Measurement Methods (see Table 1):
NIOSH 0600, 7500

Physical Description: Dark-brown to black solid dispersed in air.

Chemical & Physical Properties:
Properties vary depending upon the specific coal type.

Combustible Solid; slightly explosive when exposed to flame.

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: None reported

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh
SY: Chronic bron, decr pulm func, emphy
TO: Resp sys

First Aid (see Table 6):
Breath: Fresh air

C

Coal tar pitch volatiles	Formula:	CAS#: 65996-93-2	RTECS#: GF8655000	IDLH: Ca [80 mg/m^3]

Conversion: **DOT:** 2713 153 (acridine)

Synonyms/Trade Names: Synonyms vary depending upon the specific compound (e.g., pyrene, phenanthrene, acridine, chrysene, anthracene & benzo(a)pyrene).
[**Note:** NIOSH considers coal tar, coal tar pitch, and creosote to be coal tar products.]

Exposure Limits:
NIOSH REL: Ca
TWA 0.1 mg/m^3 (cyclohexane-extractable fraction)
See Appendix A
See Appendix C
OSHA PEL: TWA 0.2 mg/m^3 (benzene-soluble fraction) [1910.1002]
See Appendix C

Measurement Methods (see Table 1):
OSHA 58

Physical Description: Black or dark-brown amorphous residue.

Chemical & Physical Properties:
Properties vary depending upon the specific compound.
Combustible Solids

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: Daily
Remove: N.R.
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Derm, bron, [carc]
TO: Resp sys, skin, bladder, kidneys [lung, kidney & skin cancer]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Cobalt carbonyl (as Co)	Formula: $C_8Co_2O_8$	CAS#: 10210-68-1	RTECS#: GG0300000	IDLH: N.D.

Conversion: **DOT:**

Synonyms/Trade Names: di-mu-Carbonylhexacarbonyldicobalt, Cobalt octacarbonyl, Cobalt tetracarbonyl dimer, Dicobalt carbonyl, Dicobalt Octacarbonyl, Octacarbonyldicobalt

Exposure Limits:
NIOSH REL: TWA 0.1 mg/m^3
OSHA PEL†: none

Measurement Methods (see Table 1):
None available

Physical Description: Orange to dark-brown, crystalline solid.
[**Note:** The pure substance is white.]

Chemical & Physical Properties:
MW: 341.9
BP: 126°F (Decomposes)
Sol: Insoluble
Fl.P: NA
IP: ?
Sp.Gr: 1.87
VP: 0.7 mmHg
MLT: 124°F
UEL: NA
LEL: NA
Noncombustible Solid, but flammable carbon monoxide is emitted during decomposition.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Air
[**Note:** Decomposes on exposure to air or heat; stable in atmosphere of hydrogen & carbon monoxide.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, muc memb; cough, decr pulm func, wheez, dysp; in animals: liver, kidney inj, pulm edema
TO: Eyes, skin, resp sys, blood, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Resp support
Swallow: Medical attention immed

C

Cobalt hydrocarbonyl (as Co)	Formula: $HCo(CO)_4$	CAS#: 16842-03-8	RTECS#: GG0900000	IDLH: N.D.

Conversion: **DOT:**

Synonyms/Trade Names: Hydrocobalt tetracarbonyl, Tetracarbonylhydridocobalt, Tetracarbonylhydrocobalt

Exposure Limits:
NIOSH REL: TWA 0.1 mg/m^3
OSHA PEL†: none

Measurement Methods (see Table 1):
None available

Physical Description: Gas with an offensive odor.

Chemical & Physical Properties:
MW: 172.0
BP: ?
Sol: 0.05%
Fl.P: NA (Gas)
IP: ?
RGasD: 5.93
VP: >1 atm
FRZ: -15°F
UEL: ?
LEL: ?
Flammable Gas

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Air
[**Note:** Unstable gas that decomposes rapidly in air at room temperature to cobalt carbonyl & hydrogen.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: In animals: irrit resp sys; dysp, cough, decr pulm func, pulm edema
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Resp support

Cobalt metal dust and fume (as Co)	Formula: Co	CAS#: 7440-48-4	RTECS#: GF8750000	IDLH: 20 mg/m^3 (as Co)

Conversion: **DOT:**

Synonyms/Trade Names: Cobalt metal dust, Cobalt metal fume

Exposure Limits:
NIOSH REL: TWA 0.05 mg/m^3
OSHA PEL†: TWA 0.1 mg/m^3

Measurement Methods (see Table 1):
NIOSH 7027, 7300, 7301, 7303, 9102
OSHA ID121, ID125G, ID213

Physical Description: Odorless, silver-gray to black solid.

Chemical & Physical Properties:
MW: 58.9
BP: 5612°F
Sol: Insoluble
Fl.P: NA
IP: NA
Sp.Gr: 8.92
VP: 0 mmHg (approx)
MLT: 2719°F
UEL: NA
LEL: NA
Noncombustible Solid in bulk form, but finely divided dust will burn at high temperatures.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: N.R.
Wash skin: When contam
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH
0.25 mg/m^3: Qm
0.5 mg/m^3: 95XQ*/Sa*
1.25 mg/m^3: Sa:Cf*/PaprHie*
2.5 mg/m^3: 100F/ScbaF/SaF
20 mg/m^3: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, ammonium nitrate

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Cough, dysp, wheez, decr pulm func; low-wgt; derm; diffuse nodular fib; resp hypersensitivity, asthma
TO: Skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Resp support
Swallow: Medical attention immed

C

Coke oven emissions	Formula:	CAS#:	RTECS#:	IDLH:
			GH0346000	Ca [N.D.]
Conversion:	**DOT:**			

Synonyms/Trade Names: Synonyms vary depending upon the specific constituent.

Exposure Limits:
NIOSH REL: Ca
TWA 0.2 mg/m^3 (benzene-soluble fraction)
See Appendix A
See Appendix C
OSHA PEL: [1910.1029] TWA 0.150 mg/m^3 (benzene-soluble fraction)

Measurement Methods (see Table 1):
OSHA 58

Physical Description: Emissions released during the carbonization of bituminous coal for the production of coke. [**Note:** See Appendix C for more information.]

Chemical & Physical Properties:
Properties vary depending upon the constituent.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: Daily
Remove: N.R.
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

See Appendix E (page 351)

Incompatibilities and Reactivities: None reported

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Irrit eyes, resp sys; cough, dysp, wheez; [carc]
TO: Skin, resp sys, urinary sys [skin, lung, kidney & bladder cancer]

First Aid (see Table 6):
Eye: Irr immed
Breath: Resp support

Copper (dusts and mists, as Cu)	Formula:	CAS#:	RTECS#:	IDLH:
	Cu	7440-50-8	GL5325000	100 mg/m^3 (as Cu)
Conversion:	**DOT:**			

Synonyms/Trade Names: Copper metal dusts, Copper metal fumes

Exposure Limits:
NIOSH REL*: TWA 1 mg/m^3
OSHA PEL*: TWA 1 mg/m^3
[***Note:** The REL and PEL also apply to other copper compounds (as Cu) except copper fume.]

Measurement Methods (see Table 1):
NIOSH 7029, 7300, 7301, 7303, 9102
OSHA ID121, ID125G

Physical Description: Reddish, lustrous, malleable, odorless solid.

Chemical & Physical Properties:
MW: 63.5
BP: 4703°F
Sol: Insoluble
Fl.P: NA
IP: NA
Sp.Gr: 8.94
VP: 0 mmHg (approx)
MLT: 1981°F
UEL: NA
LEL: NA
Noncombustible Solid in bulk form, but powdered form may ignite.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
5 mg/m^3: Qm*
10 mg/m^3: 95XQ*/Sa*
25 mg/m^3: Sa:Cf*/PaprHie*
50 mg/m^3: 100F/PaprTHie*/ScbaF/SaF
100 mg/m^3: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Oxidizers, alkalis, sodium azide, acetylene

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, nose, pharynx; nasal septum perf; metallic taste; derm; in animals: lung, liver, kidney damage; anemia
TO: Eyes, skin, resp sys, liver, kidneys (incr risk with Wilson's disease)

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

C

Copper fume (as Cu)	Formula: CuO/Cu	CAS#: 1317-38-0 (CuO)	RTECS#: GL7900000 (CuO)	IDLH: 100 mg/m^3 (as Cu)

Conversion: **DOT:**

Synonyms/Trade Names: **Cu:** Copper fume **CuO:** Black copper oxide fume, Copper monoxide fume, Copper(II) oxide fume, Cupric oxide fume
[**Note:** Also see specific listing for Copper (dusts and mists).]

Exposure Limits:
NIOSH REL: TWA 0.1 mg/m^3
OSHA PEL: TWA 0.1 mg/m^3

Physical Description: Finely divided black particulate dispersed in air.
[**Note:** Exposure may occur in copper & brass plants and during the welding of copper alloys.]

Measurement Methods (see Table 1):
NIOSH 7029, 7300, 7301, 7303
OSHA ID121, ID125G, ID206

Chemical & Physical Properties:
MW: 79.5
BP: Decomposes
Sol: Insoluble
Fl.P: NA
IP: NA
Sp.Gr: 6.4 (CuO)
VP: 0 mmHg (approx)
MLT: 1879°F (Decomposes)
UEL: NA
LEL: NA
CuO: Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
1 mg/m^3: 95XQ/Sa
2.5 mg/m^3: Sa:Cf/PaprHie
5 mg/m^3: 100F/SaT:Cf/PaprTHie/ ScbaF/SaF
100 mg/m^3: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: **CuO:** Acetylene, zirconium
[**Note:** See Copper (dusts and mists) for properties of Copper metal.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Irrit eyes, upper resp sys; metal fume fever: chills, musc ache, nau, fever, dry throat, cough, lass; metallic or sweet taste; discoloration skin, hair
TO: Eyes, skin, resp sys (incr risk with Wilson's disease)

First Aid (see Table 6):
Breath: Resp support

Cotton dust (raw)	Formula:	CAS#:	RTECS#: GN2275000	IDLH: 100 mg/m^3

Conversion: **DOT:** 1365 133 (cotton)

Synonyms/Trade Names: Raw cotton dust

Exposure Limits:
NIOSH REL: TWA <0.200 mg/m^3
See Appendix C
OSHA PEL: [Z-1-A & 1910.1043]
See Appendix C

Physical Description: Colorless, odorless solid.

Measurement Methods (see Table 1):
OSHA [1910.1043]

Chemical & Physical Properties:
MW: ?
BP: Decomposes
Sol: Insoluble
Fl.P: NA
IP: NA
Sp.Gr: ?
VP: 0 mmHg (approx)
MLT: Decomposes
UEL: NA
LEL: NA
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
1 mg/m^3: Qm
2 mg/m^3: 95XQ/Sa
5 mg/m^3: Sa:Cf/PaprHie
10 mg/m^3: 100F/SaT:Cf/PaprTHie/ ScbaF/SaF
100 mg/m^3: Sa:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE
See Appendix E (page 351)

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh
SY: Byssinosis: chest tight, cough, wheez, dysp; decr FEV; bron; mal; fever, chills, upper resp symptoms after initial exposure
TO: CVS, resp sys

First Aid (see Table 6):
Breath: Fresh air

C

Crag® herbicide

Formula: $C_6H_3Cl_2OCH_2CH_2OSO_3Na$
CAS#: 136-78-7
RTECS#: KK4900000
IDLH: 500 mg/m^3

Conversion:
DOT:

Synonyms/Trade Names: Crag® herbicide No. 1; 2-(2,4-Dichlorophenoxy)ethyl sodium sulfate; Sesone

Exposure Limits:
NIOSH REL: TWA 10 mg/m^3 (total)
TWA 5 mg/m^3 (resp)
OSHA PEL†: TWA 15 mg/m^3 (total)
TWA 5 mg/m^3 (resp)

Physical Description: Colorless to white crystalline, odorless solid. [herbicide]

Measurement Methods (see Table 1):
NIOSH S356 (II-5)

Chemical & Physical Properties:
MW: 309.1
BP: Decomposes
Sol(77°F): 26%
Fl.P: NA
IP: ?
Sp.Gr: 1.70
VP: 0.1 mmHg
MLT: 473°F (Decomposes)
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH
50 mg/m^3: Qm
100 mg/m^3: 95XQ/Sa
250 mg/m^3: Sa:Cf/PaprHie
500 mg/m^3: 100F/PaprTHie*/SaT:Cf*/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, acids

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin; liver, kidney damage; in animals: CNS effects, convuls
TO: Eyes, skin, CNS, liver, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water wash prompt
Breath: Resp support
Swallow: Medical attention immed

m-Cresol

Formula: $CH_3C_6H_4OH$
CAS#: 108-39-4
RTECS#: GO6125000
IDLH: 250 ppm

Conversion: 1 ppm = 4.43 mg/m^3
DOT: 2076 153

Synonyms/Trade Names: meta-Cresol, 3-Cresol, m-Cresylic acid, 1-Hydroxy-3-methylbenzene, 3-Hydroxytoluene, 3-Methyl phenol

Exposure Limits:
NIOSH REL: TWA 2.3 ppm (10 mg/m^3)
OSHA PEL: TWA 5 ppm (22 mg/m^3) [skin]

Physical Description: Colorless to yellowish liquid with a sweet, tarry odor. [**Note:** A solid below 54°F.]

Measurement Methods (see Table 1):
NIOSH 2546
OSHA 32

Chemical & Physical Properties:
MW: 108.2
BP: 397°F
Sol: 2%
Fl.P: 187°F
IP: 8.98 eV
Sp.Gr: 1.03
VP(77°F): 0.14 mmHg
FRZ: 54°F
UEL: ?
LEL(300°F): 1.1%
Class IIIA Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
23 ppm: CcrOv95/Sa
57.5 ppm: Sa:Cf/PaprOvHie
115 ppm: CcrFOv100/GmFOv100/PaprTOvHie*/SaT:Cf*/ScbaF/SaF
250 ppm: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, acids

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, muc memb; CNS effects: conf, depres, resp fail; dysp, irreg rapid resp, weak pulse; eye, skin burns; derm; lung, liver, kidney, pancreas damage
TO: Eyes, skin, resp sys, CNS, liver, kidneys, pancreas, CVS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

C

o-Cresol

Formula:	CAS#:	RTECS#:	IDLH:
$CH_3C_6H_4OH$	95-48-7	GO6300000	250 ppm

Conversion: 1 ppm = 4.43 mg/m^3 **DOT:** 2076 153

Synonyms/Trade Names: ortho-Cresol, 2-Cresol, o-Cresylic acid, 1-Hydroxy-2-methylbenzene, 2-Hydroxytoluene, 2-Methyl phenol

Exposure Limits:
NIOSH REL: TWA 2.3 ppm (10 mg/m^3)
OSHA PEL: TWA 5 ppm (22 mg/m^3) [skin]

Physical Description: White crystals with a sweet, tarry odor.
[**Note:** A liquid above 88°F.]

Measurement Methods (see Table 1):
NIOSH 2546
OSHA 32

Chemical & Physical Properties:
MW: 108.2
BP: 376°F
Sol: 2%
Fl.P: 178°F
IP: 8.93 eV
Sp.Gr: 1.05
VP(77°F): 0.29 mmHg
MLT: 88°F
UEL: ?
LEL(300°F): 1.4%
Combustible Solid
Class IIIA Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
23 ppm: CcrOv95/Sa
57.5 ppm: Sa:Cf/PaprOvHie
115 ppm: CcrFOv100/GmFOv100/PaprTOvHie*/SaT:Cf*/ScbaF/SaF
250 ppm: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, acids

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, muc memb; CNS effects: conf, depres, resp fail; dysp, irreg rapid resp, weak pulse; eye, skin burns; derm; lung, liver, kidney, pancreas damage
TO: Eyes, skin, resp sys, CNS, liver, kidneys, pancreas, CVS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

p-Cresol

Formula:	CAS#:	RTECS#:	IDLH:
$CH_3C_6H_4OH$	106-44-5	GO6475000	250 ppm

Conversion: 1 ppm = 4.43 mg/m^3 **DOT:** 2076 153

Synonyms/Trade Names: para-Cresol, 4-Cresol, p-Cresylic acid, 1-Hydroxy-4-methylbenzene, 4-Hydroxytoluene, 4-Methyl phenol

Exposure Limits:
NIOSH REL: TWA 2.3 ppm (10 mg/m^3)
OSHA PEL: TWA 5 ppm (22 mg/m^3) [skin]

Physical Description: Crystalline solid with a sweet, tarry odor.
[**Note:** A liquid above 95°F.]

Measurement Methods (see Table 1):
NIOSH 2546
OSHA 32

Chemical & Physical Properties:
MW: 108.2
BP: 396°F
Sol: 2%
Fl.P: 187°F
IP: 8.97 eV
Sp.Gr: 1.04
VP(77°F): 0.11 mmHg
MLT: 95°F
UEL: ?
LEL(300°F): 1.1%
Combustible Solid
Class IIIA Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
23 ppm: CcrOv95/Sa
57.5 ppm: Sa:Cf/PaprOvHie
115 ppm: CcrFOv100/GmFOv100/PaprTOvHie*/SaT:Cf*/ScbaF/SaF
250 ppm: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, acids

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, muc memb; CNS effects: conf, depres, resp fail; dysp, irreg rapid resp, weak pulse; eye, skin burns; derm; lung, liver, kidney, pancreas damage
TO: Eyes, skin, resp sys, CNS, liver, kidneys, pancreas, CVS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

C

Crotonaldehyde

Formula: $CH_3CH=CHCHO$ | **CAS#:** 4170-30-3 | **RTECS#:** GP9499000 | **IDLH:** 50 ppm

Conversion: 1 ppm = 2.87 mg/m^3 | **DOT:** 1143 131P (inhibited)

Synonyms/Trade Names: 2-Butenal, β-Methyl acrolein, Propylene aldehyde

Exposure Limits:
NIOSH REL: TWA 2 ppm (6 mg/m^3)
See Appendix C (Aldehydes)
OSHA PEL: TWA 2 ppm (6 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 3516
OSHA 81

Physical Description: Water-white liquid with a suffocating odor.
[**Note:** Turns pale-yellow on contact with air.]

Chemical & Physical Properties:
MW: 70.1
BP: 219°F
Sol: 18%
Fl.P: 45°F
IP: 9.73 eV
Sp.Gr: 0.87
VP: 19 mmHg
FRZ: -101°F
UEL: 15.5%
LEL: 2.1%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
20 ppm: CcrOv*/Sa*
50 ppm: Sa:Cf*/PaprOv*/CcrFOv/GmFOv/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Caustics, ammonia, strong oxidizers, nitric acid, amines
[**Note:** Polymerization may occur at elevated temperatures, such as in fire conditions.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, resp sys; in animals: dysp, pulm edema, irrit skin
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

Crufomate

Formula: $C_{12}H_{19}ClNO_3P$ | **CAS#:** 299-86-5 | **RTECS#:** TB3850000 | **IDLH:** N.D.

Conversion: | **DOT:**

Synonyms/Trade Names: 4-t-Butyl-2-chlorophenylmethyl methylphosphoramidate, Dowco® 132, Ruelene®

Exposure Limits:
NIOSH REL: TWA 5 mg/m^3
ST 20 mg/m^3
OSHA PEL†: none

Measurement Methods (see Table 1):
NIOSH 0500
OSHA PV2015

Physical Description: White, crystalline solid in pure form. [pesticide]
[**Note:** Commercial product is a yellow oil.]

Chemical & Physical Properties:
MW: 291.7
BP: Decomposes
Sol: Insoluble
Fl.P: ?
IP: ?
Sp.Gr: 1.16
VP(243°F): 0.01 mmHg
MLT: 140°F
UEL: ?
LEL: ?
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Strongly alkaline & strongly acidic media
[**Note:** Unstable over long periods in aqueous preparations or above 140°F.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, resp sys; wheez, dysp; blurred vision, lac; sweat; abdom cramps, diarr, nau, anor
TO: Eyes, skin, resp sys, blood chol

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

C

Cumene	Formula: $C_6H_5CH(CH_3)_2$	CAS#: 98-82-8	RTECS#: GR8575000	IDLH: 900 ppm [10%LEL]
Conversion: 1 ppm = 4.92 mg/m^3	**DOT:** 1918 130			

Synonyms/Trade Names: Cumol, Isopropyl benzene, 2-Phenyl propane

Exposure Limits:
NIOSH REL: TWA 50 ppm (245 mg/m^3) [skin]
OSHA PEL: TWA 50 ppm (245 mg/m^3) [skin]

Measurement Methods (see Table 1):
NIOSH 1501

Physical Description: Colorless liquid with a sharp, penetrating, aromatic odor.

Chemical & Physical Properties:
MW: 120.2
BP: 306°F
Sol: Insoluble
Fl.P: 96°F
IP: 8.75 eV
Sp.Gr: 0.86
VP: 8 mmHg
FRZ: -141°F
UEL: 6.5%
LEL: 0.9%
Class IC Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
500 ppm: CcrOv*/Sa*
900 ppm: Sa:Cf*/PaprOv*/CcrFOv/GmFOv/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Oxidizers, nitric acid, sulfur acid
[**Note:** Forms cumene hydroperoxide upon long exposure to air.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, muc memb; derm; head, narco, coma
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush prompt
Breath: Resp support
Swallow: Medical attention immed

Cyanamide	Formula: NH_2CN	CAS#: 420-04-2	RTECS#: GS5950000	IDLH: N.D.
Conversion:	**DOT:**			

Synonyms/Trade Names: Amidocyanogen, Carbimide, Carbodiimide, Cyanogen nitride, Hydrogen cyanamide
[**Note:** Cyanamide is also a synonym for Calcium cyanamide.]

Exposure Limits:
NIOSH REL: TWA 2 mg/m^3
OSHA PEL†: none

Measurement Methods (see Table 1):
NIOSH 0500

Physical Description: Crystalline solid.

Chemical & Physical Properties:
MW: 42.1
BP: 500°F (Decomposes)
Sol(59°F): 78%
Fl.P: 286°F
IP: 10.65 eV
Sp.Gr: 1.28
VP: ?
MLT: 113°F
UEL: ?
LEL: ?
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Above 104°F: Moisture, acids, or alkalis; 1,2-phenylene diamine salts
[**Note:** Polymerization may occur on evaporation of aqueous solutions.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, resp sys; eye, skin burns; miosis, salv, lac, twitch; Antabuse-like effects
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

C

Cyanogen	Formula: NCCN	CAS#: 460-19-5	RTECS#: GT1925000	IDLH: N.D.
Conversion: 1 ppm = 2.13 mg/m^3	**DOT:** 1026 119			

Synonyms/Trade Names: Carbon nitride, Dicyan, Dicyanogen, Ethanedinitrile, Oxalonitrile

Exposure Limits:
NIOSH REL: TWA 10 ppm (20 mg/m^3)
OSHA PEL†: none

Physical Description: Colorless gas with a pungent, almond-like odor.
[**Note:** Shipped as a liquefied compressed gas. Forms cyanide in the body.]

Measurement Methods (see Table 1):
OSHA PV2104

Chemical & Physical Properties:
MW: 52.0
BP: -6°F
Sol: 1%
Fl.P: NA (Gas)
IP: 13.57 eV
RGasD: 1.82
Sp.Gr: 0.95 (Liquid at -6°F)
VP(70°F): 5.1 atm
FRZ: -18°F
UEL: 32%
LEL: 6.6%
Flammable Gas

Personal Protection/Sanitation (see Table 2):
Skin: Frostbite
Eyes: Prevent eye contact/Frostbite
Wash skin: N.R.
Remove: When wet (flamm)
Change: N.R.
Provide: Frostbite wash

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Acids, water, strong oxidizers (e.g., dichlorine oxide, fluorine)
[**Note:** Slowly hydrolyzed in water to form hydrogen cyanide, oxalic acid, or ammonia.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Irrit eyes, nose, upper resp sys; lac; cherry red lips, tachypnea, hypernea, bradycardia; head, convuls; dizz, loss of appetite, low-wgt; liquid: frostbite
TO: Eyes, resp sys, CNS, CVS

First Aid (see Table 6):
Eye: Frostbite
Skin: Frostbite
Breath: Resp support

Cyanogen chloride	Formula: ClCN	CAS#: 506-77-4	RTECS#: GT2275000	IDLH: N.D.
Conversion: 1 ppm = 2.52 mg/m^3	**DOT:** 1589 125 (inhibited)			

Synonyms/Trade Names: Chlorcyan, Chlorine cyanide, Chlorocyanide, Chlorocyanogen

Exposure Limits:
NIOSH REL: C 0.3 ppm (0.6 mg/m^3)
OSHA PEL†: none

Physical Description: Colorless gas or liquid (below 55°F) with an irritating odor.
[**Note:** Shipped as a liquefied gas. A solid below 20°F. Forms cyanide in the body.]

Measurement Methods (see Table 1):
None available

Chemical & Physical Properties:
MW: 61.5
BP: 55°F
Sol: 7%
Fl.P: NA
IP: 12.49 eV
RGasD: 2.16
Sp.Gr: 1.22 (Liquid at 32°F)
VP: 1010 mmHg
FRZ: 20°F
UEL: NA
LEL: NA
Nonflammable Gas

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact (liquid)
Eyes: Prevent eye contact (liquid)
Wash skin: When contam (liquid)
Remove: When wet or contam (liquid)
Change: N.R.
Provide: Eyewash (liquid)
Quick drench (liquid)

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Water, acids, alkalis, ammonia, alcohols
[**Note:** Can react very slowly with water to form hydrogen cyanide. May be stabilized to prevent polymerization.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs (liquid), Ing (liquid), Con (liquid)
SY: Irrit eyes, upper resp sys; cough, delayed pulm edema; lass, head, dizz, conf, nau, vomit; irreg heartbeat; irrit skin (liquid)
TO: Eyes, skin, resp sys, CNS, CVS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water wash immed (liquid)
Breath: Resp support
Swallow: Medical attention immed (liquid)

Cyclohexane

Formula:	CAS#:	RTECS#:	IDLH:
C_6H_{12}	110-82-7	GU6300000	1300 ppm [10%LEL]

Conversion: 1 ppm = 3.44 mg/m^3 **DOT:** 1145 128

Synonyms/Trade Names: Benzene hexahydride, Hexahydrobenzene, Hexamethylene, Hexanaphthene

Exposure Limits:
NIOSH REL: TWA 300 ppm (1050 mg/m^3)
OSHA PEL: TWA 300 ppm (1050 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1500
OSHA 7

Physical Description: Colorless liquid with a sweet, chloroform-like odor. [**Note:** A solid below 44°F.]

Chemical & Physical Properties:
MW: 84.2
BP: 177°F
Sol: Insoluble
Fl.P: 0°F
IP: 9.88 eV
Sp.Gr: 0.78
VP: 78 mmHg
FRZ: 44°F
UEL: 8%
LEL: 1.3%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
1300 ppm: Sa:Cf£/PaprOv£/CcrFOv/GmFOv/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, resp sys; drow; derm; narco, coma
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush prompt
Breath: Resp support
Swallow: Medical attention immed

Cyclohexanethiol

Formula:	CAS#:	RTECS#:	IDLH:
$C_6H_{11}SH$	1569-69-3	GV7525000	N.D.

Conversion: 1 ppm = 4.75 mg/m^3 **DOT:** 3054 129

Synonyms/Trade Names: Cyclohexylmercaptan, Cyclohexylthiol

Exposure Limits:
NIOSH REL: C 0.5 ppm (2.4 mg/m^3) [15-minute]
OSHA PEL: none

Measurement Methods (see Table 1):
None available

Physical Description: Colorless liquid with a strong, offensive odor.

Chemical & Physical Properties:
MW: 116.2
BP: 316°F
Sol: Insoluble
Fl.P: 110°F
IP: ?
Sp.Gr: 0.98
VP: 10 mmHg
FRZ: -181°F
UEL: ?
LEL: ?
Class II Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
5 ppm: CcrOv/Sa
12.5 ppm: Sa:Cf/PaprOv
25 ppm: CcrFOv/GmFOv/PaprTOv/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Oxidizers, reducing agents, strong acids, alkali metals

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, resp sys; head, dizz, lass, nau, vomit, convuls; cough, wheez, laryngitis, dysp
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap flush immed
Breath: Resp support
Swallow: Medical attention immed

C

Cyclohexanol

Formula:	CAS#:	RTECS#:	IDLH:
$C_6H_{11}OH$	108-93-0	GV7875000	400 ppm

Conversion: 1 ppm = 4.10 mg/m^3

DOT: 1993 128 (combustible liquid, n.o.s.)

Synonyms/Trade Names: Anol, Cyclohexyl alcohol, Hexahydrophenol, Hexalin, Hydralin, Hydroxycyclohexane

Exposure Limits:
NIOSH REL: TWA 50 ppm (200 mg/m^3) [skin]
OSHA PEL†: TWA 50 ppm (200 mg/m^3)

Physical Description: Sticky solid or colorless to light-yellow liquid (above 77°F) with a camphor-like odor.

Measurement Methods (see Table 1):
NIOSH 1402, 1405
OSHA 7

Chemical & Physical Properties:
MW: 100.2
BP: 322°F
Sol: 4%
Fl.P: 154°F
IP: 10.00 eV
Sp.Gr: 0.96
VP: 1 mmHg
MLT: 77°F
UEL: ?
LEL: ?
Class IIIA Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
400 ppm: CcrOv*/PaprOv*/GmFOv/Sa*/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers (such as hydrogen peroxide & nitric acid)

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, nose, throat; narco
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water wash prompt
Breath: Resp support
Swallow: Medical attention immed

Cyclohexanone

Formula:	CAS#:	RTECS#:	IDLH:
$C_6H_{10}O$	108-94-1	GW1050000	700 ppm

Conversion: 1 ppm = 4.02 mg/m^3

DOT: 1915 127

Synonyms/Trade Names: Anone, Cyclohexyl ketone, Pimelic ketone

Exposure Limits:
NIOSH REL: TWA 25 ppm (100 mg/m^3) [skin]
OSHA PEL†: TWA 50 ppm (200 mg/m^3)

Physical Description: Water-white to pale-yellow liquid with a peppermint- or acetone-like odor.

Measurement Methods (see Table 1):
NIOSH 1300, 2555
OSHA 1

Chemical & Physical Properties:
MW: 98.2
BP: 312°F
Sol: 15%
Fl.P: 146°F
IP: 9.14 eV
Sp.Gr: 0.95
VP: 5 mmHg
FRZ: -49°F
UEL: 9.4%
LEL(212°F): 1.1%
Class IIIA Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
625 ppm: Sa:Cf£/PaprOv£
700 ppm: CcrFOv/GmFOv/PaprTOv£/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Oxidizers, nitric acid

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, muc memb; head; narco, coma; derm; in animals: liver, kidney damage
TO: Eyes, skin, resp sys, CNS, liver, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush prompt
Breath: Resp support
Swallow: Medical attention immed

C

Cyclohexene

Formula:	CAS#:	RTECS#:	IDLH:
C_6H_{10}	110-83-8	GW2500000	2000 ppm

Conversion: 1 ppm = 3.36 mg/m^3 **DOT:** 2256 130

Synonyms/Trade Names: Benzene tetrahydride, Tetrahydrobenzene

Exposure Limits:
NIOSH REL: TWA 300 ppm (1015 mg/m^3)
OSHA PEL: TWA 300 ppm (1015 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1500
OSHA 7

Physical Description: Colorless liquid with a sweet odor.

Chemical & Physical Properties:
MW: 82.2
BP: 181°F
Sol: Insoluble
Fl.P: 11°F
IP: 8.95 eV
Sp.Gr: 0.81
VP: 67 mmHg
FRZ: -154°F
UEL: ?
LEL: ?
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
2000 ppm: Sa:Cf£/PaprOv£/CcrFOv/GmFOv/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers [**Note:** Forms explosive peroxides with oxygen upon storage.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, resp sys; drow
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

Cyclohexylamine

Formula:	CAS#:	RTECS#:	IDLH:
$C_6H_{11}NH_2$	108-91-8	GX0700000	N.D.

Conversion: 1 ppm = 4.06 mg/m^3 **DOT:** 2357 132

Synonyms/Trade Names: Aminocyclohexane, Aminohexahydrobenzene, Hexahydroaniline, Hexahydrobenzenamine

Exposure Limits:
NIOSH REL: TWA 10 ppm (40 mg/m^3)
OSHA PEL†: none

Measurement Methods (see Table 1):
NIOSH 2010
OSHA PV2016

Physical Description: Colorless or yellow liquid with a strong, fishy, amine-like odor.

Chemical & Physical Properties:
MW: 99.2
BP: 274°F
Sol: Miscible
Fl.P: 88°F
IP: 8.37 eV
Sp.Gr: 0.87
VP: 11 mmHg
FRZ: 0°F
UEL: 9.4%
LEL: 1.5%
Class IC Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Oxidizers, organic compounds, acid anhydrides, acid chlorides, acids, lead [**Note:** Corrosive to copper, aluminum, zinc & galvanized steel.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, muc memb, resp sys; eye, skin burns; skin sens; cough, pulm edema; drow, dizz; diarr, nau, vomit
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

C

Cyclonite

Formula:	CAS#:	RTECS#:	IDLH:
$C_3H_6N_6O_6$	121-82-4	XY9450000	N.D.

Conversion: **DOT:**

Synonyms/Trade Names: Cyclotrimethylenetrinitramine; Hexahydro-1,3,5-trinitro-s-triazine; RDX; Trimethylenetrinitramine; 1,3,5-Trinitro-1,3,5-triazacyclohexane

Exposure Limits:
NIOSH REL: TWA 1.5 mg/m^3
ST 3 mg/m^3 [skin]
OSHA PEL†: none

Measurement Methods (see Table 1):
NIOSH 0500

Physical Description: White, crystalline powder. [**Note:** A powerful high explosive.]

Chemical & Physical Properties:
MW: 222.2
BP: ?
Sol: Insoluble
Fl.P: Explodes
IP: ?
Sp.Gr: 1.82
VP(230°F): 0.0004 mmHg
MLT: 401°F
UEL: ?
LEL: ?
Combustible Solid [EXPLOSIVE!]

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Strong oxidizers, combustible materials, heat
[**Note:** Detonates on contact with mercury fulminate.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin; head, irrity, lass, tremor, nau, dizz, vomit, insom, convuls
TO: Eyes, skin, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap flush immed
Breath: Resp support
Swallow: Medical attention immed

Cyclopentadiene

Formula:	CAS#:	RTECS#:	IDLH:
C_5H_6	542-92-7	GY1000000	750 ppm

Conversion: 1 ppm = 2.70 mg/m^3 **DOT:**

Synonyms/Trade Names: 1,3-Cyclopentadiene

Exposure Limits:
NIOSH REL: TWA 75 ppm (200 mg/m^3)
OSHA PEL: TWA 75 ppm (200 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 2523

Physical Description: Colorless liquid with an irritating, terpene-like odor.

Chemical & Physical Properties:
MW: 66.1
BP: 107°F
Sol: Insoluble
Fl.P(oc): 77°F
IP: 8.56 eV
Sp.Gr: 0.80
VP: 400 mmHg
FRZ: -121°F
UEL: ?
LEL: ?
Class IC Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
750 ppm: CcrOv/GmFOv/PaprOv/Sa/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, fuming nitric acid, sulfuric acid
[**Note:** Polymerizes to dicyclopentadiene upon standing.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, nose
TO: Eyes, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

C

Cyclopentane	Formula: C_5H_{10}	CAS#: 287-92-3	RTECS#: GY2390000	IDLH: N.D.
Conversion: 1 ppm = 2.87 mg/m^3	**DOT:** 1146 128			

Synonyms/Trade Names: Pentamethylene

Exposure Limits:
NIOSH REL: TWA 600 ppm (1720 mg/m^3)
OSHA PEL†: none

Measurement Methods (see Table 1):
None available

Physical Description: Colorless liquid with a mild, sweet odor.

Chemical & Physical Properties:
MW: 70.2
BP: 121°F
Sol: Insoluble
Fl.P: -35°F
IP: 10.52 eV
Sp.Gr: 0.75
VP(88°F): 400 mmHg
FRZ: -137°F
UEL: 8.7%
LEL: 1.1%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: Daily
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Strong oxidizers (e.g., chlorine, bromine, fluorine)

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose, throat; dizz, euph, inco, nau, vomit, stupor; dry, cracking skin
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Resp support
Swallow: Medical attention immed

Cyhexatin	Formula: $(C_6H_{11})_3SnOH$	CAS#: 13121-70-5	RTECS#: WH8750000	IDLH: 80 mg/m^3 [25 mg/m^3 (as Sn)]
Conversion:	**DOT:**			

Synonyms/Trade Names: TCHH, Tricyclohexylhydroxystannane, Tricyclohexylhydroxytin, Tricyclohexylstannium hydroxide, Tricyclohexyltin hydroxide

Exposure Limits:
NIOSH REL: TWA 5 mg/m^3
OSHA PEL†: TWA 0.32 mg/m^3 [0.1 mg/m^3 (as Sn)]

Measurement Methods (see Table 1):
NIOSH 5504

Physical Description: Colorless to white, nearly odorless, crystalline powder. [insecticide]

Chemical & Physical Properties:
MW: 385.2
BP: 442°F (Decomposes)
Sol: Insoluble
Fl.P: NA
IP: NA
Sp.Gr: ?
VP: 0 mmHg (approx)
MLT: 383°F
UEL: NA
LEL: NA

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: N.R.
Wash skin: When contam
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
OSHA
3.2 mg/m^3: CcrOv95/Sa
8 mg/m^3: Sa:Cf/PaprOvHie
16 mg/m^3: CcrFOv100/GmFOv100/ PaprTOvHie/SaT:Cf/ScbaF/SaF
80 mg/m^3: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, ultraviolet light

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, resp sys; head, dizz; sore throat, cough; abdom pain, vomit; skin burns, pruritus; in animals: liver, kidney damage
TO: Eyes, skin, resp sys, liver, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

D

2,4-D	Formula: $Cl_2C_6H_3OCH_2COOH$	CAS#: 94-75-7	RTECS#: AG6825000	IDLH: 100 mg/m^3
Conversion:	**DOT:** 2765 152			

Synonyms/Trade Names: Dichlorophenoxyacetic acid; 2,4-Dichlorophenoxyacetic acid

Exposure Limits:
NIOSH REL: TWA 10 mg/m^3
OSHA PEL: TWA 10 mg/m^3

Measurement Methods (see Table 1):
NIOSH 5001

Physical Description: White to yellow, crystalline, odorless powder. [herbicide]

Chemical & Physical Properties:
MW: 221.0
BP: Decomposes
Sol: 0.05%
Fl.P: NA
IP: ?
Sp.Gr: 1.57
VP(320°F): 0.4 mmHg
MLT: 280°F
UEL: NA
LEL: NA
Noncombustible Solid, but may be dissolved in flammable liquids.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
100 mg/m^3: CcrOv95/GmFOv100/PaprOvHie/Sa/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Lass, stupor, hyporeflexia, musc twitch; convuls; derm; in animals: liver, kidney inj
TO: Skin, CNS, liver, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

DDT	Formula: $(C_6H_4Cl)_2CHCCl_3$	CAS#: 50-29-3	RTECS#: KJ3325000	IDLH: Ca [500 mg/m^3]
Conversion:	**DOT:** 2761 151			

Synonyms/Trade Names: p,p'-DDT; Dichlorodiphenyltrichloroethane; 1,1,1-Trichloro-2,2-bis(p-chlorophenyl)ethane

Exposure Limits:
NIOSH REL: Ca
TWA 0.5 mg/m^3
See Appendix A
OSHA PEL: TWA 1 mg/m^3 [skin]

Measurement Methods (see Table 1):
NIOSH S274 (II-3)

Physical Description: Colorless crystals or off-white powder with a slight, aromatic odor. [pesticide]

Chemical & Physical Properties:
MW: 354.5
BP: 230°F (Decomposes)
Sol: Insoluble
Fl.P: 162-171°F
IP: ?
Sp.Gr: 0.99
VP: 0.0000002 mmHg
MLT: 227°F
UEL: ?
LEL: ?
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, alkalis

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin; pares tongue, lips, face; tremor; anxi, dizz, conf, mal, head, lass; convuls; paresis hands; vomit; [carc]
TO: Eyes, skin, CNS, kidneys, liver, PNS [in animals: liver, lung & lymphatic tumors]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

D

Decaborane

Formula: $B_{10}H_{14}$ | **CAS#:** 17702-41-9 | **RTECS#:** HD1400000 | **IDLH:** 15 mg/m^3

Conversion: 1 ppm = 5.00 mg/m^3 | **DOT:** 1868 134

Synonyms/Trade Names: Decaboron tetradecahydride

Exposure Limits:
NIOSH REL: TWA 0.3 mg/m^3 (0.05 ppm) [skin]
ST 0.9 mg/m^3 (0.15 ppm)
OSHA PEL†: TWA 0.3 mg/m^3 (0.05 ppm) [skin]

Measurement Methods (see Table 1):
None available

Physical Description: Colorless to white crystalline solid with an intense, bitter, chocolate-like odor.

Chemical & Physical Properties:
MW: 122.2
BP: 415°F
Sol: Slight
Fl.P: 176°F
IP: 9.88 eV
Sp.Gr: 0.94
VP: 0.2 mmHg
MLT: 211°F
UEL: ?
LEL: ?
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
3 mg/m^3: Sa
7.5 mg/m^3: Sa:Cf
15 mg/m^3: SaT:Cf/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Oxidizers, water, halogenated compounds (especially carbon tetrachloride) [**Note:** May ignite SPONTANEOUSLY on exposure to air. Decomposes slowly in hot water.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Dizz, head, nau, drow; inco, local musc spasm, tremor, convuls; lass; in animals: dysp; lass; liver, kidney damage
TO: CNS, liver, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

1-Decanethiol

Formula: $CH_3(CH_2)_9SH$ | **CAS#:** 143-10-2 | **RTECS#:** | **IDLH:** N.D.

Conversion: 1 ppm = 7.13 mg/m^3 | **DOT:** 1228 131

Synonyms/Trade Names: Decylmercaptan, n-Decylmercaptan, 1-Mercaptodecane

Exposure Limits:
NIOSH REL: C 0.5 ppm (3.6 mg/m^3) [15-minute]
OSHA PEL: none

Measurement Methods (see Table 1):
None available

Physical Description: Colorless liquid with a strong odor.

Chemical & Physical Properties:
MW: 174.4
BP: 465°F
Sol: Insoluble
Fl.P: 209°F
IP: ?
Sp.Gr: 0.84
VP: ?
FRZ: -15°F
UEL: ?
LEL: ?
Class IIIB Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
5 ppm: CcrOv/Sa
12.5 ppm: Sa:Cf/PaprOv
25 ppm: CcrFOv/GmFOv/PaprTOv/ ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Oxidizers, strong acids & bases, alkali metals, nitric acid

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, resp sys; conf, dizz, head, drow, nau, vomit, lass, convuls
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Resp support
Swallow: Medical attention immed

D

Demeton	Formula: $(C_2H_5O)_2PSOC_2H_4SC_2H_5$	CAS#: 8065-48-3	RTECS#: TF3150000	IDLH: 10 mg/m^3
Conversion:	DOT:			

Synonyms/Trade Names: O-O-Diethyl-O(and S)-2-(ethylthio)ethyl phosphorothioate mixture, Systox®

Exposure Limits:
NIOSH REL: TWA 0.1 mg/m^3 [skin]
OSHA PEL: TWA 0.1 mg/m^3 [skin]

Measurement Methods (see Table 1):
NIOSH 5514

Physical Description: Amber, oily liquid with a sulfur-like odor. [insecticide]

Chemical & Physical Properties:
MW: 258.3
BP: Decomposes
Sol: 0.01%
Fl.P: 113°F
IP: ?
Sp.Gr: 1.12
VP: 0.0003 mmHg
FRZ: <-13°F
UEL: ?
LEL: ?
Class II Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
1 mg/m^3: Sa
2.5 mg/m^3: Sa:Cf
5 mg/m^3: SaT:Cf/ScbaF/SaF
10 mg/m^3: Sa:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, alkalis, water

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin; miosis, ache eyes, rhin, head; chest tight, wheez, lar spasm, salv, cyan; anor, nau, vomit, abdom cramps, diarr; local sweat; musc fasc, lass, para; dizz, conf, ataxia; convuls, coma; low BP; card irreg
TO: Eyes, skin, resp sys, CVS, CNS, blood chol

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Diacetone alcohol	Formula: $CH_3COCH_2C(CH_3)_2OH$	CAS#: 123-42-2	RTECS#: SA9100000	IDLH: 1800 ppm [10%LEL]
Conversion: 1 ppm = 4.75 mg/m^3	DOT: 1148 129			

Synonyms/Trade Names: Diacetone, 4-Hydroxy-4-methyl-2-pentanone, 2-Methyl-2-pentanol-4-one

Exposure Limits:
NIOSH REL: TWA 50 ppm (240 mg/m^3)
OSHA PEL: TWA 50 ppm (240 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1402, 1405
OSHA 7

Physical Description: Colorless liquid with a faint, minty odor.

Chemical & Physical Properties:
MW: 116.2
BP: 334°F
Sol: Miscible
Fl.P: 125°F
IP: ?
Sp.Gr: 0.94
VP: 1 mmHg
FRZ: -47°F
UEL: 6.9%
LEL: 1.8%
Class II Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
1250 ppm: Sa:Cf£/PaprOv£
1800 ppm: CcrFOv/GmFOv/PaprTOv£/ ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, strong alkalis

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose, throat; corn damage; in animals: narco, liver damage
TO: Eyes, skin, resp sys, CNS, liver

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush prompt
Breath: Resp support
Swallow: Medical attention immed

D

2,4-Diaminoanisole (and its salts)

Formula:	CAS#:	RTECS#:	IDLH:
$(NH_2)_2C_6H_3OCH_3$	615-05-4	BZ8580500	Ca [N.D.]

Conversion: **DOT:**

Synonyms/Trade Names: 1,3-Diamino-4-methoxybenzene; 4-Methoxy-1,3-benzene-diamine; 4-Methoxy-m-phenylene-diamine (Synonyms of salts vary depending upon the specific compound.)

Exposure Limits:
NIOSH REL: Ca
Minimize occupational exposure (especially skin exposures)
See Appendix A
OSHA PEL: none

Physical Description: Colorless solid (needles).
[**Note:** The primary use (including its salts such as 2,4-diaminoanisole sulfate) is a component of hair & fur dye formulations.]

Measurement Methods (see Table 1):
None available

Chemical & Physical Properties:
MW: 138.2
BP: ?
Sol: ?
Fl.P: ?
IP: ?
Sp.Gr: ?
VP: ?
MLT: 153°F
UEL: ?
LEL: ?
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: In animals: irrit skin; thyroid, liver changes; terato effects; [carc]
TO: Skin, thyroid, liver, repro sys [in animals: thyroid, liver, skin & lymphatic sys tumors]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

o-Dianisidine

Formula:	CAS#:	RTECS#:	IDLH:
$(NH_2C_6H_3OCH_3)_2$	119-90-4	DD0875000	Ca [N.D.]

Conversion: **DOT:**

Synonyms/Trade Names: Dianisidine; 3,3'-Dianisidine; 3,3'-Dimethoxybenzidine

Exposure Limits:
NIOSH REL: Ca
See Appendix A
See Appendix C
OSHA PEL: See Appendix C

Physical Description: Colorless crystals that turn a violet color on standing.
[**Note:** Used as a basis for many dyes.]

Measurement Methods (see Table 1):
NIOSH 5013
OSHA 71

Chemical & Physical Properties:
MW: 244.3
BP: ?
Sol: Insoluble
Fl.P: 403°F
IP: ?
Sp.Gr: ?
VP: ?
MLT: 279°F
UEL: ?
LEL: ?
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit skin; in animals: kidney, liver damage; thyroid, spleen changes; [carc]
TO: Skin, kidneys, liver, thyroid, liver [in animals: bladder, liver, stomach & mammary gland tumors]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

D

Diazinon®	Formula: $C_{12}H_{21}N_2O_3PS$	CAS#: 333-41-5	RTECS#: TF3325000	IDLH: N.D.
Conversion:	DOT: 2783 152			

Synonyms/Trade Names: Basudin®; Diazide®; O,O-Diethyl-O-2-isopropyl-4-methyl-6-pyrimidinyl-phosphorothioate; Spectracide®

Exposure Limits:
NIOSH REL: TWA 0.1 mg/m^3 [skin]
OSHA PEL†: none

Physical Description: Colorless liquid with a faint ester-like odor. [insecticide] [**Note:** Technical grade is pale to dark brown.]

Measurement Methods (see Table 1):
NIOSH 5600
OSHA 62

Chemical & Physical Properties:
MW: 304.4
BP: Decomposes
Sol: 0.004%
Fl.P: 180°F
IP: ?
Sp.Gr: 1.12
VP: 0.0001 mmHg
FRZ: ?
UEL: ?
LEL: ?
Class IIIA Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Strong acids & alkalis, copper-containing compounds [**Note:** Hydrolyzes slowly in water & dilute acid.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes; miosis, blurred vision; dizz, conf, lass, convuls; dysp; salv, abdom cramps, nau, vomit
TO: Eyes, resp sys, CNS, CVS, blood chol

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Diazomethane	Formula: CH_2N_2	CAS#: 334-88-3	RTECS#: PA7000000	IDLH: 2 ppm
Conversion: 1 ppm = 1.72 mg/m^3	DOT:			

Synonyms/Trade Names: Azimethylene, Azomethylene, Diazirine

Exposure Limits:
NIOSH REL: TWA 0.2 ppm (0.4 mg/m^3)
OSHA PEL: TWA 0.2 ppm (0.4 mg/m^3)

Physical Description: Yellow gas with a musty odor. [**Note:** Shipped as a liquefied compressed gas.]

Measurement Methods (see Table 1):
NIOSH 2515

Chemical & Physical Properties:
MW: 42.1
BP: -9°F
Sol: Reacts
Fl.P: NA (Gas)
IP: 9.00 eV
RGasD: 1.45
VP: >1 atm
FRZ: -229°F
UEL: ?
LEL: ?
Flammable Gas [EXPLOSIVE!]

Personal Protection/Sanitation (see Table 2):
Skin: Frostbite
Eyes: Frostbite
Wash skin: N.R.
Remove: When wet (flamm)
Change: N.R.
Provide: Frostbite wash

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
2 ppm: Sa*/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Alkali metals, water, drying agents such as calcium arsenate [**Note:** May explode violently on heating, exposure to sunlight, or contact with rough edges such as ground glass.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con (liquid)
SY: Irrit eyes; cough, short breath; head, lass; flush skin, fever; chest pain, pulm edema, pneu; asthma; liquid: frostbite
TO: Eyes, resp sys

First Aid (see Table 6):
Eye: Frostbite
Skin: Frostbite
Breath: Resp support

Diborane	**Formula:** B_2H_6	**CAS#:** 19287-45-7	**RTECS#:** HQ9275000	**IDLH:** 15 ppm
Conversion: 1 ppm = 1.13 mg/m^3	**DOT:** 1911 119			

Synonyms/Trade Names: Boroethane, Boron hydride, Diboron hexahydride

Exposure Limits:
NIOSH REL: TWA 0.1 ppm (0.1 mg/m^3)
OSHA PEL: TWA 0.1 ppm (0.1 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 6006

Physical Description: Colorless gas with a repulsive, sweet odor.
[**Note:** Usually shipped in pressurized cylinders diluted with hydrogen, argon, nitrogen, or helium.]

Chemical & Physical Properties:
MW: 27.7
BP: -135°F
Sol: Reacts
Fl.P: NA (Gas)
IP: 11.38 eV
RGasD: 0.97
VP(62°F): 39.5 atm
FRZ: -265°F
UEL: 88%
LEL: 0.8%
Flammable Gas

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
1 ppm: Sa
2.5 ppm: Sa:Cf
5 ppm: SaT:Cf/ScbaF/SaF
15 ppm: Sa:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS/ScbaE

Incompatibilities and Reactivities: Water, halogenated compounds, aluminum, lithium, oxidized surfaces, acids
[**Note:** Will ignite spontaneously in moist air at room temperature. Reacts with water to form hydrogen & boric acid.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh
SY: Chest tight, precordial pain, short breath, nonproductive cough, nau; head, dizz, chills, fever, lass, tremor, musc fasc; in animals: liver, kidney damage; pulm edema; hemorr
TO: Resp sys, CNS, liver, kidneys

First Aid (see Table 6):
Breath: Resp support

1,2-Dibromo-3-chloropropane	**Formula:** $CH_2BrCHBrCH_2Cl$	**CAS#:** 96-12-8	**RTECS#:** TX8750000	**IDLH:** Ca [N.D.]
Conversion: 1 ppm = 9.67 mg/m^3	**DOT:** 2872 159			

Synonyms/Trade Names: 1-Chloro-2,3-dibromopropane; DBCP; Dibromochloropropane

Exposure Limits:
NIOSH REL: Ca
See Appendix A
OSHA PEL: [1910.1044] TWA 0.001 ppm

Measurement Methods (see Table 1):
None available

Physical Description: Dense yellow or amber liquid with a pungent odor at high concentrations. [pesticide]
[**Note:** A solid below 43°F.]

Chemical & Physical Properties:
MW: 236.4
BP: 384°F
Sol: 0.1%
Fl.P(oc): 170°F
IP: ?
Sp.Gr: 2.05
VP: 0.8 mmHg
FRZ: 43°F
UEL: ?
LEL: ?
Class IIIA Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

See Appendix E (page 351)

Incompatibilities and Reactivities: Chemically-active metals such as aluminum, magnesium & tin alloys [**Note:** Corrosive to metals.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, nose, throat; drow; nau, vomit; pulm edema; liver, kidney inj; sterility; [carc]
TO: Eyes, skin, resp sys, CNS, liver, kidneys, spleen, repro sys, digestive sys [in animals: cancer of the nasal cavity, tongue, pharynx, lungs, stomach, adrenal & mammary glands]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

D

2-N-Dibutylaminoethanol	Formula: $(C_4H_9)_2NCH_2CH_2OH$	CAS#: 102-81-8	RTECS#: KK3850000	IDLH: N.D.
Conversion: 1 ppm = 7.09 mg/m^3	**DOT:** 2873 153			

Synonyms/Trade Names: Dibutylaminoethanol; 2-Dibutylaminoethanol; 2-Di-N-butylaminoethanol; 2-Di-N-butylaminoethyl alcohol; N,N-Dibutylethanolamine

Exposure Limits:
NIOSH REL: TWA 2 ppm (14 mg/m^3) [skin]
OSHA PEL†: none

Physical Description: Colorless liquid with a faint, amine-like odor.

Measurement Methods (see Table 1):
NIOSH 2007

Chemical & Physical Properties:
MW: 173.3
BP: 446°F
Sol: 0.4%
Fl.P: 195°F
IP: ?
Sp.Gr: 0.86
VP: 0.1 mmHg
FRZ: ?
UEL: ?
LEL: ?
Class IIIA Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: In animals: irrit eyes, skin, nose; derm; skin, corn nec; low-wgt
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap flush immed
Breath: Resp support
Swallow: Medical attention immed

2,6-Di-tert-butyl-p-cresol	Formula: $[C(CH_3)_3]_2CH_3C_6H_2OH$	CAS#: 128-37-0	RTECS#: GO7875000	IDLH: N.D.
Conversion:	**DOT:**			

Synonyms/Trade Names: BHT; Butylated hydroxytoluene; Dibutylated hydroxytoluene; 4-Methyl-2,6-di-tert-butyl phenol

Exposure Limits:
NIOSH REL: TWA 10 mg/m^3
OSHA PEL†: none

Physical Description: White to pale-yellow, crystalline solid with a slight, phenolic odor. [food preservative]

Measurement Methods (see Table 1):
NIOSH P&CAM226 (II-1)
OSHA PV2108

Chemical & Physical Properties:
MW: 220.4
BP: 509°F
Sol: 0.00004%
Fl.P: 261°F
IP: ?
Sp.Gr: 1.05
VP: 0.01 mmHg
MLT: 158°F
UEL: ?
LEL: ?
Class IIIB Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin; in animals: decr growth rate, incr liver weight
TO: Eyes, skin

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Fresh air
Swallow: Medical attention immed

Dibutyl phosphate	Formula: $(C_4H_9O)_2(OH)PO$	CAS#: 107-66-4	RTECS#: TB9605000	IDLH: 30 ppm
Conversion: 1 ppm = 8.60 mg/m^3	**DOT:**			

Synonyms/Trade Names: Dibutyl acid o-phosphate, Di-n-butyl hydrogen phosphate, Dibutyl phosphoric acid

Exposure Limits:
NIOSH REL: TWA 1 ppm (5 mg/m^3)
ST 2 ppm (10 mg/m^3)
OSHA PEL†: TWA 1 ppm (5 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 5017

Physical Description: Pale-amber, odorless liquid.

Chemical & Physical Properties:
MW: 210.2
BP: 212°F (Decomposes)
Sol: Insoluble
Fl.P: ?
IP: ?
Sp.Gr: 1.06
VP: 1 mmHg (approx)
FRZ: ?
UEL: ?
LEL: ?
Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
10 ppm: Sa
25 ppm: Sa:Cf
30 ppm: SaT:Cf/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, resp sys; head
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

Dibutyl phthalate	Formula: $C_6H_4(COOC_4H_9)_2$	CAS#: 84-74-2	RTECS#: TI0875000	IDLH: 4000 mg/m^3
Conversion: 1 ppm = 11.57 mg/m^3	**DOT:**			

Synonyms/Trade Names: DBP; Dibutyl-1,2-benzene-dicarboxylate; Di-n-butyl phthalate

Exposure Limits:
NIOSH REL: TWA 5 mg/m^3
OSHA PEL: TWA 5 mg/m^3

Measurement Methods (see Table 1):
NIOSH 5020
OSHA 104

Physical Description: Colorless to faint-yellow, oily liquid with a slight, aromatic odor.

Chemical & Physical Properties:
MW: 278.3
BP: 644°F
Sol(77°F): 0.001%
Fl.P: 315°F
IP: ?
Sp.Gr: 1.05
VP: 0.00007 mmHg
FRZ: -31°F
UEL: ?
LEL(456°F): 0.5%
Class IIIB Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: Prevent eye contact
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
50 mg/m^3: 95F
125 mg/m^3: Sa:Cf£/PaprHie£
250 mg/m^3: 100F/ScbaF/SaF
4000 mg/m^3: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Nitrates; strong oxidizers, alkalis & acids; liquid chlorine

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, upper resp sys, stomach
TO: Eyes, resp sys, GI tract

First Aid (see Table 6):
Eye: Irr immed
Skin: Wash regularly
Breath: Resp support
Swallow: Medical attention immed

D

Dichloroacetylene	Formula: C_2Cl_2	CAS#: 7572-29-4	RTECS#: AP1080000	IDLH: Ca [N.D.]
Conversion: 1 ppm = 3.88 mg/m^3	DOT:			

Synonyms/Trade Names: DCA, Dichloroethyne
[**Note:** DCA is a possible decomposition product of trichloroethylene or trichloroethane.]

Exposure Limits:
NIOSH REL: Ca
C 0.1 ppm (0.4 mg/m^3)
See Appendix A
OSHA PEL†: none

Measurement Methods (see Table 1):
None available

Physical Description: Volatile oil with a disagreeable, sweetish odor.
[**Note:** A gas above 90°F. DCA is not produced commercially.]

Chemical & Physical Properties:
MW: 94.9
BP: 90°F (Explodes)
Sol: ?
Fl.P: ?
IP: ?
Sp.Gr: 1.26
VP: ?
FRZ: -58 to -87°F
UEL: ?
LEL: ?
Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Oxidizers, heat, shock

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Head, loss of appetite, nau, vomit, intense jaw pain, cranial nerve palsy; in animals: kidney, liver, brain inj; low-wgt; [carc]
TO: CNS [in animals: kidney tumors]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap flush immed
Breath: Resp support
Swallow: Medical attention immed

o-Dichlorobenzene	Formula: $C_6H_4Cl_2$	CAS#: 95-50-1	RTECS#: CZ4500000	IDLH: 200 ppm
Conversion: 1 ppm = 6.01 mg/m^3	DOT: 1591 152			

Synonyms/Trade Names: o-DCB; 1,2-Dichlorobenzene; ortho-Dichlorobenzene; o-Dichlorobenzol

Exposure Limits:
NIOSH REL: C 50 ppm (300 mg/m^3)
OSHA PEL: C 50 ppm (300 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1003
OSHA 7

Physical Description: Colorless to pale-yellow liquid with a pleasant, aromatic odor. [herbicide]

Chemical & Physical Properties:
MW: 147.0
BP: 357°F
Sol: 0.01%
Fl.P: 151°F
IP: 9.06 eV
Sp.Gr: 1.30
VP: 1 mmHg
FRZ: 1°F
UEL: 9.2%
LEL: 2.2%
Class IIIA Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
200 ppm: CcrFOv/PaprOv£/ ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, aluminum, chlorides, acids, acid fumes

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, nose; liver, kidney damage; skin blisters
TO: Eyes, skin, resp sys, liver, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

p-Dichlorobenzene	**Formula:** $C_6H_4Cl_2$	**CAS#:** 106-46-7	**RTECS#:** CZ4550000	**IDLH:** Ca [150 ppm]
Conversion: 1 ppm = 6.01 mg/m^3	**DOT:**			

Synonyms/Trade Names: p-DCB; 1,4-Dichlorobenzene; para-Dichlorobenzene; Dichlorocide

Exposure Limits:
NIOSH REL: Ca
See Appendix A
OSHA PEL†: TWA 75 ppm (450 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1003
OSHA 7

Physical Description: Colorless or white crystalline solid with a mothball-like odor. [insecticide]

Chemical & Physical Properties:
MW: 147.0
BP: 345°F
Sol: 0.008%
Fl.P: 150°F
IP: 8.98 eV
Sp.Gr: 1.25
VP: 1.3 mmHg
MLT: 128°F
UEL: ?
LEL: 2.5%
Combustible Solid, but may take some effort to ignite.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers (such as chlorine or permanganate)

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Eye irrit, swell periorb; profuse rhinitis; head, anor, nau, vomit; low-wgt, jaun, cirr; in animals: liver, kidney inj; [carc]
TO: Liver, resp sys, eyes, kidneys, skin [in animals: liver & kidney cancer]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Resp support
Swallow: Medical attention immed

3,3'-Dichlorobenzidine (and its salts)	**Formula:** $NH_2ClC_6H_3C_6H_3ClNH_2$	**CAS#:** 91-94-1	**RTECS#:** DD0525000	**IDLH:** Ca [N.D.]
Conversion:	**DOT:**			

Synonyms/Trade Names: 4,4'-Diamino-3,3'-dichlorobiphenyl; Dichlorobenzidine base; o,o'-Dichlorobenzidine; 3,3'-Dichlorobiphenyl-4,4'-diamine; 3,3'-Dichloro-4,4'-biphenyldiamine; 3,3'-Dichloro-4,4'-diaminobiphenyl

Exposure Limits:
NIOSH REL: Ca
See Appendix A
OSHA PEL: [1910.1007] See Appendix B

Measurement Methods (see Table 1):
NIOSH 5509
OSHA 65

Physical Description: Gray to purple, crystalline solid.

Chemical & Physical Properties:
MW: 253.1
BP: 788°F
Sol(59°F): 0.07%
Fl.P: ?
IP: ?
Sp.Gr: ?
VP: ?
MLT: 271°F
UEL: ?
LEL: ?

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

See Appendix E (page 351)

Incompatibilities and Reactivities: None reported

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Skin sens, derm; head, dizz; caustic burns; frequent urination, dysuria; hema; GI upset; upper resp infection; [carc]
TO: Bladder, liver, lung, skin, GI tract [in animals: liver & bladder cancer]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

D

Dichlorodifluoromethane	Formula: CCl_2F_2	CAS#: 75-71-8	RTECS#: PA8200000	IDLH: 15,000 ppm
Conversion: 1 ppm = 4.95 mg/m^3	**DOT:** 1028 126			

Synonyms/Trade Names: Difluorodichloromethane, Fluorocarbon 12, Freon® 12, Genetron® 12, Halon® 122, Propellant 12, Refrigerant 12

Exposure Limits:
NIOSH REL: TWA 1000 ppm (4950 mg/m^3)
OSHA PEL: TWA 1000 ppm (4950 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1018

Physical Description: Colorless gas with an ether-like odor at extremely high concentrations. [**Note:** Shipped as a liquefied compressed gas.]

Chemical & Physical Properties:
MW: 120.9
BP: -22°F
Sol(77°F): 0.03%
Fl.P: NA
IP: 11.75 eV
RGasD: 4.2
VP: 5.7 atm
FRZ: -252°F
UEL: NA
LEL: NA
Nonflammable Gas

Personal Protection/Sanitation (see Table 2):
Skin: Frostbite
Eyes: Frostbite
Wash skin: N.R.
Remove: N.R.
Change: N.R.
Provide: Frostbite wash

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
10,000 ppm: Sa
15,000 ppm: Sa:Cf/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Chemically-active metals such as sodium, potassium, calcium, powdered aluminum, zinc & magnesium

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con (liquid)
SY: Dizz, tremor, asphy, uncon, card arrhy, card arrest; liquid: frostbite
TO: CVS, PNS

First Aid (see Table 6):
Eye: Frostbite
Skin: Frostbite
Breath: Resp support

1,3-Dichloro-5,5-dimethylhydantoin	Formula: $C_5H_6Cl_2N_2O_2$	CAS#: 118-52-5	RTECS#: MU0700000	IDLH: 5 mg/m^3
Conversion:	**DOT:**			

Synonyms/Trade Names: Dactin, DDH, Halane

Exposure Limits:
NIOSH REL: TWA 0.2 mg/m^3
ST 0.4 mg/m^3
OSHA PEL†: TWA 0.2 mg/m^3

Measurement Methods (see Table 1):
None available

Physical Description: White powder with a chlorine-like odor.

Chemical & Physical Properties:
MW: 197.0
BP: ?
Sol: 0.2%
Fl.P: 346°F
IP: ?
Sp.Gr: 1.5
VP: ?
MLT: 270°F
UEL: ?
LEL: ?
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
2 mg/m^3: Sa
5 mg/m^3: Sa:Cf/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS100/ScbaE

Incompatibilities and Reactivities: Water, strong acids, easily oxidized materials such as ammonia salts & sulfides

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, muc memb, resp sys
TO: Eyes, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

D

1,1-Dichloroethane	Formula: $CHCl_2CH_3$	CAS#: 75-34-3	RTECS#: KI0175000	IDLH: 3000 ppm
Conversion: 1 ppm = 4.05 mg/m^3	**DOT:** 2362 130			

Synonyms/Trade Names: Asymmetrical dichloroethane; Ethylidene chloride; 1,1-Ethylidene dichloride

Exposure Limits:
NIOSH REL: TWA 100 ppm (400 mg/m^3)
See Appendix C (Chloroethanes)
OSHA PEL: TWA 100 ppm (400 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1003
OSHA 7

Physical Description: Colorless, oily liquid with a chloroform-like odor.

Chemical & Physical Properties:
MW: 99.0
BP: 135°F
Sol: 0.6%
Fl.P: 2°F
IP: 11.06 eV
Sp.Gr: 1.18
VP: 182 mmHg
FRZ: -143°F
UEL: 11.4%
LEL: 5.4%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
1000 ppm: Sa
2500 ppm: Sa:Cf
3000 ppm: ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, strong caustics

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit skin; CNS depres; liver, kidney, lung damage
TO: Skin, liver, kidneys, lungs, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap flush prompt
Breath: Resp support
Swallow: Medical attention immed

1,2-Dichloroethylene	Formula: ClCH=CHCl	CAS#: 540-59-0	RTECS#: KV9360000	IDLH: 1000 ppm
Conversion: 1 ppm = 3.97 mg/m^3	**DOT:** 1150 130P			

Synonyms/Trade Names: Acetylene dichloride, cis-Acetylene dichloride, trans-Acetylene dichloride, sym-Dichloroethylene

Exposure Limits:
NIOSH REL: TWA 200 ppm (790 mg/m^3)
OSHA PEL: TWA 200 ppm (790 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1003
OSHA 7

Physical Description: Colorless liquid (usually a mixture of the cis & trans isomers) with a slightly acrid, chloroform-like odor.

Chemical & Physical Properties:
MW: 97.0
BP: 118-140°F
Sol: 0.4%
Fl.P: 36-39°F
IP: 9.65 eV
Sp.Gr(77°F): 1.27
VP: 180-265 mmHg
FRZ: -57 to -115°F
UEL: 12.8%
LEL: 5.6%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
2000 ppm: Sa:Cf£/PaprOv£/CcrFOv/GmFOv/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, strong alkalis, potassium hydroxide, copper [**Note:** Usually contains inhibitors to prevent polymerization.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, resp sys; CNS depres
TO: Eyes, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

D

Dichloroethyl ether

Formula:	CAS#:	RTECS#:	IDLH:
$(ClCH_2CH_2)_2O$	111-44-4	KN0875000	Ca [100 ppm]

Conversion: 1 ppm = 5.85 mg/m^3 **DOT:** 1916 152

Synonyms/Trade Names: bis(2-Chloroethyl)ether; 2,2'-Dichlorodiethyl ether, 2,2'-Dichloroethyl ether

Exposure Limits:
NIOSH REL: Ca
TWA 5 ppm (30 mg/m^3)
ST 10 ppm (60 mg/m^3) [skin]
See Appendix A
OSHA PEL†: TWA 15 ppm (90 mg/m^3) [skin]

Measurement Methods (see Table 1):
NIOSH 1004
OSHA 7

Physical Description: Colorless liquid with a chlorinated solvent-like odor.

Chemical & Physical Properties:
MW: 143.0
BP: 352°F
Sol: 1%
Fl.P: 131°F
IP: ?
Sp.Gr: 1.22
VP: 0.7 mmHg
FRZ: -58°F
UEL: ?
LEL: 2.7%
Class II Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers
[**Note:** Decomposes in presence of moisture to form hydrochloric acid.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit nose, throat, resp sys; lac; cough; nau, vomit; in animals: pulm edema; liver damage; [carc]
TO: Eyes, resp sys, liver [in animals: liver tumors]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Resp support
Swallow: Medical attention immed

Dichloromonofluoromethane

Formula:	CAS#:	RTECS#:	IDLH:
$CHCl_2F$	75-43-4	PA8400000	5000 ppm

Conversion: 1 ppm = 4.21 mg/m^3 **DOT:** 1029 126

Synonyms/Trade Names: Dichlorofluoromethane, Fluorodichloromethane, Freon® 21, Genetron® 21, Halon® 112, Refrigerant 21

Exposure Limits:
NIOSH REL: TWA 10 ppm (40 mg/m^3)
OSHA PEL†: TWA 1000 ppm (4200 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 2516

Physical Description: Colorless gas with a slight, ether-like odor.
[**Note:** A liquid below 48°F. Shipped as a liquefied compressed gas.]

Chemical & Physical Properties:
MW: 102.9
BP: 48°F
Sol(86°F): 0.7%
Fl.P: NA
IP: 12.39 eV
RGasD: 3.57
VP(70°F): 1.6 atm
FRZ: -211°F
UEL: NA
LEL: NA
Nonflammable Gas

Personal Protection/Sanitation (see Table 2):
Skin: Frostbite
Eyes: Frostbite
Wash skin: N.R.
Remove: N.R.
Change: N.R.
Provide: Frostbite wash

Respirator Recommendations (see Tables 3 and 4):
NIOSH
100 ppm: Sa
250 ppm: Sa:Cf
500 ppm: ScbaF/SaF
5000 ppm: Sa:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Chemically-active metals such as sodium, potassium, calcium, powdered aluminum, zinc & magnesium; acid; acid fumes

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con (liquid)
SY: Asphy, card arrhy, card arrest; liquid: frostbite
TO: Resp sys, CVS

First Aid (see Table 6):
Eye: Frostbite
Skin: Frostbite
Breath: Resp support

1,1-Dichloro-1-nitroethane	Formula: $CH_3CCl_2NO_2$	CAS#: 594-72-9	RTECS#: KI0500000	IDLH: 25 ppm
Conversion: 1 ppm = 5.89 mg/m^3	**DOT:** 2650 153			

Synonyms/Trade Names: Dichloronitroethane

Exposure Limits:
NIOSH REL: TWA 2 ppm (10 mg/m^3)
OSHA PEL†: C 10 ppm (60 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1601
OSHA 7

Physical Description: Colorless liquid with an unpleasant odor. [fumigant]

Chemical & Physical Properties:
MW: 143.9
BP: 255°F
Sol: 0.3%
Fl.P: 136°F
IP: ?
Sp.Gr: 1.43
VP: 15 mmHg
FRZ: ?
UEL: ?
LEL: ?
Class II Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
20 ppm: Sa
25 ppm: Sa:Cf/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers [**Note:** Corrosive to iron in presence of moisture.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: In animals: irrit eyes, skin; liver, heart, kidney damage; pulm edema, hemorr
TO: Eyes, skin, resp sys, liver, kidneys, CVS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

1,3-Dichloropropene	Formula: $ClHC{=}CHCH_2Cl$	CAS#: 542-75-6	RTECS#: UC8310000	IDLH: Ca [N.D.]
Conversion: 1 ppm = 4.54 mg/m^3	**DOT:** 2047 129			

Synonyms/Trade Names: 3-Chloroallyl chloride; DCP; 1,3-Dichloro-1-propene; 1,3-Dichloropropylene; Telone®

Exposure Limits:
NIOSH REL: Ca
TWA 1 ppm (5 mg/m^3) [skin]
See Appendix A
OSHA PEL†: none

Measurement Methods (see Table 1):
None available

Physical Description: Colorless to straw-colored liquid with a sharp, sweet, irritating, chloroform-like odor. [insecticide] [**Note:** Exists as mixture of cis- & trans-isomers.]

Chemical & Physical Properties:
MW: 111.0
BP: 226°F
Sol: 0.2%
Fl.P: 77°F
IP: ?
Sp.Gr: 1.21
VP: 28 mmHg
FRZ: -119°F
UEL: 14.5%
LEL: 5.3%
Class IC Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Aluminum, magnesium, halogens, oxidizers [**Note:** Epichlorohydrin may be added as a stabilizer.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, resp sys; eye, skin burns; lac; head, dizz; in animals; liver, kidney damage; [carc]
TO: Eyes, skin, resp sys, CNS, liver, kidneys [in animals: cancer of the bladder, liver, lung & forestomach]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap flush immed
Breath: Resp support
Swallow: Medical attention immed

D

2,2-Dichloropropionic acid	Formula: CH_3CCl_2COOH	CAS#: 75-99-0	RTECS#: UF0690000	IDLH: N.D.
Conversion: 1 ppm = 5.85 mg/m^3	**DOT:**			

Synonyms/Trade Names: Dalapon; 2,2-Dichloropropanoic acid; α,α-Dichloropropionic acid

Exposure Limits:
NIOSH REL: TWA 1 ppm (6 mg/m^3)
OSHA PEL†: none

Physical Description: Colorless liquid with an acrid odor. [herbicide] [**Note:** A white to tan powder below 46°F. The sodium salt, a white powder, is often used.]

Measurement Methods (see Table 1):
OSHA PV2017

Chemical & Physical Properties:
MW: 143.0
BP: 374°F
Sol: 50%
Fl.P: NA
IP: ?
Sp.Gr: 1.40
VP: ?
FRZ: 46°F
UEL: NA
LEL: NA
Noncombustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Metals
[**Note:** Very corrosive to aluminum & copper alloys. Reacts slowly in water to form hydrochloric & pyruvic acids.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, upper resp sys; skin burns; lass, loss of appetite, diarr, vomit, slowing of pulse; CNS depres
TO: Eyes, skin, resp sys, GI tract, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water wash immed
Breath: Resp support
Swallow: Medical attention immed

Dichlorotetrafluoroethane	Formula: $CClF_2CClF_2$	CAS#: 76-14-2	RTECS#: KI1101000	IDLH: 15,000 ppm
Conversion: 1 ppm = 6.99 mg/m^3	**DOT:** 1958 126			

Synonyms/Trade Names: 1,2-Dichlorotetrafluoroethane; Freon® 114; Genetron® 114; Halon® 242; Refrigerant 114

Exposure Limits:
NIOSH REL: TWA 1000 ppm (7000 mg/m^3)
OSHA PEL: TWA 1000 ppm (7000 mg/m^3)

Physical Description: Colorless gas with a faint, ether-like odor at high concentrations. [**Note:** A liquid below 38°F. Shipped as a liquefied compressed gas.]

Measurement Methods (see Table 1):
NIOSH 1018

Chemical & Physical Properties:
MW: 170.9
BP: 38°F
Sol: 0.01%
Fl.P: NA
IP: 12.20 eV
RGasD: 5.93
VP(70°F): 1.9 atm
FRZ: -137°F
UEL: NA
LEL: NA
Nonflammable Gas

Personal Protection/Sanitation (see Table 2):
Skin: Frostbite
Eyes: Frostbite
Wash skin: N.R.
Remove: N.R.
Change: N.R.
Provide: Frostbite wash

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
10,000 ppm: Sa
15,000 ppm: Sa:Cf/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Chemically-active metals such as sodium, potassium, calcium, powdered aluminum, zinc & magnesium; acids; acid fumes

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con (liquid)
SY: Irrit resp sys; asphy; card arrhy, card arrest; liquid: frostbite
TO: Resp sys, CVS

First Aid (see Table 6):
Eye: Frostbite
Skin: Frostbite
Breath: Resp support

Dichlorvos	**Formula:** $(CH_3O)_2P(O)OCH{=}CCl_2$	**CAS#:** 62-73-7	**RTECS#:** TC0350000	**IDLH:** 100 mg/m^3
Conversion: 1 ppm = 9.04 mg/m^3	**DOT:** 2783 152			

Synonyms/Trade Names: DDVP; 2,2-Dichlorovinyl dimethyl phosphate

Exposure Limits:
NIOSH REL: TWA 1 mg/m^3 [skin]
OSHA PEL: TWA 1 mg/m^3 [skin]

Measurement Methods (see Table 1):
NIOSH P&CAM295 (II-5)
OSHA 62

Physical Description: Colorless to amber liquid with a mild, chemical odor. [**Note:** Insecticide that may be absorbed on a dry carrier.]

Chemical & Physical Properties:
MW: 221.0
BP: Decomposes
Sol: 0.5%
Fl.P: >175°F
IP: ?
Sp.Gr(77°F): 1.42
VP: 0.01 mmHg
FRZ: ?
UEL: ?
LEL: ?
Class III Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
10 mg/m^3: Sa
25 mg/m^3: Sa:Cf
50 mg/m^3: SaT:Cf/ScbaF/SaF
100 mg/m^3: Sa:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Strong acids, strong alkalis [**Note:** Corrosive to iron & mild steel.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin; miosis, ache eyes; rhin; head; chest tight, wheez, lar spasm, salv; cyan; anor, nau, vomit, diarr; sweat; musc fasc, para, dizz, ataxia; convuls; low BP, card irreg
TO: Eyes, skin, resp sys, CVS, CNS, blood chol

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Dicrotophos	**Formula:** $C_8H_{16}NO_5P$	**CAS#:** 141-66-2	**RTECS#:** TC3850000	**IDLH:** N.D.
Conversion: 1 ppm = 9.70 mg/m^3	**DOT:**			

Synonyms/Trade Names: Bidrin®, Carbicron®, 2-Dimethyl-cis-2-dimethylcarbamoyl-1-methylvinylphosphate

Exposure Limits:
NIOSH REL: TWA 0.25 mg/m^3 [skin]
OSHA PEL†: none

Measurement Methods (see Table 1):
NIOSH 5600

Physical Description: Yellow-brown liquid with a mild, ester odor. [insecticide]

Chemical & Physical Properties:
MW: 237.2
BP: 752°F
Sol: Miscible
Fl.P: >200°F
IP: ?
Sp.Gr(59°F): 1.22
VP: 0.0001 mmHg
FRZ: ?
UEL: ?
LEL: ?
Class IIIB Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Metals [**Note:** Corrosive to cast iron, mild steel, brass & stainless steel.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Head, nau, dizz, anxi, restless, musc twitch, lass, tremor, inco, vomit, abdom cramps, diarr; salv, sweat, lac, rhinitis; anor, mal
TO: CNS, blood chol

First Aid (see Table 6):
Eye: Irr immed
Skin: Water wash immed
Breath: Resp support
Swallow: Medical attention immed

D

Dicyclopentadiene	Formula: $C_{10}H_{12}$	CAS#: 77-73-6	RTECS#: PC1050000	IDLH: N.D.
Conversion: 1 ppm = 5.41 mg/m^3	**DOT:** 2048 130			

Synonyms/Trade Names: Bicyclopentadiene; DCPD; 1,3-Dicyclopentadiene dimer; 3a,4,7,7a-Tetrahydro-4,7-methanoindene [**Note:** Exists in two stereoisomeric forms.]

Exposure Limits:
NIOSH REL: TWA 5 ppm (30 mg/m^3)
OSHA PEL†: none

Measurement Methods (see Table 1):
OSHA PV2098

Physical Description: Colorless, crystalline solid with a disagreeable, camphor-like odor. [**Note:** A liquid above 90°F.]

Chemical & Physical Properties:
MW: 132.2
BP: 342°F
Sol: 0.02%
Fl.P(oc): 90°F
IP: ?
Sp.Gr: 0.98 (Liquid at 95°F)
VP: 1.4 mmHg
FRZ: 90°F
UEL: 6.3%
LEL: 0.8%
Class IC Flammable Liquid
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Oxidizers
[**Note:** Depolymerizes at boiling point and forms two molecules of cyclopentadiene. Must be inhibited and maintained under an inert atmosphere to prevent polymerization.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose, throat; inco, head; sneez, cough; skin blisters; in animals: kidney, lung damage
TO: Eyes, skin, resp sys, CNS, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap flush immed
Breath: Resp support
Swallow: Medical attention immed

Dicyclopentadienyl iron	Formula: $(C_5H_5)_2Fe$	CAS#: 102-54-5	RTECS#: LK0700000	IDLH: N.D.
Conversion:	**DOT:**			

Synonyms/Trade Names: bis(Cyclopentadienyl)iron, Ferrocene, Iron dicyclopentadienyl

Exposure Limits:
NIOSH REL: TWA 10 mg/m^3 (total)
TWA 5 mg/m^3 (resp)
OSHA PEL†: TWA 15 mg/m^3 (total)
TWA 5 mg/m^3 (resp)

Measurement Methods (see Table 1):
OSHA ID125G

Physical Description: Orange, crystalline solid with a camphor-like odor.

Chemical & Physical Properties:
MW: 186.1
BP: 480°F
Sol: Insoluble
Fl.P: ?
IP: 6.88 eV
Sp.Gr: ?
VP: ?
MLT: 343°F
UEL: ?
LEL: ?
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Ammonium perchlorate, tetranitromethane, mercury(II) nitrate

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Possible irrit eyes, skin, resp sys; in animals: liver, RBC, testicular changes
TO: Eyes, skin, resp sys, liver, blood, repro sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Resp support
Swallow: Medical attention immed

D

Dieldrin	**Formula:** $C_{12}H_8Cl_6O$	**CAS#:** 60-57-1	**RTECS#:** IO1750000	**IDLH:** Ca [50 mg/m^3]
Conversion:	**DOT:** 2761 151			

Synonyms/Trade Names: HEOD;
1,2,3,4,10,10-Hexachloro-6,7-epoxy-1,4,4a,5,6,7,8,8a-octahydro-1,4-endo,exo-5,8-dimethanonaphthalene

Exposure Limits:
NIOSH REL: Ca
TWA 0.25 mg/m^3 [skin]
See Appendix A
OSHA PEL: TWA 0.25 mg/m^3 [skin]

Measurement Methods (see Table 1):
NIOSH S283 (II-3)

Physical Description: Colorless to light-tan crystals with a mild, chemical odor. [insecticide]

Chemical & Physical Properties:
MW: 380.9
BP: Decomposes
Sol: 0.02%
Fl.P: NA
IP: ?
Sp.Gr: 1.75
VP(77°F): 8 x 10^{-7} mmHg
MLT: 349°F
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, active metals such as sodium, strong acids, phenols

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Head, dizz; nau, vomit, mal, sweat; myoclonic limb jerks; clonic, tonic convuls; coma; [carc]; in animals: liver, kidney damage
TO: CNS, liver, kidneys, skin [in animals: lung, liver, thyroid & adrenal gland tumors]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Diesel exhaust	**Formula:**	**CAS#:**	**RTECS#:** HZ1755000	**IDLH:** Ca [N.D.]
Conversion:	**DOT:**			

Synonyms/Trade Names: Synonyms vary depending upon the specific diesel exhaust component.

Exposure Limits:
NIOSH REL: Ca
See Appendix A
OSHA PEL: none

Measurement Methods (see Table 1):
NIOSH 2560, 5040

Physical Description: Appearance and odor vary depending upon the specific diesel exhaust component.

Chemical & Physical Properties:
Properties vary depending upon the specific component diesel exhaust component.

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Varies

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Eye irrit, pulm func changes; [carc]
TO: Eyes, resp sys [in animals: lung tumors]

First Aid (see Table 6):
Breath: Resp support

D

Diethanolamine	Formula: $(HOCH_2CH_2)_2NH$	CAS#: 111-42-2	RTECS#: KL2975000	IDLH: N.D.
Conversion: 1 ppm = 4.30 mg/m^3	**DOT:**			

Synonyms/Trade Names: DEA; Di(2-hydroxyethyl)amine; 2,2'-Dihydroxydiethyamine; Diolamine; bis(2-Hydroxyethyl)amine; 2,2'-Iminodiethanol

Exposure Limits:
NIOSH REL: TWA 3 ppm (15 mg/m^3)
OSHA PEL†: none

Physical Description: Colorless crystals or a syrupy, white liquid (above 82°F) with a mild, ammonia-like odor.

Measurement Methods (see Table 1):
NIOSH 3509
OSHA PV2018

Chemical & Physical Properties:
MW: 105.2
BP: 516°F (Decomposes)
Sol: 95%
Fl.P: 279°F
IP: ?
Sp.Gr: 1.10
VP: <0.01 mmHg
MLT: 82°F
UEL: 9.8%
LEL: 1.6%
Class IIIB Combustible Liquid
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Oxidizers, strong acids, acid anhydrides, halides
[**Note:** Reacts with CO_2 in the air. Hygroscopic (i.e., absorbs moisture from the air). Corrosive to copper, zinc, and galvanized iron.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose, throat; eye burns, corn nec; skin burns; lac, cough, sneez
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

Diethylamine	Formula: $(C_2H_5)_2NH$	CAS#: 109-89-7	RTECS#: HZ8750000	IDLH: 200 ppm
Conversion: 1 ppm = 2.99 mg/m^3	**DOT:** 1154 132			

Synonyms/Trade Names: Diethamine; N,N-Diethylamine; N-Ethylethanamine

Exposure Limits:
NIOSH REL: TWA 10 ppm (30 mg/m^3)
ST 25 ppm (75 mg/m^3)
OSHA PEL†: TWA 25 ppm (75 mg/m^3)

Physical Description: Colorless liquid with a fishy, ammonia-like odor.

Measurement Methods (see Table 1):
NIOSH 2010
OSHA 41

Chemical & Physical Properties:
MW: 73.1
BP: 132°F
Sol: Miscible
Fl.P: -15°F
IP: 8.01 eV
Sp.Gr: 0.71
VP: 192 mmHg
FRZ: -58°F
UEL: 10.1%
LEL: 1.8%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.
Provide: Eyewash (>0.5%)
Quick drench (liquid)

Respirator Recommendations (see Tables 3 and 4):
NIOSH
200 ppm: Sa:Cf£/PaprS£/CcrFS/GmFS/ ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, strong acids, cellulose nitrate

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, resp sys; in animals; myocardial degeneration
TO: Eyes, skin, resp sys, CVS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

D

2-Diethylaminoethanol

Formula: $(C_2H_5)_2NCH_2CH_2OH$
CAS#: 100-37-8
RTECS#: KK5075000
IDLH: 100 ppm

Conversion: 1 ppm = 4.79 mg/m^3
DOT: 2686 132

Synonyms/Trade Names: Diethylaminoethanol; 2-Diethylaminoethyl alcohol; N,N-Diethylethanolamine; Diethyl-(2-hydroxyethyl)amine; 2-Hydroxytriethylamine

Exposure Limits:
NIOSH REL: TWA 10 ppm (50 mg/m^3) [skin]
OSHA PEL: TWA 10 ppm (50 mg/m^3) [skin]

Measurement Methods (see Table 1):
NIOSH 2007

Physical Description: Colorless liquid with a nauseating, ammonia-like odor.

Chemical & Physical Properties:
MW: 117.2
BP: 325°F
Sol: Miscible
Fl.P: 126°F
IP: ?
Sp.Gr: 0.89
VP: 1 mmHg
FRZ: -94°F
UEL: 11.7%
LEL: 6.7%
Class II Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash (>5%)
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
100 ppm: CcrOv*/GmFOv/PaprOv*/Sa*/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, strong acids

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, resp sys; nau, vomit
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

Diethylenetriamine

Formula: $(NH_2CH_2CH_2)_2NH$
CAS#: 111-40-0
RTECS#: IE1225000
IDLH: N.D.

Conversion: 1 ppm = 4.22 mg/m^3
DOT: 2079 154

Synonyms/Trade Names: N-(2-Aminoethyl)-1,2-ethanediamine; bis(2-Aminoethyl)amine; DETA; 2,2'-Diaminodiethylamine

Exposure Limits:
NIOSH REL: TWA 1 ppm (4 mg/m^3) [skin]
OSHA PEL†: none

Measurement Methods (see Table 1):
NIOSH 2540
OSHA 60

Physical Description: Colorless to yellow liquid with a strong, ammonia-like odor. [**Note:** Hygroscopic (i.e., absorbs moisture from the air).]

Chemical & Physical Properties:
MW: 103.2
BP: 405°F
Sol: Miscible
Fl.P: 208°F
IP: ?
Sp.Gr: 0.96
VP: 0.4 mmHg
FRZ: -38°F
UEL: 6.7%
LEL: 2%
Class IIIB Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Oxidizers, strong acids, cellulose nitrate
[**Note:** May form explosive complexes with silver, cobalt, or chromium compounds. Corrosive to aluminum, copper, brass & zinc.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, muc memb, upper resp sys; derm, skin sens; eye, skin nec; cough, dysp, pulm sens
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

D

Diethyl ketone	Formula: $CH_3CH_2COCH_2CH_3$	CAS#: 96-22-0	RTECS#: SA8050000	IDLH: N.D.
Conversion: 1 ppm = 3.53 mg/m^3	**DOT:** 1156 127			

Synonyms/Trade Names: DEK, Dimethylacetone, Ethyl ketone, Metacetone, 3-Pentanone, Propione

Exposure Limits:
NIOSH REL: TWA 200 ppm (705 mg/m^3)
OSHA PEL†: none

Measurement Methods (see Table 1):
None available

Physical Description: Colorless liquid with an acetone-like odor.

Chemical & Physical Properties:
MW: 86.2
BP: 215°F
Sol: 5%
Fl.P(oc): 55°F
IP: 9.32 eV
Sp.Gr: 0.81
VP(77°F): 35 mmHg
FRZ: -44°F
UEL: 6.4%
LEL: 1.6%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: Prevent eye contact
Wash skin: Daily
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Strong oxidizers, alkalis, mineral acids, (hydrogen peroxide + nitric acid)

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, muc memb, resp sys; cough, sneez
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Resp support
Swallow: Medical attention immed

Diethyl phthalate	Formula: $C_6H_4(COOC_2H_5)_2$	CAS#: 84-66-2	RTECS#: TI1050000	IDLH: N.D.
Conversion:	**DOT:**			

Synonyms/Trade Names: DEP, Diethyl ester of phthalic acid, Ethyl phthalate

Exposure Limits:
NIOSH REL: TWA 5 mg/m^3
OSHA PEL†: none

Measurement Methods (see Table 1):
OSHA 104

Physical Description: Colorless to water-white, oily liquid with a very slight, aromatic odor. [pesticide]

Chemical & Physical Properties:
MW: 222.3
BP: 563°F
Sol(77°F): 0.1%
Fl.P(oc): 322°F
IP: ?
Sp.Gr: 1.12
VP(77°F): 0.002 mmHg
FRZ: -41°F
UEL: ?
LEL(368°F): 0.7%
Class IIIB Combustible Liquid; however, ignition is difficult.

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Strong oxidizers, strong acids, nitric acid, permanganates, water

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose, throat; head, dizz, nau; lac; possible polyneur, vestibular dysfunc; pain, numb, lass, spasms in arms & legs; in animals: repro effects
TO: Eyes, skin, resp sys, CNS, PNS, repro sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Wash regularly
Breath: Resp support
Swallow: Medical attention immed

Difluorodibromomethane

Formula:	CAS#:	RTECS#:	IDLH:
CBr_2F_2	75-61-6	PA7525000	2000 ppm

Conversion: 1 ppm = 8.58 mg/m^3 **DOT:** 1941 171

Synonyms/Trade Names: Dibromodifluoromethane, Freon® 12B2, Halon® 1202

Exposure Limits:
NIOSH REL: TWA 100 ppm (860 mg/m^3)
OSHA PEL: TWA 100 ppm (860 mg/m^3)

Physical Description: Colorless, heavy liquid or gas (above 76°F) with a characteristic odor.

Measurement Methods (see Table 1):
NIOSH 1012
OSHA 7

Chemical & Physical Properties:
MW: 209.8
BP: 76°F
Sol: Insoluble
Fl.P: NA
IP: 11.07 eV
Sp.Gr(59°F): 2.29
VP: 620 mmHg
FRZ: -231°F
UEL: NA
LEL: NA
Noncombustible Liquid
Nonflammable Gas

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: N.R.
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
1000 ppm: Sa
2000 ppm: Sa:Cf/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Chemically-active metals such as sodium, potassium, calcium, powdered aluminum, zinc & magnesium

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: In animals: irrit resp sys; CNS symptoms; liver damage
TO: Resp sys, CNS, liver

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

Diglycidyl ether

Formula:	CAS#:	RTECS#:	IDLH:
$C_6H_{10}O_3$	2238-07-5	KN2350000	Ca [10 ppm]

Conversion: 1 ppm = 5.33 mg/m^3 **DOT:**

Synonyms/Trade Names: Diallyl ether dioxide; DGE; Di(2,3-epoxypropyl) ether; 2-Epoxypropyl ether; bis(2,3-Epoxypropyl) ether

Exposure Limits:
NIOSH REL: Ca
TWA 0.1 ppm (0.5 mg/m^3)
See Appendix A
OSHA PEL†: C 0.5 ppm (2.8 mg/m^3)

Physical Description: Colorless liquid with a strong, irritating odor.

Measurement Methods (see Table 1):
None available

Chemical & Physical Properties:
MW: 130.2
BP: 500°F
Sol: ?
Fl.P: 147°F
IP: ?
Sp.Gr: 1.12
VP(77°F): 0.09 mmHg
FRZ: ?
UEL: ?
LEL: ?
Class IIIA Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, resp sys; skin burns; in animals: hemato sys, lung, liver, kidney damage; repro effects; [carc]
TO: Eyes, skin, resp sys, repro sys [in animals: skin tumors]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

D

Diisobutyl ketone	Formula: $[(CH_3)_2CHCH_2]_2CO$	CAS#: 108-83-8	RTECS#: MJ5775000	IDLH: 500 ppm
Conversion: 1 ppm = 5.82 mg/m^3	**DOT:** 1157 128			

Synonyms/Trade Names: DIBK; sym-Diisopropyl acetone; 2,6-Dimethyl-4-heptanone; Isovalerone; Valerone

Exposure Limits:
NIOSH REL: TWA 25 ppm (150 mg/m^3)
OSHA PEL†: TWA 50 ppm (290 mg/m^3)

Physical Description: Colorless liquid with a mild, sweet odor.

Measurement Methods (see Table 1):
NIOSH 1300, 2555
OSHA 7

Chemical & Physical Properties:
MW: 142.3
BP: 334°F
Sol: 0.05%
Fl.P: 120°F
IP: 9.04 eV
Sp.Gr: 0.81
VP: 2 mmHg
FRZ: -43°F
UEL(200°F): 7.1%
LEL(200°F): 0.8%
Class II Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: N.R.
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
500 ppm: Sa:Cf£/PaprOv£/CcrFOv/GmFOv/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose, throat; head, dizz; derm; liver, kidney damage
TO: Eyes, skin, resp sys, CNS, liver, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

Diisopropylamine	Formula: $[(CH_3)_2CH]_2NH$	CAS#: 108-18-9	RTECS#: IM4025000	IDLH: 200 ppm
Conversion: 1 ppm = 4.14 mg/m^3	**DOT:** 1158 132			

Synonyms/Trade Names: DIPA, N-(1-Methylethyl)-2-propanamine

Exposure Limits:
NIOSH REL: TWA 5 ppm (20 mg/m^3) [skin]
OSHA PEL: TWA 5 ppm (20 mg/m^3) [skin]

Physical Description: Colorless liquid with an ammonia- or fish-like odor.

Measurement Methods (see Table 1):
NIOSH S141 (II-4)

Chemical & Physical Properties:
MW: 101.2
BP: 183°F
Sol: Miscible
Fl.P: 20°F
IP: 7.73 eV
Sp.Gr: 0.72
VP: 70 mmHg
FRZ: -141°F
UEL: 7.1%
LEL: 1.1%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact (>5%)
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.
Provide: Eyewash (>5%)

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
125 ppm: Sa:Cf£/PaprOv£
200 ppm: CcrFOv/GmFOv/PaprTOv£/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, strong acids

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, resp sys; nau, vomit; head; vis dist
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water wash immed
Breath: Resp support
Swallow: Medical attention immed

Dimethyl acetamide	Formula: $CH_3CON(CH_3)_2$	CAS#: 127-19-5	RTECS#: AB7700000	IDLH: 300 ppm
Conversion: 1 ppm = 3.56 mg/m^3	**DOT:**			

Synonyms/Trade Names: N,N-Dimethyl acetamide; DMAC

Exposure Limits:
NIOSH REL: TWA 10 ppm (35 mg/m^3) [skin]
OSHA PEL: TWA 10 ppm (35 mg/m^3) [skin]

Measurement Methods (see Table 1):
NIOSH 2004

Physical Description: Colorless liquid with a weak, ammonia- or fish-like odor.

Chemical & Physical Properties:
MW: 87.1
BP: 329°F
Sol: Miscible
Fl.P(oc): 158°F
IP: 8.81 eV
Sp.Gr: 0.94
VP: 2 mmHg
FRZ: -4°F
UEL(320°F): 11.5%
LEL(212°F): 1.8%
Class IIIA Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
100 ppm: Sa
250 ppm: Sa:Cf
300 ppm: ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Carbon tetrachloride, other halogenated compounds when in contact with iron, oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit skin; jaun, liver damage; depres, drow, halu, delusions
TO: Skin, liver, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

Dimethylamine	Formula: $(CH_3)_2NH$	CAS#: 124-40-3	RTECS#: IP8750000	IDLH: 500 ppm
Conversion: 1 ppm = 1.85 mg/m^3	**DOT:** 1032 118 (anhydrous); 1160 132 (solution)			

Synonyms/Trade Names: Dimethylamine (anhydrous), N-Methylmethanamine

Exposure Limits:
NIOSH REL: TWA 10 ppm (18 mg/m^3)
OSHA PEL: TWA 10 ppm (18 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 2010
OSHA 34

Physical Description: Colorless gas with an ammonia- or fish-like odor.
[**Note:** A liquid below 44°F. Shipped as a liquefied compressed gas.]

Chemical & Physical Properties:
MW: 45.1
BP: 44°F
Sol(140°F): 24%
Fl.P: NA (Gas) 20°F (Liquid)
IP: 8.24 eV
RGasD: 1.56
Sp.Gr: 0.67 (Liquid at 44°F)
VP: 1.7 atm
FRZ: -134°F
UEL: 14.4%
LEL: 2.8%
Flammable Gas

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact (liquid)
Frostbite
Eyes: Prevent eye contact (liquid)
Frostbite
Wash skin: When contam (liquid)
Remove: When wet (flamm)
Change: N.R.
Provide: Eyewash (liquid)
Quick drench (liquid)
Frostbite wash

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
250 ppm: Sa:Cf£
500 ppm: ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, chlorine, mercury, acraldehyde, fluorides, maleic anhydride, aluminum, brass, copper, zinc

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con (liquid)
SY: Irrit nose, throat; sneez, cough, dysp; pulm edema; conj; derm; liquid: frostbite
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed (liquid)/Frostbite
Skin: Water flush immed (liquid)/Frostbite
Breath: Resp support

D

4-Dimethylaminoazobenzene	Formula: $C_6H_5NNC_6H_4N(CH_3)_2$	CAS#: 60-11-7	RTECS#: BX7350000	IDLH: Ca [N.D.]
Conversion:	DOT:			

Synonyms/Trade Names: Butter yellow; DAB; p-Dimethylaminoazobenzene; N,N-Dimethyl-4-aminoazobenzene; Methyl yellow

Exposure Limits:
NIOSH REL: Ca
See Appendix A
OSHA PEL: [1910.1015] See Appendix B

Measurement Methods (see Table 1):
NIOSH P&CAM284 (II-4)

Physical Description: Yellow, leaf-shaped crystals.

Chemical & Physical Properties:
MW: 225.3
BP: Sublimes
Sol: 0.001%
Fl.P: ?
IP: ?
Sp.Gr: ?
VP: 0.0000003 mmHg (est.)
MLT: 237°F
UEL: ?
LEL: ?

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

See Appendix E (page 351)

Incompatibilities and Reactivities: None reported

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Enlarged liver; liver, kidney dist; contact derm; cough, wheez, dysp; bloody sputum; bronchial secretions; frequent urination, hema, dysuria; [carc]
TO: Skin, resp sys, liver, kidneys, bladder [in animals: liver & bladder tumors]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

bis(2-(Dimethylamino)ethyl)ether	Formula: $C_8H_{20}N_2O$	CAS#: 3033-62-3	RTECS#: KR9460000	IDLH: N.D.
Conversion:	DOT:			

Synonyms/Trade Names: NIAX® A99; NIAX® Catalyst A1; 2,2'-Oxybis(N,N-dimethyl ethylamine)
[**Note:** A component (5%) of NIAX® Catalyst ESN, along with dimethylaminopropionitrile (95%).]

Exposure Limits:
NIOSH REL: See Appendix C (NIAX® Catalyst ESN)
OSHA PEL: See Appendix C (NIAX® Catalyst ESN)

Measurement Methods (see Table 1):
None available

Physical Description: Liquid.

Chemical & Physical Properties:
MW: 160.3
BP: 372°F
Sol: ?
Fl.P: ?
IP: ?
Sp.Gr: ?
VP: ?
FRZ: ?
UEL: ?
LEL: ?

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: None reported

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Possible urinary dist, neurological disorders; in animals: irrit eyes, skin
TO: Eyes, skin, urinary tract, PNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

Dimethylaminopropionitrile	Formula: $(CH_3)_2NCH_2CH_2CN$	CAS#: 1738-25-6	RTECS#: UG1575000	IDLH: N.D.
Conversion:	**DOT:**			

Synonyms/Trade Names: 3-(Dimethylamino)propionitrile; N,N-Dimethylamino-3-propionitrile
[**Note:** A component (95%) of NIAX® Catalyst ESN, along with bis(2-(dimethylamino)ethyl) ether (5%).]

Exposure Limits:
NIOSH REL: See Appendix C (NIAX® Catalyst ESN)
OSHA PEL: See Appendix C (NIAX® Catalyst ESN)

Measurement Methods (see Table 1):
None available

Physical Description: Colorless liquid.

Chemical & Physical Properties:
MW: 98.2
BP: 342°F
Sol: Miscible
Fl.P: 147°F
IP: ?
Sp.Gr(86°F): 0.86
VP(135°F): 10 mmHg
FRZ: -48°F
UEL: ?
LEL: ?
Class IIIA Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Oxidizers
[**Note:** Emits toxic oxides of nitrogen and cyanide fumes when heated to decomposition.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin; urinary dist; neurological disorders; pins & needles in hands & feet; musc weak, lass, nau, vomit; decr nerve conduction in lower legs
TO: Eyes, skin, CNS, urinary tract

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

N,N-Dimethylaniline	Formula: $C_6H_5N(CH_3)_2$	CAS#: 121-69-7	RTECS#: BX4725000	IDLH: 100 ppm
Conversion: 1 ppm = 4.96 mg/m^3	**DOT:** 2253 153			

Synonyms/Trade Names: N,N-Dimethylbenzeneamine; N,N-Dimethylphenylamine
[**Note:** Also known as Dimethylaniline which is a correct synonym for Xylidine.]

Exposure Limits:
NIOSH REL: TWA 5 ppm (25 mg/m^3)
ST 10 ppm (50 mg/m^3) [skin]
OSHA PEL†: TWA 5 ppm (25 mg/m^3) [skin]

Measurement Methods (see Table 1):
NIOSH 2002
OSHA PV2064

Physical Description: Pale yellow, oily liquid with an amine-like odor. [**Note:** A solid below 36°F.]

Chemical & Physical Properties:
MW: 121.2
BP: 378°F
Sol: 2%
Fl.P: 142°F
IP: 7.14 eV
Sp.Gr: 0.96
VP: 1 mmHg
FRZ: 36°F
UEL: ?
LEL: ?
Class IIIA Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
50 ppm: Sa
100 ppm: Sa:Cf/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, strong acids, benzoyl peroxide

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Anoxia symptoms: cyan, lass, dizz, ataxia; methemo
TO: Blood, kidneys, liver, CVS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

D

Dimethyl carbamoyl chloride	Formula: $(CH_3)_2NCOCl$	CAS#: 79-44-7	RTECS#: FD4200000	IDLH: Ca [N.D.]
Conversion:	DOT: 2262 156			

Synonyms/Trade Names: Chloroformic acid dimethylamide; Dimethylcarbamic chloride; N,N-Dimethylcarbamoyl chloride; DMCC

Exposure Limits:
NIOSH REL: Ca
See Appendix A
OSHA PEL: none

Measurement Methods (see Table 1):
None available

Physical Description: Clear, colorless liquid.

Chemical & Physical Properties:
MW: 107.6
BP: 329°F
Sol: Reacts
Fl.P: 155°F
IP: ?
Sp.Gr: 1.17
VP: ?
FRZ: -27°F
UEL: ?
LEL: ?
Class IIIA Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Acids, water
[**Note:** Rapidly hydrolyzes in water to dimethylamine, carbon dioxide, and hydrogen chloride.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, nose, throat, resp sys; eye, skin burns; cough, wheez, larnygitis, dysp; head, nau, vomit; liver inj; [carc]
TO: Eyes, skin, resp sys, liver [in animals: nasal cancer]

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

Dimethyl-1,2-dibromo-2,2-dichlorethyl phosphate	Formula: $(CH_3O)_2P(O)OCHBrCBrCl_2$	CAS#: 300-76-5	RTECS#: TB9450000	IDLH: 200 mg/m^3
Conversion:	DOT:			

Synonyms/Trade Names: Dibrom®; 1,2-Dibromo-2,2-dichloroethyl dimethyl phosphate; Naled

Exposure Limits:
NIOSH REL: TWA 3 mg/m^3 [skin]
OSHA PEL†: TWA 3 mg/m^3

Measurement Methods (see Table 1):
None available

Physical Description: Colorless to white solid or straw-colored liquid (above 80°F) with a slightly pungent odor. [insecticide]

Chemical & Physical Properties:
MW: 380.8
BP: Decomposes
Sol: Insoluble
Fl.P: NA
IP: ?
Sp.Gr(77°F): 1.96
VP: 0.0002 mmHg
MLT: 80°F
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
30 mg/m^3: 95XQ/Sa
75 mg/m^3: Sa:Cf/PaprHie
150 mg/m^3: 100F/SaT:Cf/PaprTHie/ ScbaF/SaF
200 mg/m^3: Sa:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, acids, sunlight, water
[**Note:** Corrosive to metals. Hydrolyzed in presence of water.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin; miosis, lac; head; chest tight, wheez, lar spasm; salv; cyan; anor, nau, vomit, abdom cramp, diarr; lass, twitch, para; dizz, ataxia, convuls; low BP; card irreg
TO: Eyes, skin, resp sys, CNS, CVS, blood chol

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Dimethylformamide	Formula: $HCON(CH_3)_2$	CAS#: 68-12-2	RTECS#: LQ2100000	IDLH: 500 ppm
Conversion: 1 ppm = 2.99 mg/m^3	**DOT:** 2265 129			

Synonyms/Trade Names: Dimethyl formamide; N,N-Dimethylformamide; DMF

Exposure Limits:
NIOSH REL: TWA 10 ppm (30 mg/m^3) [skin]
OSHA PEL: TWA 10 ppm (30 mg/m^3) [skin]

Measurement Methods (see Table 1):
NIOSH 2004
OSHA 66

Physical Description: Colorless to pale-yellow liquid with a faint, amine-like odor.

Chemical & Physical Properties:
MW: 73.1
BP: 307°F
Sol: Miscible
Fl.P: 136°F
IP: 9.12 eV
Sp.Gr: 0.95
VP: 3 mmHg
FRZ: -78°F
UEL: 15.2%
LEL(212°F): 2.2%
Class II Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
100 ppm: Sa*
250 ppm: Sa:Cf*
500 ppm: SaT:Cf*/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Carbon tetrachloride; other halogenated compounds when in contact with iron; strong oxidizers; alkyl aluminums; inorganic nitrates

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, resp sys; nau, vomit, colic; liver damage, enlarged liver; high BP; face flush; derm; in animals: kidney, heart damage
TO: Eyes, skin, resp sys, liver, kidneys, CVS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush prompt
Breath: Resp support
Swallow: Medical attention immed

1,1-Dimethylhydrazine	Formula: $(CH_3)_2NNH_2$	CAS#: 57-14-7	RTECS#: MV2450000	IDLH: Ca [15 ppm]
Conversion: 1 ppm = 2.46 mg/m^3	**DOT:** 1163 131			

Synonyms/Trade Names: Dimazine, DMH, UDMH, Unsymmetrical dimethylhydrazine

Exposure Limits:
NIOSH REL: Ca
C 0.06 ppm (0.15 mg/m^3) [2-hr]
See Appendix A
OSHA PEL: TWA 0.5 ppm (1 mg/m^3) [skin]

Measurement Methods (see Table 1):
NIOSH 3515

Physical Description: Colorless liquid with an ammonia- or fish-like odor.

Chemical & Physical Properties:
MW: 60.1
BP: 147°F
Sol: Miscible
Fl.P: 5°F
IP: 8.05 eV
Sp.Gr: 0.79
VP: 103 mmHg
FRZ: -72°F
UEL: 95%
LEL: 2%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS/ScbaE

Incompatibilities and Reactivities: Oxidizers, halogens, metallic mercury, fuming nitric acid, hydrogen peroxide [**Note:** May ignite SPONTANEOUSLY in contact with oxidizers.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin; choking, chest pain, dysp; drow; nau; anoxia; convuls; liver inj; [carc]
TO: CNS, liver, GI tract, blood, resp sys, eyes, skin [in animals: tumors of the lungs, liver, blood vessels & intestines]

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

D

Dimethylphthalate	Formula: $C_6H_4(COOCH_3)_2$	CAS#: 131-11-3	RTECS#: TI1575000	IDLH: 2000 mg/m^3
Conversion:	**DOT:**			

Synonyms/Trade Names: Dimethyl ester of 1,2-benzenedicarboxylic acid; DMP

Exposure Limits:
NIOSH REL: TWA 5 mg/m^3
OSHA PEL: TWA 5 mg/m^3

Measurement Methods (see Table 1):
OSHA 104

Physical Description: Colorless, oily liquid with a slight, aromatic odor.
[**Note:** A solid below 42°F.]

Chemical & Physical Properties:
MW: 194.2
BP: 543°F
Sol: 0.4%
Fl.P: 295°F
IP: 9.64 eV
Sp.Gr: 1.19
VP: 0.01 mmHg
FRZ: 42°F
UEL: ?
LEL(358°F): 0.9%
Class IIIB Combustible Liquid; however, ignition is difficult.

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: Prevent eye contact
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
50 mg/m^3: 95F
125 mg/m^3: Sa:Cf£/PaprHie£
250 mg/m^3: 100F/ScbaF/SaF
2000 mg/m^3: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Nitrates; strong oxidizers, alkalis & acids

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, upper resp sys; stomach pain
TO: Eyes, resp sys, GI tract

First Aid (see Table 6):
Eye: Irr prompt
Skin: Wash regularly
Breath: Resp support
Swallow: Medical attention immed

Dimethyl sulfate	Formula: $(CH_3)_2SO_4$	CAS#: 77-78-1	RTECS#: WS8225000	IDLH: Ca [7 ppm]
Conversion: 1 ppm = 5.16 mg/m^3	**DOT:** 1595 156			

Synonyms/Trade Names: Dimethyl ester of sulfuric acid, Dimethylsulfate, Methyl sulfate

Exposure Limits:
NIOSH REL: Ca
TWA 0.1 ppm (0.5 mg/m^3) [skin]
See Appendix A
OSHA PEL†: TWA 1 ppm (5 mg/m^3) [skin]

Measurement Methods (see Table 1):
NIOSH 2524

Physical Description: Colorless, oily liquid with a faint, onion-like odor.

Chemical & Physical Properties:
MW: 126.1
BP: 370°F (Decomposes)
Sol(64°F): 3%
Fl.P: 182°F
IP: ?
Sp.Gr: 1.33
VP: 0.1 mmHg
FRZ: -25°F
UEL: ?
LEL: ?
Class IIIA Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, ammonia solutions
[**Note:** Decomposes in water to sulfuric acid; corrosive to metals.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, nose; head; dizz; conj; photo; periorb edema; dysphonia, aphonia, dysphagia, productive cough; chest pain; dysp, cyan; vomit, diarr; dysuria; analgesia; fever; prot, hema; eye, skin burns; delirium; [carc]
TO: Eyes, skin, resp sys, liver, kidneys, CNS [in animals: nasal & lung cancer]

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

Dinitolmide	**Formula:** $(NO_2)_2C_6H_2(CH_3)CONH_2$	**CAS#:** 148-01-6	**RTECS#:** XS4200000	**IDLH:** N.D.
Conversion:	**DOT:**			

Synonyms/Trade Names: 3,5-Dinitro-o-toluamide; 2-Methyl-3,5-dinitrobenzamide; Zoalene

Exposure Limits:
NIOSH REL: TWA 5 mg/m^3
OSHA PEL†: none

Measurement Methods (see Table 1):
NIOSH 0500

Physical Description: Yellowish, crystalline solid.

Chemical & Physical Properties:
MW: 225.2
BP: ?
Sol: Slight
Fl.P: NA
IP: ?
Sp.Gr: ?
VP: ?
MLT: 351°F
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: None reported

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Contact eczema; in animals: methemo, liver changes
TO: Skin, liver, blood

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

m-Dinitrobenzene	**Formula:** $C_6H_4(NO_2)_2$	**CAS#:** 99-65-0	**RTECS#:** CZ7350000	**IDLH:** 50 mg/m^3
Conversion:	**DOT:** 1597 152			

Synonyms/Trade Names: meta-Dinitrobenzene; 1,3-Dinitrobenzene

Exposure Limits:
NIOSH REL: TWA 1 mg/m^3 [skin]
OSHA PEL: TWA 1 mg/m^3 [skin]

Measurement Methods (see Table 1):
NIOSH S214 (II-4)

Physical Description: Pale-white or yellow solid.

Chemical & Physical Properties:
MW: 168.1
BP: 572°F
Sol: 0.02%
Fl.P: 302°F
IP: 10.43 eV
Sp.Gr: 1.58
VP: ?
MLT: 192°F
UEL: ?
LEL: ?
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
5 mg/m^3: Qm
10 mg/m^3: 95XQ/Sa
25 mg/m^3: Sa:Cf/PaprHie
50 mg/m^3: 100F/SaT:Cf/PaprTHie/ ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, caustics, metals such as tin & zinc
[**Note:** Prolonged exposure to fire and heat may result in an explosion due to SPONTANEOUS decomposition.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Anoxia, cyan; vis dist, central scotomas; bad taste, burning mouth, dry throat, thirst; yellowing hair, eyes, skin; anemia; liver damage
TO: Eyes, skin, blood, liver, CVS, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

D

o-Dinitrobenzene	Formula: $C_6H_4(NO_2)_2$	CAS#: 528-29-0	RTECS#: CZ7450000	IDLH: 50 mg/m^3
Conversion:	DOT: 1597 152			

Synonyms/Trade Names: ortho-Dinitrobenzene; 1,2-Dinitrobenzene

Exposure Limits:
NIOSH REL: TWA 1 mg/m^3 [skin]
OSHA PEL: TWA 1 mg/m^3 [skin]

Measurement Methods (see Table 1):
NIOSH S214 (II-4)

Physical Description: Pale-white or yellow solid.

Chemical & Physical Properties:
MW: 168.1
BP: 606°F
Sol: 0.05%
Fl.P: 302°F
IP: 10.71 eV
Sp.Gr: 1.57
VP: ?
MLT: 244°F
UEL: ?
LEL: ?
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
5 mg/m^3: Qm
10 mg/m^3: 95XQ/Sa
25 mg/m^3: Sa:Cf/PaprHie
50 mg/m^3: 100F/SaT:Cf/PaprTHie/ ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, caustics, metals such as tin & zinc
[**Note:** Prolonged exposure to fire and heat may result in an explosion due to SPONTANEOUS decomposition.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Anoxia, cyan; vis dist, central scotomas; bad taste, burning mouth, dry throat, thirst; yellowing hair, eyes, skin; anemia; liver damage
TO: Eyes, skin, blood, liver, CVS, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

p-Dinitrobenzene	Formula: $C_6H_4(NO_2)_2$	CAS#: 100-25-4	RTECS#: CZ7525000	IDLH: 50 mg/m^3
Conversion:	DOT: 1597 152			

Synonyms/Trade Names: para-Dinitrobenzene; 1,4-Dinitrobenzene

Exposure Limits:
NIOSH REL: TWA 1 mg/m^3 [skin]
OSHA PEL: TWA 1 mg/m^3 [skin]

Measurement Methods (see Table 1):
NIOSH S214 (II-4)

Physical Description: Pale-white or yellow solid.

Chemical & Physical Properties:
MW: 168.1
BP: 570°F
Sol: 0.01%
Fl.P: ?
IP: 10.50 eV
Sp.Gr: 1.63
VP: ?
MLT: 343°F
UEL: ?
LEL: ?
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
5 mg/m^3: Qm
10 mg/m^3: 95XQ/Sa
25 mg/m^3: Sa:Cf/PaprHie
50 mg/m^3: 100F/SaT:Cf/PaprTHie/ ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, caustics, metals such as tin & zinc
[**Note:** Prolonged exposure to fire and heat may result in an explosion due to SPONTANEOUS decomposition.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Anoxia, cyan; vis dist, central scotomas; bad taste, burning mouth, dry throat, thirst; yellowing hair, eyes, skin; anemia; liver damage
TO: Eyes, skin, blood, liver, CVS, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Dinitro-o-cresol	**Formula:** $CH_3C_6H_2OH(NO_2)_2$	**CAS#:** 534-52-1	**RTECS#:** GO9625000	**IDLH:** 5 mg/m^3
Conversion:	**DOT:** 1598 153			

Synonyms/Trade Names: 4,6-Dinitro-o-cresol; 3,5-Dinitro-2-hydroxytoluene; 4,6-Dinitro-2-methyl phenol; DNC; DNOC

Exposure Limits:
NIOSH REL: TWA 0.2 mg/m^3 [skin]
OSHA PEL: TWA 0.2 mg/m^3 [skin]

Measurement Methods (see Table 1):
NIOSH S166 (II-5)

Physical Description: Yellow, odorless solid. [insecticide]

Chemical & Physical Properties:
MW: 198.1
BP: 594°F
Sol: 0.01%
Fl.P: NA
IP: ?
Sp.Gr: 1.1 (estimated)
VP: 0.00005 mmHg
MLT: 190°F
UEL: NA
LEL: NA
MEC: 30 g/m^3
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
2 mg/m^3: 95F
5 mg/m^3: 100F/Sa:Cf£/PaprHie£/ ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Sense of well being; head, fever, lass, profuse sweat, excess thirst, tacar, hyperpnea, cough, short breath, coma
TO: CVS, endocrine sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Dinitrotoluene	**Formula:** $CH_3C_6H_3(NO_2)_2$	**CAS#:** 25321-14-6	**RTECS#:** XT1300000	**IDLH:** Ca [50 mg/m^3]
Conversion:	**DOT:** 1600 152 (molten); 2038 152 (solid)			

Synonyms/Trade Names: Dinitrotoluol, DNT, Methyldinitrobenzene [**Note:** Various isomers of DNT exist.]

Exposure Limits:
NIOSH REL: Ca
TWA 1.5 mg/m^3 [skin]
See Appendix A
OSHA PEL: TWA 1.5 mg/m^3 [skin]

Measurement Methods (see Table 1):
OSHA 44

Physical Description: Orange-yellow crystalline solid with a characteristic odor. [**Note:** Often shipped molten.]

Chemical & Physical Properties:
MW: 182.2
BP: 572°F
Sol: Insoluble
Fl.P: 404°F
IP: ?
Sp.Gr: 1.32
VP: 1 mmHg
MLT: 158°F
UEL: ?
LEL: ?
Combustible Solid, but difficult to ignite.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily
Provide: Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, caustics, metals such as tin & zinc
[**Note:** Commercial grades will decompose at 482°F, with self-sustaining decomposition at 536°F.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Anoxia, cyan; anemia, jaun; repro effects; [carc]
TO: Blood, liver, CVS, repro sys [in animals: liver, skin & kidney tumors]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

D

Di-sec octyl phthalate

Formula:	CAS#:	RTECS#:	IDLH:
$C_{24}H_{38}O_4$	117-81-7	TI0350000	Ca [5000 mg/m^3]

Conversion: **DOT:**

Synonyms/Trade Names: DEHP, Di(2-ethylhexyl)phthalate, DOP, bis-(2-Ethylhexyl)phthalate, Octyl phthalate

Exposure Limits:
NIOSH REL: Ca
TWA 5 mg/m^3
ST 10 mg/m^3
See Appendix A
OSHA PEL†: TWA 5 mg/m^3

Measurement Methods (see Table 1):
NIOSH 5020

Physical Description: Colorless, oily liquid with a slight odor.

Chemical & Physical Properties:
MW: 390.5
BP: 727°F
Sol(75°F): 0.00003%
Fl.P(oc): 420°F
IP: ?
Sp.Gr: 0.99
VP: <0.01 mmHg
FRZ: -58°F
UEL: ?
LEL(474°F): 0.3%
Class IIIB Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Nitrates; strong oxidizers, acids & alkalis

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, muc memb; in animals: liver damage; terato effects; [carc]
TO: Eyes, resp sys, CNS, liver, repro sys, GI tract [in animals: liver tumors]

First Aid (see Table 6):
Eye: Irr immed
Breath: Resp support
Swallow: Medical attention immed

Dioxane

Formula:	CAS#:	RTECS#:	IDLH:
$C_4H_8O_2$	123-91-1	JG8225000	Ca [500 ppm]

Conversion: 1 ppm = 3.60 mg/m^3 **DOT:** 1165 127

Synonyms/Trade Names: Diethylene dioxide; Diethylene ether; Dioxan; p-Dioxane; 1,4-Dioxane

Exposure Limits:
NIOSH REL: Ca
C 1 ppm (3.6 mg/m^3) [30-minute]
See Appendix A
OSHA PEL†: TWA 100 ppm (360 mg/m^3) [skin]

Measurement Methods (see Table 1):
NIOSH 1602
OSHA 7

Physical Description: Colorless liquid or solid (below 53°F) with a mild, ether-like odor.

Chemical & Physical Properties:
MW: 88.1
BP: 214°F
Sol: Miscible
Fl.P: 55°F
IP: 9.13 eV
Sp.Gr: 1.03
VP: 29 mmHg
FRZ: 53°F
UEL: 22%
LEL: 2.0%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, decaborane, triethynyl aluminum

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, nose, throat; drow, head; nau, vomit; liver damage; kidney failure; [carc]
TO: Eyes, skin, resp sys, liver, kidneys [in animals: lung, liver & nasal cavity tumors]

First Aid (see Table 6):
Eye: Irr immed
Skin: Water wash prompt
Breath: Resp support
Swallow: Medical attention immed

D

Dioxathion

Formula: $C_4H_6O_2[SPS(OC_2H_5)_2]_2$
CAS#: 78-34-2
RTECS#: TE3350000
IDLH: N.D.

Conversion:
DOT:

Synonyms/Trade Names: Delnav®; p-Dioxane-2,3-diyl ethyl phosphorodithioate; Dioxane phosphate; 2,3-p-Dioxanethiol-S,S-bis(O,O-diethyl phosphoro-dithioate); Navadel®

Exposure Limits:
NIOSH REL: TWA 0.2 mg/m^3 [skin]
OSHA PEL†: none

Physical Description: Viscous, brown, tan, or dark-amber liquid. [insecticide]
[**Note:** Technical product is a mixture of cis- & trans-isomers.]

Measurement Methods (see Table 1):
None available

Chemical & Physical Properties:
MW: 456.6
BP: ?
Sol: Insoluble
Fl.P: NA
IP: ?
Sp.Gr(79°F): 1.26
VP: ?
FRZ: -4°F
UEL: NA
LEL: NA
Noncombustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Alkalis, iron or tin surfaces, heat

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin; head, dizz, lass; rhin, chest tight; miosis; nau, vomit, abdom cramps, diarr, salv; musc fasc; conf, drow
TO: Eyes, skin, resp sys, CNS, CVS, blood chol

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap flush immed
Breath: Resp support
Swallow: Medical attention immed

Diphenyl

Formula: $C_6H_5C_6H_5$
CAS#: 92-52-4
RTECS#: DU8050000
IDLH: 100 mg/m^3

Conversion: 1 ppm = 6.31 mg/m^3
DOT:

Synonyms/Trade Names: Biphenyl, Phenyl benzene

Exposure Limits:
NIOSH REL: TWA 1 mg/m^3 (0.2 ppm)
OSHA PEL: TWA 1 mg/m^3 (0.2 ppm)

Physical Description: Colorless to pale-yellow solid with a pleasant, characteristic odor. [fungicide]

Measurement Methods (see Table 1):
NIOSH 2530
OSHA PV2022

Chemical & Physical Properties:
MW: 154.2
BP: 489°F
Sol: Insoluble
Fl.P: 235°F
IP: 7.95 eV
Sp.Gr: 1.04
VP: 0.005 mmHg
MLT: 156°F
UEL(311°F): 5.8%
LEL(232°F): 0.6%
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash (molt)
Quick drench (molt)

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
10 mg/m^3: CcrOv95/Sa
25 mg/m^3: Sa:Cf*/PaprOvHie*
50 mg/m^3: CcrFOv100/GmFOv100/PaprTOvHie*/ScbaF/SaF
100 mg/m^3: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, throat; head, nau, lass, numb limbs; liver damage
TO: Eyes, resp sys, liver, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

D

Diphenylamine	Formula: $(C_6H_5)_2NH$	CAS#: 122-39-4	RTECS#: JJ7800000	IDLH: N.D.
Conversion:	**DOT:**			

Synonyms/Trade Names: Anilinobenzene, DPA, Phenylaniline, N-Phenylaniline, N-Phenylbenzenamine
[**Note:** The carcinogen 4-Aminodiphenyl may be present as an impurity in the commercial product.]

Exposure Limits:
NIOSH REL: TWA 10 mg/m^3
OSHA PEL†: none

Measurement Methods (see Table 1):
OSHA 22, 78

Physical Description: Colorless, tan, amber, or brown crystalline solid with a pleasant, floral odor. [fungicide]

Chemical & Physical Properties:
MW: 169.2
BP: 576°F
Sol: 0.03%
Fl.P: 307°F
IP: 7.40 eV
Sp.Gr: 1.16
VP(227°F): 1 mmHg
MLT: 127°F
UEL: ?
LEL: ?
Combustible Solid; explosive if a cloud of dust is exposed to a source of ignition.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: Daily
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Oxidizers, hexachloromelamine, trichloromelamine

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, muc memb; eczema; tacar, hypertension; cough, sneez; methemo; incr BP, heart rate; prot, hema, bladder inj; in animals: terato effects
TO: Eyes, skin, resp sys, CVS, blood, bladder, repro sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

Dipropylene glycol methyl ether	Formula: $CH_3OC_3H_6OC_3H_6OH$	CAS#: 34590-94-8	RTECS#: JM1575000	IDLH: 600 ppm
Conversion: 1 ppm = 6.06 mg/m^3	**DOT:**			

Synonyms/Trade Names: Dipropylene glycol monomethyl ether, Dowanol® 50B

Exposure Limits:
NIOSH REL: TWA 100 ppm (600 mg/m^3)
ST 150 ppm (900 mg/m^3) [skin]
OSHA PEL†: TWA 100 ppm (600 mg/m^3) [skin]

Measurement Methods (see Table 1):
NIOSH 2554, S69 (II-2)

Physical Description: Colorless liquid with a mild, ether-like odor.

Chemical & Physical Properties:
MW: 148.2
BP: 408°F
Sol: Miscible
Fl.P: 180°F
IP: ?
Sp.Gr: 0.95
VP: 0.5 mmHg
FRZ: -112°F
UEL: 3.0%
LEL(392°F): 1.1%
Class IIIA Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
600 ppm: Sa/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, nose, throat; lass, dizz, head
TO: Eyes, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water wash prompt
Breath: Resp support
Swallow: Medical attention immed

Dipropyl ketone	**Formula:** $(CH_3CH_2CH_2)_2CO$	**CAS#:** 123-19-3	**RTECS#:** MJ5600000	**IDLH:** N.D.
Conversion: 1 ppm = 4.67 mg/m^3	**DOT:** 2710 128			

Synonyms/Trade Names: Butyrone, DPK, 4-Heptanone, Heptan-4-one, Propyl ketone

Exposure Limits:
NIOSH REL: TWA 50 ppm (235 mg/m^3)
OSHA PEL†: none

Measurement Methods (see Table 1):
OSHA 7

Physical Description: Colorless liquid with a pleasant odor.

Chemical & Physical Properties:
MW: 114.2
BP: 291°F
Sol: Insoluble
Fl.P: 120°F
IP: 9.10 eV
Sp.Gr: 0.82
VP: 5 mmHg
FRZ: -27°F
UEL: ?
LEL: ?
Class II Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: Daily
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin; CNS depres, dizz, drow, decr breath; in animals: liver inj; narco
TO: Eyes, skin, CNS, liver

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Resp support
Swallow: Medical attention immed

Diquat (Diquat dibromide)	**Formula:** $C_{12}H_{12}N_2Br_2$	**CAS#:** 85-00-7	**RTECS#:** JM5690000	**IDLH:** N.D.
Conversion:	**DOT:** 2781 151 (solid); 2782 131 (liquid)			

Synonyms/Trade Names: Diquat dibromide; 1,1'-Ethylene-2,2'-bipyridyllium dibromide
[**Note:** Diquat is a cation ($C_{12}H_{12}N_2^{++}$; 1,1'-Ethylene-2,2-bipyridyllium ion). Various diquat salts are commercially available.]

Exposure Limits:
NIOSH REL: TWA 0.5 mg/m^3
OSHA PEL†: none

Measurement Methods (see Table 1):
None available

Physical Description: Dibromide salt: Yellow crystals. [herbicide]
[**Note:** Commercial product may be found in a liquid concentrate or a solution.]

Chemical & Physical Properties:
MW: 344.1
BP: Decomposes
Sol: 70%
Fl.P: ?
IP: ?
Sp.Gr: 1.22-1.27
VP: <0.00001 mmHg
MLT: 635°F
UEL: ?
LEL: ?
Combustible Solid, but does not readily ignite and burns with difficulty.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Alkalis, UV light, basic solutions
[**Note:** Concentrated diquat solutions corrode aluminum.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, muc memb, resp sys; rhin, epis; skin burns; nau, vomit, diarr, mal; kidney, liver inj; cough, chest pain, dysp, pulm edema; tremor, convuls; delayed healing of wounds
TO: Eyes, skin, resp sys, kidneys, liver, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

D

Disulfiram	**Formula:** $[(C_2H_5)_2NCS]_2S_2$	**CAS#:** 97-77-8	**RTECS#:** JO1225000	**IDLH:** N.D.
Conversion:	**DOT:**			

Synonyms/Trade Names: Antabuse®, bis(Diethylthiocarbamoyl) disulfide, Ro-Sulfiram®, TETD, Tetraethylthiuram disulfide

Exposure Limits:
NIOSH REL: TWA 2 mg/m^3
[Precautions should be taken to avoid concurrent exposure to ethylene dibromide.]
OSHA PEL†: none

Measurement Methods (see Table 1):
None available

Physical Description: White, yellowish, or light-gray powder with a slight odor. [fungicide]

Chemical & Physical Properties:
MW: 296.6
BP: ?
Sol: 0.02%
Fl.P: NA
IP: ?
Sp.Gr: 1.30
VP: ?
MLT: 158°F
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: None reported

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, resp sys; sens derm; lass, tremor, restless, head, dizz; metallic taste; peri neur; liver damage
TO: Eyes, skin, resp sys, CNS, PNS, liver

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Disulfoton	**Formula:** $C_8H_{19}O_2PS_3$	**CAS#:** 298-04-4	**RTECS#:** TD9275000	**IDLH:** N.D.
Conversion:	**DOT:** 2783 152			

Synonyms/Trade Names: O,O-Diethyl S-2-(ethylthio)-ethyl phosphorodithioate; Di-Syston®; Thiodemeton

Exposure Limits:
NIOSH REL: TWA 0.1 mg/m^3 [skin]
OSHA PEL†: none

Measurement Methods (see Table 1):
NIOSH 5600

Physical Description: Oily, colorless to yellow liquid with a characteristic, sulfur odor. [insecticide] [**Note:** Technical product is a brown liquid.]

Chemical & Physical Properties:
MW: 274.4
BP: ?
Sol(73°F): 0.003%
Fl.P: >180°F
IP: ?
Sp.Gr: 1.14
VP: 0.0002 mmHg
FRZ: >-13°F
UEL: ?
LEL: ?
Combustible Liquid, but will not ignite easily.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Alkalis

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin; nau, vomit, abdom cramps, diarr, salv; head, dizz, lass; rhin, chest tight; blurred vision, miosis; card irreg; musc fasc; dysp; eye, skin burns
TO: Eyes, skin, resp sys, CNS, CVS, blood chol

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap flush immed
Breath: Resp support
Swallow: Medical attention immed

Diuron	Formula: $C_6H_3Cl_2NHCON(CH_3)_2$	CAS#: 330-54-1	RTECS#: YS8925000	IDLH: N.D.
Conversion:	**DOT:**			

Synonyms/Trade Names: 3-(3,4-Dichlorophenyl)-1,1-dimethylurea; Direx®; Karmex®

Exposure Limits:
NIOSH REL: TWA 10 mg/m^3
OSHA PEL†: none

Measurement Methods (see Table 1):
NIOSH 5601
OSHA PV2097

Physical Description: White, odorless, crystalline solid. [herbicide]

Chemical & Physical Properties:
MW: 233.1
BP: 356°F (Decomposes)
Sol: 0.004%
Fl.P: NA
IP:?
Sp.Gr: ?
VP: 0.000000002 mmHg
MLT: 316°F
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: Daily
Remove: N.R.
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Strong acids

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose, throat; in animals: anemia, methemo
TO: Eyes, skin, resp sys, blood

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

Divinyl benzene	Formula: $C_6H_4(HC{=}CH_2)_2$	CAS#: 1321-74-0 (mixed isomers)	RTECS#: CZ9370000	IDLH: N.D.
Conversion: 1 ppm = 5.33 mg/m^3	**DOT:** 2049 130			

Synonyms/Trade Names: Diethyl benzene, DVB, Vinylstyrene
[**Note:** Commercial product contains all 3 isomers, but m-isomer predominates. Usually contains an inhibitor to prevent polymerization.]

Exposure Limits:
NIOSH REL: TWA 10 ppm (50 mg/m^3)
OSHA PEL†: none

Measurement Methods (see Table 1):
OSHA 89

Physical Description: Pale, straw-colored liquid.

Chemical & Physical Properties:
MW: 130.2
BP: 392°F
Sol: 0.005%
Fl.P(oc): 169°F
IP: ?
Sp.Gr: 0.93
VP: 0.7 mmHg
FRZ: -88°F
UEL: 6.2%
LEL: 1.1%
Class IIIA Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: None reported

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, resp sys; skin burns; in animals: CNS depres
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap flush immed
Breath: Resp support
Swallow: Medical attention immed

E

1-Dodecanethiol	Formula: $CH_3(CH_2)_{11}SH$	CAS#: 112-55-0	RTECS#: JR3155000	IDLH: N.D.
Conversion: 1 ppm = 8.28 mg/m^3	DOT: 1228 131			

Synonyms/Trade Names: Dodecyl mercaptan, 1-Dodecyl mercaptan, n-Dodecyl mercaptan, Lauryl mercaptan, n-Lauryl mercaptan, 1-Mercaptododecane

Exposure Limits:
NIOSH REL: C 0.5 ppm (4.1 mg/m^3) [15-minute]
OSHA PEL: none

Physical Description: Colorless, water-white, or pale-yellow, oily liquid with a mild, skunk-like odor. [**Note:** A solid below 15°F.]

Measurement Methods (see Table 1):
None available

Chemical & Physical Properties:
MW: 202.4
BP: 441-478°F
Sol: Insoluble
Fl.P(oc): 190°F
IP: ?
Sp.Gr: 0.85
VP(77°F): 3 mmHg
FRZ: 15°F
UEL: ?
LEL: ?
Class IIIA Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash

Respirator Recommendations (see Tables 3 and 4):
NIOSH
5 ppm: CcrOv/Sa
12.5 ppm: Sa:Cf/PaprOv
25 ppm: CcrFOv/GmFOv/PaprTOv/ ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers & acids, strong bases, reducing agents, alkali metals, water, steam

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, resp sys; cough; dizz, dysp, lass, conf, cyan; abdom pain, nau; skin sens
TO: Eyes, skin, resp sys, CNS, blood

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Emery	Formula: Al_2O_3	CAS#: 1302-74-5 (corundum)	RTECS#: GN2310000 (corundum)	IDLH: N.D.
Conversion:	DOT:			

Synonyms/Trade Names: Aluminum oxide, Aluminum trioxide, Corundum, Impure corundum, Natural aluminum oxide [**Note:** Emery is an impure variety of Al_2O_3 which may contain small impurities of iron, magnesium & silica Corundum is natural Al_2O_3.]

Exposure Limits:
NIOSH REL: See Appendix D
OSHA PEL†: TWA 15 mg/m^3 (total)
TWA 5 mg/m^3 (resp)

Physical Description: Odorless, white, crystalline powder.

Measurement Methods (see Table 1):
NIOSH 0500, 0600

Chemical & Physical Properties:
See α-Alumina for physical & chemical properties.

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities:

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, resp sys
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Breath: Fresh air
Swallow: Medical attention immed

Endosulfan	**Formula:** $C_9H_6Cl_6O_3S$	**CAS#:** 115-29-7	**RTECS#:** RB9275000	**IDLH:** N.D.
Conversion:	**DOT:** 2761 151			

Synonyms/Trade Names: Benzoepin; Endosulphan; 6,7,8,9,10-Hexachloro-1,5,5a,6,9,9a-hexachloro-6,9-methano-2,4,3-benzo-dioxathiepin-3-oxide; Thiodan®

Exposure Limits:
NIOSH REL: TWA 0.1 mg/m^3 [skin] **OSHA PEL†:** none

Measurement Methods (see Table 1):
OSHA PV2023

Physical Description: Brown crystals with a slight, sulfur dioxide odor. [insecticide] [**Note:** Technical product is a tan, waxy, isomer mixture.]

Chemical & Physical Properties:
MW: 406.9
BP: Decomposes
Sol: 0.00001%
Fl.P: NA
IP: ?
Sp.Gr: 1.74
VP(77°F): 0.00001 mmHg
MLT: 223°F
UEL: NA
LEL: NA Noncombustible Solid, but may be dissolved in flammable liquids.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Alkalis, acids, water
[**Note:** Corrosive to iron. Hydrolyzes slowly on contact with water or decomposes in presence of alkalis and acids to form sulfur dioxide.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit skin; nau, conf, agitation, flushing, dry mouth, tremor, convuls, head; in animals: kidney, liver inj; decr testis weight
TO: Skin, CNS, liver, kidneys, repro sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap flush immed
Breath: Resp support
Swallow: Medical attention immed

Endrin	**Formula:** $C_{12}H_8Cl_6O$	**CAS#:** 72-20-8	**RTECS#:** IO1575000	**IDLH:** 2 mg/m^3
Conversion:	**DOT:** 2761 151			

Synonyms/Trade Names: Hexadrin®, 1,2,3,4,10,10-Hexachloro-6,7-epoxy-1,4,4a,5,6,7,8,8a-octahydro-1,4-endo,endo-5,8-dimethanonaphthalene

Exposure Limits:
NIOSH REL: TWA 0.1 mg/m^3 [skin]
OSHA PEL: TWA 0.1 mg/m^3 [skin]

Measurement Methods (see Table 1):
NIOSH 5519

Physical Description: Colorless to tan, crystalline solid with a mild, chemical odor. [insecticide]

Chemical & Physical Properties:
MW: 380.9
BP: Decomposes
Sol: Insoluble
Fl.P: NA
IP: ?
Sp.Gr: 1.70
VP: Low
MLT: 392°F (Decomposes)
UEL: NA
LEL: NA Noncombustible Solid, but may be dissolved in flammable liquids.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
1 mg/m^3: CcrOv95/Sa
2 mg/m^3: Sa:Cf/PaprOvHie/ CcrFOv100/GmFOv100/ ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, strong acids, parathion
[**Note:** May emit hydrogen chloride & phosgene when heated or burned.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Epilep convuls; stupor, head, dizz; abdom discomfort, nau, vomit; insom; aggressiveness, conf; drow, lass; anor; in animals: liver damage
TO: CNS, liver

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

E

Enflurane

Formula: $CHF_2OCF_2CHClF**CAS#:** 13838-16-9**RTECS#:** KN6800000**IDLH:** N.D.

Conversion: 1 ppm = 7.55 mg/m^3 **DOT:**

Synonyms/Trade Names: 2-Chloro-1-(difluoromethoxy)-1,1,2-trifluoroethane; 2-Chloro-1,1,2-trifluoroethyl difluoromethyl ether; Ethrane®

Exposure Limits:
NIOSH REL*: C 2 ppm (15.1 mg/m^3) [60-minute]
[***Note:** REL for exposure to waste anesthetic gas.]
OSHA PEL: none

Physical Description: Clear, colorless liquid with a mild, sweet odor. [inhalation anesthetic]

Measurement Methods (see Table 1):
OSHA 29, 103

Chemical & Physical Properties:
MW: 184.5
BP: 134°F
Sol: Low
Fl.P: NA
IP: ?
Sp.Gr(77°F): 1.52
VP: 175 mmHg
FRZ: ?
UEL: NA
LEL: NA
Noncombustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: Prevent eye contact
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: None reported

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes; CNS depres, analgesia, anes, convuls, resp depres
TO: Eyes, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Resp support
Swallow: Medical attention immed

Epichlorohydrin

Formula: C_3H_5OCl **CAS#:** 106-89-8 **RTECS#:** TX4900000 **IDLH:** Ca [75 ppm]

Conversion: 1 ppm = 3.78 mg/m^3 **DOT:** 2023 131P

Synonyms/Trade Names: 1-Chloro-2,3-epoxypropane; 2-Chloropropylene oxide; γ-Chloropropylene oxide

Exposure Limits:
NIOSH REL: Ca
See Appendix A
OSHA PEL†: TWA 5 ppm (19 mg/m^3) [skin]

Physical Description: Colorless liquid with a slightly irritating, chloroform-like odor.

Measurement Methods (see Table 1):
NIOSH 1010
OSHA 7

Chemical & Physical Properties:
MW: 92.5
BP: 242°F
Sol: 7%
Fl.P: 93°F
IP: 10.60 eV
Sp.Gr: 1.18
VP: 13 mmHg
FRZ: -54°F
UEL: 21.0%
LEL: 3.8%
Class IC Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOvAg/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, strong acids, certain salts, caustics, zinc, aluminum, water [**Note:** May polymerize in presence of strong acids and bases, particularly when hot.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin with deep pain; nau, vomit; abdom pain; resp distress, cough; cyan; repro effects; [carc]
TO: Eyes, skin, resp sys, kidneys, liver, repro sys [in animals: nasal cancer]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

EPN	Formula: $C_{14}H_{14}O_4NSP$	CAS#: 2104-64-5	RTECS#: TB1925000	IDLH: 5 mg/m^3
Conversion:	**DOT:**			

Synonyms/Trade Names: Ethyl p-nitrophenyl benzenethionophosphonate, O-Ethyl O-(4-nitrophenyl) phenylphosphonothioate

Exposure Limits:
NIOSH REL: TWA 0.5 mg/m^3 [skin]
OSHA PEL: TWA 0.5 mg/m^3 [skin]

Measurement Methods (see Table 1):
NIOSH 5012

Physical Description: Yellow solid with an aromatic odor. [pesticide]
[**Note:** A brown liquid above 97°F.]

Chemical & Physical Properties:
MW: 323.3
BP: ?
Sol: Insoluble
Fl.P: NA
IP: ?
Sp.Gr(77°F): 1.27
VP(212°F): 0.0003 mmHg
MLT: 97°F
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
5 mg/m^3: Sa/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin; miosis, lac; rhin; head; chest tight, wheez, lar spasm; salv; cyan; anor, nau, abdom cramps, diarr; para, convuls; low BP, card irreg
TO: Eyes, skin, resp sys, CVS, CNS, blood chol

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Ethanolamine	Formula: $NH_2CH_2CH_2OH$	CAS#: 141-43-5	RTECS#: KJ5775000	IDLH: 30 ppm
Conversion: 1 ppm = 2.50 mg/m^3	**DOT:** 2491 153			

Synonyms/Trade Names: 2-Aminoethanol, β-Aminoethyl alcohol, Ethylolamine, 2-Hydroxyethylamine, Monoethanolamine

Exposure Limits:
NIOSH REL: TWA 3 ppm (8 mg/m^3)
ST 6 ppm (15 mg/m^3)
OSHA PEL†: TWA 3 ppm (6 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 2007

Physical Description: Colorless, viscous liquid or solid (below 51°F) with an unpleasant, ammonia-like odor.

Chemical & Physical Properties:
MW: 61.1
BP: 339°F
Sol: Miscible
Fl.P: 186°F
IP: 8.96 eV
Sp.Gr: 1.02
VP: 0.4 mmHg
FRZ: 51°F
UEL: 23.5%
LEL(284°F): 3.0%
Class IIIA Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
30 ppm: CcrS*/GmFS/PaprS*/Sa*/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, strong acids, iron
[**Note:** May attack copper, brass, and rubber.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, resp sys; drow
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush prompt
Breath: Resp support
Swallow: Medical attention immed

E

Ethion	Formula: $[(C_2H_5O)_2P(S)S]_2CH_2$	CAS#: 563-12-2	RTECS#: TE4550000	IDLH: N.D.
Conversion:	DOT:			

Synonyms/Trade Names: O,O,O',O'-Tetraethyl S,S'-methylene di(phosphorodithioate)

Exposure Limits:
NIOSH REL: 0.4 mg/m^3 [skin]
OSHA PEL†: none

Measurement Methods (see Table 1):
NIOSH 5600

Physical Description: Colorless to amber-colored, odorless liquid. [insecticide]
[**Note:** A solid below 10°F. The technical product has a very disagreeable odor.]

Chemical & Physical Properties:
MW: 384.5
BP: >302°F (Decomposes)
Sol: 0.0001%
Fl.P: 349°F
IP: ?
Sp.Gr: 1.22
VP: 0.0000015 mmHg
FRZ: 10°F
UEL: ?
LEL: ?
Class IIIB Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Acids, alkalis

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin; nau, vomit, abdom cramps, diarr, salv; head, dizz, lass; rhin, chest tight; blurred vision, miosis; card irreg; musc fasc; dysp
TO: Eyes, skin, resp sys, CNS, CVS, blood chol

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

2-Ethoxyethanol	Formula: $C_2H_5OCH_2CH_2OH$	CAS#: 110-80-5	RTECS#: KK8050000	IDLH: 500 ppm
Conversion: 1 ppm = 3.69 mg/m^3	DOT: 1171 127			

Synonyms/Trade Names: Cellosolve®, EGEE, Ethylene glycol monoethyl ether

Exposure Limits:
NIOSH REL: TWA 0.5 ppm (1.8 mg/m^3) [skin]
OSHA PEL: TWA 200 ppm (740 mg/m^3) [skin]

Measurement Methods (see Table 1):
NIOSH 1403
OSHA 53, 79

Physical Description: Colorless liquid with a sweet, pleasant, ether-like odor.

Chemical & Physical Properties:
MW: 90.1
BP: 275°F
Sol: Miscible
Fl.P: 110°F
IP: ?
Sp.Gr: 0.93
VP: 4 mmHg
FRZ: -130°F
UEL(200°F): 15.6%
LEL(200°F): 1.7%
Class II Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
5 ppm: Sa*
12.5 ppm: Sa:Cf*
25 ppm: ScbaF/SaF
500 ppm: Sa:Pd,Pp*
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: In animals: irrit eyes, resp sys; blood changes; liver, kidney, lung damage; repro, terato effects
TO: Eyes, resp sys, blood, kidneys, liver, repro sys, hemato sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush prompt
Breath: Resp support
Swallow: Medical attention immed

2-Ethoxyethyl acetate	Formula: $CH_3COOCH_2CH_2OC_2H_5$	CAS#: 111-15-9	RTECS#: KK8225000	IDLH: 500 ppm
Conversion: 1 ppm = 5.41 mg/m^3	**DOT:** 1172 129			

Synonyms/Trade Names: Cellosolve® acetate, EGEEA, Ethylene glycol monoethyl ether acetate, Glycol monoethyl ether acetate

Exposure Limits:
NIOSH REL: TWA 0.5 ppm (2.7 mg/m^3) [skin]
OSHA PEL: TWA 100 ppm (540 mg/m^3) [skin]

Measurement Methods (see Table 1):
NIOSH 1450
OSHA 53

Physical Description: Colorless liquid with a mild odor.

Chemical & Physical Properties:
MW: 132.2
BP: 313°F
Sol: 23%
Fl.P: 124°F
IP: ?
Sp.Gr: 0.98
VP: 2 mmHg
FRZ: -79°F
UEL: ?
LEL: 1.7%
Class II Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
5 ppm: CcrOv*/Sa*
12.5 ppm: Sa:Cf*/PaprOv*
25 ppm: CcrFOv/GmFOv/PaprTOv*/ ScbaF/SaF
500 ppm: Sa:Pd,Pp*
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Nitrates; strong oxidizers, alkalis & acids

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, nose; vomit; kidney damage; para; in animals: repro, terato effects
TO: Eyes, resp sys, GI tract, repro sys, hemato sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush prompt
Breath: Resp support
Swallow: Medical attention immed

Ethyl acetate	Formula: $CH_3COOC_2H_5$	CAS#: 141-78-6	RTECS#: AH5425000	IDLH: 2000 ppm [10%LEL]
Conversion: 1 ppm = 3.60 mg/m^3	**DOT:** 1173 129			

Synonyms/Trade Names: Acetic ester, Acetic ether, Ethyl ester of acetic acid, Ethyl ethanoate

Exposure Limits:
NIOSH REL: TWA 400 ppm (1400 mg/m^3)
OSHA PEL: TWA 400 ppm (1400 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1457
OSHA 7

Physical Description: Colorless liquid with an ether-like, fruity odor.

Chemical & Physical Properties:
MW: 88.1
BP: 171°F
Sol(77°F): 10%
Fl.P: 24°F
IP: 10.01 eV
Sp.Gr: 0.90
VP: 73 mmHg
FRZ: -117°F
UEL: 11.5%
LEL: 2.0%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
2000 ppm: Sa:Cf£/PaprOv£/CcrFOv/ GmFOv/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Nitrates; strong oxidizers, alkalis & acids

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose, throat; narco; derm
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush prompt
Breath: Resp support
Swallow: Medical attention immed

E

Ethyl acrylate

Formula:	CAS#:	RTECS#:	IDLH:
$CH_2=CHCOOC_2H_5$	140-88-5	AT0700000	Ca [300 ppm]

Conversion: 1 ppm = 4.09 mg/m^3

DOT: 1917 129P (inhibited)

Synonyms/Trade Names: Ethyl acrylate (inhibited), Ethyl ester of acrylic acid, Ethyl propenoate

Exposure Limits:
NIOSH REL: Ca
See Appendix A
OSHA PEL†: TWA 25 ppm (100 mg/m^3) [skin]

Measurement Methods (see Table 1):
NIOSH 1450
OSHA 92

Physical Description: Colorless liquid with an acrid odor.

Chemical & Physical Properties:
MW: 100.1
BP: 211°F
Sol: 2%
Fl.P: 48°F
IP: 10.30 eV
Sp.Gr: 0.92
VP: 29 mmHg
FRZ: -96°F
UEL: 14%
LEL: 1.4%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Oxidizers, peroxides, polymerizers, strong alkalis, moisture, chlorosulfonic acid [**Note:** Polymerizes readily unless an inhibitor such as hydroquinone is added.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, resp sys; [carc]
TO: Eyes, skin, resp sys [in animals: tumors of the forestomach]

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

Ethyl alcohol

Formula:	CAS#:	RTECS#:	IDLH:
CH_3CH_2OH	64-17-5	KQ6300000	3300 ppm [10%LEL]

Conversion: 1 ppm = 1.89 mg/m^3

DOT: 1170 127

Synonyms/Trade Names: Alcohol, Cologne spirit, Ethanol, EtOH, Grain alcohol

Exposure Limits:
NIOSH REL: TWA 1000 ppm (1900 mg/m^3)
OSHA PEL: TWA 1000 ppm (1900 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1400
OSHA 100

Physical Description: Clear, colorless liquid with a weak, ethereal, vinous odor.

Chemical & Physical Properties:
MW: 46.1
BP: 173°F
Sol: Miscible
Fl.P: 55°F
IP: 10.47 eV
Sp.Gr: 0.79
VP: 44 mmHg
FRZ: -173°F
UEL: 19%
LEL: 3.3%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
3300 ppm: Sa/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: ScbaE

Incompatibilities and Reactivities: Strong oxidizers, potassium dioxide, bromine pentafluoride, acetyl bromide, acetyl chloride, platinum, sodium

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose; head, drow, lass, narco; cough; liver damage; anemia; repro, terato effects
TO: Eyes, skin, resp sys, CNS, liver, blood, repro sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush prompt
Breath: Fresh air
Swallow: Medical attention immed

Ethylamine	**Formula:** $CH_3CH_2NH_2$	**CAS#:** 75-04-7	**RTECS#:** KH2100000	**IDLH:** 600 ppm
Conversion: 1 ppm = 1.85 mg/m^3	**DOT:** 1036 118			

Synonyms/Trade Names: Aminoethane, Ethylamine (anhydrous), Monoethylamine

Exposure Limits:
NIOSH REL: TWA 10 ppm (18 mg/m^3)
OSHA PEL: TWA 10 ppm (18 mg/m^3)

Physical Description: Colorless gas or water-white liquid (below 62°F) with an ammonia-like odor. [**Note:** Shipped as a liquefied compressed gas.]

Measurement Methods (see Table 1):
NIOSH S144 (II-3)
OSHA 36

Chemical & Physical Properties:
MW: 45.1
BP: 62°F
Sol: Miscible
Fl.P: 1°F
IP: 8.86 eV
RGasD: 1.61
Sp.Gr: 0.69 (Liquid)
VP: 874 mmHg
FRZ: -114°F
UEL: 14.0%
LEL: 3.5%
Flammable Gas

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact (liquid)
Eyes: Prevent eye contact (liquid)
Wash skin: When contam (liquid)
Remove: When wet or contam (liquid)
Change: N.R.
Provide: Eyewash (liquid)
Quick drench (liquid)

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
250 ppm: Sa:Cf£/PaprS£
500 ppm: CcrFS/GmFS/ScbaF/SaF
600 ppm: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS/ScbaE

Incompatibilities and Reactivities: Strong acids; strong oxidizers; copper, tin & zinc in presence of moisture; cellulose nitrate; chlorine; hypochlorites

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs (liquid), Ing (liquid), Con (liquid)
SY: Irrit eyes, skin, resp sys; skin burns, derm
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed (liquid)
Skin: Water flush immed (liquid)
Breath: Resp support
Swallow: Medical attention immed (liquid)

Ethyl benzene	**Formula:** $CH_3CH_2C_6H_5$	**CAS#:** 100-41-4	**RTECS#:** DA0700000	**IDLH:** 800 ppm [10%LEL]
Conversion: 1 ppm = 4.34 mg/m^3	**DOT:** 1175 130			

Synonyms/Trade Names: Ethylbenzol, Phenylethane

Exposure Limits:
NIOSH REL: TWA 100 ppm (435 mg/m^3)
ST 125 ppm (545 mg/m^3)
OSHA PEL†: TWA 100 ppm (435 mg/m^3)

Physical Description: Colorless liquid with an aromatic odor.

Measurement Methods (see Table 1):
NIOSH 1501
OSHA 7, 1002

Chemical & Physical Properties:
MW: 106.2
BP: 277°F
Sol: 0.01%
Fl.P: 55°F
IP: 8.76 eV
Sp.Gr: 0.87
VP: 7 mmHg
FRZ: -139°F
UEL: 6.7%
LEL: 0.8%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
800 ppm: CcrOv*/GmFOv/PaprOv*/Sa*/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, muc memb; head; derm; narco, coma
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush prompt
Breath: Resp support
Swallow: Medical attention immed

E

Ethyl bromide	Formula: CH_3CH_2Br	CAS#: 74-96-4	RTECS#: KH6475000	IDLH: 2000 ppm
Conversion: 1 ppm = 4.46 mg/m^3	**DOT:** 1891 131			

Synonyms/Trade Names: Bromoethane, Monobromoethane

Exposure Limits:
NIOSH REL: See Appendix D
OSHA PEL†: TWA 200 ppm (890 mg/m^3)

Physical Description: Colorless to yellow liquid with an ether-like odor.
[**Note:** A gas above 101°F.]

Measurement Methods (see Table 1):
NIOSH 1011
OSHA 7

Chemical & Physical Properties:
MW: 109.0
BP: 101°F
Sol: 0.9%
Fl.P: <4°F
IP: 10.29 eV
Sp.Gr: 1.46
VP: 375 mmHg
FRZ: -182°F
UEL: 8.0%
LEL: 6.8%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
OSHA
2000 ppm: Sa/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Chemically-active metals such as sodium, potassium, calcium, powdered aluminum, zinc & magnesium

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, resp sys; CNS depres; pulm edema; liver, kidney disease; card arrhy, card arrest
TO: Eyes, skin, resp sys, liver, kidneys, CVS, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap flush prompt
Breath: Resp support
Swallow: Medical attention immed

Ethyl butyl ketone	Formula: $CH_3CH_2CO[CH_2]_3CH_3$	CAS#: 106-35-4	RTECS#: MJ5250000	IDLH: 1000 ppm
Conversion: 1 ppm = 4.67 mg/m^3	**DOT:** 1224 127			

Synonyms/Trade Names: Butyl ethyl ketone, 3-Heptanone

Exposure Limits:
NIOSH REL: TWA 50 ppm (230 mg/m^3)
OSHA PEL: TWA 50 ppm (230 mg/m^3)

Physical Description: Colorless liquid with a powerful, fruity odor.

Measurement Methods (see Table 1):
NIOSH 1301, 2553
OSHA 7

Chemical & Physical Properties:
MW: 114.2
BP: 298°F
Sol: 1%
Fl.P(oc): 115°F
IP: 9.02 eV
Sp.Gr: 0.82
VP: 4 mmHg
FRZ: -38°F
UEL: ?
LEL: ?
Class II Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
500 ppm: CcrOv*/Sa*
1000 ppm: Sa:Cf*/PaprOv*/CcrFOv/GmFOv/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Oxidizers, acetaldehyde, perchloric acid

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, muc memb; head, narco, coma; derm
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush
Breath: Resp support
Swallow: Medical attention immed

Ethyl chloride	Formula: CH_3CH_2Cl	CAS#: 75-00-3	RTECS#: KH7525000	IDLH: 3800 ppm [10%LEL]
Conversion: 1 ppm = 2.64 mg/m^3	**DOT:** 1037 115			

Synonyms/Trade Names: Chloroethane, Hydrochloric ether, Monochloroethane, Muriatic ether

Exposure Limits:
NIOSH REL: Handle with caution in the workplace.
See Appendix C (Chloroethanes)
OSHA PEL: TWA 1000 ppm (2600 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 2519

Physical Description: Colorless gas or liquid (below 54°F) with a pungent, ether-like odor. [**Note:** Shipped as a liquefied compressed gas.]

Chemical & Physical Properties:
MW: 64.5
BP: 54°F
Sol: 0.6%
Fl.P: NA (Gas)
-58°F (Liquid)
IP: 10.97 eV
RGasD: 2.23
Sp.Gr: 0.92 (Liquid at 32°F)
VP: 1000 mmHg
FRZ: -218°F
UEL: 15.4%
LEL: 3.8%
Flammable Gas

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact (liquid)
Eyes: Prevent eye contact (liquid)
Wash skin: N.R.
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
OSHA
3800 ppm: Sa*/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Chemically-active metals such as sodium, potassium, calcium, powdered aluminum, zinc & magnesium; oxidizers; water or steam [**Note:** Reacts with water to form hydrochloric acid.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs (liquid), Ing (liquid), Con
SY: Inco, inebri; abdom cramps; card arrhy, card arrest; liver, kidney damage
TO: Liver, kidneys, resp sys, CVS, CNS

First Aid (see Table 6):
Eye: Irr immed (liquid)
Skin: Water flush prompt (liquid)
Breath: Resp support
Swallow: Medical attention immed (liquid)

Ethylene chlorohydrin	Formula: CH_2ClCH_2OH	CAS#: 107-07-3	RTECS#: KK0875000	IDLH: 7 ppm
Conversion: 1 ppm = 3.29 mg/m^3	**DOT:** 1135 131			

Synonyms/Trade Names: 2-Chloroethanol, 2-Chloroethyl alcohol, Ethylene chlorhydrin

Exposure Limits:
NIOSH REL: C 1 ppm (3 mg/m^3) [skin]
OSHA PEL†: TWA 5 ppm (16 mg/m^3) [skin]

Measurement Methods (see Table 1):
NIOSH 2513
OSHA 7

Physical Description: Colorless liquid with a faint, ether-like odor.

Chemical & Physical Properties:
MW: 80.5
BP: 262°F
Sol: Miscible
Fl.P: 140°F
IP: 10.90 eV
Sp.Gr: 1.20
VP: 5 mmHg
FRZ: -90°F
UEL: 15.9%
LEL: 4.9%
Class IIIA Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
7 ppm: Sa*/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, strong caustics, water or steam

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit muc memb; nau, vomit; dizz, inco; numb; vis dist; head; thirst; delirium; low BP; collapse, shock, coma; liver, kidney damage
TO: Resp sys, liver, kidneys, CNS, CVS, eyes

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

E

Ethylenediamine

Formula: $NH_2CH_2CH_2NH_2$ | **CAS#:** 107-15-3 | **RTECS#:** KH8575000 | **IDLH:** 1000 ppm

Conversion: 1 ppm = 2.46 mg/m^3 | **DOT:** 1604 132

Synonyms/Trade Names: 1,2-Diaminoethane; 1,2-Ethanediamine; Ethylenediamine (anhydrous)

Exposure Limits:
NIOSH REL: TWA 10 ppm (25 mg/m^3)
OSHA PEL: TWA 10 ppm (25 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 2540
OSHA 60

Physical Description: Colorless, viscous liquid with an ammonia-like odor. [fungicide] [**Note:** A solid below 47°F.]

Chemical & Physical Properties:
MW: 60.1
BP: 241°F
Sol: Miscible
Fl.P: 93°F
IP: 8.60 eV
Sp.Gr: 0.91
VP: 11 mmHg
FRZ: 47°F
UEL(212°F): 12%
LEL(212°F): 2.5%
Class IC Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet (flamm)
Change: N.R.
Provide: Eyewash (>5%)
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
250 ppm: Sa:Cf£/PaprS£
500 ppm: CcrFS/GmFS/PaprTS£/ ScbaF/SaF
1000 ppm: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS/ScbaE

Incompatibilities and Reactivities: Strong acids & oxidizers, carbon tetrachloride & other chlorinated organic compounds, carbon disulfide [**Note:** Corrosive to metals.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit nose, resp sys; sens derm; asthma; liver, kidney damage
TO: Skin, resp sys, liver, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

Ethylene dibromide

Formula: $BrCH_2CH_2Br$ | **CAS#:** 106-93-4 | **RTECS#:** KH9275000 | **IDLH:** Ca [100 ppm]

Conversion: 1 ppm = 7.69 mg/m^3 | **DOT:** 1605 154

Synonyms/Trade Names: 1,2-Dibromoethane; Ethylene bromide; Glycol dibromide

Exposure Limits:
NIOSH REL: Ca
TWA 0.045 ppm
C 0.13 ppm [15-minute]
See Appendix A
OSHA PEL: TWA 20 ppm
C 30 ppm
50 ppm [5-minute maximum peak]

Measurement Methods (see Table 1):
NIOSH 1008
OSHA 2

Physical Description: Colorless liquid or solid (below 50°F) with a sweet odor. [fumigant]

Chemical & Physical Properties:
MW: 187.9
BP: 268°F
Sol: 0.4%
Fl.P: NA
IP: 9.45 eV
Sp.Gr: 2.17
VP: 12 mmHg
FRZ: 50°F
UEL: NA
LEL: NA
Noncombustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Chemically-active metals such as sodium, potassium, calcium, hot aluminum & magnesium; liquid ammonia; strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, resp sys; derm with vesic; liver, heart, spleen, kidney damage; repro effects; [carc]
TO: Eyes, skin, resp sys, liver, kidneys, repro sys [in animals: skin & lung tumors]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Ethylene dichloride	Formula: $ClCH_2CH_2Cl$	CAS#: 107-06-2	RTECS#: KI0525000	IDLH: Ca [50 ppm]
Conversion: 1 ppm = 4.05 mg/m^3	**DOT:** 1184 131			

Synonyms/Trade Names: 1,2-Dichloroethane; Ethylene chloride; Glycol dichloride

Exposure Limits:
NIOSH REL: Ca
TWA 1 ppm (4 mg/m^3)
ST 2 ppm (8 mg/m^3)
See Appendix A,
See Appendix C (Chloroethanes)
OSHA PEL†: TWA 50 ppm
C 100 ppm
200 ppm [5-minute maximum peak in any 3 hours]

Measurement Methods (see Table 1):
NIOSH 1003
OSHA 3

Physical Description: Colorless liquid with a pleasant, chloroform-like odor. [**Note:** Decomposes slowly, becomes acidic & darkens in color.]

Chemical & Physical Properties:
MW: 99.0
BP: 182°F
Sol: 0.9%
Fl.P: 56°F
IP: 11.05 eV
Sp.Gr: 1.24
VP: 64 mmHg
FRZ: -32°F
UEL: 16%
LEL: 6.2%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers & caustics; chemically-active metals such as magnesium or aluminum powder, sodium & potassium; liquid ammonia [**Note:** Decomposes to vinyl chloride & HCl above 1112°F.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Abs, Con
SY: Irrit eyes, corn opac; CNS depres; nau, vomit; derm; liver, kidney, CVS damage; [carc]
TO: Eyes, skin, kidneys, liver, CNS, CVS [in animals: forestomach, mammary gland & circulatory sys cancer]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

Ethylene glycol	Formula: $HOCH_2CH_2OH$	CAS#: 107-21-1	RTECS#: KW2975000	IDLH: N.D.
Conversion:	**DOT:**			

Synonyms/Trade Names: 1,2-Dihydroxyethane; 1,2-Ethanediol; Glycol; Glycol alcohol; Monoethylene glycol

Exposure Limits:
NIOSH REL: See Appendix D
OSHA PEL†: none

Measurement Methods (see Table 1):
NIOSH 5523
OSHA PV2024

Physical Description: Clear, colorless, syrupy, odorless liquid. [antifreeze] [**Note:** A solid below 9°F.]

Chemical & Physical Properties:
MW: 62.1
BP: 388°F
Sol: Miscible
Fl.P: 232°F
IP: ?
Sp.Gr: 1.11
VP: 0.06 mmHg
FRZ: 9°F
UEL: 15.3%
LEL: 3.2%
Class IIIB Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Strong oxidizers, chromium trioxide, potassium permanganate, sodium peroxide
[**Note:** Hygroscopic (i.e., absorbs moisture from the air).]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose, throat; nau, vomit, abdom pain, lass; dizz, stupor, convuls, CNS depres; skin sens
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water wash immed
Breath: Resp support
Swallow: Medical attention immed

E

Ethylene glycol dinitrate

Formula: $O_2NOCH_2CH_2ONO_2$ | **CAS#:** 628-96-6 | **RTECS#:** KW5600000 | **IDLH:** 75 mg/m^3

Conversion: 1 ppm = 6.22 mg/m^3 | **DOT:**

Synonyms/Trade Names: EGDN; 1,2-Ethanediol dinitrate; Ethylene dinitrate; Ethylene nitrate; Glycol dinitrate; Nitroglycol

Exposure Limits:
NIOSH REL: ST 0.1 mg/m^3 [skin]
OSHA PEL†: C 0.2 ppm (1 mg/m^3) [skin]

Physical Description: Colorless to yellow, oily, odorless liquid. [**Note:** An explosive ingredient (60-80%) in dynamite along with nitroglycerine (40-20%).]

Measurement Methods (see Table 1):
NIOSH 2507
OSHA 43

Chemical & Physical Properties:
MW: 152.1
BP: 387°F
Sol: Insoluble
Fl.P: 419°F
IP: ?
Sp.Gr: 1.49
VP: 0.05 mmHg
FRZ: -8°F
UEL: ?
LEL: ?
Explosive Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: Daily
Provide: Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
1 mg/m^3: Sa*
2.5 mg/m^3: Sa:Cf*
5 mg/m^3: SaT:Cf*/ScbaF/SaF
75 mg/m^3: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Acids, alkalis

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Throb head; dizz; nau, vomit, abdom pain; hypotension, flush, palp, angina; methemo; delirium, CNS depres; irrit skin; in animals: anemia; liver, kidney damage
TO: Skin, CVS, blood, liver, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Ethyleneimine

Formula: C_2H_5N | **CAS#:** 151-56-4 | **RTECS#:** KX5075000 | **IDLH:** Ca [100 ppm]

Conversion: 1 ppm = 1.76 mg/m^3 | **DOT:** 1185 131P (inhibited)

Synonyms/Trade Names: Aminoethylene, Azirane, Aziridine, Dimethyleneimine, Dimethylenimine, Ethylenimine, Ethylimine

Exposure Limits:
NIOSH REL: Ca
See Appendix A
OSHA PEL: [1910.1012] See Appendix B

Physical Description: Colorless liquid with an ammonia-like odor. [**Note:** Usually contains inhibitors to prevent polymerization.]

Measurement Methods (see Table 1):
NIOSH 3514

Chemical & Physical Properties:
MW: 43.1
BP: 133°F
Sol: Miscible
Fl.P: 12°F
IP: 9.20 eV
Sp.Gr: 0.83
VP: 160 mmHg
FRZ: -97°F
UEL: 54.8%
LEL: 3.3%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

See Appendix E (page 351)

Incompatibilities and Reactivities: Polymerizes explosively in presence of acids [**Note:** Explosive silver derivatives may be formed with silver alloys (e.g., silver solder).]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, nose, throat; nau, vomit; head, dizz; pulm edema; liver, kidney damage; eye burns; skin sens; [carc]
TO: Eyes, skin, resp sys, liver, kidneys [in animals: lung & liver tumors]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Ethylene oxide

Formula: C_2H_4O | **CAS#:** 75-21-8 | **RTECS#:** KX2450000 | **IDLH:** Ca [800 ppm]

Conversion: 1 ppm = 1.80 mg/m^3 | **DOT:** 1040 119P

Synonyms/Trade Names: Dimethylene oxide; 1,2-Epoxy ethane; Oxirane

Exposure Limits:
NIOSH REL: Ca
TWA <0.1 ppm (0.18 mg/m^3)
C 5 ppm (9 mg/m^3) [10-min/day]
See Appendix A
OSHA PEL: [1910.1047] TWA 1 ppm
5 ppm [15-minute Excursion]

Measurement Methods (see Table 1):
NIOSH 1614, 3800
OSHA 30, 49, 50

Physical Description: Colorless gas or liquid (below 51°F) with an ether-like odor.

Chemical & Physical Properties:
MW: 44.1
BP: 51°F
Sol: Miscible
Fl.P: NA (Gas)
-20°F (Liquid)
IP: 10.56 eV
RGasD: 1.49
Sp.Gr: 0.82 (Liquid at 50°F)
VP: 1.46 atm
FRZ: -171°F
UEL: 100%
LEL: 3.0%
Flammable Gas

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact (liquid)
Eyes: Prevent eye contact (liquid)
Wash skin: When contam (liquid)
Remove: When wet (flamm)
Change: N.R.
Provide: Quick drench (liquid)

Respirator Recommendations (see Tables 3 and 4):
NIOSH
5 ppm: GmFS†/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS†/ScbaE

See Appendix E (page 351)

Incompatibilities and Reactivities: Strong acids, alkalis & oxidizers; chlorides of iron, aluminum & tin; oxides of iron & aluminum; water

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, (liquid), Con
SY: Irrit eyes, skin, nose, throat; peculiar taste; head; nau, vomit, diarr; dysp, cyan, pulm edema; drow, lass, inco; EKG abnor; eye, skin burns (liq or high vap conc); liquid: frostbite; repro effects; [carc]; in animals: convuls; liver, kidney damage
TO: Eyes, skin, resp sys, liver, CNS, blood, kidneys, repro sys [peritoneal cancer, leukemia]

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed (liquid)

Ethylene thiourea

Formula: $C_3H_6N_2S$ | **CAS#:** 96-45-7 | **RTECS#:** NI9625000 | **IDLH:** Ca [N.D.]

Conversion: | **DOT:**

Synonyms/Trade Names: 1,3-Ethylene-2-thiourea; N,N-Ethylenethiourea; ETU; 2-Imidazolidine-2-thione

Exposure Limits:
NIOSH REL: Ca
Use encapsulated form.
See Appendix A
OSHA PEL: none

Measurement Methods (see Table 1):
NIOSH 5011
OSHA 95

Physical Description: White to pale-green, crystalline solid with a faint, amine odor. [**Note:** Used as an accelerator in the curing of polychloroprene & other elastomers.]

Chemical & Physical Properties:
MW: 102.2
BP: 446-595°F
Sol(86°F): 2%
Fl.P: 486°F
IP: 8.15 eV
Sp.Gr: ?
VP: 16 mmHg
MLT: 392°F
UEL: ?
LEL: ?
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Acrolein

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes; in animals: thickening of the skin; goiter; terato effects; [carc]
TO: Eyes, skin, thyroid, repro sys [in animals: liver, thyroid & lymphatic sys tumors]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

E

Ethyl ether	Formula: $C_2H_5OC_2H_5$	CAS#: 60-29-7	RTECS#: KI5775000	IDLH: 1900 ppm [10%LEL]
Conversion: 1 ppm = 3.03 mg/m^3	**DOT:** 1155 127			

Synonyms/Trade Names: Diethyl ether, Diethyl oxide, Ethyl oxide, Ether, Solvent ether

Exposure Limits:
NIOSH REL: See Appendix D
OSHA PEL†: TWA 400 ppm (1200 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1610
OSHA 7

Physical Description: Colorless liquid with a pungent, sweetish odor.
[**Note:** A gas above 94°F.]

Chemical & Physical Properties:
MW: 74.1
BP: 94°F
Sol: 8%
Fl.P: -49°F
IP: 9.53 eV
Sp.Gr: 0.71
VP: 440 mmHg
FRZ: -177°F
UEL: 36.0%
LEL: 1.9%
Class IA Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: N.R.
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
OSHA
1900 ppm: CcrOv*/GmFOv/PaprOv*/Sa*/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, halogens, sulfur, sulfur compounds
[**Note:** Tends to form explosive peroxides under influence of air and light.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, upper resp sys; dizz, drow, head, excited, narco; nau, vomit
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water wash prompt
Breath: Resp support
Swallow: Medical attention immed

Ethyl formate	Formula: CH_3CH_2OCHO	CAS#: 109-94-4	RTECS#: LQ8400000	IDLH: 1500 ppm
Conversion: 1 ppm = 3.03 mg/m^3	**DOT:** 1190 129			

Synonyms/Trade Names: Ethyl ester of formic acid, Ethyl methanoate

Exposure Limits:
NIOSH REL: TWA 100 ppm (300 mg/m^3)
OSHA PEL: TWA 100 ppm (300 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1452
OSHA 7

Physical Description: Colorless liquid with a fruity odor.

Chemical & Physical Properties:
MW: 74.1
BP: 130°F
Sol(64°F): 9%
Fl.P: -4°F
IP: 10.61 eV
Sp.Gr: 0.92
VP: 200 mmHg
FRZ: -113°F
UEL: 16.0%
LEL: 2.8%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
1500 ppm: Sa:Cf£/PaprOv£/CcrFOv/GmFOv/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Nitrates; strong oxidizers, alkalis & acids
[**Note:** Decomposes slowly in water to form ethyl alcohol and formic acid.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, upper resp sys; in animals: narco
TO: Eyes, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

Ethylidene norbornene	Formula: C_9H_{12}	CAS#: 16219-75-3	RTECS#: RB9450000	IDLH: N.D.
Conversion: 1 ppm = 4.92 mg/m^3	**DOT:**			

Synonyms/Trade Names: ENB, 5-Ethylidenebicyclo(2.2.1)hept-2-ene, 5-Ethylidene-2-norbornene
[**Note:** Due to its reactivity, ENB may be stabilized with tert-butyl catechol.]

Exposure Limits:
NIOSH REL: C 5 ppm (25 mg/m^3)
OSHA PEL†: none

Measurement Methods (see Table 1):
None available

Physical Description: Colorless to white liquid with a turpentine-like odor.

Chemical & Physical Properties:
MW: 120.2
BP: 298°F
Sol: ?
Fl.P(oc): 101°F
IP: ?
Sp.Gr: 0.90
VP: 4 mmHg
FRZ: -112°F
UEL: ?
LEL: ?
Class II Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: Daily
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Oxygen
[**Note:** ENB should be stored in a nitrogen atmosphere since it reacts with oxygen.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, nose, throat; head; cough, dysp; nau, vomit; olfactory, taste changes; chemical pneu (aspir liquid); in animals: liver, kidney, urogenital inj; bone marrow effects
TO: Eyes, skin, resp sys, CNS, liver, kidneys, urogenital system, bone marrow

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Ethyl mercaptan	Formula: CH_3CH_2SH	CAS#: 75-08-1	RTECS#: KI9625000	IDLH: 500 ppm
Conversion: 1 ppm = 2.54 mg/m^3	**DOT:** 2363 129			

Synonyms/Trade Names: Ethanethiol, Ethyl sulfhydrate, Mercaptoethane

Exposure Limits:
NIOSH REL: C 0.5 ppm (1.3 mg/m^3) [15-minute]
OSHA PEL†: C 10 ppm (25 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 2542

Physical Description: Colorless liquid with a strong, skunk-like odor.
[**Note:** A gas above 95°F.]

Chemical & Physical Properties:
MW: 62.1
BP: 95°F
Sol: 0.7%
Fl.P: -55°F
IP: 9.29 eV
Sp.Gr: 0.84
VP: 442 mmHg
FRZ: -228°F
UEL: 18.0%
LEL: 2.8%
Class IA Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
5 ppm: CcrOv/Sa
12.5 ppm: Sa:Cf/PaprOv
25 ppm: CcrFOv/GmFOv/SaT:Cf/PaprTOv/ ScbaF/SaF
500 ppm: Sa:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers [**Note:** Reacts violently with calcium hypochlorite.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit muc memb; head, nau; in animals: inco, lass; liver, kidney damage; cyan; narco
TO: Eyes, resp sys, liver, kidneys, blood

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

E

N-Ethylmorpholine

Formula: $C_4H_8ONCH_2CH_3$ | **CAS#:** 100-74-3 | **RTECS#:** QE4025000 | **IDLH:** 100 ppm

Conversion: 1 ppm = 4.71 mg/m^3 | **DOT:**

Synonyms/Trade Names: 4-Ethylmorpholine

Exposure Limits:
NIOSH REL: TWA 5 ppm (23 mg/m^3) [skin]
OSHA PEL†: TWA 20 ppm (94 mg/m^3) [skin]

Measurement Methods (see Table 1):
NIOSH S146 (II-3)

Physical Description: Colorless liquid with an ammonia-like odor.

Chemical & Physical Properties:
MW: 115.2
BP: 281°F
Sol: Miscible
Fl.P(oc): 90°F
IP: ?
Sp.Gr: 0.90
VP: 6 mmHg
FRZ: -81°F
UEL: ?
LEL: ?
Class IC Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.
Provide: Eyewash (>15%)
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
50 ppm: CcrOv*/Sa*
100 ppm: Sa:Cf*/PaprOv*/CcrFOv/GmFOv/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong acids, strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, nose, throat; vis dist: corn edema, blue-gray vision, colored haloes
TO: Eyes, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush prompt
Breath: Resp support
Swallow: Medical attention immed

Ethyl silicate

Formula: $(C_2H_5)_4SiO_4$ | **CAS#:** 78-10-4 | **RTECS#:** VV9450000 | **IDLH:** 700 ppm

Conversion: 1 ppm = 8.52 mg/m^3 | **DOT:** 1292 129

Synonyms/Trade Names: Ethyl orthosilicate, Ethyl silicate (condensed), Tetraethoxysilane, Tetraethyl orthosilicate, Tetraethyl silicate

Exposure Limits:
NIOSH REL: TWA 10 ppm (85 mg/m^3)
OSHA PEL†: TWA 100 ppm (850 mg/m^3)

Measurement Methods (see Table 1):
NIOSH S264 (II-3)

Physical Description: Colorless liquid with a sharp, alcohol-like odor.

Chemical & Physical Properties:
MW: 208.3
BP: 336°F
Sol: Reacts
Fl.P: 99°F
IP: 9.77 eV
Sp.Gr: 0.93
VP: 1 mmHg
FRZ: -117°F
UEL: ?
LEL: ?
Class IC Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
100 ppm: Sa*
250 ppm: Sa:Cf*
500 ppm: ScbaF/SaF
700 ppm: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, water
[**Note:** Reacts with water to form a silicone adhesive (a milky-white mass).]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, nose; in animals: lac; dysp, pulm edema; tremor, narco; liver, kidney damage; anemia
TO: Eyes, resp sys, liver, kidneys, blood, skin

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

Fenamiphos	**Formula:** $C_{13}H_{22}NO_3PS$	**CAS#:** 22224-92-6	**RTECS#:** TB3675000	**IDLH:** N.D.
Conversion:	**DOT:**			

Synonyms/Trade Names: Ethyl 3-methyl-4-(methylthio)phenyl-(1-methylethyl)phosphoramidate, Nemacur®, Phenamiphos

Exposure Limits:
NIOSH REL: TWA 0.1 mg/m^3 [skin]
OSHA PEL†: none

Measurement Methods (see Table 1):
NIOSH 5600

Physical Description: Off-white to tan, waxy solid. [insecticide]
[**Note:** Found commercially as a granular ingredient (5-15%) or in an emulsifiable concentrate (400 g/l).]

Chemical & Physical Properties:
MW: 303.4
BP: ?
Sol: 0.03%
Fl.P: ?
IP: ?
Sp.Gr: 1.14
VP: 0.00005 mmHg
MLT: 121°F
UEL: ?
LEL: ?

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily
Provide: Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: None reported [**Note:** May hydrolyze under alkaline conditions.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Nau, vomit, abdom cramps, diarr, salv; head, dizz, lass; rhin, chest tight; blurred vision, miosis; card irreg; musc fasc; dysp
TO: Resp sys, CNS, CVS, blood chol

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap flush immed
Breath: Resp support
Swallow: Medical attention immed

Fensulfothion	**Formula:** $C_{11}H_{17}O_4PS_2$	**CAS#:** 115-90-2	**RTECS#:** TF3850000	**IDLH:** N.D.
Conversion:	**DOT:**			

Synonyms/Trade Names: Dasanit®; O,O-Diethyl O-(p-methylsulfinyl)phenyl)phosphorothioate; Terracur P®

Exposure Limits:
NIOSH REL: TWA 0.1 mg/m^3
OSHA PEL†: none

Measurement Methods (see Table 1):
None available

Physical Description: Brown liquid or yellow oil. [pesticide]

Chemical & Physical Properties:
MW: 308.4
BP: ?
Sol(77°F): 0.2%
Fl.P: ?
IP: ?
Sp.Gr: 1.20
VP: ?
FRZ: ?
UEL: ?
LEL: ?
Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Alkalis

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit skin; nau, vomit, abdom cramps, diarr, salv; head, dizz, lass; rhin, chest tight; blurred vision, miosis; card irreg; musc fasc; dys
TO: Skin, resp sys, CNS, CVS, blood chol

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap flush immed
Breath: Resp support
Swallow: Medical attention immed

F

F

Fenthion	Formula: $C_{10}H_{15}O_3PS$	CAS#: 55-38-9	RTECS#: TF9625000	IDLH: N.D.
Conversion:	DOT:			

Synonyms/Trade Names: Baytex; Entex; O,O-Dimethyl O-3-methyl-4-methylthiophenyl phosphorothioate

Exposure Limits:
NIOSH REL: See Appendix D
OSHA PEL†: none

Measurement Methods (see Table 1):
None available

Physical Description: Colorless to brown liquid with a slight, garlic-like odor. [insecticide]

Chemical & Physical Properties:
MW: 278.3
BP: ?
Sol: 0.006%
Fl.P: NA
IP: ?
Sp.Gr: 1.25
VP: 0.0003 mmHg
FRZ: 43°F
UEL: NA
LEL: NA
Noncombustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Nau, vomit, abdom cramps, diarr, salv; head, dizz, lass; rhin, chest tight; blurred vision, miosis; card irregularities; musc fasc; dysp
TO: Resp sys, CNS, CVS, plasma chol

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap flush immed
Breath: Resp support
Swallow: Medical attention immed

Ferbam	Formula: $[(CH_3)_2NCS_2]_3Fe$	CAS#: 14484-64-1	RTECS#: NO8750000	IDLH: 800 mg/m^3
Conversion:	DOT:			

Synonyms/Trade Names: tris(Dimethyldithiocarbamato)iron, Ferric dimethyl dithiocarbamate

Exposure Limits:
NIOSH REL: TWA 10 mg/m^3
OSHA PEL†: TWA 15 mg/m^3

Measurement Methods (see Table 1):
NIOSH 0500

Physical Description: Dark brown to black, odorless solid. [fungicide]

Chemical & Physical Properties:
MW: 416.5
BP: Decomposes
Sol: 0.01%
Fl.P: ?
IP: 7.72 eV
Sp.Gr: ?
VP: 0 mmHg (approx)
MLT: >356°F (Decomposes)
UEL: ?
LEL: ?
MEC: 55 g/m^3
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH
50 mg/m^3: Qm
100 mg/m^3: 95XQ*/Sa*
250 mg/m^3: Sa:Cf*/PaprHie*
500 mg/m^3: 100F/SaT:Cf*/PaprTHie*/ ScbaF/SaF
800 mg/m^3: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, moisture

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, resp tract; derm; GI dist
TO: Eyes, skin, resp sys, GI tract

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

Ferrovanadium dust	**Formula:** FeV	**CAS#:** 12604-58-9	**RTECS#:** LK2900000	**IDLH:** 500 mg/m^3
Conversion:	**DOT:**			

Synonyms/Trade Names: Ferrovanadium

Exposure Limits:
NIOSH REL*: TWA 1 mg/m^3
ST 3 mg/m^3
[***Note:** The REL also applies to Vanadium metal and Vanadium carbide.]
OSHA PEL†: TWA 1 mg/m^3

Measurement Methods (see Table 1):
OSHA ID121, ID125G

Physical Description: Dark, odorless particulate dispersed in air.
[**Note:** Ferrovanadium metal is an alloy usually containing 50-80% vanadium.]

Chemical & Physical Properties:
MW: 106.8
BP: ?
Sol: Insoluble
Fl.P: NA
IP: NA
Sp.Gr: ?
VP: 0 mmHg (approx)
MLT: 2696-2768°F
UEL: NA
LEL: NA
MEC: 1.3 g/m^3
Metal: Noncombustible Solid, but dust may be an explosion hazard.

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
5 mg/m^3: Qm*
10 mg/m^3: 95XQ*/Sa*
25 mg/m^3: Sa:Cf*/PaprHie*
50 mg/m^3: 100F/SaT:Cf*/PaprTHie*/ScbaF/SaF
500 mg/m^3: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Irrit eyes, resp sys; in animals: bron, pneu
TO: Eyes, resp sys

First Aid (see Table 6):
Eye: Irr immed
Breath: Resp support

Fibrous glass dust	**Formula:**	**CAS#:**	**RTECS#:** LK3651000	**IDLH:** N.D.
Conversion:	**DOT:**			

Synonyms/Trade Names: Fiber glas®, Fiberglass, Glass fibers, Glass wool
[**Note:** Usually produced from borosilicate & low alkali silicate glasses.]

Exposure Limits:
NIOSH REL: TWA 3 fibers/cm^3 (fibers ≤ 3.5 µm in diameter & ≤ 10 µm in length)
TWA 5 mg/m^3 (total)
OSHA PEL: TWA 15 mg/m3 (total)
TWA 5 mg/m^3 (resp)

Measurement Methods (see Table 1):
NIOSH 7400

Physical Description: Typically, glass filaments >3 µm in diameter or glass "wool" with diameters down to 0.05 µm & >1 µm in length.

Chemical & Physical Properties:
MW: NA
BP: NA
Sol: Insoluble
Fl.P: NA
IP: NA
Sp.Gr: 2.5
VP: 0 mmHg (approx)
MLT: ?
UEL: NA
LEL: NA
Noncombustible Fibers

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: Daily
Remove: N.R.
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH
5X REL: Qm
10X REL: 95XQ/Sa
25X REL: Sa:Cf/PaprHie
50X REL: 100F/PaprTHie/ScbaF/SaF
1000X REL: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: None reported

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Irrit eyes, skin, nose, throat; dysp
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Breath: Fresh air

F

Fluorine	**Formula:** F_2	**CAS#:** 7782-41-4	**RTECS#:** LM6475000	**IDLH:** 25 ppm
Conversion: 1 ppm = 1.55 mg/m^3	**DOT:** 1045 124; 9192 167 (cryogenic liquid)			

Synonyms/Trade Names: Fluorine-19

Exposure Limits:
NIOSH REL: TWA 0.1 ppm (0.2 mg/m^3)
OSHA PEL: TWA 0.1 ppm (0.2 mg/m^3)

Measurement Methods (see Table 1):
None available

Physical Description: Pale-yellow to greenish gas with a pungent, irritating odor.

Chemical & Physical Properties:
MW: 38.0
BP: -307°F
Sol: Reacts
Fl.P: NA
IP: 15.70 eV
RGasD: 1.31
VP: >1 atm
FRZ: -363°F
UEL: NA
LEL: NA
Nonflammable Gas, but an extremely strong oxidizer.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact (liquid)
Eyes: Prevent eye contact (liquid)
Wash skin: When contam (liquid)
Remove: When wet or contam (liquid)
Change: N.R.
Provide: Eyewash (liquid)
Quick drench (liquid)

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
1 ppm: Sa*
2.5 ppm: Sa:Cf*
5 ppm: ScbaF/SaF
25 ppm: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS¿/ScbaE

Incompatibilities and Reactivities: Water, nitric acid, oxidizers, organic compounds
[**Note:** Reacts violently with all combustible materials, except the metal containers in which it is shipped. Reacts with H_2O to form hydrofluoric acid.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Irrit eyes, nose, resp sys; lar spasm, wheez; pulm edema; eye, skin burns; in animals: liver, kidney damage
TO: Eyes, skin, resp sys, liver, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support

Fluorotrichloromethane	**Formula:** CCl_3F	**CAS#:** 75-69-4	**RTECS#:** PB6125000	**IDLH:** 2000 ppm
Conversion: 1 ppm = 5.62 mg/m^3	**DOT:**			

Synonyms/Trade Names: Freon® 11, Monofluorotrichloromethane, Refrigerant 11, Trichlorofluoromethane, Trichloromonofluoromethane

Exposure Limits:
NIOSH REL: C 1000 ppm (5600 mg/m^3)
OSHA PEL†: TWA 1000 ppm (5600 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1006

Physical Description: Colorless to water-white, nearly odorless liquid or gas (above 75°F).

Chemical & Physical Properties:
MW: 137.4
BP: 75°F
Sol(75°F): 0.1%
Fl.P: NA
IP: 11.77 eV
RGasD: 4.74
Sp.Gr: 1.47 (Liquid at 75°F)
VP: 690 mmHg
FRZ: -168°F
UEL: NA
LEL: NA
Noncombustible Liquid
Nonflammable Gas

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: N.R.
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
2000 ppm: Sa/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Chemically-active metals such as sodium, potassium, calcium, powdered aluminum, zinc, magnesium & lithium shavings; granular barium

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Inco, tremor; derm; card arrhy, card arrest; asphy; liquid: frostbite
TO: Skin, resp sys, CVS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

Fluoroxene	**Formula:** $CF_3CH_2OCH=CH_2$	**CAS#:** 406-90-6	**RTECS#:** KO4250000	**IDLH:** N.D.
Conversion: 1 ppm = 5.16 mg/m^3	**DOT:**			

Synonyms/Trade Names: 2,2,2-Trifluoroethoxyethene; 2,2,2-Trifluoroethyl vinyl ether

Exposure Limits:
NIOSH REL*: C 2 ppm (10.3 mg/m^3) [60-minute]
[***Note:** REL for exposure to waste anesthetic gas.]
OSHA PEL: none

Measurement Methods (see Table 1):
None available

Physical Description: Liquid. [inhalation anesthetic] [**Note:** A gas above 109°F.]

Chemical & Physical Properties:
MW: 126.1
BP: 109°F
Sol: ?
Fl.P: ?
IP: ?
Sp.Gr: 1.14
VP: 286 mmHg
FRZ: ?
UEL: ?
LEL: ?
Combustible Liquid
[Potentially EXPLOSIVE!]

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: Prevent eye contact
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: None reported

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes; CNS depres, analgesia, anes, convuls, resp depres
TO: Eyes, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Resp support
Swallow: Medical attention immed

Fonofos	**Formula:** $C_{10}H_{15}OPS_2$	**CAS#:** 944-22-9	**RTECS#:** TA5950000	**IDLH:** N.D.
Conversion: 1 ppm = 10.07 mg/m^3	**DOT:**			

Synonyms/Trade Names: Dyfonate®, Dyphonate, O-Ethyl-S-phenyl ethylphosphorothioate, Fonophos

Exposure Limits:
NIOSH REL: TWA 0.1 mg/m^3 [skin]
OSHA PEL†: none

Measurement Methods (see Table 1):
NIOSH 5600
OSHA PV2027

Physical Description: Light-yellow liquid with an aromatic odor. [insecticide]

Chemical & Physical Properties:
MW: 246.3
BP: ?
Sol: 0.001%
Fl.P: >201°F
IP: ?
Sp.Gr: 1.15
VP(77°F): 0.0002 mmHg
FRZ: ?
UEL: ?
LEL: ?
Class IIIB Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: None reported

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Nau, vomit, abdom cramps, diarr, salv; head, dizz, lass; rhin, chest tight; blurred vision, miosis; card irreg; musc fasc; dysp
TO: Resp sys, CNS, CVS, blood chol

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap flush immed
Breath: Resp support
Swallow: Medical attention immed

F

Formaldehyde

Formula: HCHO | **CAS#:** 50-00-0 | **RTECS#:** LP8925000 | **IDLH:** Ca [20 ppm]

Conversion: 1 ppm = 1.23 mg/m^3 | **DOT:**

Synonyms/Trade Names: Methanal, Methyl aldehyde, Methylene oxide

Exposure Limits:
NIOSH REL: Ca
TWA 0.016 ppm
C 0.1 ppm [15-minute]
See Appendix A
OSHA PEL: [1910.1048] TWA 0.75 ppm
ST 2 ppm

Measurement Methods (see Table 1):
NIOSH 2016, 2541, 3500, 3800
OSHA ID205, 52

Physical Description: Nearly colorless gas with a pungent, suffocating odor. [**Note:** Often used in an aqueous solution (see specific listing for Formalin).]

Chemical & Physical Properties:
MW: 30.0
BP: -6°F
Sol: Miscible
Fl.P: NA (Gas)
IP: 10.88 eV
RGasD: 1.04
VP: >1 atm
FRZ: -134°F
UEL: 73%
LEL: 7.0%
Flammable Gas

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: Prevent eye contact
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS/ScbaE

See Appendix E (page 351)

Incompatibilities and Reactivities: Strong oxidizers, alkalis & acids; phenols; urea [**Note:** Pure formaldehyde has a tendency to polymerize. Reacts with HCl to form bis-Chloromethyl ether.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Irrit eyes, nose, throat, resp sys; lac; cough; wheez; [carc]
TO: Eyes, resp sys [nasal cancer]

First Aid (see Table 6):
Eye: Irr immed
Breath: Resp support

Formalin (as formaldehyde)

Formula: | **CAS#:** | **RTECS#:** | **IDLH:** Ca [20 ppm]

Conversion: | **DOT:** 1198 132; 2209 132

Synonyms/Trade Names: Formaldehyde solution
[**Note:** Formalin is an aqueous solution that is 37% formaldehyde by weight; inhibited solutions usually contain 6-12% methyl alcohol. Also see specific listings for Formaldehyde and Methyl alcohol.]

Exposure Limits:
NIOSH REL: Ca
TWA 0.016 ppm
C 0.1 ppm [15-minute]
See Appendix A
OSHA PEL: [1910.1048] TWA 0.75 ppm
ST 2 ppm

Measurement Methods (see Table 1):
NIOSH 2016, 2541, 3500, 3800
OSHA ID205, 52

Physical Description: Colorless liquid with a pungent odor.

Chemical & Physical Properties:
MW: Varies
BP: 214°F
Sol: Miscible
Fl.P: 185°F
IP: ?
Sp.Gr(77°F): 1.08
VP: 1 mmHg
FRZ: ?
UEL: 73%
LEL: 7%
Class IIIA Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS/ScbaE

See Appendix E (page 351)

Incompatibilities and Reactivities: Strong oxidizers, alkalis & acids; phenols; urea; oxides; isocyanates; caustics; anhydrides

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, nose, throat, resp sys; lac; cough; wheez, derm; [carc]
TO: Eyes, skin, resp sys [nasal cancer]

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush prompt
Breath: Resp support
Swallow: Medical attention immed

Formamide	**Formula:** $HCONH_2$	**CAS#:** 75-12-7	**RTECS#:** LQ0525000	**IDLH:** N.D.
Conversion: 1 ppm = 1.85 mg/m^3	**DOT:**			
Synonyms/Trade Names: Carbamaldehyde, Methanamide				

Exposure Limits:
NIOSH REL: TWA 10 ppm (15 mg/m^3) [skin]
OSHA PEL†: none

Measurement Methods (see Table 1):
None available

Physical Description: Colorless, oily liquid. [**Note:** A solid below 37°F.]

Chemical & Physical Properties:
MW: 45.1
BP: 411°F (Decomposes)
Sol: Miscible
Fl.P(oc): 310°F
IP: 10.20 eV
Sp.Gr: 1.13
VP(86°F): 0.1 mmHg
FRZ: 37°F
UEL: ?
LEL: ?
Class IIIB Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: Prevent eye contact
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Oxidizers, iodine, pyridine, sulfur trioxide, copper, brass, lead
[**Note:** Hygroscopic (i.e., absorbs moisture from the air).]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, muc memb; drow, lass; nau; acidosis; skin eruptions; in animals: repro effects
TO: Eyes, skin, resp sys, CNS, repro sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water wash
Breath: Resp support
Swallow: Medical attention immed

Formic acid	**Formula:** HCOOH	**CAS#:** 64-18-6	**RTECS#:** LQ4900000	**IDLH:** 30 ppm
Conversion: 1 ppm = 1.88 mg/m^3	**DOT:** 1779 153			
Synonyms/Trade Names: Formic acid (85-95% in aqueous solution); Hydrogen carboxylic acid; Methanoic acid				

Exposure Limits:
NIOSH REL: TWA 5 ppm (9 mg/m^3)
OSHA PEL: TWA 5 ppm (9 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 2011
OSHA ID186SG

Physical Description: Colorless liquid with a pungent, penetrating odor.
[**Note:** Often used in an aqueous solution.]

Chemical & Physical Properties:
MW: 46.0
BP: 224°F (90% solution)
Sol: Miscible
Fl.P(oc): 122°F (90% solution)
IP: 11.05 eV
Sp.Gr: 1.22 (90% solution)
VP: 35 mmHg
FRZ: 20°F (90% solution)
UEL: 57% (90% solution)
LEL: 18% (90% solution)
Class II Combustible Liquid (90% solution)

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
30 ppm: Sa*/ScbaF
§: ScbaF:Pd,Pp/
SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, strong caustics, concentrated sulfuric acid
[**Note:** Corrosive to metals.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes; skin, throat; skin burns, derm; lac; rhin; cough, dysp; nau
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

F

Furfural

Formula:	CAS#:	RTECS#:	IDLH:
$C_5H_4O_2$	98-01-1	LT7000000	100 ppm

Conversion: 1 ppm = 3.93 mg/m^3

DOT: 1199 132P

Synonyms/Trade Names: Fural, 2-Furancarboxaldehyde, Furfuraldehyde, 2-Furfuraldehyde

Exposure Limits:
NIOSH REL: See Appendix D
OSHA PEL†: TWA 5 ppm (20 mg/m^3) [skin]

Physical Description: Colorless to amber liquid with an almond-like odor.
[**Note:** Darkens in light and air.]

Measurement Methods (see Table 1):
NIOSH 2529
OSHA 72

Chemical & Physical Properties:
MW: 96.1
BP: 323°F
Sol: 8%
Fl.P: 140°F
IP: 9.21 eV
Sp.Gr: 1.16
VP: 2 mmHg
FRZ: -34°F
UEL: 19.3%
LEL: 2.1%
Class IIIA Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
OSHA
50 ppm: CcrOv*/Sa*
100 ppm: Sa:Cf*/CcrFOv/PaprOv*/GmFOv/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong acids, oxidizers, strong alkalis
[**Note:** May polymerize on contact with strong acids or strong alkalis.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, upper resp sys; head; derm
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush prompt
Breath: Resp support
Swallow: Medical attention immed

Furfuryl alcohol

Formula:	CAS#:	RTECS#:	IDLH:
$C_5H_6O_2$	98-00-0	LU9100000	75 ppm

Conversion: 1 ppm = 4.01 mg/m^3

DOT: 2874 153

Synonyms/Trade Names: 2-Furylmethanol, 2-Hydroxymethylfuran

Exposure Limits:
NIOSH REL: TWA 10 ppm (40 mg/m^3) [skin]
ST 15 ppm (60 mg/m^3)
OSHA PEL†: TWA 50 ppm (200 mg/m^3)

Physical Description: Colorless to amber liquid with a faint, burning odor.
[**Note:** Darkens on exposure to light.]

Measurement Methods (see Table 1):
NIOSH 2505

Chemical & Physical Properties:
MW: 98.1
BP: 338°F
Sol: Miscible
Fl.P: 149°F
IP: ?
Sp.Gr: 1.13
VP(77°F): 0.6 mmHg
FRZ: 6°F
UEL: 16.3%
LEL: 1.8%
Class IIIA Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
75 ppm: CcrOv*/GmFOv/PaprOv*/Sa*/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers & acids
[**Note:** Contact with organic acids may lead to polymerization.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, muc memb; dizz; nau, diarr; diuresis; resp, body temperature depres; vomit; derm
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

Gasoline	Formula:	CAS#: 8006-61-9	RTECS#: LX3300000	IDLH: Ca [N.D.]
Conversion: 1 ppm = 4.5 mg/m^3 (approx)	**DOT:** 1203 128			

Synonyms/Trade Names: Motor fuel, Motor spirits, Natural gasoline, Petrol
[**Note:** A complex mixture of volatile hydrocarbons (paraffins, cycloparaffins & aromatics).]

Exposure Limits:
NIOSH REL: Ca
See Appendix A
OSHA PEL†: none

Measurement Methods (see Table 1):
OSHA PV2028

Physical Description: Clear liquid with a characteristic odor.

Chemical & Physical Properties:
MW: 110 (approx)
BP: 102°F
Sol: Insoluble
Fl.P: -45°F
IP: ?
Sp.Gr(60°F): 0.72-0.76
VP: 38-300 mmHg
FRZ: ?
UEL: 7.6%
LEL: 1.4%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers such as peroxides, nitric acid & perchlorates

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, muc memb; derm; head, lass, blurred vision, dizz, slurred speech, conf, convuls; chemical pneu (aspir liquid); possible liver, kidney damage; [carc]
TO: Eyes, skin, resp sys, CNS, liver, kidneys [in animals: liver & kidney cancer]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap flush immed
Breath: Resp support
Swallow: Medical attention immed

G

Germanium tetrahydride	Formula: GeH_4	CAS#: 7782-65-2	RTECS#: LY4900000	IDLH: N.D.
Conversion: 1 ppm = 3.13 mg/m^3	**DOT:** 2192 119			

Synonyms/Trade Names: Germane, Germanium hydride, Germanomethane, Monogermane
[**Note:** Used chiefly for the production of high purity germanium for use in semiconductors.]

Exposure Limits:
NIOSH REL: TWA 0.2 ppm (0.6 mg/m^3)
OSHA PEL†: none

Measurement Methods (see Table 1):
None available

Physical Description: Colorless gas with a pungent odor.
[**Note:** Shipped as a compressed gas.]

Chemical & Physical Properties:
MW: 76.6
BP: -127°F
Sol: Insoluble
Fl.P: NA (Gas)
IP: 11.34 eV
RGasD: 2.65
VP: >1 atm
FRZ: -267°F
UEL: ?
LEL: ?
Flammable Gas (may ignite SPONTANEOUSLY in air).

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Bromine

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh
SY: Mal, head, dizz, fainting; dysp; nau, vomit; kidney inj; hemolytic effects
TO: CNS, kidneys, blood

First Aid (see Table 6):
Breath: Resp support

G

Glutaraldehyde

Formula:	CAS#:	RTECS#:	IDLH:
$OCH(CH_2)_3CHO$	111-30-8	MA2450000	N.D.

Conversion: 1 ppm = 4.09 mg/m^3

DOT:

Synonyms/Trade Names: Glutaric dialdehyde; 1,5-Pentanedial

Exposure Limits:
NIOSH REL: C 0.2 ppm (0.8 mg/m^3)
See Appendix C (Aldehydes)
OSHA PEL†: none

Measurement Methods (see Table 1):
NIOSH 2532
OSHA 64

Physical Description: Colorless liquid with a pungent odor.

Chemical & Physical Properties:
MW: 100.1
BP: 212°F
Sol: Miscible
Fl.P: NA
IP: ?
Sp.Gr: 1.10
VP: 17 mmHg
FRZ: 7°F
UEL: NA
LEL: NA
Noncombustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Strong oxidizers, strong bases [**Note:** Alkaline solutions of glutaraldehyde (i.e., activated glutaraldehyde) react with alcohol, ketones, amines, hydrazines & proteins.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, resp sys; derm, sens skin; cough, asthma; nau, vomit
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

Glycerin (mist)

Formula:	CAS#:	RTECS#:	IDLH:
$HOCH_2CH(OH)CH_2OH$	56-81-5	MA8050000	N.D.

Conversion:

DOT:

Synonyms/Trade Names: Glycerin (anhydrous); Glycerol; Glycyl alcohol; 1,2,3-Propanetriol; Trihydroxypropane

Exposure Limits:
NIOSH REL: See Appendix D
OSHA PEL†: TWA 15 mg/m^3 (total)
TWA 5 mg/m^3 (resp)

Measurement Methods (see Table 1):
NIOSH 0500, 0600

Physical Description: Clear, colorless, odorless, syrupy liquid or solid (below 64°F).
[**Note:** The solid form melts above 64°F but the liquid form freezes at a much lower temperature.]

Chemical & Physical Properties:
MW: 92.1
BP: 554°F (Decomposes)
Sol: Miscible
Fl.P: 320°F
IP: ?
Sp.Gr: 1.26
VP(122°F): 0.003 mmHg
MLT: 64°F
UEL: ?
LEL: ?
Class IIIB Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Strong oxidizers (e.g., chromium trioxide, potassium chlorate, potassium permanganate) [**Note:** Hygroscopic (i.e., absorbs moisture from the air).]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Irrit eyes, skin, resp sys; head, nau, vomit; kidney inj
TO: Eyes, skin, resp sys, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water wash
Breath: Fresh air

Glycidol	**Formula:** $C_3H_6O_2$	**CAS#:** 556-52-5	**RTECS#:** UB4375000	**IDLH:** 150 ppm
Conversion: 1 ppm = 3.03 mg/m^3	**DOT:**			

Synonyms/Trade Names: 2,3-Epoxy-1-propanol; Epoxypropyl alcohol; Glycide; Hydroxymethyl ethylene oxide; 2-Hydroxymethyl oxiran; 3-Hydroxypropylene oxide

Exposure Limits:
NIOSH REL: TWA 25 ppm (75 mg/m^3)
OSHA PEL†: TWA 50 ppm (150 mg/m^3)

Physical Description: Colorless liquid.

Measurement Methods (see Table 1):
NIOSH 1608
OSHA 7

Chemical & Physical Properties:
MW: 74.1
BP: 320°F (Decomposes)
Sol: Miscible
Fl.P: 162°F
IP: ?
Sp.Gr: 1.12
VP(77°F): 0.9 mmHg
FRZ: -49°F
UEL: ?
LEL: ?
Class IIIA Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
150 ppm: Sa*/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, nitrates

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose, throat; narco
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water wash prompt
Breath: Resp support
Swallow: Medical attention immed

Glycolonitrile	**Formula:** $HOCH_2CN$	**CAS#:** 107-16-4	**RTECS#:** AM0350000	**IDLH:** N.D.
Conversion: 1 ppm = 2.34 mg/m^3	**DOT:**			

Synonyms/Trade Names: Cyanomethanol, Formaldehyde cyanohydrin, Glycolic nitrile, Glyconitrile, Hydroxyacetonitrile

Exposure Limits:
NIOSH REL: C 2 ppm (5 mg/m^3) [15-minute]
OSHA PEL: none

Physical Description: Colorless, odorless, oily liquid.
[**Note:** Forms cyanide in the body.]

Measurement Methods (see Table 1):
None available

Chemical & Physical Properties:
MW: 57.1
BP: 361°F (Decomposes)
Sol: Soluble
Fl.P: ?
IP: ?
Sp.Gr(66°F): 1.10
VP(145°F): 1 mmHg
FRZ: <-98°F
UEL: ?
LEL: ?
Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
20 ppm: Sa
50 ppm: Sa:Cf
100 ppm: ScbaF/SaF
250 ppm: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Traces of alkalis (promote violent polymerization)

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, resp sys; head, dizz, lass, conf, convuls; dysp; abdom pain, nau, vomit
TO: Eyes, skin, resp sys, CNS, CVS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water wash immed
Breath: Resp support
Swallow: Medical attention immed

Grain dust (oat, wheat, barley)	Formula:	CAS#:	RTECS#: MD7900000	IDLH: N.D.
Conversion:	DOT:			

Synonyms/Trade Names: None
[**Note:** Grain dust consists of 60-75% organic materials (cereal grains) & 25-40% inorganic materials (soil), and includes fertilizers, pesticides & microorganisms.]

Exposure Limits:
NIOSH REL: TWA 4 mg/m^3
OSHA PEL: TWA 10 mg/m^3

Measurement Methods (see Table 1):
NIOSH 0500

Physical Description: Mixture of grain and all the other substances associated with its cultivation & harvesting.

G

Chemical & Physical Properties:
Properties depend upon the specific component of the grain dust.

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: None reported

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Irrit eyes, skin, upper resp sys; cough, dysp, wheez, asthma, bron, chronic obstructive pulm disease; conj, derm, rhinitis, grain fever
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Breath: Fresh air

Graphite (natural)	Formula: C	CAS#: 7782-42-5	RTECS#: MD9659600	IDLH: 1250 mg/m^3
Conversion:	DOT:			

Synonyms/Trade Names: Black lead, Mineral carbon, Plumbago, Silver graphite, Stove black
[**Note:** Also see specific listing for Graphite (synthetic).]

Exposure Limits:
NIOSH REL: TWA 2.5 mg/m^3 (resp)
OSHA PEL†: TWA 15 mppcf

Measurement Methods (see Table 1):
NIOSH 0500, 0600

Physical Description: Steel gray to black, greasy feeling, odorless solid.

Chemical & Physical Properties:
MW: 12.0
BP: Sublimes
Sol: Insoluble
Fl.P: NA
IP: NA
Sp.Gr: 2.0-2.25
VP: 0 mmHg (approx)
MLT: 6602°F (Sublimes)
UEL: NA
LEL: NA
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
12.5 mg/m^3: Qm
25 mg/m^3: 95XQ/Sa
62.5 mg/m^3: PaprHie/Sa:Cf
125 mg/m^3: 100F/PaprTHie/SaT:Cf/ ScbaF/SaF
1250 mg/m^3: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Very strong oxidizers such as fluorine, chlorine trifluoride & potassium peroxide

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Cough, dysp, black sputum, decr pulm func, lung fib
TO: Resp sys, CVS

First Aid (see Table 6):
Eye: Irr immed
Breath: Fresh air

Graphite (synthetic)	Formula: C	CAS#: 7440-44-0 (synthetic)	RTECS#: FF5250100 (synthetic)	IDLH: N.D.
Conversion:	DOT:			

Synonyms/Trade Names: Acheson graphite, Artificial graphite
[**Note:** Also see specific listing for Graphite (natural).]

Exposure Limits:
NIOSH REL: See Appendix D
OSHA PEL†: TWA 15 mg/m^3 (total)
TWA 5 mg/m^3 (resp)

Measurement Methods (see Table 1):
NIOSH 0500, 0600

Physical Description: Steel gray to black, greasy feeling, odorless solid.

Chemical & Physical Properties:
MW: 12.0
BP: Sublimes
Sol: Insoluble
Fl.P: NA
IP: NA
Sp.Gr: 1.5-1.8
VP: 0 mmHg (approx)
MLT: 6602°F (Sublimes)
UEL: NA
LEL: NA
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Very strong oxidizers such as fluorine, chlorine trifluoride & potassium peroxide

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Cough, dysp, black sputum, decr pulm func, lung fib
TO: Resp sys, CVS

First Aid (see Table 6):
Eye: Irr immed
Breath: Fresh air

Gypsum	Formula: $CaSO_4 \times 2H_2O$	CAS#: 13397-24-5	RTECS#: MG2360000	IDLH: N.D.
Conversion:	DOT:			

Synonyms/Trade Names: Calcium(II) sulfate dihydrate, Gypsum stone, Hydrated calcium sulfate, Mineral white
[**Note:** Gypsum is the dihydrate form of calcium sulfate; Plaster of Paris is the hemihydrate form.]

Exposure Limits:
NIOSH REL: TWA 10 mg/m^3 (total)
TWA 5 mg/m^3 (resp)
OSHA PEL: TWA 15 mg/m^3 (total)
TWA 5 mg/m^3 (resp)

Measurement Methods (see Table 1):
NIOSH 0500, 0600

Physical Description: White or nearly white, odorless, crystalline solid.

Chemical & Physical Properties:
MW: 172.2
BP: ?
Sol(77°F): 0.2%
Fl.P: NA
IP: NA
Sp.Gr: 2.32
VP: 0 mmHg (approx)
MLT: 262-325°F (Loses H_2O)
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Aluminum (at high temperatures), diazomethane

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Irrit eyes, skin, muc memb, upper resp sys; cough, sneez, rhin
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Breath: Fresh air

H

Hafnium

Formula:	CAS#:	RTECS#:	IDLH:
Hf	7440-58-6	MG4600000	50 mg/m^3 (as Hf)

Conversion: **DOT:** 1326 170 (powder, wet); 2545 135 (powder, dry)

Synonyms/Trade Names: Celtium, Elemental hafnium, Hafnium metal

Exposure Limits:
NIOSH REL*: TWA 0.5 mg/m^3
OSHA PEL*: TWA 0.5 mg/m^3
[***Note:** The REL and PEL also apply to other hafnium compounds (as Hf).]

Measurement Methods (see Table 1):
NIOSH S194 (II-5)
OSHA ID121

Physical Description: Highly lustrous, ductile, grayish solid.

Chemical & Physical Properties:
MW: 178.5
BP: 8316°F
Sol: Insoluble
Fl.P: NA
IP: NA
Sp.Gr: 13.31
VP: 0 mmHg (approx)
MLT: 4041°F
UEL: NA
LEL: NA

Explosive in powder form (either dry or with <25% water); finely divided powder can be ignited by static electricity or even SPONTANEOUSLY.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
2.5 mg/m^3: Qm
5 mg/m^3: 95XQ/Sa
12.5 mg/m^3: Sa:Cf*/PaprHie*
25 mg/m^3: 100F/SaT:Cf*/PaprTHie*/ ScbaF/SaF
50 mg/m^3: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, chlorine

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: In animals: irrit eyes, skin, muc memb; liver damage
TO: Eyes, skin, muc memb, liver

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

Halothane

Formula:	CAS#:	RTECS#:	IDLH:
$CF_3CHBrCl$	151-67-7	KH6550000	N.D.

Conversion: 1 ppm = 8.07 mg/m^3 **DOT:**

Synonyms/Trade Names: 1-Bromo-1-chloro-2,2,2-trifluoroethane; 2-Bromo-2-chloro-1,1,1-trifluoroethane; 1,1,1-Trifluoro-2-bromo-2-chloroethane; 2,2,2-Trifluoro-1-bromo-1-chloroethane

Exposure Limits:
NIOSH REL*: C 2 ppm (16.2 mg/m^3) [60-minute]
[***Note:** REL for exposure to waste anesthetic gas.]
OSHA PEL: none

Measurement Methods (see Table 1):
OSHA 29

Physical Description: Clear, colorless liquid with a sweetish, pleasant odor. [inhalation anesthetic]

Chemical & Physical Properties:
MW: 197.4
BP: 122°F
Sol: 0.3%
Fl.P: NA
IP: ?
Sp.Gr: 1.87
VP: 243 mmHg
FRZ: -180°F
UEL: NA
LEL: NA
Noncombustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: May attack rubber & some plastics; sensitive to light.
[**Note:** Light causes decomposition. May be stabilized with 0.01% thymol.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, resp sys; conf, drow, dizz, nau, analgesia, anes; card arrhy; liver, kidney damage; decr audio-visual performance; in animals: repro effects
TO: Eyes, skin, resp sys, CVS, CNS, liver, kidneys, repro sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

Heptachlor

Formula: $C_{10}H_5Cl_7$ | **CAS#:** 76-44-8 | **RTECS#:** PC0700000 | **IDLH:** Ca [35 mg/m^3]

Conversion: | **DOT:** 2761 151 (organochlorine pesticide, solid)

Synonyms/Trade Names: 1,4,5,6,7,8,8-Heptachloro-3a,4,7,7a-tetrahydro-4,7-methanoindene

Exposure Limits:
NIOSH REL: Ca
TWA 0.5 mg/m^3 [skin]
See Appendix A
OSHA PEL: TWA 0.5 mg/m^3 [skin]

Measurement Methods (see Table 1):
NIOSH S287 (II-5)
OSHA PV2029

Physical Description: White to light-tan crystals with a camphor-like odor. [insecticide]

Chemical & Physical Properties:
MW: 373.4
BP: 293°F (Decomposes)
Sol: 0.0006%
Fl.P: NA
IP: ?
Sp.Gr: 1.66
VP(77°F): 0.0003 mmHg
MLT: 203°F
UEL: NA
LEL: NA
Noncombustible Solid, but may be dissolved in flammable liquids.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Iron, rust

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: In animals: tremor, convuls; liver damage; [carc]
TO: CNS,liver [in animals: liver cancer]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

n-Heptane

Formula: $CH_3[CH_2]_5CH_3$ | **CAS#:** 142-82-5 | **RTECS#:** MI7700000 | **IDLH:** 750 ppm

Conversion: 1 ppm = 4.10 mg/m^3 | **DOT:** 1206 128

Synonyms/Trade Names: Heptane, normal-Heptane

Exposure Limits:
NIOSH REL: TWA 85 ppm (350 mg/m^3)
C 440 ppm (1800 mg/m^3) [15-minute]
OSHA PEL†: TWA 500 ppm (2000 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1500
OSHA 7

Physical Description: Colorless liquid with a gasoline-like odor.

Chemical & Physical Properties:
MW: 100.2
BP: 209°F
Sol: 0.0003%
Fl.P: 25°F
IP: 9.90 eV
Sp.Gr: 0.68
VP(72°F): 40 mmHg
FRZ: -131°F
UEL: 6.7%
LEL: 1.05%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
750 ppm: CcrOv/GmFOv/PaprOv/Sa/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Dizz, stupor, inco; loss of appetite, nau; derm; chemical pneu (aspir liquid); uncon
TO: Skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

H

1-Heptanethiol

Formula:	CAS#:	RTECS#:	IDLH:
$CH_3[CH_2]_6SH$	1639-09-4	MJ1400000	N.D.

Conversion: 1 ppm = 5.41 mg/m^3 **DOT:** 1228 131

Synonyms/Trade Names: Heptyl mercaptan, n-Heptyl mercaptan

Exposure Limits:
NIOSH REL: C 0.5 ppm (2.7 mg/m^3) [15-minute]
OSHA PEL: none

Measurement Methods (see Table 1):
None available

Physical Description: Colorless liquid with a strong odor.

Chemical & Physical Properties:
MW: 132.3
BP: 351°F
Sol: Insoluble
Fl.P: 115°F
IP: ?
Sp.Gr: 0.84
VP: ?
FRZ: -46°F
UEL: ?
LEL: ?
Class II Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
5 ppm: CcrOv/Sa
12.5 ppm: Sa:Cf/PaprOv
25 ppm: CcrFOv/GmFOv/PaprTOv/ ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Oxidizers, reducing agents, strong acids & bases, alkali metals

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose, throat; lass, cyan, incr respiration, nau, drow, head, vomit
TO: Eyes, skin, resp sys, CNS, blood

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Resp support
Swallow: Medical attention immed

Hexachlorobutadiene

Formula:	CAS#:	RTECS#:	IDLH:
$Cl_2C{=}CClCCl{=}CCl_2$	87-68-3	EJ07000	Ca [N.D.]

Conversion: 1 ppm = 10.66 mg/m^3 **DOT:** 2279 151

Synonyms/Trade Names: HCBD; Hexachloro-1,3-butadiene; 1,3-Hexachlorobutadiene; Perchlorobutadiene

Exposure Limits:
NIOSH REL: Ca
TWA 0.02 ppm (0.24 mg/m^3) [skin]
See Appendix A
OSHA PEL†: none

Measurement Methods (see Table 1):
NIOSH 2543

Physical Description: Clear, colorless liquid with a mild, turpentine-like odor.

Chemical & Physical Properties:
MW: 260.7
BP: 419°F
Sol: Insoluble
Fl.P: ?
IP: ?
Sp.Gr: 1.55
VP: 0.2 mmHg
FRZ: -6°F
UEL: ?
LEL: ?
Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: In animals: irrit eyes, skin, resp sys; kidney damage; [carc]
TO: Eyes, skin, resp sys, kidneys [in animals: kidney tumors]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Hexachlorocyclopentadiene

Formula: C_5Cl_6 | **CAS#:** 77-47-4 | **RTECS#:** GY1225000 | **IDLH:** N.D.

Conversion: 1 ppm = 11.16 mg/m^3 | **DOT:** 2646 151

Synonyms/Trade Names: HCCPD; Hexachloro-1,3-cyclopentadiene; 1,2,3,4,5,5-Hexachloro-1,3-cyclopentadiene; Perchlorocyclopentadiene

Exposure Limits:
NIOSH REL: TWA 0.01 ppm (0.1 mg/m^3)
OSHA PEL†: none

Measurement Methods (see Table 1):
NIOSH 2518

Physical Description: Pale-yellow to amber-colored liquid with a pungent, unpleasant odor.
[**Note:** A solid below 16°F.]

Chemical & Physical Properties:
MW: 272.8
BP: 462°F
Sol(77°F): 0.0002% (Reacts)
Fl.P: NA
IP: ?
Sp.Gr: 1.71
VP(77°F): 0.08 mmHg
FRZ: 16°F
UEL: NA
LEL: NA
Noncombustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Water, light
[**Note:** Reacts slowly with water to form hydrochloric acid; will corrode iron & most metals in presence of moisture. Explosive hydrogen gas may collect in enclosed spaces in the presence of moisture.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, resp sys; eye, skin burns; lac; sneez, cough, dysp, salv, pulm edema; nau, vomit, diarr; in animals: liver, kidney inj
TO: Eyes, skin, resp sys, liver, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap flush immed
Breath: Resp support
Swallow: Medical attention immed

Hexachloroethane

Formula: Cl_3CCCl_3 | **CAS#:** 67-72-1 | **RTECS#:** KI4025000 | **IDLH:** Ca [300 ppm]

Conversion: 1 ppm = 9.68 mg/m^3 | **DOT:**

Synonyms/Trade Names: Carbon hexachloride, Ethane hexachloride, Perchloroethane

Exposure Limits:
NIOSH REL: Ca
TWA 1 ppm (10 mg/m^3) [skin]
See Appendix A
See Appendix C (Chloroethanes)
OSHA PEL: TWA 1 ppm (10 mg/m^3) [skin]

Measurement Methods (see Table 1):
NIOSH 1003
OSHA 7

Physical Description: Colorless crystals with a camphor-like odor.

Chemical & Physical Properties:
MW: 236.7
BP: Sublimes
Sol(72°F): 0.005%
Fl.P: NA
IP: 11.22 eV
Sp.Gr: 2.09
VP: 0.2 mmHg
MLT: 368°F (Sublimes)
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Alkalis; metals such as zinc, cadmium, aluminum, hot iron & mercury

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, muc memb; in animals: kidney damage; [carc]
TO: Eyes, skin, resp sys, kidneys [in animals: liver cancer]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

H

Hexachloronaphthalene	Formula: $C_{10}H_2Cl_6$	CAS#: 1335-87-1	RTECS#: QJ7350000	IDLH: 2 mg/m^3
Conversion:	**DOT:**			

Synonyms/Trade Names: Halowax® 1014

Exposure Limits:
NIOSH REL: TWA 0.2 mg/m^3 [skin]
OSHA PEL: TWA 0.2 mg/m^3 [skin]

Measurement Methods (see Table 1):
NIOSH S100 (II-2)

Physical Description: White to light-yellow solid with an aromatic odor.

Chemical & Physical Properties:
MW: 334.9
BP: 650-730°F
Sol: Insoluble
Fl.P: NA
IP: ?
Sp.Gr: 1.78
VP: <1 mmHg
MLT: 279°F
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
2 mg/m^3: Sa*/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Acne-form derm, nau, conf, jaun, coma
TO: Skin, liver

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

1-Hexadecanethiol	Formula: $CH_3[CH_2]_{15}SH$	CAS#: 2917-26-2	RTECS#:	IDLH: N.D.
Conversion: 1 ppm = 10.59 mg/m^3	**DOT:** 1228 131 (liquid)			

Synonyms/Trade Names: Cetyl mercaptan, Hexadecanethiol-1, n-Hexadecanethiol, Hexadecyl mercaptan

Exposure Limits:
NIOSH REL: C 0.5 ppm (5.3 mg/m^3) [15-minute]
OSHA PEL: none

Measurement Methods (see Table 1):
None available

Physical Description: Colorless liquid or solid (below 64-68°F) with a strong odor.

Chemical & Physical Properties:
MW: 258.5
BP: ?
Sol: Insoluble
Fl.P: 215°F
IP: ?
Sp.Gr: 0.85
VP: 0.1 mmHg
FRZ: 64-68°F
UEL: ?
LEL: ?
Class IIIB Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH
5 ppm: CcrOv/Sa
12.5 ppm: Sa:Cf/PaprOv
25 ppm: CcrFOv/GmFOv/PaprTOv/ ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Oxidizers, strong acids & bases, alkali metals, reducing agents

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, resp sys; head, dizz, lass, cyan, nau, convuls
TO: Eyes, skin, resp sys, CNS, blood

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Hexafluoroacetone	Formula: $(CF_3)_2CO$	CAS#: 684-16-2	RTECS#: UC2450000	IDLH: N.D.
Conversion: 1 ppm = 6.79 mg/m^3	DOT: 2420 125			

Synonyms/Trade Names: Hexafluoro-2-propanone; 1,1,1,3,3,3-Hexafluoro-2-propanone; HFA; Perfluoroacetone

Exposure Limits:
NIOSH REL: TWA 0.1 ppm (0.7 mg/m^3) [skin]
OSHA PEL†: none

Measurement Methods (see Table 1):
None available

Physical Description: Colorless gas with a musty odor.
[**Note:** Shipped as a liquefied compressed gas.]

Chemical & Physical Properties:
MW: 166.0
BP: -18°F
Sol: Reacts
Fl.P: NA
IP: 11.81 eV
RGasD: 5.76
VP: 5.8 atm
FRZ: -188°F
UEL: NA
LEL: NA
Nonflammable Gas, but highly reactive with water & other substances, releasing heat.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact/Frostbite
Eyes: Prevent eye contact/Frostbite
Wash skin: N.R.
Remove: N.R.
Change: N.R.
Provide: Frostbite wash

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Water, acids
[**Note:** Hygroscopic (i.e., absorbs moisture from the air); reacts with moisture to form a highly acidic sesquihydrate.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Con
SY: Irrit eyes, skin, muc memb, resp sys; pulm edema; liquid: frostbite; in animals: terato, repro effects; kidney inj
TO: Eyes, skin, resp sys, kidneys, repro sys

First Aid (see Table 6):
Eye: Frostbite
Skin: Frostbite
Breath: Resp support

Hexamethylene diisocyanate	Formula: $OCN[CH_2]_6NCO$	CAS#: 822-06-0	RTECS#: MO1740000	IDLH: N.D.
Conversion: 1 ppm = 6.88 mg/m^3	DOT: 2281 156			

Synonyms/Trade Names: 1,6-Diisocyanatohexane; HDI; Hexamethylene-1,6-diisocyanate; 1,6-Hexamethylene diisocyanate; HMDI

Exposure Limits:
NIOSH REL: TWA 0.005 ppm (0.035 mg/m^3)
C 0.020 ppm (0.140 mg/m^3) [10-minute]
OSHA PEL: none

Measurement Methods (see Table 1):
NIOSH 5521, 5522, 5525
OSHA 42

Physical Description: Clear, colorless to slightly yellow liquid with a sharp, pungent odor.

Chemical & Physical Properties:
MW: 168.2
BP: 415°F
Sol: Low (Reacts)
Fl.P: 284°F
IP:?
Sp.Gr(77°F): 1.04
VP(77°F): 0.5 mmHg
FRZ: -89°F
UEL: ?
LEL: ?
Class IIIB Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
0.05 ppm: Sa*
0.125 ppm: Sa:Cf*
0.25 ppm: ScbaF/SaF
1 ppm: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Water, alcohols, strong bases, amines, carboxylic acids, organotin catalysts
[**Note:** Reacts slowly with water to form carbon dioxide. Avoid heating above 392°F (polymerizes).]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, resp sys; cough, dysp, bron, wheez, pulm edema, asthma; corn damage, skin blisters
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap flush immed
Breath: Resp support
Swallow: Medical attention immed

H

Hexamethyl phosphoramide	Formula: $[(CH_3)_2N]_3PO$	CAS#: 680-31-9	RTECS#: TD0875000	IDLH: Ca [N.D.]
Conversion:	DOT:			

Synonyms/Trade Names: Hexamethylphosphoric triamide, Hexamethylphosphorotriamide, HMPA, Tris(dimethylamino)phosphine oxide

Exposure Limits:
NIOSH REL: Ca
See Appendix A
OSHA PEL: none

Measurement Methods (see Table 1):
None available

Physical Description: Clear, colorless liquid with an aromatic or mild, amine-like odor. [**Note:** A solid below 43°F.]

Chemical & Physical Properties:
MW: 179.2
BP: 451°F
Sol: Miscible
Fl.P: 220°F
IP: ?
Sp.Gr: 1.03
VP: 0.03 mmHg
FRZ: 43°F
UEL: ?
LEL: ?
Class IIIB Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Oxidizers, strong acids, chemically-active metals (e.g., potassium, sodium, magnesium, zinc)

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, resp sys; dysp; abdom pain; [carc]
TO: Eyes, skin, resp sys, CNS, GI tract [in animals: cancer of the nasal cavity]

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

n-Hexane	Formula: $CH_3[CH_2]_4CH_3$	CAS#: 110-54-3	RTECS#: MN9275000	IDLH: 1100 ppm [10%LEL]
Conversion: 1 ppm = 3.53 mg/m^3	DOT: 1208 128			

Synonyms/Trade Names: Hexane, Hexyl hydride, normal-Hexane

Exposure Limits:
NIOSH REL: TWA 50 ppm (180 mg/m^3)
OSHA PEL†: TWA 500 ppm (1800 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1500, 3800
OSHA 7

Physical Description: Colorless liquid with a gasoline-like odor.

Chemical & Physical Properties:
MW: 86.2
BP: 156°F
Sol: 0.002%
Fl.P: -7°F
IP: 10.18 eV
Sp.Gr: 0.66
VP: 124 mmHg
FRZ: -219°F
UEL: 7.5%
LEL: 1.1%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
500 ppm: Sa*
1100 ppm: Sa:Cf*/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, nose; nau, head; peri neur: numb extremities, musc weak; derm; dizz; chemical pneu (aspir liquid)
TO: Eyes, skin, resp sys, CNS, PNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Hexane isomers (excluding n-Hexane)	Formula: C_6H_{14}	CAS#:	RTECS#:	IDLH: N.D.
Conversion: 1 ppm = 3.53 mg/m^3	**DOT:** 1208 128			

Synonyms/Trade Names: Diethylmethylmethane; Diisopropyl; 2,2-Dimethylbutane; 2,3-Dimethylbutane; Isohexane; 2-Methylpentane; 3-Methylpentane [**Note:** Also see specific listing for n-Hexane.]

Exposure Limits:
NIOSH REL: TWA 100 ppm (350 mg/m^3)
C 510 ppm (1800 mg/m^3) [15-minute]
OSHA PEL†: none

Measurement Methods (see Table 1):
None available

Physical Description: Clear liquids with mild, gasoline-like odors.
[**Note:** Includes all the isomers of hexane except n-hexane.]

Chemical & Physical Properties:
MW: 86.2
BP: 122-145°F
Sol: Insoluble
Fl.P: -54 to 19°F
IP: ?
Sp.Gr: 0.65-0.66
VP: ?
FRZ: -245 to -148°F
UEL: ?
LEL: ?
Class IB Flammable Liquids

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
1000 ppm: Sa*
2500 ppm: Sa:Cf*
5000 ppm: SaT:Cf*/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, resp sys; head, dizz; nau; chemical pneu (aspir liquid); derm
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

n-Hexanethiol	Formula: $CH_3[CH_2]_5SH$	CAS#: 111-31-9	RTECS#: MO4550000	IDLH: N.D.
Conversion: 1 ppm = 4.83 mg/m^3	**DOT:** 1228 131			

Synonyms/Trade Names: 1-Hexanethiol, Hexyl mercaptan, n-Hexyl mercaptan, n-Hexylthiol

Exposure Limits:
NIOSH REL: C 0.5 ppm (2.7 mg/m^3) [15-minute]
OSHA PEL: none

Measurement Methods (see Table 1):
None available

Physical Description: Colorless liquid with an unpleasant odor.

Chemical & Physical Properties:
MW: 118.2
BP: 304°F
Sol: Insoluble
Fl.P: 68°F
IP: ?
Sp.Gr: 0.84
VP: ?
FRZ: -113°F
UEL: ?
LEL: ?
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
5 ppm: CcrOv/Sa
12.5 ppm: Sa:Cf/PaprOv
25 ppm: CcrFOv/GmFOv/PaprTOv/ ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Oxidizers, reducing agents, strong acids & bases, alkali metals

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose, throat; lass, cyan, incr respiration, nau, drow, head, vomit
TO: Eyes, skin, resp sys, CNS, blood

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

H

2-Hexanone

Formula: $CH_3CO[CH_2]_3CH_3$ | **CAS#:** 591-78-6 | **RTECS#:** MP1400000 | **IDLH:** 1600 ppm

Conversion: 1 ppm = 4.10 mg/m^3 | **DOT:**

Synonyms/Trade Names: Butyl methyl ketone, MBK, Methyl butyl ketone, Methyl n-butyl ketone

Exposure Limits:
NIOSH REL: TWA 1 ppm (4 mg/m^3)
OSHA PEL†: TWA 100 ppm (410 mg/m^3)

Physical Description: Colorless liquid with an acetone-like odor.

Measurement Methods (see Table 1):
NIOSH 1300, 2555
OSHA PV2031

Chemical & Physical Properties:
MW: 100.2
BP: 262°F
Sol: 2%
Fl.P: 77°F
IP: 9.34 eV
Sp.Gr: 0.81
VP: 11 mmHg
FRZ: -71°F
UEL: 8%
LEL: ?
Class IC Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
10 ppm: Sa
25 ppm: Sa:Cf
50 ppm: SaT:Cf/ScbaF/SaF
1600 ppm: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, nose; peri neur: lass, pares; derm; head, drow
TO: Eyes, skin, resp sys, CNS, PNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Hexone

Formula: $CH_3COCH_2CH(CH_3)_2$ | **CAS#:** 108-10-1 | **RTECS#:** SA9275000 | **IDLH:** 500 ppm

Conversion: 1 ppm = 4.10 mg/m^3 | **DOT:** 1245 127

Synonyms/Trade Names: Isobutyl methyl ketone, Methyl isobutyl ketone, 4-Methyl 2-pentanone, MIBK

Exposure Limits:
NIOSH REL: TWA 50 ppm (205 mg/m^3)
ST 75 ppm (300 mg/m^3)
OSHA PEL†: TWA 100 ppm (410 mg/m^3)

Physical Description: Colorless liquid with a pleasant odor.

Measurement Methods (see Table 1):
NIOSH 1300, 2555
OSHA 1004

Chemical & Physical Properties:
MW: 100.2
BP: 242°F
Sol: 2%
Fl.P: 64°F
IP: 9.30 eV
Sp.Gr: 0.80
VP: 16 mmHg
FRZ: -120°F
UEL(200°F): 8.0%
LEL(200°F): 1.2%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
500 ppm: CcrOv*/GmFOv/PaprTOv*/Sa*/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, potassium tert-butoxide

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, muc memb; head, narco, coma; derm; in animals: liver, kidney damage
TO: Eyes, skin, resp sys, CNS, liver, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush prompt
Breath: Resp support
Swallow: Medical attention immed

sec-Hexyl acetate

Formula: $C_8H_{16}O_2$
CAS#: 108-84-9
RTECS#: SA7525000
IDLH: 500 ppm

Conversion: 1 ppm = 5.90 mg/m^3
DOT: 1233 130

Synonyms/Trade Names: 1,3-Dimethylbutyl acetate; Methylisoamyl acetate

Exposure Limits:
NIOSH REL: TWA 50 ppm (300 mg/m^3)
OSHA PEL: TWA 50 ppm (300 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1450
OSHA 7

Physical Description: Colorless liquid with a mild, pleasant, fruity odor.

Chemical & Physical Properties:
MW: 144.2
BP: 297°F
Sol: 0.08%
Fl.P: 113°F
IP: ?
Sp.Gr: 0.86
VP: 3 mmHg
FRZ: -83°F
UEL: ?
LEL: ?
Class II Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
500 ppm: CcrOv*/GmFOv/PaprOv*/Sa*/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Nitrates; strong oxidizers, alkalis & acids

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose, throat; head; in animals: narco
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush prompt
Breath: Resp support
Swallow: Medical attention immed

Hexylene glycol

Formula: $(CH_3)_2COHCH_2CHOHCH_3$
CAS#: 107-41-5
RTECS#: SA0810000
IDLH: N.D.

Conversion: 1 ppm = 4.83 mg/m^3
DOT:

Synonyms/Trade Names: 2,4-Dihydroxy-2-methylpentane; 2-Methyl-2,4-pentanediol; 4-Methyl-2,4-pentanediol; 2-Methylpentane-2,4-diol

Exposure Limits:
NIOSH REL: C 25 ppm (125 mg/m^3)
OSHA PEL†: none

Measurement Methods (see Table 1):
OSHA PV2101

Physical Description: Colorless liquid with a mild, sweetish odor.

Chemical & Physical Properties:
MW: 118.2
BP: 388°F
Sol: Miscible
Fl.P: 209°F
IP: ?
Sp.Gr: 0.92
VP: 0.05 mmHg
FRZ: -58°F (Sets to glass)
UEL(est): 7.4%
LEL(calc): 1.3%
Class IIIB Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Strong oxidizers, strong acids
[**Note:** Hygroscopic (i.e., absorbs moisture from the air).]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, resp sys; head, dizz, nau, inco, CNS depres; derm, skin sens
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water wash immed
Breath: Resp support
Swallow: Medical attention immed

H

Hydrazine

Formula:	CAS#:	RTECS#:	IDLH:
H_2NNH_2	302-01-2	MU7175000	Ca [50 ppm]

Conversion: 1 ppm = 1.31 mg/m^3

DOT: 2029 132 (anhydrous); 3293 152 (≤ 37% solution); 2030 153 (37-64% solution); 2029 132 (>64% solution)

Synonyms/Trade Names: Diamine, Hydrazine (anhydrous), Hydrazine base

Exposure Limits:
NIOSH REL: Ca
C 0.03 ppm (0.04 mg/m^3) [2-hour]
See Appendix A
OSHA PEL†: TWA 1 ppm (1.3 mg/m^3) [skin]

Measurement Methods (see Table 1):
NIOSH 3503
OSHA 20, 108

Physical Description: Colorless, fuming, oily liquid with an ammonia-like odor. [**Note:** A solid below 36°F.]

Chemical & Physical Properties:
MW: 32.1
BP: 236°F
Sol: Miscible
Fl.P: 99°F
IP: 8.93 eV
Sp.Gr: 1.01
VP: 10 mmHg
FRZ: 36°F
UEL: 98%
LEL: 2.9%
Class IC Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: ScbaE

Incompatibilities and Reactivities: Oxidizers, hydrogen peroxide, nitric acid, metallic oxides, acids
[**Note:** Can ignite SPONTANEOUSLY on contact with oxidizers or porous materials such as earth, wood & cloth.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, nose, throat; temporary blindness; dizz, nau; derm; eye, skin burns; in animals: bron, pulm edema; liver, kidney damage; convuls; [carc]
TO: Eyes, skin, resp sys, CNS, liver, kidneys [in animals: tumors of the lungs, liver, blood vessels & intestine]

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

Hydrogenated terphenyls

Formula:	CAS#:	RTECS#:	IDLH:
$(C_6H_n)_3$	61788-32-7	WZ6535000	N.D.

Conversion: 1 ppm = 12.19 mg/m^3 (40% hydrogenated)

DOT:

Synonyms/Trade Names: Hydrogenated diphenylbenzenes, Hydrogenated phenylbiphenyls, Hydrogenated triphenyls [**Note:** Complex mixture of terphenyl isomers that are partially hydrogenated.]

Exposure Limits:
NIOSH REL: TWA 0.5 ppm (5 mg/m^3)
OSHA PEL†: none

Measurement Methods (see Table 1):
None available

Physical Description: Clear, oily, pale-yellow liquids with a faint odor. [plasticizer/heat-transfer media]

Chemical & Physical Properties:
MW: 298 (40% hydrogenated)
BP: 644°F (40% hydrogenated)
Sol: Insoluble
Fl.P: 315°F (40% hydrogenated)
IP: ?
Sp.Gr(77°F): 1.003-1.009 (40% hydrogenated)
VP: ?
FRZ: ?
UEL: ?
LEL: ?
Class IIIB Combustible Liquids

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: None reported [**Note:** When heated, irritating vapors will be released.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, resp sys; liver, kidney, hemato damage
TO: Eyes, skin, resp sys, liver, kidneys, hemato sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Hydrogen bromide	Formula: HBr	CAS#: 10035-10-6	RTECS#: MW3850000	IDLH: 30 ppm
Conversion: 1 ppm = 3.31 mg/m^3	**DOT:** 1048 125 (anhydrous); 1788 154 (solution)			

Synonyms/Trade Names: Anhydrous hydrogen bromide; Aqueous hydrogen bromide (i.e., Hydrobromic acid)

Exposure Limits:
NIOSH REL: C 3 ppm (10 mg/m^3)
OSHA PEL†: TWA 3 ppm (10 mg/m^3)

Physical Description: Colorless gas with a sharp, irritating odor.
[**Note:** Shipped as a liquefied compressed gas. Often used in an aqueous solution.]

Measurement Methods (see Table 1):
NIOSH 7903
OSHA ID165SG

Chemical & Physical Properties:
MW: 80.9
BP: -88°F
Sol: 49%
Fl.P: NA
IP: 11.62 eV
RGasD: 2.81
VP: 20 atm
FRZ: -124°F
UEL: NA
LEL: NA
Nonflammable Gas

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact (solution)/Frostbite
Eyes: Prevent eye contact (solution)/Frostbite
Wash skin: When contam (solution)
Remove: When wet or contam (solution)
Change: N.R.
Provide: Eyewash (liquid)
Quick drench (solution)
Frostbite wash

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
30 ppm: Sa:Cf£/PaprAg£/GmFAg/ ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFAg/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, strong caustics, moisture, copper, brass, zinc
[**Note:** Hydrobromic acid is highly corrosive to most metals.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing (solution), Con
SY: Irrit eyes, skin, nose, throat; solution: eye, skin burns; liquid: frostbite
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed (solution)/Frostbite
Skin: Water flush immed (solution)/Frostbite
Breath: Resp support
Swallow: Medical attention immed (solution)

Hydrogen chloride	Formula: HCl	CAS#: 7647-01-0	RTECS#: MW4025000	IDLH: 50 ppm
Conversion: 1 ppm = 1.49 mg/m^3	**DOT:** 1050 125 (anhydrous); 1789 157 (solution)			

Synonyms/Trade Names: Anhydrous hydrogen chloride;
Aqueous hydrogen chloride (i.e., Hydrochloric acid, Muriatic acid) [**Note:** Often used in an aqueous solution.]

Exposure Limits:
NIOSH REL: C 5 ppm (7 mg/m^3)
OSHA PEL: C 5 ppm (7 mg/m^3)

Physical Description: Colorless to slightly yellow gas with a pungent, irritating odor.
[**Note:** Shipped as a liquefied compressed gas.]

Measurement Methods (see Table 1):
NIOSH 7903
OSHA ID174SG

Chemical & Physical Properties:
MW: 36.5
BP: -121°F
Sol(86°F): 67%
Fl.P: NA
IP: 12.74 eV
RGasD: 1.27
VP: 40.5 atm
FRZ: -174°F
UEL: NA
LEL: NA
Nonflammable Gas

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact (solution)/Frostbite
Eyes: Prevent eye contact/Frostbite
Wash skin: When contam (solution)
Remove: When wet or contam (solution)
Change: N.R.
Provide: Eyewash (solution)
Quick drench (solution)
Frostbite wash

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
50 ppm: CcrS*/GmFS/PaprS*/ Sa*/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFAg/ScbaE

Incompatibilities and Reactivities: Hydroxides, amines, alkalis, copper, brass, zinc
[**Note:** Hydrochloric acid is highly corrosive to most metals.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing (solution), Con
SY: Irrit nose, throat, larynx; cough, choking; derm; solution: eye, skin burns; liquid: frostbite; in animals: lar spasm; pulm edema
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed (solution)/Frostbite
Skin: Water flush immed (solution)/Frostbite
Breath: Resp support
Swallow: Medical attention immed (solution)

H

Hydrogen cyanide

Formula: HCN | **CAS#:** 74-90-8 | **RTECS#:** MW6825000 | **IDLH:** 50 ppm

Conversion: 1 ppm = 1.10 mg/m^3

DOT: 1051 117 (>20% solution); 1051 117 (anhydrous); 1613 154 (20% solution)

Synonyms/Trade Names: Formonitrile, Hydrocyanic acid, Prussic acid

Exposure Limits:
NIOSH REL: ST 4.7 ppm (5 mg/m^3) [skin]
OSHA PEL†: TWA 10 ppm (11 mg/m^3) [skin]

Measurement Methods (see Table 1):
NIOSH 6010, 6017

Physical Description: Colorless or pale-blue liquid or gas (above 78°F) with a bitter, almond-like odor. [**Note:** Often used as a 96% solution in water.]

Chemical & Physical Properties:
MW: 27.0
BP: 78°F (96%)
Sol: Miscible
Fl.P: 0°F (96%)
IP: 13.60 eV
Sp.Gr: 0.69
VP: 630 mmHg
FRZ: 7°F (96%)
UEL: 40.0%
LEL: 5.6%
Class IA Flammable Liquid
Flammable Gas

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
47 ppm: Sa
50 ppm: Sa:Cf/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS/ScbaE

Incompatibilities and Reactivities: Amines, oxidizers, acids, sodium hydroxide, calcium hydroxide, sodium carbonate, caustics, ammonia [**Note:** Can polymerize at 122-140°F.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Asphy; lass, head, conf; nau, vomit; incr rate and depth of respiration or respiration slow and gasping; thyroid, blood changes
TO: CNS, CVS, thyroid, blood

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

Hydrogen fluoride

Formula: HF | **CAS#:** 7664-39-3 | **RTECS#:** MW7875000 | **IDLH:** 30 ppm

Conversion: 1 ppm = 0.82 mg/m^3

DOT: 1052 125 (anhydrous); 1790 157 (solution)

Synonyms/Trade Names: Anhydrous hydrogen fluoride; Aqueous hydrogen fluoride (i.e., Hydrofluoric acid); HF-A

Exposure Limits:
NIOSH REL: TWA 3 ppm (2.5 mg/m^3)
C 6 ppm (5 mg/m^3) [15-minute]
OSHA PEL†: TWA 3 ppm

Measurement Methods (see Table 1):
NIOSH 3800, 7902, 7903, 7906
OSHA ID110

Physical Description: Colorless gas or fuming liquid (below 67°F) with a strong, irritating odor. [**Note:** Shipped in cylinders.]

Chemical & Physical Properties:
MW: 20.0
BP: 67°F
Sol: Miscible
Fl.P: NA
IP: 15.98 eV
RGasD: 1.86
Sp.Gr: 1.00 (Liquid at 67°F)
VP: 783 mmHg
FRZ: -118°F
UEL: NA
LEL: NA
Nonflammable Gas

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact (liquid)
Eyes: Prevent eye contact (liquid)
Wash skin: When contam (liquid)
Remove: When wet or contam (liquid)
Change: N.R.
Provide: Eyewash (liquid)
Quick drench (liquid)

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
30 ppm: CcrS*/PaprS*/GmFS/Sa*/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS/ScbaE

Incompatibilities and Reactivities: Metals, water or steam
[**Note:** Corrosive to metals. Will attack glass and concrete.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs (liquid), Ing (solution), Con
SY: Irrit eyes, skin, nose, throat; pulm edema; eye, skin burns; rhinitis; bron; bone changes
TO: Eyes, skin, resp sys, bones

First Aid (see Table 6):
Eye: Irr immed (solution/liquid)
Skin: Water flush immed (solution/liquid)
Breath: Resp support
Swallow: Medical attention immed (solution)

Hydrogen peroxide	Formula: H_2O_2	CAS#: 7722-84-1	RTECS#: MX0900000	IDLH: 75 ppm
Conversion: 1 ppm = 1.39 mg/m^3	**DOT:** 2984 140 (8-20% solution); 2014 140 (20-60% solution); 2015 143 (>60% solution)			

Synonyms/Trade Names: High-strength hydrogen peroxide, Hydrogen dioxide, Hydrogen peroxide (aqueous), Hydroperoxide, Peroxide

Exposure Limits:
NIOSH REL: TWA 1 ppm (1.4 mg/m^3)
OSHA PEL: TWA 1 ppm (1.4 mg/m^3)

Measurement Methods (see Table 1):
OSHA ID126SG

Physical Description: Colorless liquid with a slightly sharp odor.
[**Note:** The pure compound is a crystalline solid below 12°F. Often used in an aqueous solution.]

Chemical & Physical Properties:
MW: 34.0
BP: 286°F
Sol: Miscible
Fl.P: NA
IP: 10.54 eV
Sp.Gr: 1.39
VP(86°F): 5 mmHg
FRZ: 12°F
UEL: NA
LEL: NA
Noncombustible Liquid, but a powerful oxidizer.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
10 ppm: Sa*
25 ppm: Sa:Cf*
50 ppm: ScbaF/SaF
75 ppm: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS/ScbaE

Incompatibilities and Reactivities: Oxidizable materials, iron, copper, brass, bronze, chromium, zinc, lead, silver, manganese [**Note:** Contact with combustible material may result in SPONTANEOUS combustion.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, nose, throat; corn ulcer; eryt, vesic skin; bleaching hair
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

Hydrogen selenide	Formula: H_2Se	CAS#: 7783-07-5	RTECS#: MX1050000	IDLH: 1 ppm
Conversion: 1 ppm = 3.31 mg/m^3	**DOT:** 2202 117 (anhydrous)			

Synonyms/Trade Names: Selenium dihydride, Selenium hydride

Exposure Limits:
NIOSH REL: TWA 0.05 ppm (0.2 mg/m^3)
OSHA PEL: TWA 0.05 ppm (0.2 mg/m^3)

Measurement Methods (see Table 1):
None available

Physical Description: Colorless gas with an odor resembling decayed horseradish.
[**Note:** Shipped as a liquefied compressed gas.]

Chemical & Physical Properties:
MW: 81.0
BP: -42°F
Sol(73°F): 0.9%
Fl.P: NA (Gas)
IP: 9.88 eV
RGasD: 2.80
VP(70°F): 9.5 atm
FRZ: -87°F
UEL: ?
LEL: ?
Flammable Gas

Personal Protection/Sanitation (see Table 2):
Skin: Frostbite
Eyes: Frostbite
Wash skin: N.R.
Remove: When wet (flamm)
Change: N.R.
Provide: Frostbite wash

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
0.5 ppm: Sa
1 ppm: Sa:Cf*/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS¿/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, acids, water, halogenated hydrocarbons

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Irrit eyes, nose, throat; nau, vomit, diarr; metallic taste, garlic breath; dizz, lass; liquid: frostbite; in animals: pneu; liver damage
TO: Eyes, resp sys, liver

First Aid (see Table 6):
Eye: Frostbite
Skin: Frostbite
Breath: Resp support

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Hydrogen sulfide

Formula:	CAS#:	RTECS#:	IDLH:
H_2S	7783-06-4	MX1225000	100 ppm

Conversion: 1 ppm = 1.40 mg/m^3 **DOT:** 1053 117

Synonyms/Trade Names: Hydrosulfuric acid, Sewer gas, Sulfuretted hydrogen

Exposure Limits:
NIOSH REL: C 10 ppm (15 mg/m^3) [10-minute]
OSHA PEL†: C 20 ppm
50 ppm [10-minute maximum peak]

Measurement Methods (see Table 1):
NIOSH 6013
OSHA ID141

Physical Description: Colorless gas with a strong odor of rotten eggs.
[**Note:** Sense of smell becomes rapidly fatigued & can NOT be relied upon to warn of the continuous presence of H_2S. Shipped as a liquefied compressed gas.]

Chemical & Physical Properties:
MW: 34.1
BP: -77°F
Sol: 0.4%
Fl.P: NA (Gas)
IP: 10.46 eV
RGasD: 1.19
VP: 17.6 atm
FRZ: -122°F
UEL: 44.0%
LEL: 4.0%
Flammable Gas

Personal Protection/Sanitation (see Table 2):
Skin: Frostbite
Eyes: Frostbite
Wash skin: N.R.
Remove: When wet (flamm)
Change: N.R.
Provide: Frostbite wash

Respirator Recommendations (see Tables 3 and 4):
NIOSH
100 ppm: PaprS/GmFS/Sa*/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, strong nitric acid, metals

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Irrit eyes, resp sys; apnea, coma, convuls; conj, eye pain, lac, photo, corn vesic; dizz, head, lass, irrity, insom; GI dist; liquid: frostbite
TO: Eyes, resp sys, CNS

First Aid (see Table 6):
Eye: Frostbite
Skin: Frostbite
Breath: Resp support

Hydroquinone

Formula:	CAS#:	RTECS#:	IDLH:
$C_6H_4(OH)_2$	123-31-9	MX3500000	50 mg/m^3

Conversion: **DOT:** 2662 153

Synonyms/Trade Names: p-Benzenediol; 1,4-Benzenediol; Dihydroxybenzene; 1,4-Dihydroxybenzene; Quinol

Exposure Limits:
NIOSH REL: C 2 mg/m^3 [15-minute]
OSHA PEL: TWA 2 mg/m^3

Measurement Methods (see Table 1):
NIOSH 5004
OSHA PV2094

Physical Description: Light-tan, light-gray, or colorless crystals.

Chemical & Physical Properties:
MW: 110.1
BP: 545°F
Sol: 7%
Fl.P: 329°F (Molten)
IP: 7.95 eV
Sp.Gr: 1.33
VP: 0.00001 mmHg
MLT: 338°F
UEL: ?
LEL: ?
Combustible Solid; dust cloud may explode if ignited in an enclosed area.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash (>7%)

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
50 mg/m^3: PaprHie£/100F/SaT:Cf£/ ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, alkalis

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes; conj; kera; CNS excitement; colored urine, nau, dizz, suffocation, rapid breath; musc twitch, delirium; collapse; skin irrit, sens, derm
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush
Breath: Resp support
Swallow: Medical attention immed

2-Hydroxypropyl acrylate	Formula: $CH_2=CHCOOCH_2CHOHCH_3$	CAS#: 999-61-1	RTECS#: AT1925000	IDLH: N.D.
Conversion: 1 ppm = 5.33 mg/m^3	**DOT:**			

Synonyms/Trade Names: HPA, β-Hydroxypropyl acrylate, Propylene glycol monoacrylate

Exposure Limits:
NIOSH REL: TWA 0.5 ppm (3 mg/m^3) [skin]
OSHA PEL†: none

Measurement Methods (see Table 1):
None available

Physical Description: Clear to light-yellow liquid wiith a sweetish, solvent odor.

Chemical & Physical Properties:
MW: 130.2
BP: 376°F
Sol: ?
Fl.P: 149°F
IP: ?
Sp.Gr: 1.05
VP: ?
FRZ: ?
UEL: ?
LEL: 1.8%
Class IIIA Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Water [**Note:** Can become unstable at high temperatures & pressures or may react with water with some release of energy, but not violently.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, resp sys; eye, skin burns; cough, dysp
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap flush immed
Breath: Resp support
Swallow: Medical attention immed

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Indene	Formula: C_9H_8	CAS#: 95-13-6	RTECS#: NK8225000	IDLH: N.D.
Conversion: 1 ppm = 4.75 mg/m^3	**DOT:**			

Synonyms/Trade Names: Indonaphthene

Exposure Limits:
NIOSH REL: TWA 10 ppm (45 mg/m^3)
OSHA PEL†: none

Measurement Methods (see Table 1):
None available

Physical Description: Colorless liquid. [**Note:** A solid below 29°F.]

Chemical & Physical Properties:
MW: 116.2
BP: 359°F
Sol: Insoluble
Fl.P: 173°F
IP: 8.81 eV
Sp.Gr: 0.997
VP: ?
FRZ: 29°F
UEL: ?
LEL: ?
Class IIIA Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: Daily
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: None reported
[**Note:** Polymerizes & oxidizes on standing. It has exploded during nitration with (H_2SO_4 + HNO_3).]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: In animals: irrit eyes, skin, muc memb; derm, skin sens; chemical pneu (aspir liquid); liver, kidney, spleen inj
TO: Eyes, skin, resp sys, liver, kidneys, spleen

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Resp support
Swallow: Medical attention immed

Indium	**Formula:** In	**CAS#:** 7440-74-6	**RTECS#:** NL1050000	**IDLH:** N.D.
Conversion:	**DOT:**			
Synonyms/Trade Names: Indium metal				

Exposure Limits:
NIOSH REL*: TWA 0.1 mg/m^3
[***Note:** The REL also applies to other indium compounds (as In).]
OSHA PEL†: none

Measurement Methods (see Table 1):
NIOSH 7303, P&CAM173 (II-5)
OSHA ID121

Physical Description: Ductile, shiny, silver-white metal that is softer than lead.

Chemical & Physical Properties:
MW: 114.8
BP: 3767°F
Sol: Insoluble
Fl.P: NA
IP: NA
Sp.Gr: 7.31
VP: 0 mmHg (approx)
MLT: 314°F
UEL: NA
LEL: NA
Noncombustible Solid in bulk form, but may ignite in powdered or dust form.

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: (Dinitrogen tetraoxide + acetonitrile), mercury(II) bromide (at 662°F), sulfur (mixtures ignite when heated) [**Note:** oxidizes readily at higher temperatures.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, resp sys; possible liver, kidney, heart, blood effects; pulm edema
TO: Eyes, skin, resp sys, liver, kidneys, heart, blood

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Resp support
Swallow: Medical attention immed

Iodine	**Formula:** I_2	**CAS#:** 7553-56-2	**RTECS#:** NN1575000	**IDLH:** 2 ppm
Conversion: 1 ppm = 10.38 mg/m^3	**DOT:**			
Synonyms/Trade Names: Iodine crystals, Molecular iodine				

Exposure Limits:
NIOSH REL: C 0.1 ppm (1 mg/m^3)
OSHA PEL: C 0.1 ppm (1 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 6005
OSHA ID212

Physical Description: Violet solid with a sharp, characteristic odor.

Chemical & Physical Properties:
MW: 253.8
BP: 365°F
Sol: 0.01%
Fl.P: NA
IP: 9.31 eV
Sp.Gr: 4.93
VP(77°F): 0.3 mmHg
MLT: 236°F
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash (>7%)
Quick drench (>7%)

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
1 ppm: Sa*
2 ppm: Sa:Cf*/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFAg100/ScbaE

Incompatibilities and Reactivities: Ammonia, acetylene, acetaldehyde, powdered aluminum, active metals, liquid chlorine

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose; lac; head; chest tight; skin burns, rash; cutaneous hypersensitivity
TO: Eyes, skin, resp sys, CNS, CVS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Iodoform

Formula: CHI_3
CAS#: 75-47-8
RTECS#: PB7000000
IDLH: N.D.

Conversion: 1 ppm = 16.10 mg/m^3
DOT:

Synonyms/Trade Names: Triiodomethane

Exposure Limits:
NIOSH REL: TWA 0.6 ppm (10 mg/m^3)
OSHA PEL†: none

Measurement Methods (see Table 1):
None available

Physical Description: Yellow to greenish-yellow powder or crystalline solid with a pungent, disagreeable odor. [antiseptic for external use]

Chemical & Physical Properties:
MW: 393.7
BP: 410°F (Decomposes)
Sol: 0.01%
Fl.P: NA
IP: ?
Sp.Gr: 4.01
VP: ?
MLT: 246°F
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Strong oxidizers, lithium, metallic salts (e.g., mercuric oxide, silver nitrate), strong bases, calomel, tannin

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin; lass, dizz, nau, inco, CNS depres; dysp; liver, kidney, heart damage; vis dist
TO: Eyes, skin, resp sys, liver, kidneys, heart

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Iron oxide dust and fume (as Fe)

Formula: Fe_2O_3
CAS#: 1309-37-1
RTECS#: NO7400000
NO7525000 (fume)
IDLH: 2500 mg/m^3 (as Fe)

Conversion:
DOT: 1376 135 (spent)

Synonyms/Trade Names: Ferric oxide, Iron(III) oxide

Exposure Limits:
NIOSH REL: TWA 5 mg/m^3
OSHA PEL: TWA 10 mg/m^3

Measurement Methods (see Table 1):
NIOSH 7300, 7301, 7303, 9102
OSHA ID121, ID125G

Physical Description: Reddish-brown solid.
[**Note:** Exposure to fume may occur during the arc-welding of iron.]

Chemical & Physical Properties:
MW: 159.7
BP: ?
Sol: Insoluble
Fl.P: NA
IP: NA
Sp.Gr: 5.24
VP: 0 mmHg (approx)
MLT: 2664°F
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
50 mg/m^3: 95XQ/Sa
125 mg/m^3: Sa:Cf/PaprHie
250 mg/m^3: 100F/SaT:Cf/PaprTHie/ ScbaF/SaF
2500 mg/m^3: Sa:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Calcium hypochlorite

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh
SY: Benign pneumoconiosis with X-ray shadows indistinguishable from fibrotic pneumoconiosis (siderosis)
TO: Resp sys

First Aid (see Table 6):
Breath: Resp support

Iron pentacarbonyl (as Fe)	Formula: $Fe(CO)_5$	CAS#: 13463-40-6	RTECS#: NO4900000	IDLH: N.D.
Conversion: 1 ppm = 2.28 mg/m^3 (as Fe)	**DOT:** 1994 131			

Synonyms/Trade Names: Iron carbonyl, Pentacarbonyl iron

Exposure Limits:
NIOSH REL: TWA 0.1 ppm (0.23 mg/m^3)
ST 0.2 ppm (0.45 mg/m^3)
OSHA PEL†: none

Measurement Methods (see Table 1):
None available

Physical Description: Colorless to yellow to dark-red, oily liquid.

Chemical & Physical Properties:
MW: 195.9
BP(749 mmHg): 217°F
Sol: Insoluble
Fl.P: 5°F
IP: ?
Sp.Gr: 1.46-1.52
VP(87°F): 40 mmHg
FRZ: -6°F
UEL: ?
LEL: ?
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.
Provide: Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Oxidizers, nitrogen oxide, (zinc + cobalt halides)
[**Note:** Pyrophoric (i.e., ignites spontaneously in air). Decomposed by light or air, releasing carbon monoxide.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, muc memb, resp sys; head, dizz, nau, vomit; fever, cyan, cough, dysp; liver, kidney, lung inj; degenerative changes in CNS
TO: Eyes, resp sys, CNS, liver, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap flush immed
Breath: Resp support
Swallow: Medical attention immed

Iron salts (soluble, as Fe)	Formula:	CAS#:	RTECS#:	IDLH: N.D.
Conversion:	**DOT:**			

Synonyms/Trade Names: **$FeSO_4$:** Ferrous sulfate, Iron(II) sulfate; **$FeCl_2$:** Ferrous chloride, Iron(II) chloride; **$Fe(NO_3)_3$:** Ferric nitrate, Iron(III) nitrate; **$Fe(SO_4)_3$:** Ferric sulfate, Iron(III) sulfate; **$FeCl_3$:** Ferric chloride, Iron (III) chloride

Exposure Limits:
NIOSH REL: TWA 1 mg/m^3
OSHA PEL†: none

Measurement Methods (see Table 1):
NIOSH 7300, 7301, 7303, 9102
OSHA ID121, ID125G

Physical Description: Appearance and odor vary depending upon the specific soluble iron salt.

Chemical & Physical Properties:
Properties vary depending upon the specific soluble iron salt.

Noncombustible Solids

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: Daily
Remove: N.R.
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Varies

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, muc memb; abdom pain, diarr, vomit; possible liver damage
TO: Eyes, skin, resp sys, liver, GI tract

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Resp support
Swallow: Medical attention immed

Isoamyl acetate	**Formula:** $CH_3COOCH_2CH_2CH(CH_3)_2$	**CAS#:** 123-92-2	**RTECS#:** NS9800000	**IDLH:** 1000 ppm
Conversion: 1 ppm = 5.33 mg/m^3	**DOT:** 1104 129			

Synonyms/Trade Names: Banana oil, Isopentyl acetate, 3-Methyl-1-butanol acetate, 3-Methylbutyl ester of acetic acid, 3-Methylbutyl ethanoate

Exposure Limits:
NIOSH REL: TWA 100 ppm (525 mg/m^3)
OSHA PEL: TWA 100 ppm (525 mg/m^3)

Physical Description: Colorless liquid with a banana-like odor.

Measurement Methods (see Table 1):
NIOSH 1450
OSHA 7

Chemical & Physical Properties:
MW: 130.2
BP: 288°F
Sol: 0.3%
Fl.P: 77°F
IP: ?
Sp.Gr: 0.87
VP: 4 mmHg
FRZ: -109°F
UEL: 7.5%
LEL(212°F): 1.0%
Class IC Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
1000 ppm: CcrOv/PaprOv/GmFOv/Sa/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Nitrates; strong oxidizers, alkalis & acids

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose, throat; derm; in animals: narco
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush prompt
Breath: Resp support
Swallow: Medical attention immed

Isoamyl alcohol (primary)	**Formula:** $(CH_3)_2CHCH_2CH_2OH$	**CAS#:** 123-51-3	**RTECS#:** EL5425000	**IDLH:** 500 ppm
Conversion: 1 ppm = 3.61 mg/m^3	**DOT:** 1105 129			

Synonyms/Trade Names: Fermentation amyl alcohol, Fusel oil, Isobutyl carbinol, Isopentyl alcohol, 3-Methyl-1-butanol, Primary isoamyl alcohol

Exposure Limits:
NIOSH REL: TWA 100 ppm (360 mg/m^3)
ST 125 ppm (450 mg/m^3)
OSHA PEL†: TWA 100 ppm (360 mg/m^3)

Physical Description: Colorless liquid with a disagreeable odor.

Measurement Methods (see Table 1):
NIOSH 1402, 1405

Chemical & Physical Properties:
MW: 88.2
BP: 270°F
Sol(57°F): 2%
Fl.P: 109°F
IP: ?
Sp.Gr(57°F): 0.81
VP: 28 mmHg
FRZ: -179°F
UEL(212°F): 9.0%
LEL: 1.2%
Class II Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
500 ppm: Sa:Cf£/CcrFOv/GmFOv/PaprOv£/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose, throat; head, dizz; cough, dysp, nau, vomit, diarr; skin cracking; in animals: narco
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush prompt
Breath: Resp support
Swallow: Medical attention immed

Isoamyl alcohol (secondary)	**Formula:** $(CH_3)_2CHCH(OH)CH_3$	**CAS#:** 6032-29-7	**RTECS#:** SA4900000	**IDLH:** 500 ppm
Conversion: 1 ppm = 3.61 mg/m^3	**DOT:** 1105 129			
Synonyms/Trade Names: 3-Methyl-2-butanol, Secondary isoamyl alcohol				

Exposure Limits:
NIOSH REL: TWA 100 ppm (360 mg/m^3)
ST 125 ppm (450 mg/m^3)
OSHA PEL†: TWA 100 ppm (360 mg/m^3)

Physical Description: Colorless liquid with a disagreeable odor.

Measurement Methods (see Table 1):
NIOSH 1402

Chemical & Physical Properties:
MW: 88.2
BP: 234°F
Sol: ?
Fl.P(oc): 95°F
IP: ?
Sp.Gr: 0.82
VP: 1 mmHg
FRZ: ?
UEL: ?
LEL: ?
Class IC Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
500 ppm: Sa:Cf£/CcrFOv/GmFOv/PaprOv£/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose, throat; head, dizz; cough, dysp, nau, vomit, diarr; skin cracking; in animals: narco
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush prompt
Breath: Resp support
Swallow: Medical attention immed

Isobutane	**Formula:** $CH_3CH(CH_3)_2$	**CAS#:** 75-28-5	**RTECS#:** TZ4300000	**IDLH:** N.D.
Conversion: 1 ppm = 2.38 mg/m^3	**DOT:** 1075 115; 1969 115			
Synonyms/Trade Names: 2-Methylpropane [**Note:** Also see specific listing for n-Butane.]				

Exposure Limits:
NIOSH REL: TWA 800 ppm (1900 mg/m^3)
OSHA PEL†: none

Physical Description: Colorless gas with a gasoline-like or natural gas odor.
[**Note:** Shipped as a liquefied compressed gas. A liquid below 11°F.]

Measurement Methods (see Table 1):
None available

Chemical & Physical Properties:
MW: 58.1
BP: 11°F
Sol: Slight
Fl.P: NA (Gas)
IP: 10.74 eV
RGasD: 2.06
VP(70°F): 3.1 atm
FRZ: -255°F
UEL: 8.4%
LEL: 1.6%
Flammable Gas

Personal Protection/Sanitation (see Table 2):
Skin: Frostbite
Eyes: Frostbite
Wash skin: N.R.
Remove: When wet (flamm)
Change: N.R.
Provide: Frostbite wash

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Strong oxidizers (e.g., nitrates & perchlorates), chlorine, fluorine, (nickel carbonyl + oxygen)

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con (liquid)
SY: Drow, narco, asphy; liquid: frostbite
TO: CNS

First Aid (see Table 6):
Eye: Frostbite
Skin: Frostbite
Breath: Resp support

Isobutyl acetate	Formula: $CH_3COOCH_2CH(CH_3)_2$	CAS#: 110-19-0	RTECS#: AI4025000	IDLH: 1300 ppm [10%LEL]
Conversion: 1 ppm = 4.75 mg/m^3	**DOT:** 1213 129			

Synonyms/Trade Names: Isobutyl ester of acetic acid, 2-Methylpropyl acetate, 2-Methylpropyl ester of acetic acid, β-Methylpropyl ethanoate

Exposure Limits:
NIOSH REL: TWA 150 ppm (700 mg/m^3)
OSHA PEL: TWA 150 ppm (700 mg/m^3)

Physical Description: Colorless liquid with a fruity, floral odor.

Measurement Methods (see Table 1):
NIOSH 1450
OSHA 7

Chemical & Physical Properties:
MW: 116.2
BP: 243°F
Sol(77°F): 0.6%
Fl.P: 64°F
IP: 9.97 eV
Sp.Gr: 0.87
VP: 13 mmHg
FRZ: -145°F
UEL: 10.5%
LEL: 1.3%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
1300 ppm: Sa:Cf£/CcrFOv/GmFOv/PaprOv£/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Nitrates; strong oxidizers, alkalis & acids

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, upper resp sys; head, drow, anes; in animals: narco
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush prompt
Breath: Resp support
Swallow: Medical attention immed

Isobutyl alcohol	Formula: $(CH_3)_2CHCH_2OH$	CAS#: 78-83-1	RTECS#: NP9625000	IDLH: 1600 ppm
Conversion: 1 ppm = 3.03 mg/m^3	**DOT:** 1212 129			

Synonyms/Trade Names: IBA, Isobutanol, Isopropylcarbinol, 2-Methyl-1-propanol

Exposure Limits:
NIOSH REL: TWA 50 ppm (150 mg/m^3)
OSHA PEL†: TWA 100 ppm (300 mg/m^3)

Physical Description: Colorless, oily liquid with a sweet, musty odor.

Measurement Methods (see Table 1):
NIOSH 1401, 1405
OSHA 7

Chemical & Physical Properties:
MW: 74.1
BP: 227°F
Sol: 10%
Fl.P: 82°F
IP: 10.12 eV
Sp.Gr: 0.80
VP: 9 mmHg
FRZ: -162°F
UEL(202°F): 10.6%
LEL(123°F): 1.7%
Class IC Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
500 ppm: CcrOv*/Sa*
1250 ppm: Sa:Cf*/PaprOv*
1600 ppm: CcrFOv/GmFOv/PaprTOv*/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, throat; head, drow; skin cracking; in animals: narco
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush prompt
Breath: Resp support
Swallow: Medical attention immed

Isobutyronitrile	Formula: $(CH_3)_2CHCN$	CAS#: 78-82-0	RTECS#: TZ4900000	IDLH: N.D.
Conversion: 1 ppm = 2.83 mg/m^3	**DOT:** 2284 131			

Synonyms/Trade Names: Isopropyl cyanide, 2-Methylpropanenitrile, 2-Methylpropionitrile

Exposure Limits:
NIOSH REL: TWA 8 ppm (22 mg/m^3)
OSHA PEL: none

Measurement Methods (see Table 1):
NIOSH 1606 (adapt)

Physical Description: Colorless liquid with an almond-like odor.
[**Note:** Forms cyanide in the body.]

Chemical & Physical Properties:
MW: 69.1
BP: 219°F
Sol: Slight
Fl.P: 47°F
IP: ?
Sp.Gr: 0.76
VP(130°F): 100 mmHg
FRZ: -97°F
UEL: ?
LEL: ?
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
80 ppm: CcrOv/Sa
200 ppm: Sa:Cf/PaprOv
400 ppm: CcrFOv/GmFOv/PaprTOv/ ScbaF/SaF
1000 ppm: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Oxidizers, reducing agents, strong acids & bases

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, nose, throat; head, dizz, lass, conf, convuls; dysp; abdom pain, nau, vomit
TO: Eyes, skin, resp sys, CNS, CVS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap flush immed
Breath: Resp support
Swallow: Medical attention immed

Isooctyl alcohol	Formula: $C_7H_{15}CH_2OH$	CAS#: 26952-21-6	RTECS#: NS7700000	IDLH: N.D.
Conversion: 1 ppm = 5.33 mg/m^3	**DOT:**			

Synonyms/Trade Names: Isooctanol, Oxooctyl alcohol [**Note:** A mixture of closely related isomeric, primary alcohols with branched chains such as 2-Ethylhexanol, $CH_3(CH_2)_3CH(CH_2CH_3)CH_2OH$.]

Exposure Limits:
NIOSH REL: TWA 50 ppm (270 mg/m^3) [skin]
OSHA PEL†: none

Measurement Methods (see Table 1):
OSHA PV2033

Physical Description: Clear, colorless liquid.

Chemical & Physical Properties:
MW: 130.3
BP: 367°F
Sol: Insoluble
Fl.P(oc): 180°F
IP: ?
Sp.Gr: 0.83
VP: 0.4 mmHg
FRZ: <-105°F
UEL(est.): 5.7%
LEL(calc.): 0.9%
Class IIIA Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: N.R.
Provide: Eyewash

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: None reported

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, nose, throat; eye, skin burns
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Isophorone	Formula: $C_9H_{14}O$	CAS#: 78-59-1	RTECS#: GW7700000	IDLH: 200 ppm

Conversion: 1 ppm = 5.65 mg/m^3 **DOT:** 1993 128 (combustible liquid, n.o.s.)

Synonyms/Trade Names: Isoacetophorone; 3,5,5-Trimethyl-2-cyclohexenone; 3,5,5-Trimethyl-2-cyclo-hexen-1-one

Exposure Limits:
NIOSH REL: TWA 4 ppm (23 mg/m^3)
OSHA PEL†: TWA 25 ppm (140 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 2508, 2556
OSHA 7

Physical Description: Colorless to white liquid with a peppermint-like odor.

Chemical & Physical Properties:
MW: 138.2
BP: 419°F
Sol: 1%
Fl.P: 184°F
IP: 9.07 eV
Sp.Gr: 0.92
VP: 0.3 mmHg
FRZ: 17°F
UEL: 3.8%
LEL: 0.8%
Class IIIA Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash

Respirator Recommendations (see Tables 3 and 4):
NIOSH
40 ppm: CcrOv*/Sa*
100 ppm: Sa:Cf*/PaprOv*
200 ppm: CcrFOv/GmFOv/PaprTOv*/ SaT:Cf*/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Oxidizers, strong alkalis, amines

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, nose, throat; head, nau, dizz, lass, mal, narco; derm; in animals: kidney, liver damage
TO: Eyes, skin, resp sys, CNS, liver, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

Isophorone diisocyanate	Formula: $C_{12}H_{18}N_2O_2$	CAS#: 4098-71-9	RTECS#: NQ9370000	IDLH: N.D.

Conversion: 1 ppm = 9.09 mg/m^3 **DOT:** 2290 156

Synonyms/Trade Names: IPDI; 3-Isocyanatomethyl-3,5,5-trimethylcyclohexyl-isocyanate; Isophorone diamine diisocyanate

Exposure Limits:
NIOSH REL: TWA 0.005 ppm (0.045 mg/m^3) [skin]
ST 0.02 ppm (0.180 mg/m^3)
OSHA PEL†: none

Measurement Methods (see Table 1):
NIOSH 5525
OSHA PV2034

Physical Description: Colorless to slightly yellow liquid with a pungent odor.

Chemical & Physical Properties:
MW: 222.3
BP: ?
Sol: Decomposes
Fl.P: 311°F
IP: ?
Sp.Gr: 1.06
VP: 0.0003 mmHg
FRZ: -76°F
UEL: ?
LEL: ?
Class IIIB Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
0.05 ppm: Sa*
0.125 ppm: Sa:Cf*
0.25 ppm: ScbaF/SaF
1 ppm: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Water, alcohols, phenols, amines, mercaptans, amides, urethanes, ureas [**Note:** Reacts with water to form carbon dioxide.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, resp sys; chest tight, dysp, cough, sore throat; bron, wheez, pulm edema; possible resp sens, asthma
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

2-Isopropoxyethanol	Formula: $(CH_3)_2CHOCH_2CH_2OH$	CAS#: 109-59-1	RTECS#: KL5075000	IDLH: N.D.
Conversion:	DOT:			

Synonyms/Trade Names: Ethylene glycol isopropyl ether, β-Hydroxyethyl isopropyl ether, Isopropyl Cellosolve®, Isopropyl glycol

Exposure Limits:
NIOSH REL: See Appendix D
OSHA PEL†: none

Measurement Methods (see Table 1):
None available

Physical Description: Colorless liquid with a mild, ethereal odor.

Chemical & Physical Properties:
MW: 104.2
BP: 283°F
Sol: Miscible
Fl.P(oc): 92°F
IP: ?
Sp.Gr: 0.90
VP: 3 mmHg
FRZ: ?
UEL: ?
LEL: ?
Class IC Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: In animals: irrit eyes, skin; hema, anemia, pulm edema
TO: Eyes, skin, resp sys, blood

First Aid (see Table 6):
Eye: Irr immed
Skin: Water wash immed
Breath: Resp support
Swallow: Medical attention immed

Isopropyl acetate	Formula: $CH_3COOCH(CH_3)_2$	CAS#: 108-21-4	RTECS#: AI4930000	IDLH: 1800 ppm
Conversion: 1 ppm = 4.18 mg/m^3	DOT: 1220 129			

Synonyms/Trade Names: Isopropyl ester of acetic acid, 1-Methylethyl ester of acetic acid, 2-Propyl acetate

Exposure Limits:
NIOSH REL: See Appendix D
OSHA PEL†: TWA 250 ppm (950 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1454, 1460
OSHA 7

Physical Description: Colorless liquid with a fruity odor.

Chemical & Physical Properties:
MW: 102.2
BP: 194°F
Sol: 3%
Fl.P: 36°F
IP: 9.95 eV
Sp.Gr: 0.87
VP: 42 mmHg
FRZ: -92°F
UEL: 8%
LEL(100°F): 1.8%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
OSHA
1800 ppm: Sa:Cf£/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Nitrates; strong oxidizers, alkalis & acids

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose; derm; in animals: narco
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush prompt
Breath: Resp support
Swallow: Medical attention immed

Isopropyl alcohol	Formula: $(CH_3)_2CHOH$	CAS#: 67-63-0	RTECS#: NT8050000	IDLH: 2000 ppm [10%LEL]
Conversion: 1 ppm = 2.46 mg/m^3	**DOT:** 1219 129			

Synonyms/Trade Names: Dimethyl carbinol, IPA, Isopropanol, 2-Propanol, sec-Propyl alcohol, Rubbing alcohol

Exposure Limits:
NIOSH REL: TWA 400 ppm (980 mg/m^3)
ST 500 ppm (1225 mg/m^3)
OSHA PEL†: TWA 400 ppm (980 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1400
OSHA 109

Physical Description: Colorless liquid with the odor of rubbing alcohol.

Chemical & Physical Properties:
MW: 60.1
BP: 181°F
Sol: Miscible
Fl.P: 53°F
IP: 10.10 eV
Sp.Gr: 0.79
VP: 33 mmHg
FRZ: -127°F
UEL(200°F): 12.7%
LEL: 2.0%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
2000 ppm: Sa:Cf£/CcrFOv/GmFOv/PaprOv£/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, acetaldehyde, chlorine, ethylene oxide, acids, isocyanates

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, nose, throat; drow, dizz, head; dry cracking skin; in animals: narco
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush
Breath: Resp support
Swallow: Medical attention immed

Isopropylamine	Formula: $(CH_3)_2CHNH_2$	CAS#: 75-31-0	RTECS#: NT8400000	IDLH: 750 ppm
Conversion: 1 ppm = 2.42 mg/m^3	**DOT:** 1221 132			

Synonyms/Trade Names: 2-Aminopropane, Monoisopropylamine, 2-Propylamine, sec-Propylamine

Exposure Limits:
NIOSH REL: See Appendix D
OSHA PEL†: TWA 5 ppm (12 mg/m^3)

Measurement Methods (see Table 1):
NIOSH S147 (II-3)

Physical Description: Colorless liquid with an ammonia-like odor.
[**Note:** A gas above 91°F.]

Chemical & Physical Properties:
MW: 59.1
BP: 91°F
Sol: Miscible
Fl.P(oc): -35°F
IP: 8.72 eV
Sp.Gr: 0.69
VP: 460 mmHg
FRZ: -150°F
UEL: ?
LEL: ?
Class IA Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
OSHA
125 ppm: Sa:Cf£/PaprS£
250 ppm: CcrFS/GmFS/PaprTS£/ScbaF/SaF
750 ppm: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS/ScbaE

Incompatibilities and Reactivities: Strong acids, strong oxidizers, aldehydes, ketones, epoxides

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, nose, throat; pulm edema; vis dist; eye, skin burns; derm
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

N-Isopropylaniline	Formula: $C_6H_5NHCH(CH_3)_2$	CAS#: 768-52-5	RTECS#: BY4190000	IDLH: N.D.
Conversion: 1 ppm = 5.53 mg/m^3	**DOT:**			
Synonyms/Trade Names: N-IPA, Isopropylaniline, N-(1-Methylethyl)-benzenamine, N-Phenylisopropylamine				

Exposure Limits:
NIOSH REL: TWA 2 ppm (10 mg/m^3) [skin]
OSHA PEL†: none

Measurement Methods (see Table 1):
OSHA 78

Physical Description: Clear, yellowish liquid with a sweet, aromatic odor.

Chemical & Physical Properties:
MW: 135.2
BP: 397°F
Sol: ?
Fl.P(oc): 190°F
IP: ?
Sp.Gr(60°F): 0.93
VP(77°F): 0.03 mmHg
FRZ: -58°F
UEL: ?
LEL: ?
Class IIIB Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: None reported

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin; head, lass, dizz; cyan; ataxia; dysp on effort; tacar; methemo
TO: Eyes, skin, resp sys, blood, CVS, liver, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

Isopropyl ether	Formula: $(CH_3)_2CHOCH(CH_3)_2$	CAS#: 108-20-3	RTECS#: TZ5425000	IDLH: 1400 ppm [10%LEL]
Conversion: 1 ppm = 4.18 mg/m^3	**DOT:** 1159 127			
Synonyms/Trade Names: Diisopropyl ether, Diisopropyl oxide, 2-Isopropoxy propane				

Exposure Limits:
NIOSH REL: TWA 500 ppm (2100 mg/m^3)
OSHA PEL: TWA 500 ppm (2100 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1618
OSHA 7

Physical Description: Colorless liquid with a sharp, sweet, ether-like odor.

Chemical & Physical Properties:
MW: 102.2
BP: 154°F
Sol: 0.2%
Fl.P: -18°F
IP: 9.20 eV
Sp.Gr: 0.73
VP: 119 mmHg
FRZ: -76°F
UEL: 7.9%
LEL: 1.4%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
1400 ppm: CcrOv*/PaprOv*/GmFOv/Sa*/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, acids
[**Note:** Unstable peroxides may form on long contact with air.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose; resp discomfort; derm; in animals: drow, dizz, uncon, narco
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

Isopropyl glycidyl ether	Formula: $C_6H_{12}O_2$	CAS#: 4016-14-2	RTECS#: TZ3500000	IDLH: 400 ppm
Conversion: 1 ppm = 4.75 mg/m^3	**DOT:**			

Synonyms/Trade Names: 1,2-Epoxy-3-isopropoxypropane; IGE; Isopropoxymethyl oxirane

Exposure Limits:
NIOSH REL: C 50 ppm (240 mg/m^3) [15-minute]
OSHA PEL†: TWA 50 ppm (240 mg/m^3)

Physical Description: Colorless liquid.

Measurement Methods (see Table 1):
NIOSH 1620
OSHA 7

Chemical & Physical Properties:
MW: 116.2
BP: 279°F
Sol: 19%
Fl.P: 92°F
IP: ?
Sp.Gr: 0.92
VP(77°F): 9 mmHg
FRZ: ?
UEL: ?
LEL: ?
Class IC Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
400 ppm: Sa:Cf£/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, strong caustics
[**Note:** May form explosive peroxides upon exposure to air or light.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, upper resp sys; skin sens; possible hemato, repro effects
TO: Eyes, skin, resp sys, blood, repro sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

K

Kaolin	Formula:	CAS#: 1332-58-7	RTECS#: GF1670500	IDLH: N.D.
Conversion:	**DOT:**			

Synonyms/Trade Names: China clay, Clay, Hydrated aluminum silicate, Hydrite, Porcelain clay
[**Note:** Main constituent of Kaolin is Kaolinite ($Al_2Si_2O_5(OH)_4$).]

Exposure Limits:
NIOSH REL: TWA 10 mg/m^3 (total)
TWA 5 mg/m^3 (resp)
OSHA PEL†: TWA 15 mg/m^3 (total)
TWA 5 mg/m^3 (resp)

Physical Description: White to yellowish or grayish powder.
[**Note:** When moistened, darkens & develops a clay-like odor.]

Measurement Methods (see Table 1):
NIOSH 0500, 0600

Chemical & Physical Properties:
MW: varies
BP: ?
Sol: Insoluble
Fl.P: NA
IP: NA
Sp.Gr: 1.8-2.6
VP: 0 mmHg (approx)
MLT: ?
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: None reported

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Chronic pulm fib, stomach granuloma
TO: Resp sys, stomach

First Aid (see Table 6):
Eye: Irr immed
Breath: Fresh air

K

Kepone	Formula: $C_{10}Cl_{10}O$	CAS#: 143-50-0	RTECS#: PC8575000	IDLH: Ca [N.D.]
Conversion:	DOT:			

Synonyms/Trade Names: Chlordecone; Decachlorooctahydro-1,3,4-metheno-2H-cyclobuta(cd)-pentalen-2-one; Decachlorooctahydro-kepone-2-one; Decachlorotetrahydro-4,7-methanoindeneone

Exposure Limits:
NIOSH REL: Ca
TWA 0.001 mg/m^3
See Appendix A
OSHA PEL: none

Measurement Methods (see Table 1):
NIOSH 5508

Physical Description: Tan to white, crystalline, odorless solid. [insecticide]

Chemical & Physical Properties:
MW: 490.6
BP: Sublimes
Sol(212°F): 0.5%
Fl.P: NA
IP: ?
Sp.Gr: ?
VP(77°F): 3 x 10^{-7} mmHg
MLT: 662°F (Sublimes)
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Acids, acid fumes

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Head, anxi, tremor; liver, kidney damage; vis dist; ataxia, chest pain, skin eryt; testicular atrophy, low sperm count; [carc]
TO: Eyes, skin, resp sys, CNS, liver, kidneys, repro sys [in animal: liver cancer]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Kerosene	Formula:	CAS#: 8008-20-6	RTECS#: OA5500000	IDLH: N.D.
Conversion:	DOT: 1223 128			

Synonyms/Trade Names: Fuel Oil No. 1, Range oil
[**Note:** A refined petroleum solvent (predominantly C_9-C_{16}), which typically is 25% normal paraffins, 11% branched paraffins, 30% monocycloparaffins, 12% dicycloparaffins, 1% tricycloparaffins, 16% mononuclear aromatics, and 5% dinuclear aromatics.]

Exposure Limits:
NIOSH REL: TWA 100 mg/m^3
OSHA PEL: none

Measurement Methods (see Table 1):
NIOSH 1550

Physical Description: Colorless to yellowish, oily liquid with a strong, characteristic odor.

Chemical & Physical Properties:
MW: 170 (approx)
BP: 347-617°F
Sol: Insoluble
Fl.P: 100-162°F
IP: ?
Sp.Gr: 0.81
VP(100°F): 5 mmHg
FRZ: -50°F
UEL: 5%
LEL: 0.7%
Class II Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
1000 mg/m^3: CcrOv/Sa
2500 mg/m^3: Sa:Cf/PaprOv
5000 mg/m^3: CcrFOv/GmFOv/PaprTOv/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose, throat; burning sensation in chest; head, nau, lass, restless, inco, conf, drow; vomit, diarr; derm; chemical pneu (aspir liquid)
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap flush immed
Breath: Resp support
Swallow: Medical attention immed

Ketene

Formula: $CH_2=CO$ | **CAS#:** 463-51-4 | **RTECS#:** OA7700000 | **IDLH:** 5 ppm

Conversion: 1 ppm = 1.72 mg/m^3 | **DOT:**

Synonyms/Trade Names: Carbomethene, Ethenone, Keto-ethylene

Exposure Limits:
NIOSH REL: TWA 0.5 ppm (0.9 mg/m^3)
ST 1.5 ppm (3 mg/m^3)
OSHA PEL†: TWA 0.5 ppm (0.9 mg/m^3)

Measurement Methods (see Table 1):
NIOSH S92 (II-2)

Physical Description: Colorless gas with a penetrating odor.

Chemical & Physical Properties:
MW: 42.0
BP: -69°F
Sol: Reacts
Fl.P: NA (Gas)
IP: 9.61 eV
RGasD: 1.45
VP: >1 atm
FRZ: -238°F
UEL: ?
LEL: ?
Flammable Gas

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
5 ppm: Sa*/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Water, alcohols, ammonia
[**Note:** Readily polymerizes. Reacts with water to form acetic acid.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Irrit eyes, skin, nose, throat, resp sys; pulm edema
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Breath: Resp support

L

Lead

Formula: Pb | **CAS#:** 7439-92-1 | **RTECS#:** OF7525000 | **IDLH:** 100 mg/m^3 (as Pb)

Conversion: | **DOT:**

Synonyms/Trade Names: Lead metal, Plumbum

Exposure Limits:
NIOSH REL*: TWA 0.050 mg/m^3
See Appendix C
OSHA PEL*: [1910.1025] TWA 0.050 mg/m^3
See Appendix C
[***Note:** The REL and PEL also apply to other lead compounds (as Pb) -- see Appendix C.]

Measurement Methods (see Table 1):
NIOSH 7082, 7105, 7300, 7301, 7303, 7700, 7701, 7702, 9102, 9105
OSHA ID121, ID125G, ID206

Physical Description: A heavy, ductile, soft, gray solid.

Chemical & Physical Properties:
MW: 207.2
BP: 3164°F
Sol: Insoluble
Fl.P: NA
IP: NA
Sp.Gr: 11.34
VP: 0 mmHg (approx)
MLT: 621°F
UEL: NA
LEL: NA
Noncombustible Solid in bulk form.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: Daily
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
0.5 mg/m^3: 100XQ/Sa
1.25 mg/m^3: Sa:Cf/PaprHie
2.5 mg/m^3: 100F/SaT:Cf/PaprTHie/ScbaF/SaF
50 mg/m^3: Sa:Pd,Pp
100 mg/m^3: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

See Appendix E (page 351)

Incompatibilities and Reactivities: Strong oxidizers, hydrogen peroxide, acids

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Lass, insom; facial pallor; anor, low-wgt, malnut; constip, abdom pain, colic; anemia; gingival lead line; tremor; para wrist, ankles; encephalopathy; kidney disease; irrit eyes; hypotension
TO: Eyes, GI tract, CNS, kidneys, blood, gingival tissue

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap flush prompt
Breath: Resp support
Swallow: Medical attention immed

Limestone

Formula:	CAS#:	RTECS#:	IDLH:
$CaCO_3$	1317-65-3		N.D.

Conversion: **DOT:**

Synonyms/Trade Names: Calcium carbonate, Natural calcium carbonate
[**Note:** Calcite & aragonite are commercially important natural calcium carbonates.]

Exposure Limits:
NIOSH REL: TWA 10 mg/m^3 (total)
TWA 5 mg/m^3 (resp)
OSHA PEL: TWA 15 mg/m^3 (total)
TWA 5 mg/m^3 (resp)

Measurement Methods (see Table 1):
NIOSH 0500, 0600

Physical Description: Odorless, white to tan powder.

Chemical & Physical Properties:
MW: 100.1
BP: Decomposes
Sol: 0.001%
Fl.P: NA
IP: NA
Sp.Gr: 2.7-2.9
VP: 0 mmHg (approx)
MLT: 1517-2442°F (Decomposes)
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Fluorine, magnesium, acids, alum, ammonium salts

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Irrit eyes, skin, muc memb; cough, sneez, rhin; lac
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Fresh air

L

Lindane

Formula:	CAS#:	RTECS#:	IDLH:
$C_6H_6Cl_6$	58-89-9	GV4900000	50 mg/m^3

Conversion: **DOT:** 2761 151

Synonyms/Trade Names: BHC; HCH; γ-Hexachlorocyclohexane;
gamma isomer of 1,2,3,4,5,6-Hexachlorocyclohexane

Exposure Limits:
NIOSH REL: TWA 0.5 mg/m^3 [skin]
OSHA PEL: TWA 0.5 mg/m^3 [skin]

Measurement Methods (see Table 1):
NIOSH 5502

Physical Description: White to yellow, crystalline powder with a slight, musty odor. [pesticide]

Chemical & Physical Properties:
MW: 290.8
BP: 614°F
Sol: 0.001%
Fl.P: NA
IP: ?
Sp.Gr: 1.85
VP: 0.00001 mmHg
MLT: 235°F
UEL: NA
LEL: NA
Noncombustible Solid, but may be dissolved in flammable liquids.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: N.R.
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
5 mg/m^3: CcrOv95/Sa
12.5 mg/m^3: Sa:Cf*/PaprOvHie*
25 mg/m^3: CcrFOv100/GmFOv100/
PaprTOvHie*/ScbaF/SaF
50 mg/m^3: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Corrosive to metals

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, nose, throat; head; nau; clonic convuls; resp difficulty; cyan; aplastic anemia; musc spasm; in animals: liver, kidney damage
TO: Eyes, skin, resp sys, CNS, blood, liver, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

Lithium hydride	Formula: LiH	CAS#: 7580-67-8	RTECS#: OJ6300000	IDLH: 0.5 mg/m^3

Conversion: **DOT:** 1414 138; 2805 138 (fused, solid)

Synonyms/Trade Names: Lithium monohydride

Exposure Limits:
NIOSH REL: TWA 0.025 mg/m^3
OSHA PEL: TWA 0.025 mg/m^3

Measurement Methods (see Table 1):
OSHA ID121

Physical Description: Odorless, off-white to gray, translucent, crystalline mass or white powder.

Chemical & Physical Properties:
MW: 7.95
BP: Decomposes
Sol: Reacts
Fl.P: NA
IP: NA
Sp.Gr: 0.78
VP: 0 mmHg (approx)
MLT: 1256°F
UEL: NA
LEL: NA
Combustible Solid that can form airborne dust clouds which may explode on contact with flame, heat, or oxidizers.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: Brush (DO NOT WASH)
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench (>0.5 mg/m^3)

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
0.25 mg/m^3: 100XQ/Sa
0.5 mg/m^3: Sa:Cf*/100F/PaprHie*/ ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, halogenated hydrocarbons, acids, water
[**Note:** May ignite SPONTANEOUSLY in air and may reignite after fire is extinguished. Reacts with water to form hydrogen & lithium hydroxide.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin; eye, skin burns; mouth, esophagus burns (if ingested); nau; musc twitches; mental conf; blurred vision
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Brush (DO NOT WASH)
Breath: Resp support
Swallow: Medical attention immed

L

L.P.G.	Formula: $C_3H_8/C_3H_6/C_4H_{10}/C_4H_8$	CAS#: 68476-85-7	RTECS#: SE7545000	IDLH: 2000 ppm [10%LEL]

Conversion: 1 ppm = 1.72-2.37 mg/m^3 **DOT:** 1075 115

Synonyms/Trade Names: Bottled gas, Compressed petroleum gas, Liquefied hydrocarbon gas, Liquefied petroleum gas, LPG [**Note:** A fuel mixture of propane, propylene, butanes & butylenes.]

Exposure Limits:
NIOSH REL: TWA 1000 ppm (1800 mg/m^3)
OSHA PEL: TWA 1000 ppm (1800 mg/m^3)

Measurement Methods (see Table 1):
NIOSH S93 (II-2)

Physical Description: Colorless, noncorrosive, odorless gas when pure.
[**Note:** A foul-smelling odorant is usually added. Shipped as a liquefied compressed gas.]

Chemical & Physical Properties:
MW: 42-58
BP: >-44°F
Sol: Insoluble
Fl.P: NA (Gas)
IP: 10.95 eV
RGasD: 1.45-2.00
VP: >1 atm
FRZ: ?
UEL: 9.5% (Propane) 8.5% (Butane)
LEL: 2.1% (Propane) 1.9% (Butane)
Flammable Gas

Personal Protection/Sanitation (see Table 2):
Skin: Frostbite
Eyes: Frostbite
Wash skin: N.R.
Remove: When wet (flamm)
Change: N.R.
Provide: Frostbite wash

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
2000 ppm: Sa/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: ScbaE

Incompatibilities and Reactivities: Strong oxidizers, chlorine dioxide

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con (liquid)
SY: Dizz, drow, asphy; liquid: frostbite
TO: Resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed (liquid)
Skin: Water flush immed (liquid)
Breath: Resp support

Magnesite	Formula: $MgCO_3$	CAS#: 546-93-0	RTECS#: OM2470000	IDLH: N.D.
Conversion:	DOT:			

Synonyms/Trade Names: Carbonate magnesium, Hydromagnesite, Magnesium carbonate, Magnesium(II) carbonate [**Note:** Magnesite is a naturally-occurring form of magnesium carbonate.]

Exposure Limits:
NIOSH REL: TWA 10 mg/m^3 (total)
TWA 5 mg/m^3 (resp)
OSHA PEL: TWA 15 mg/m^3 (total)
TWA 5 mg/m^3 (resp)

Measurement Methods (see Table 1):
NIOSH 0500, 0600

Physical Description: White, odorless, crystalline powder.

Chemical & Physical Properties:
MW: 84.3
BP: Decomposes
Sol: 0.01%
Fl.P: NA
IP: NA
Sp.Gr: 2.96
VP: 0 mmHg (approx)
MLT: 662°F (Decomposes)
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Acids, formaldehyde

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Irrit eyes, skin, resp sys; cough
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Breath: Fresh air

M

Magnesium oxide fume	Formula: MgO	CAS#: 1309-48-4	RTECS#: OM3850000	IDLH: 750 mg/m^3
Conversion:	DOT:			

Synonyms/Trade Names: Magnesia fume

Exposure Limits:
NIOSH REL: See Appendix D
OSHA PEL†: TWA 15 mg/m^3

Measurement Methods (see Table 1):
NIOSH 7300, 7301, 7303
OSHA ID121

Physical Description: Finely divided white particulate dispersed in air. [**Note:** Exposure may occur when magnesium is burned, thermally cut, or welded upon.]

Chemical & Physical Properties:
MW: 40.3
BP: 6512°F
Sol(86°F): 0.009%
Fl.P: NA
IP: NA
Sp.Gr: 3.58
VP: 0 mmHg (approx)
MLT: 5072°F
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
OSHA
150 mg/m^3: 95XQ/Sa
375 mg/m^3: Sa:Cf/PaprHie
750 mg/m^3: 100F/PaprTHie*/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Chlorine trifluoride, phosphorus pentachloride

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Irrit eyes, nose; metal fume fever: cough, chest pain, flu-like fever
TO: Eyes, resp sys

First Aid (see Table 6):
Breath: Resp support

Malathion

Formula: $C_{10}H_{19}O_6PS_2$ | **CAS#:** 121-75-5 | **RTECS#:** WM8400000 | **IDLH:** 250 mg/m^3

Conversion: | **DOT:** 2783 152

Synonyms/Trade Names: S-[1,2-bis(ethoxycarbonyl) ethyl]O,O-dimethyl-phosphorodithioate; Diethyl (dimethoxyphosphinothioylthio) succinate

Exposure Limits:
NIOSH REL: TWA 10 mg/m^3 [skin]
OSHA PEL†: TWA 15 mg/m^3 [skin]

Physical Description: Deep-brown to yellow liquid with a garlic-like odor. [insecticide] [**Note:** A solid below 37°F.]

Measurement Methods (see Table 1):
NIOSH 5600
OSHA 62

Chemical & Physical Properties:
MW: 330.4
BP: 140°F (Decomposes)
Sol: 0.02%
Fl.P(oc): >325°F
IP: ?
Sp.Gr: 1.21
VP: 0.00004 mmHg
FRZ: 37°F
UEL: ?
LEL: ?
Class IIIB Combustible Liquid, but may be difficult to ignite.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH
100 mg/m^3: CcrOv95/Sa
250 mg/m^3: Sa:Cf*/CcrFOv100/GmFOv100/PaprOvHie*/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, magnesium, alkaline pesticides [**Note:** Corrosive to metals.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin; miosis, aching eyes, blurred vision, lac; salv; anor, nau, vomit, abdom cramps, diarr, dizz, conf, ataxia; rhin, head; chest tight, wheez, lar spasm
TO: Eyes, skin, resp sys, liver, blood chol, CNS, CVS, GI tract

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

M

Maleic anhydride

Formula: $C_4H_2O_3$ | **CAS#:** 108-31-6 | **RTECS#:** ON3675000 | **IDLH:** 10 mg/m^3

Conversion: 1 ppm = 4.01 mg/m^3 | **DOT:** 2215 156

Synonyms/Trade Names: cis-Butenedioic anhydride; 2,5-Furanedione; Maleic acid anhydride; Toxilic anhydride

Exposure Limits:
NIOSH REL: TWA 1 mg/m^3 (0.25 ppm)
OSHA PEL: TWA 1 mg/m^3 (0.25 ppm)

Physical Description: Colorless needles, white lumps, or pellets with an irritating, choking odor.

Measurement Methods (see Table 1):
NIOSH 3512
OSHA 25, 86

Chemical & Physical Properties:
MW: 98.1
BP: 396°F
Sol: Reacts
Fl.P: 218°F
IP: 9.90 eV
Sp.Gr: 1.48
VP: 0.2 mmHg
MLT: 127°F
UEL: 7.1%
LEL: 1.4%
Combustible Solid, but may be difficult to ignite.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
10 mg/m^3: Sa:Cf£/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, water, alkalis, metals, caustics, and amines above 150°F
[**Note:** Reacts slowly with water (hydrolyzes) to form maleic acid.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit nose, upper resp sys; conj; photo, double vision; bronchial asthma; derm
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Malonaldehyde

Formula: $CHOCH_2CHO$
CAS#: 542-78-9
RTECS#: TX6475000
IDLH: Ca [N.D.]

Conversion:
DOT:

Synonyms/Trade Names: Malonic aldehyde; Malonodialdehyde; Propanedial; 1,3-Propanedial
[**Note:** Pure Malonaldehyde is unstable and may be used as its sodium salt.]

Exposure Limits:
NIOSH REL: Ca
See Appendix A
See Appendix C (Aldehydes)
OSHA PEL: none

Measurement Methods (see Table 1):
None available

Physical Description: Solid (needles).

Chemical & Physical Properties:
MW: 72.1
BP: ?
Sol: ?
Fl.P: ?
IP: ?
Sp.Gr: ?
VP: ?
MLT: 161°F
UEL: ?
LEL: ?

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Proteins
[**Note:** Pure compound is stable under neutral conditions, but not under acidic conditions.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, resp sys; CNS depres; [carc]
TO: Eyes, skin, resp sys, CNS [in animals: thyroid gland tumors]

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

M

Malononitrile

Formula: $NCCH_2CN$
CAS#: 109-77-3
RTECS#: OO3150000
IDLH: N.D.

Conversion: 1 ppm = 2.70 mg/m^3
DOT: 2647 153

Synonyms/Trade Names: Cyanoacetonitrile, Dicyanomethane, Malonic dinitrile

Exposure Limits:
NIOSH REL: TWA 3 ppm (8 mg/m^3)
OSHA PEL: none

Measurement Methods (see Table 1):
NIOSH Nitriles Criteria Document

Physical Description: White powder or colorless crystals.
[**Note:** Melts above 90°F. Forms cyanide in the body.]

Chemical & Physical Properties:
MW: 66.1
BP: 426°F
Sol: 13%
Fl.P(oc): 266°F
IP: 12.88 eV
Sp.Gr: 1.19
VP: ?
MLT: 90°F
UEL: ?
LEL: ?
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
80 mg/m^3: Sa
200 mg/m^3: Sa:Cf
400 mg/m^3: ScbaF/SaF
667 mg/m^3: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong bases [**Note:** May polymerize violently on prolonged heating at 265°F, or in contact with strong bases at lower temperatures.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, nose, throat; head, dizz, lass, conf, convuls; dysp; abdom pain, nau, vomit
TO: Eyes, skin, resp sys, CNS, CVS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water wash immed
Breath: Resp support
Swallow: Medical attention immed

Manganese compounds and fume (as Mn)

Formula: Mn (metal)
CAS#: 7439-96-5 (metal)
RTECS#: OO9275000 (metal)
IDLH: 500 mg/m^3 (as Mn)

Conversion:
DOT:

Synonyms/Trade Names: **Manganese metal:** Colloidal manganese, Manganese-55
Synonyms of other compounds vary depending upon the specific manganese compound.

Exposure Limits:
NIOSH REL*: TWA 1 mg/m^3
ST 3 mg/m^3
[***Note:** Also see specific listings for Manganese cyclopentadienyl tricarbonyl, Methyl cyclopentadienyl manganese tricarbonyl, and Manganese tetroxide.]
OSHA PEL*: C 5 mg/m^3
[***Note:** Also see specific listings for Manganese cyclopentadienyl tricarbonyl and Methyl cyclopentadienyl manganese tricarbonyl.]

Measurement Methods (see Table 1):
NIOSH 7300, 7301, 7303, 9102
OSHA ID121, ID125G

Physical Description: A lustrous, brittle, silvery solid.

Chemical & Physical Properties:
MW: 54.9
BP: 3564°F
Sol: Insoluble
Fl.P: NA
IP: NA
Sp.Gr: 7.20 (metal)
VP: 0 mmHg (approx)
MLT: 2271°F
UEL: NA
LEL: NA
Metal: Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
10 mg/m^3: 95XQ/Sa
25 mg/m^3: Sa:Cf/PaprHie
50 mg/m^3: 100F/SaT:Cf/PaprTHie/ ScbaF/SaF
500 mg/m^3: Sa:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Oxidizers
[**Note:** Will react with water or steam to produce hydrogen.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing
SY: Parkinson's; asthenia, insom, mental conf; metal fume fever: dry throat, cough, chest tight, dysp, rales, flu-like fever; low-back pain; vomit; mal; lass; kidney damage
TO: Resp sys, CNS, blood, kidneys

First Aid (see Table 6):
Breath: Resp support
Swallow: Medical attention immed

M

Manganese cyclopentadienyl tricarbonyl (as Mn)

Formula: $C_5H_5Mn(CO)_3$
CAS#: 12079-65-1
RTECS#: OO9720000
IDLH: N.D.

Conversion:
DOT:

Synonyms/Trade Names: Cyclopentadienylmanganese tricarbonyl, Cyclopentadienyl tricarbonyl manganese, MCT

Exposure Limits:
NIOSH REL: TWA 0.1 mg/m^3 [skin]
OSHA PEL†: C 5 mg/m^3

Measurement Methods (see Table 1):
None available

Physical Description: Yellow, crystalline solid with a characteristic odor.
[**Note:** An antiknock additive for gasoline. May be found in an oil & gaseous solution.]

Chemical & Physical Properties:
MW: 204.1
BP: Sublimes
Sol: Slight
Fl.P: ?
IP: ?
Sp.Gr: ?
VP: ?
MLT: 167°F (Sublimes)
UEL: ?
LEL: ?
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Oxygen

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: In animals: irrit skin; pulm edema; convuls; CNS, resp sys, kidney changes; decr resistance to infection
TO: Skin, resp sys, CNS, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Resp support
Swallow: Medical attention immed

Manganese tetroxide (as Mn)	Formula: Mn_3O_4	CAS#: 1317-35-7	RTECS#: OP0895000	IDLH: N.D.
Conversion:	DOT:			

Synonyms/Trade Names: Manganese oxide, Manganomanganic oxide, Trimanganese tetraoxide, Trimanganese tetroxide

Exposure Limits:
NIOSH REL: See Appendix D
OSHA PEL†: C 5 mg/m^3

Physical Description: Brownish-black powder.
[**Note:** Fumes are generated whenever manganese oxides are heated strongly in air.]

Measurement Methods (see Table 1):
NIOSH 7300, 7301, 7303, 9102
OSHA ID121, ID125G

Chemical & Physical Properties:
MW: 228.8
BP: ?
Sol: Insoluble
Fl.P: NA
IP: NA
Sp.Gr: 4.88
VP: 0 mmHg (approx)
MLT: 2847°F
UEL: NA
LEL: NA

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Soluble in hydrochloric acid (liberates chlorine gas)

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Asthenia, insom, mental conf; low-back pain; vomit; mal, lass; kidney damage; pneu
TO: Resp sys, CNS, blood, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Resp support
Swallow: Medical attention immed

M

Marble	Formula: $CaCO_3$	CAS#: 1317-65-3	RTECS#: EV9580000	IDLH: N.D.
Conversion:	DOT:			

Synonyms/Trade Names: Calcium carbonate, Natural calcium carbonate
[**Note:** Marble is a metamorphic form of calcium carbonate.]

Exposure Limits:
NIOSH REL: TWA 10 mg/m^3 (total)
TWA 5 mg/m^3 (resp)
OSHA PEL: TWA 15 mg/m^3 (total)
TWA 5 mg/m^3 (resp)

Physical Description: Odorless, white powder.

Measurement Methods (see Table 1):
NIOSH 0500, 0600

Chemical & Physical Properties:
MW: 100.1
BP: Decomposes
Sol: 0.001%
Fl.P: NA
IP: NA
Sp.Gr: 2.7-2.9
VP: 0 mmHg (approx)
MLT: 1517-2442°F (Decomposes)
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Fluorine, magnesium, acids, alum, ammonium salts

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Irrit eyes, skin, muc memb, upper resp sys; cough, sneez, rhin; lac
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Fresh air

Mercury compounds [except (organo) alkyls] (as Hg)	Formula: Hg (metal)	CAS#: 7439-97-6 (metal)	RTECS#: OV4550000 (metal)	IDLH: 10 mg/m^3 (as Hg)
Conversion:	DOT: 2809 172 (metal)			

Synonyms/Trade Names: **Mercury metal:** Colloidal mercury, Metallic mercury, Quicksilver
Synonyms of "other" Hg compounds vary depending upon the specific compound.

Exposure Limits:
NIOSH REL: Hg Vapor: TWA 0.05 mg/m^3 [skin]
Other: C 0.1 mg/m^3 [skin]
OSHA PEL†: C 0.1 mg/m^3

Measurement Methods (see Table 1):
NIOSH 6009 **OSHA** ID140

Physical Description: Metal: Silver-white, heavy, odorless liquid.
[**Note:** "Other" Hg compounds include all inorganic & aryl Hg compounds except (organo) alkyls.]

Chemical & Physical Properties:
MW: 200.6
BP: 674°F
Sol: Insoluble
Fl.P: NA
IP: ?
Sp.Gr: 13.6 (metal)
VP: 0.0012 mmHg
FRZ: -38°F
UEL: NA
LEL: NA
Metal: Noncombustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: N.R.
Wash skin: When contam
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
Mercury vapor:
NIOSH
0.5 mg/m^3: CcrS†/Sa
1.25 mg/m^3: Sa:Cf/PaprS†(canister)
2.5 mg/m^3: CcrFS†/GmFS†/SaT:Cf/PaprTS(canister)/ScbaF/SaF
10 mg/m^3: Sa:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS/ScbaE

Other mercury compounds:
NIOSH/OSHA
1 mg/m^3: CcrS†/Sa
2.5 mg/m^3: Sa:Cf/PaprS†(canister)
5 mg/m^3: CcrFS†/GmFS†/SaT:Cf/PaprTS(canister)/ScbaF/SaF
10 mg/m^3: Sa:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS/ScbaE

Incompatibilities and Reactivities: Acetylene, ammonia, chlorine dioxide, azides, calcium (amalgam formation), sodium carbide, lithium, rubidium, copper

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin; cough, chest pain, dysp, bron, pneu; tremor, insom, irrity, indecision, head, lass; stomatitis, salv; GI dist, anor, low-wgt; prot
TO: Eyes, skin, resp sys, CNS, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

Mercury (organo) alkyl compounds (as Hg)	Formula:	CAS#:	RTECS#:	IDLH: 2 mg/m^3 (as Hg)
Conversion:	DOT:			

Synonyms/Trade Names: Synonyms vary depending upon the specific (organo) alkyl mercury compound.

Exposure Limits:
NIOSH REL: TWA 0.01 mg/m^3
ST 0.03 mg/m^3 [skin]
OSHA PEL†: TWA 0.01 mg/m^3
C 0.04 mg/m^3

Measurement Methods (see Table 1):
None available

Physical Description: Appearance and odor vary depending upon the specific (organo) alkyl mercury compound.

Chemical & Physical Properties:
Properties vary depending upon the specific (organo) alkyl mercury compound.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
0.1 mg/m^3: Sa
0.25 mg/m^3: Sa:Cf
0.5 mg/m^3: SaT:Cf/ScbaF/SaF
2 mg/m^3: Sa:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: ScbaE

Incompatibilities and Reactivities: Strong oxidizers such as chlorine

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Pares; ataxia, dysarthria; vision, hearing dist; spasticity, jerking limbs; dizz; salv; lac; nau, vomit, diarr, constip; skin burns; emotional dist; kidney inj; possible terato effects
TO: Eyes, skin, CNS, PNS, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

M

Mesityl oxide

Formula: $(CH_3)_2C{=}CHCOCH_3$ | **CAS#:** 141-79-7 | **RTECS#:** SB4200000 | **IDLH:** 1400 ppm [10%LEL]

Conversion: 1 ppm = 4.02 mg/m^3 | **DOT:** 1229 129

Synonyms/Trade Names: Isobutenyl methyl ketone, Isopropylideneacetone, Methyl isobutenyl ketone, 4-Methyl-3-penten-2-one

Exposure Limits:
NIOSH REL: TWA 10 ppm (40 mg/m^3)
OSHA PEL†: TWA 25 ppm (100 mg/m^3)

Physical Description: Oily, colorless to light-yellow liquid with a peppermint- or honey-like odor.

Measurement Methods (see Table 1):
NIOSH 1301, 2553
OSHA 7

Chemical & Physical Properties:
MW: 98.2
BP: 266°F
Sol: 3%
Fl.P: 87°F
IP: 9.08 eV
Sp.Gr(59°F): 0.86
VP: 9 mmHg
FRZ: -52°F
UEL: 7.2%
LEL: 1.4%
Class IC Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.
Provide: Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
250 ppm: Sa:Cf£/PaprOv£
500 ppm: CcrFOv/GmFOv/PaprTOv£/ ScbaF/SaF
1400 ppm: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Oxidizers, acids

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, muc memb; narco, coma; in animals: liver, kidney damage; CNS effects
TO: Eyes, skin, resp sys, CNS, liver, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

M

Methacrylic acid

Formula: $CH_2{=}C(CH_3)COOH$ | **CAS#:** 79-41-4 | **RTECS#:** OZ2975000 | **IDLH:** N.D.

Conversion: 1 ppm = 3.52 mg/m^3 | **DOT:** 2531 153P (inhibited)

Synonyms/Trade Names: Methacrylic acid (glacial), Methacrylic acid (inhibited), α-Methacrylic acid, 2-Methylacrylic acid, 2-Methylpropenoic acid

Exposure Limits:
NIOSH REL: TWA 20 ppm (70 mg/m^3) [skin]
OSHA PEL†: none

Physical Description: Colorless liquid or solid (below 61°F) with an acrid, repulsive odor.

Measurement Methods (see Table 1):
OSHA PV2005

Chemical & Physical Properties:
MW: 86.1
BP: 325°F
Sol(77°F): 9%
Fl.P(oc): 171°F
IP: ?
Sp.Gr: 1.02 (Liquid)
VP: 0.7 mmHg
FRZ: 61°F
UEL: ?
LEL: ?
Class IIIA Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Oxidizers, elevated temperatures, hydrochloric acid
[**Note:** Typically contains 100 ppm of the monomethyl ether of hydroquinone to prevent polymerization.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, muc memb; eye, skin burns
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

Methomyl

Formula: $CH_3C(SCH_3)NOC(O)NHCH_3$ | **CAS#:** 16752-77-5 | **RTECS#:** AK2975000 | **IDLH:** N.D.

Conversion: | **DOT:** 2757 151 (carbamate pesticide, solid, toxic)

Synonyms/Trade Names: Lannate®, Methyl N-((methylamino)carbonyl)oxy)ethanimidothioate, S-Methyl-N-(methylcarbamoyloxy)thioacetimidate

Exposure Limits:
NIOSH REL: TWA 2.5 mg/m^3
OSHA PEL†: none

Physical Description: White, crystalline solid with a slight, sulfur-like odor. [insecticide]

Measurement Methods (see Table 1):
NIOSH 5601

Chemical & Physical Properties:
MW: 162.2
BP: ?
Sol(77°F): 6%
Fl.P: NA
IP: ?
Sp.Gr(75°F): 1.29
VP(77°F): 0.00005 mmHg
MLT: 172°F
UEL: NA
LEL: NA
Noncombustible Solid, but may be dissolved in flammable liquids.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Strong bases

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes; blurred vision, miosis; salv; abdom cramps, nau, vomit; dysp; lass, musc twitch; liver, kidney damage
TO: Eyes, resp sys, CNS, CVS, liver, kidneys, blood chol

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

M

Methoxychlor

Formula: $(C_6H_4OCH_3)_2CHCCl_3$ | **CAS#:** 72-43-5 | **RTECS#:** KJ3675000 | **IDLH:** Ca [5000 mg/m^3]

Conversion: | **DOT:** 2761 151 (organochlorine pesticide, solid, toxic)

Synonyms/Trade Names: p,p'-Dimethoxydiphenyltrichloroethane; DMDT; Methoxy-DDT; 2,2-bis(p-Methoxyphenyl)-1,1,1-trichloroethane; 1,1,1-Trichloro-2,2-bis-(p-methoxyphenyl)ethane

Exposure Limits:
NIOSH REL: Ca
See Appendix A
OSHA PEL†: TWA 15 mg/m^3

Physical Description: Colorless to light-yellow crystals with a slight, fruity odor. [insecticide]

Measurement Methods (see Table 1):
NIOSH S371 (II-4)
OSHA PV2038

Chemical & Physical Properties:
MW: 345.7
BP: Decomposes
Sol: 0.00001%
Fl.P: ?
IP: ?
Sp.Gr: 1.41
VP: Very low
MLT: 171°F
UEL: ?
LEL: ?
Combustible Solid, but difficult to burn.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: N.R.
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing
SY: In animals: fasc, trembling, convuls; kidney, liver damage; [carc]
TO: CNS, liver, kidneys [in animals: liver & ovarian cancer]

First Aid (see Table 6):
Skin: Soap wash
Breath: Fresh air
Swallow: Medical attention immed

Methoxyflurane	**Formula:** $CHCl_2CF_2OCH_3$	**CAS#:** 76-38-0	**RTECS#:** KN7820000	**IDLH:** N.D.
Conversion: 1 ppm = 6.75 mg/m^3	**DOT:**			

Synonyms/Trade Names: 2,2-Dichloro-1,1-difluoroethyl methyl ether; 2,2-Dichloro-1,1-difluoro-1-methoxyethane; Methoflurane; Methoxyfluorane; Penthrane

Exposure Limits:
NIOSH REL*: C 2 ppm (13.5 mg/m^3) [60-minute]
[***Note:** REL for exposure to waste anesthetic gas.]
OSHA PEL: none

Measurement Methods (see Table 1):
None available

Physical Description: Colorless liquid with a fruity odor. [inhalation anesthetic]

Chemical & Physical Properties:
MW: 165.0
BP: 220°F
Sol: Slight
Fl.P: ?
IP: ?
Sp.Gr(77°F): 1.42
VP: 23 mmHg
FRZ: -31°F
UEL: ?
LEL(176°F): 7%
Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: Prevent eye contact
Wash skin: N.R.
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: None reported

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes; CNS depres, analgesia, anes, convuls, resp depres; liver, kidney inj; in animals: repro, terato effects
TO: Eyes, CNS, liver, kidneys, repro sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Resp support
Swallow: Medical attention immed

M

4-Methoxyphenol	**Formula:** $CH_3OC_6H_4OH$	**CAS#:** 150-76-5	**RTECS#:** SL7700000	**IDLH:** N.D.
Conversion:	**DOT:**			

Synonyms/Trade Names: Hydroquinone monomethyl ether, p-Hydroxyanisole, Mequinol, p-Methoxyphenol, Monomethyl ether hydroquinone

Exposure Limits:
NIOSH REL: TWA 5 mg/m^3
OSHA PEL†: none

Measurement Methods (see Table 1):
None available

Physical Description: Colorless to white, waxy solid with an odor of caramel & phenol.

Chemical & Physical Properties:
MW: 124.2
BP: 469°F
Sol(77°F): 4%
Fl.P(oc): 270°F
IP: 7.50 eV
Sp.Gr: 1.55
VP: <0.01 mmHg
MLT: 135°F
UEL: ?
LEL: ?
Combustible Solid; under certain conditions, a dust cloud can probably explode if ignited by a spark or flame.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Strong oxidizers, strong bases, acid chlorides, acid anhydrides

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, nose, throat, upper resp sys; eye, skin burns; CNS depres
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap flush immed
Breath: Resp support
Swallow: Medical attention immed

Methyl acetate

Formula:	CAS#:	RTECS#:	IDLH:
CH_3COOCH_3	79-20-9	AI9100000	3100 ppm [10%LEL]

Conversion: 1 ppm = 3.03 mg/m^3 **DOT:** 1231 129

Synonyms/Trade Names: Methyl ester of acetic acid, Methyl ethanoate

Exposure Limits:
NIOSH REL: TWA 200 ppm (610 mg/m^3)
ST 250 ppm (760 mg/m^3)
OSHA PEL†: TWA 200 ppm (610 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1458
OSHA 7

Physical Description: Colorless liquid with a fragrant, fruity odor.

Chemical & Physical Properties:
MW: 74.1
BP: 135°F
Sol: 25%
Fl.P: 14°F
IP: 10.27 eV
Sp.Gr: 0.93
VP: 173 mmHg
FRZ: -145°F
UEL: 16%
LEL: 3.1%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
2000 ppm: CcrOv*/Sa*
3100 ppm: Sa:Cf*/CcrFOv/GmFOv/PaprOv*/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Nitrates; strong oxidizers, alkalis & acids; water
[**Note:** Reacts slowly with water to form acetic acid & methanol.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose, throat; head, drow; optic nerve atrophy; chest tight; in animals: narco
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush prompt
Breath: Resp support
Swallow: Medical attention immed

M

Methyl acetylene

Formula:	CAS#:	RTECS#:	IDLH:
$CH_3C{\equiv}CH$	74-99-7	UK4250000	1700 ppm [10%LEL]

Conversion: 1 ppm = 1.64 mg/m^3 **DOT:**

Synonyms/Trade Names: Allylene, Propine, Propyne, 1-Propyne

Exposure Limits:
NIOSH REL: TWA 1000 ppm (1650 mg/m^3)
OSHA PEL: TWA 1000 ppm (1650 mg/m^3)

Measurement Methods (see Table 1):
NIOSH S84 (II-5)

Physical Description: Colorless gas with a sweet odor.
[**Note:** A fuel that is shipped as a liquefied compressed gas.]

Chemical & Physical Properties:
MW: 40.1
BP: -10°F
Sol: Insoluble
Fl.P: NA (Gas)
IP: 10.36 eV
RGasD: 1.41
VP: 5.2 atm
FRZ: -153°F
UEL: ?
LEL: 1.7%
Flammable Gas

Personal Protection/Sanitation (see Table 2):
Skin: Frostbite
Eyes: Frostbite
Wash skin: N.R.
Remove: When wet (flamm)
Change: N.R.
Provide: Frostbite wash

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
1700 ppm: Sa/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers (such as chlorine), copper alloys
[**Note:** Can decompose explosively at 4.5 to 5.6 atmospheres of pressure.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con (liquid)
SY: Irrit resp sys; tremor, hyperexcitability, anes; liquid: frostbite
TO: Resp sys, CNS

First Aid (see Table 6):
Eye: Frostbite
Skin: Frostbite
Breath: Resp support

Methyl acetylene-propadiene mixture

Formula: $CH_3{\equiv}CH/CH_2{=}C{=}CH_2$ | **CAS#:** 59355-75-8 | **RTECS#:** UK4920000 | **IDLH:** 3400 ppm [10%LEL]

Conversion: 1 ppm = 1.64 mg/m^3 | **DOT:** 1060 116P (stabilized)

Synonyms/Trade Names: MAPP gas, Methyl acetylene-allene mixture, Propadiene-methyl acetylene, Methyl acetylene-propadiene mixture (stabilized), Propyne-allene mixture, Propyne-propadiene mixture

Exposure Limits:
NIOSH REL: TWA 1000 ppm (1800 mg/m^3)
ST 1250 ppm (2250 mg/m^3)
OSHA PEL†: TWA 1000 ppm (1800 mg/m^3)

Physical Description: Colorless gas with a strong, characteristic, foul odor.
[**Note:** A fuel that is shipped as a liquefied compressed gas.]

Measurement Methods (see Table 1):
NIOSH S85 (II-6)
OSHA 7

Chemical & Physical Properties:
MW: 40.1
BP: -36 to -4°F
Sol: Insoluble
Fl.P: NA (Gas)
IP: ?
RGasD: 1.48
VP: >1 atm
FRZ: -213°F
UEL: 10.8%
LEL: 3.4%
Flammable Gas

Personal Protection/Sanitation (see Table 2):
Skin: Frostbite
Eyes: Frostbite
Wash skin: N.R.
Remove: When wet (flamm)
Change: N.R.
Provide: Frostbite wash

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
3400 ppm: Sa/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, copper alloys
[**Note:** Forms explosive compounds at high pressure in contact with alloys containing more than 67% copper.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con (liquid)
SY: Irrit resp sys; excitement, conf, anes; liquid: frostbite
TO: Resp sys, CNS

First Aid (see Table 6):
Eye: Frostbite
Skin: Frostbite
Breath: Resp support

M

Methyl acrylate

Formula: $CH_2{=}CHCOOCH_3$ | **CAS#:** 96-33-3 | **RTECS#:** AT2800000 | **IDLH:** 250 ppm

Conversion: 1 ppm = 3.52 mg/m^3 | **DOT:** 1919 129P (inhibited)

Synonyms/Trade Names: Methoxycarbonylethylene, Methyl ester of acrylic acid, Methyl propenoate

Exposure Limits:
NIOSH REL: TWA 10 ppm (35 mg/m^3) [skin]
OSHA PEL: TWA 10 ppm (35 mg/m^3) [skin]

Physical Description: Colorless liquid with an acrid odor.

Measurement Methods (see Table 1):
NIOSH 1459, 2552
OSHA 92

Chemical & Physical Properties:
MW: 86.1
BP: 176°F
Sol: 6%
Fl.P: 27°F
IP: 9.90 eV
Sp.Gr: 0.96
VP: 65 mmHg
FRZ: -106°F
UEL: 25%
LEL: 2.8%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.
Provide: Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
100 ppm: Sa*
250 ppm: Sa:Cf*/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Nitrates, oxidizers such as peroxides, strong alkalis
[**Note:** Polymerizes easily; usually contains an inhibitor such as hydroquinone.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, upper resp sys
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

Methylacrylonitrile	Formula: $CH_2=C(CH_3)CN$	CAS#: 126-98-7	RTECS#: UD1400000	IDLH: N.D.
Conversion: 1 ppm = 2.74 mg/m^3	**DOT:** 3079 131P (inhibited)			

Synonyms/Trade Names: 2-Cyanopropene-1, 2-Cyano-1-propene, Isoprene cyanide, Isopropenylnitrile, Methacrylonitrile, α-Methylacrylonitrile, 2-Methylpropenenitrile

Exposure Limits:
NIOSH REL: TWA 1 ppm (3 mg/m^3) [skin]
OSHA PEL†: none

Measurement Methods (see Table 1):
None available

Physical Description: Colorless liquid with an odor like bitter almonds.

Chemical & Physical Properties:
MW: 67.1
BP: 195°F
Sol: 3%
Fl.P: 34°F
IP: ?
Sp.Gr: 0.80
VP(77°F): 71 mmHg
FRZ: -32°F
UEL: 6.8%
LEL: 2%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Strong acids, strong oxidizers, alkali, light
[**Note:** Polymerization may occur due to elevated temperature, visible light, or contact with a concentrated alkali.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin; lac; in animals: convuls, loss of motor control in hind limbs
TO: Eyes, skin, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

M

Methylal	Formula: $CH_3OCH_2OCH_3$	CAS#: 109-87-5	RTECS#: PA8750000	IDLH: 2200 ppm [10%LEL]
Conversion: 1 ppm = 3.11 mg/m^3	**DOT:** 1234 127			

Synonyms/Trade Names: Dimethoxymethane, Formal, Formaldehyde dimethylacetal, Methoxymethyl methyl ether, Methylene dimethyl ether

Exposure Limits:
NIOSH REL: TWA 1000 ppm (3100 mg/m^3)
OSHA PEL: TWA 1000 ppm (3100 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1611

Physical Description: Colorless liquid with a chloroform-like odor.

Chemical & Physical Properties:
MW: 76.1
BP: 111°F
Sol: 33%
Fl.P(oc): -26°F
IP: 10.00 eV
Sp.Gr: 0.86
VP: 330 mmHg
FRZ: -157°F
UEL: 13.8%
LEL: 2.2%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
2200 ppm: Sa/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, acids

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, upper resp sys; anes
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush prompt
Breath: Resp support
Swallow: Medical attention immed

Methyl alcohol	**Formula:** CH_3OH	**CAS#:** 67-56-1	**RTECS#:** PC1400000	**IDLH:** 6000 ppm
Conversion: 1 ppm = 1.31 mg/m^3	**DOT:** 1230 131			

Synonyms/Trade Names: Carbinol, Columbian spirits, Methanol, Pyroligneous spirit, Wood alcohol, Wood naphtha, Wood spirit

Exposure Limits:
NIOSH REL: TWA 200 ppm (260 mg/m^3)
ST 250 ppm (325 mg/m^3) [skin]
OSHA PEL†: TWA 200 ppm (260 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 2000, 3800
OSHA 91

Physical Description: Colorless liquid with a characteristic pungent odor.

Chemical & Physical Properties:
MW: 32.1
BP: 147°F
Sol: Miscible
Fl.P: 52°F
IP: 10.84 eV
Sp.Gr: 0.79
VP: 96 mmHg
FRZ: -144°F
UEL: 36%
LEL: 6.0%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
2000 ppm: Sa
5000 ppm: Sa:Cf
6000 ppm: SaT:Cf/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: ScbaE

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, upper resp sys; head, drow, dizz, nau, vomit; vis dist, optic nerve damage (blindness); derm
TO: Eyes, skin, resp sys, CNS, GI tract

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush prompt
Breath: Resp support
Swallow: Medical attention immed

M

Methylamine	**Formula:** CH_3NH_2	**CAS#:** 74-89-5	**RTECS#:** PF6300000	**IDLH:** 100 ppm
Conversion: 1 ppm = 1.27 mg/m^3	**DOT:** 1061 118 (anhydrous); 1235 132 (aqueous)			

Synonyms/Trade Names: Aminomethane, Methylamine (anhydrous), Methylamine (aqueous), Monomethylamine

Exposure Limits:
NIOSH REL: TWA 10 ppm (12 mg/m^3)
OSHA PEL: TWA 10 ppm (12 mg/m^3)

Measurement Methods (see Table 1):
OSHA 40

Physical Description: Colorless gas with a fish- or ammonia-like odor.
[**Note:** A liquid below 21°F. Shipped as a liquefied compressed gas.]

Chemical & Physical Properties:
MW: 31.1
BP: 21°F
Sol: Soluble
Fl.P: NA (Gas)
14°F (Liquid)
IP: 8.97 eV
RGasD: 1.08
Sp.Gr: 0.70 (Liquid at 13°F)
VP: 3.0 atm
FRZ: -136°F
UEL: 20.7%
LEL: 4.9%
Flammable Gas

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact (solution)
Frostbite
Eyes: Prevent eye contact (solution)
Frostbite
Wash skin: When contam (solution)
Remove: When wet (flamm)
Change: N.R.
Provide: Frostbite wash

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
100 ppm: CcrFS/GmFS/PaprS£/
ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS/ScbaE

Incompatibilities and Reactivities: Mercury, strong oxidizers, nitromethane
[**Note:** Corrosive to copper & zinc alloys, aluminum & galvanized surfaces.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs (solution), Ing (solution), Con (solution/liquid)
SY: Irrit eyes, skin, resp sys; cough; skin, muc memb burns; derm; conj; liquid: frostbite
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed (solution)/Frostbite
Skin: Water flush immed (solution)/Frostbite
Breath: Resp support
Swallow: Medical attention immed (solution)

Methyl (n-amyl) ketone

Formula: $CH_3CO[CH_2]_4CH_3$
CAS#: 110-43-0
RTECS#: MJ5075000
IDLH: 800 ppm

Conversion: 1 ppm = 4.67 mg/m^3
DOT: 1110 127

Synonyms/Trade Names: Amyl methyl ketone, n-Amyl methyl ketone, 2-Heptanone

Exposure Limits:
NIOSH REL: TWA 100 ppm (465 mg/m^3)
OSHA PEL: TWA 100 ppm (465 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1301, 2553

Physical Description: Colorless to white liquid with a banana-like, fruity odor.

Chemical & Physical Properties:
MW: 114.2
BP: 305°F
Sol: 0.4%
Fl.P: 102°F
IP: 9.33 eV
Sp.Gr: 0.81
VP: 3 mmHg
FRZ: -32°F
UEL(250°F): 7.9%
LEL(151°F): 1.1%
Class II Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
800 ppm: CcrOv*/PaprOv*/GmFOv/Sa*/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong acids, alkalis & oxidizers [**Note:** Will attack some forms of plastic.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, muc memb; head; narco, coma; derm
TO: Eyes, skin, resp sys, CNS, PNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Fresh air
Swallow: Medical attention immed

M

Methyl bromide

Formula: CH_3Br
CAS#: 74-83-9
RTECS#: PA4900000
IDLH: Ca [250 ppm]

Conversion: 1 ppm = 3.89 mg/m^3
DOT: 1062 123

Synonyms/Trade Names: Bromomethane, Monobromomethane

Exposure Limits:
NIOSH REL: Ca
See Appendix A
OSHA PEL†: C 20 ppm (80 mg/m^3) [skin]

Measurement Methods (see Table 1):
NIOSH 2520
OSHA PV2040

Physical Description: Colorless gas with a chloroform-like odor at high concentrations. [**Note:** A liquid below 38°F. Shipped as a liquefied compressed gas.]

Chemical & Physical Properties:
MW: 95.0
BP: 38°F
Sol: 2%
Fl.P: NA (Gas)
IP: 10.54 eV
RGasD: 3.36
Sp.Gr: 1.73 (Liquid at 32°F)
VP: 1.9 atm
FRZ: -137°F
UEL: 16.0%
LEL: 10%
Flammable Gas, but only in presence of a high energy ignition source.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact (liquid)
Eyes: Prevent eye contact (liquid)
Wash skin: When contam (liquid)
Remove: When wet (flamm)
Change: N.R.
Provide: Quick drench (liquid)

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Aluminum, magnesium, strong oxidizers [**Note:** Attacks aluminum to form aluminum trimethyl, which is SPONTANEOUSLY flammable.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs (liquid), Con (liquid)
SY: Irrit eyes, skin, resp sys; musc weak, inco, vis dist, dizz; nau, vomit, head; mal; hand tremor; convuls; dysp; skin vesic; liquid: frostbite; [carc]
TO: Eyes, skin, resp sys, CNS [in animals: lung, kidney & forestomach tumors]

First Aid (see Table 6):
Eye: Irr immed (liquid)
Skin: Water flush immed (liquid)
Breath: Resp support

Methyl Cellosolve®	**Formula:** $CH_3OCH_2CH_2OH$	**CAS#:** 109-86-4	**RTECS#:** KL5775000	**IDLH:** 200 ppm
Conversion: 1 ppm = 3.11 mg/m^3	**DOT:** 1188 127			

Synonyms/Trade Names: EGME, Ethylene glycol monomethyl ether, Glycol monomethyl ether, 2-Methoxyethanol

Exposure Limits:
NIOSH REL: TWA 0.1 ppm (0.3 mg/m^3) [skin]
OSHA PEL: TWA 25 ppm (80 mg/m^3) [skin]

Physical Description: Colorless liquid with a mild, ether-like odor.

Measurement Methods (see Table 1):
NIOSH 1403
OSHA 53, 79

Chemical & Physical Properties:
MW: 76.1
BP: 256°F
Sol: Miscible
Fl.P: 102°F
IP: 9.60 eV
Sp.Gr: 0.96
VP: 6 mmHg
FRZ: -121°F
UEL: 14%
LEL: 1.8%
Class II Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
1 ppm: Sa*
2.5 ppm: Sa:Cf*
5 ppm: ScbaF/SaF
100 ppm: Sa:Pd,Pp*
200 ppm: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, caustics

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, nose, throat; head, drow, lass; ataxia, tremor; anemic pallor; in animals: repro, terato effects
TO: Eyes, resp sys, CNS, blood, kidneys, repro sys, hemato sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush prompt
Breath: Resp support
Swallow: Medical attention immed

M

Methyl Cellosolve® acetate	**Formula:** $CH_3COOCH_2CH_2OCH_3$	**CAS#:** 110-49-6	**RTECS#:** KL5950000	**IDLH:** 200 ppm
Conversion: 1 ppm = 4.83 mg/m^3	**DOT:** 1189 129			

Synonyms/Trade Names: EGMEA, Ethylene glycol monomethyl ether acetate, Glycol monomethyl ether acetate, 2-Methoxyethyl acetate

Exposure Limits:
NIOSH REL: TWA 0.1 ppm (0.5 mg/m^3 [skin]
OSHA PEL: TWA 25 ppm (120 mg/m^3) [skin]

Physical Description: Colorless liquid with a mild, ether-like odor.

Measurement Methods (see Table 1):
NIOSH 1451
OSHA 53, 79

Chemical & Physical Properties:
MW: 118.1
BP: 293°F
Sol: Miscible
Fl.P: 120°F
IP: ?
Sp.Gr: 1.01
VP: 2 mmHg
FRZ: -85°F
UEL: 8.2%
LEL: 1.7%
Class II Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
1 ppm: Sa*
2.5 ppm: Sa:Cf*
5 ppm: ScbaF/SaF
100 ppm: Sa:Pd,Pp*
200 ppm: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Nitrates; strong oxidizers, alkalis & acids

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, nose, throat; kidney, brain damage; in animals: narco; repro, terato effects
TO: Eyes, resp sys, kidneys, brain, CNS, PNS, repro sys, hemato sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush prompt
Breath: Resp support
Swallow: Medical attention immed

Methyl chloride

Formula: CH_3Cl | **CAS#:** 74-87-3 | **RTECS#:** PA6300000 | **IDLH:** Ca [2000 ppm]

Conversion: 1 ppm = 2.07 mg/m^3 | **DOT:** 1063 115

Synonyms/Trade Names: Chloromethane, Monochloromethane

Exposure Limits:
NIOSH REL: Ca
See Appendix A
OSHA PEL†: TWA 100 ppm
C 200 ppm
300 ppm (5-minute maximum peak in any 3 hours)

Measurement Methods (see Table 1):
NIOSH 1001

Physical Description: Colorless gas with a faint, sweet odor which is not noticeable at dangerous concentrations. [**Note:** Shipped as a liquefied compressed gas.]

Chemical & Physical Properties:
MW: 50.5
BP: -12°F
Sol: 0.5%
Fl.P: NA (Gas)
IP: 11.28 eV
RGasD: 1.78
VP: 5.0 atm
FRZ: -144°F
UEL: 17.4%
LEL: 8.1%
Flammable Gas

Personal Protection/Sanitation (see Table 2):
Skin: Frostbite
Eyes: Frostbite
Wash skin: N.R.
Remove: When wet (flamm)
Change: N.R.
Provide: Frostbite wash

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: ScbaE

Incompatibilities and Reactivities: Chemically-active metals such as potassium, powdered aluminum, zinc, and magnesium; water [**Note:** Reacts with water (hydrolyzes) to form hydrochloric acid.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con (liquid)
SY: Dizz, nau, vomit; vis dist, stagger, slurred speech, convuls, coma; liver, kidney damage; liquid: frostbite; repro, terato effects; [carc]
TO: CNS, liver, kidneys, repro sys [in animals: lung, kidney & forestomach tumors]

First Aid (see Table 6):
Eye: Frostbite
Skin: Frostbite
Breath: Resp support

M

Methyl chloroform

Formula: CH_3CCl_3 | **CAS#:** 71-55-6 | **RTECS#:** KJ2975000 | **IDLH:** 700 ppm

Conversion: 1 ppm = 5.46 mg/m^3 | **DOT:** 2831 160

Synonyms/Trade Names: Chlorothene; 1,1,1-Trichloroethane; 1,1,1-Trichloroethane (stabilized)

Exposure Limits:
NIOSH REL: C 350 ppm (1900 mg/m^3) [15-minute]
See Appendix C (Chloroethanes)
OSHA PEL†: TWA 350 ppm (1900 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1003

Physical Description: Colorless liquid with a mild, chloroform-like odor.

Chemical & Physical Properties:
MW: 133.4
BP: 165°F
Sol: 0.4%
Fl.P: ?
IP: 11.00 eV
Sp.Gr: 1.34
VP: 100 mmHg
FRZ: -23°F
UEL: 12.5%
LEL: 7.5%
Combustible Liquid, but burns with difficulty.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
700 ppm: Sa*/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong caustics; strong oxidizers; chemically-active metals such as zinc, aluminum, magnesium powders, sodium & potassium; water
[**Note:** Reacts slowly with water to form hydrochloric acid.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin; head, lass, CNS depres, poor equi; derm; card arrhy; liver damage
TO: Eyes, skin, CNS, CVS, liver

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

Methyl-2-cyanoacrylate

Formula: $CH_2=C(CN)COOCH_3$ | **CAS#:** 137-05-3 | **RTECS#:** AS7000000 | **IDLH:** N.D.

Conversion: 1 ppm = 4.54 mg/m^3 | **DOT:**

Synonyms/Trade Names: Mecrylate, Methyl cyanoacrylate, Methyl α-cyanoacrylate, Methyl ester of 2-cyanoacrylic acid

Exposure Limits:
NIOSH REL: TWA 2 ppm (8 mg/m^3)
ST 4 ppm (16 mg/m^3)
OSHA PEL†: none

Physical Description: Colorless liquid with a characteristic odor.

Measurement Methods (see Table 1):
OSHA 55

Chemical & Physical Properties:
MW: 111.1
BP: ?
Sol: 30%
Fl.P: 174°F
IP: ?
Sp.Gr(81°F): 1.10
VP(77°F): 0.2 mmHg
FRZ: ?
UEL: ?
LEL: ?
Class IIIA Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: Daily
Remove: N.R.
Change: N.R.
Provide: Eyewash

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Moisture [**Note:** Contact with moisture causes rapid polymerization.]

M

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose; blurred vision, lac; rhinitis
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water wash
Breath: Resp support
Swallow: Medical attention immed

Methylcyclohexane

Formula: $CH_3C_6H_{11}$ | **CAS#:** 108-87-2 | **RTECS#:** GV6125000 | **IDLH:** 1200 ppm [LEL]

Conversion: 1 ppm = 4.02 mg/m^3 | **DOT:** 2296 128

Synonyms/Trade Names: Cyclohexylmethane, Hexahydrotoluene

Exposure Limits:
NIOSH REL: TWA 400 ppm (1600 mg/m^3)
OSHA PEL†: TWA 500 ppm (2000 mg/m^3)

Physical Description: Colorless liquid with a faint, benzene-like odor.

Measurement Methods (see Table 1):
NIOSH 1500
OSHA 7

Chemical & Physical Properties:
MW: 98.2
BP: 214°F
Sol: Insoluble
Fl.P: 25°F
IP: 9.85 eV
Sp.Gr: 0.77
VP: 37 mmHg
FRZ: -196°F
UEL: 6.7%
LEL: 1.2%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
1200 ppm: Sa/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose, throat; dizz, drow; in animals: narco
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

Methylcyclohexanol	Formula: $CH_3C_6H_{10}OH$	CAS#: 25639-42-3	RTECS#: GW0175000	IDLH: 500 ppm
Conversion: 1 ppm = 4.67 mg/m^3	**DOT:** 2617 129			
Synonyms/Trade Names: Hexahydrocresol, Hexahydromethylphenol				

Exposure Limits:
NIOSH REL: TWA 50 ppm (235 mg/m^3)
OSHA PEL†: TWA 100 ppm (470 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1404

Physical Description: Straw-colored liquid with a weak odor like coconut oil.

Chemical & Physical Properties:
MW: 114.2
BP: 311-356°F
Sol: 4%
Fl.P: 149-158°F
IP: 9.80 eV
Sp.Gr: 0.92
VP(86°F): 2 mmHg
FRZ: -58°F
UEL: ?
LEL: ?
Class IIIA Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
500 ppm: Sa*/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, upper resp sys; head; in animals: narco; liver, kidney damage
TO: Eyes, skin, resp sys, CNS, kidneys, liver

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

M

o-Methylcyclohexanone	Formula: $CH_3C_6H_9O$	CAS#: 583-60-8	RTECS#: GW1750000	IDLH: 600 ppm
Conversion: 1 ppm = 4.59 mg/m^3	**DOT:** 2297 128			
Synonyms/Trade Names: 2-Methylcyclohexanone				

Exposure Limits:
NIOSH REL: TWA 50 ppm (230 mg/m^3) [skin]
ST 75 ppm (345 mg/m^3)
OSHA PEL†: TWA 100 ppm (460 mg/m^3) [skin]

Measurement Methods (see Table 1):
NIOSH 2521

Physical Description: Colorless liquid with a weak, peppermint-like odor.

Chemical & Physical Properties:
MW: 112.2
BP: 325°F
Sol: Insoluble
Fl.P: 118°F
IP: ?
Sp.Gr: 0.93
VP: 1 mmHg
FRZ: 7°F
UEL: ?
LEL: ?
Class II Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
500 ppm: Sa*
600 ppm: Sa:Cf*/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: In animals: irrit eyes, muc memb; narco; derm
TO: Skin, resp sys, liver, kidneys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

Methyl cyclopentadienyl manganese tricarbonyl (as Mn)	Formula: $CH_3C_5H_4Mn(CO)_3$	CAS#: 12108-13-3	RTECS#: OP1450000	IDLH: N.D.
Conversion:	DOT:			

Synonyms/Trade Names: CI-2, Combustion Improver-2, Manganese tricarbonylmethylcyclopentadienyl, 2-Methylcyclopentadienyl manganese tricarbonyl, MMT

Exposure Limits:
NIOSH REL: TWA 0.2 mg/m^3 [skin]
OSHA PEL†: C 5 mg/m^3

Measurement Methods (see Table 1):
None available

Physical Description: Yellow to dark-orange liquid with a faint, pleasant odor. [**Note:** A solid below 36°F.]

Chemical & Physical Properties:
MW: 218.1
BP: 449°F
Sol: Insoluble
Fl.P: 230°F
IP: ?
Sp.Gr: 1.39
VP(212°F): 7 mmHg
FRZ: 36°F
UEL: ?
LEL: ?
Class IIIB Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Light (decomposes)

M

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes; dizz, nau, head; in animals: tremor, severe clonic spasms, lass, slow respiration; liver, kidney inj
TO: Eyes, CNS, liver, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Methyl demeton	Formula: $C_6H_{15}O_3PS_2$	CAS#: 8022-00-2	RTECS#: TG1760000	IDLH: N.D.
Conversion:	DOT:			

Synonyms/Trade Names: Demeton methyl; O,O-Dimethyl 2-ethylmercaptoethyl thiophosphate; Metasystox®; Methyl mercaptophos; Methyl systox®

Exposure Limits:
NIOSH REL: TWA 0.5 mg/m^3 [skin]
OSHA PEL†: none

Measurement Methods (see Table 1):
None available

Physical Description: Oily, colorless to pale-yellow liquid with an unpleasant odor. [insecticide] [**Note:** Technical grade consists of 2 isomers: thiono & thiolo.]

Chemical & Physical Properties:
MW: 230.3
BP: Decomposes
Sol: 0.03-0.3%
Fl.P: ?
IP: ?
Sp.Gr: 1.20
VP: 0.0004 mmHg
FRZ: ?
UEL: ?
LEL: ?
Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Strong oxidizers, alkalis, water

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin; ache eyes, rhin; nau, head, dizz, vomit
TO: Eyes, skin, resp sys, CNS, CVS, blood chol

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

4,4'-Methylenebis(2-chloroaniline)	Formula: $CH_2(C_6H_4ClNH_2)_2$	CAS#: 101-14-4	RTECS#: CY1050000	IDLH: Ca [N.D.]
Conversion:	DOT:			

Synonyms/Trade Names: DACPM; 3,3'-Dichloro-4,4'-diaminodiphenylmethane; MBOCA; 4,4'-Methylenebis(o-chloro aniline); 4,4'-Methylenebis(2-chlorobenzenamine); MOCA

Exposure Limits:
NIOSH REL: Ca
TWA 0.003 mg/m^3 [skin]
See Appendix A
OSHA PEL†: none

Measurement Methods (see Table 1):
OSHA 24, 71

Physical Description: Tan-colored pellets or flakes with a faint, amine-like odor.

Chemical & Physical Properties:
MW: 267.2
BP: ?
Sol: Slight
Fl.P: ?
IP: ?
Sp.Gr: 1.44
VP(77°F): 0.00001 mmHg
MLT: 230°F
UEL: ?
LEL: ?

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Chemically-active metals (e.g., potassium, sodium, magnesium, zinc)

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Hema, cyan, nau, methemo, kidney irrit; [carc]
TO: Liver, blood, kidneys [in animals: liver, lung & bladder tumors]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap flush immed
Breath: Resp support
Swallow: Medical attention immed

M

Methylene bis(4-cyclohexylisocyanate)	Formula: $CH_2[(C_6H_{10})NCO]_2$	CAS#: 5124-30-1	RTECS#: NQ9250000	IDLH: N.D.
Conversion: 1 ppm = 10.73 mg/m^3	DOT:			

Synonyms/Trade Names: Dicyclohexylmethane 4,4'-diisocyanate; DMDI; bis(4-Isocyanatocyclohexyl)methane; HMDI; Hydrogenated MDI; Reduced MDI; Saturated MDI

Exposure Limits:
NIOSH REL: C 0.01 ppm (0.11 mg/m^3)
OSHA PEL†: none

Measurement Methods (see Table 1):
NIOSH 5525
OSHA PV2092

Physical Description: Clear, colorless to light-yellow liquid.

Chemical & Physical Properties:
MW: 262.4
BP: ?
Sol: Reacts
Fl.P: >395°F
IP: ?
Sp.Gr(77°F): 1.07
VP(77°F): 0.001 mmHg
FRZ: <14°F
UEL: ?
LEL: ?
Class IIIB Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
0.1 ppm: Sa*
0.25 ppm: Sa:Cf*
0.5 ppm: ScbaF/SaF
1 ppm: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Water, ethanol, alcohols, amines, bases, acids, organotin catalysts
[**Note:** May slowly polymerize if heated above 122°F.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, resp sys; skin, resp sens; chest tight, dysp, cough, dry throat, wheez, pulm edema; skin blisters
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

Methylene bisphenyl isocyanate	Formula: $CH_2(C_6H_4NCO)_2$	CAS#: 101-68-8	RTECS#: NQ9350000	IDLH: 75 mg/m^3
Conversion: 1 ppm = 10.24 mg/m^3	**DOT:**			

Synonyms/Trade Names: 4,4'-Diphenylmethane diisocyanate; MDI; Methylene bis(4-phenyl isocyanate); Methylene di-p-phenylene ester of isocyanic acid

Exposure Limits:
NIOSH REL: TWA 0.05 mg/m^3 (0.005 ppm)
C 0.2 mg/m^3 (0.020 ppm) [10-minute]
OSHA PEL: C 0.2 mg/m^3 (0.02 ppm)

Measurement Methods (see Table 1):
NIOSH 5521, 5522, 5525
OSHA 18

Physical Description: White to light-yellow, odorless flakes. [**Note:** A liquid above 99°F.]

Chemical & Physical Properties:
MW: 250.3
BP: 597°F
Sol: 0.2%
Fl.P: 390°F
IP: ?
Sp.Gr: 1.23 (Solid at 77°F)
1.19 (Liquid at 122°F)
VP(77°F): 0.000005 mmHg
MLT: 99°F
UEL: ?
LEL: ?
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH
0.5 mg/m^3: Sa*
1.25 mg/m^3: Sa:Cf*
2.5 mg/m^3: ScbaF/SaF
75 mg/m^3: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Strong alkalis, acids, alcohol [**Note:** Polymerizes at 450°F.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, nose, throat; resp sens; cough, pulm secretions, chest pain, dysp; asthma
TO: Eyes, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

M

Methylene chloride	Formula: CH_2Cl_2	CAS#: 75-09-2	RTECS#: PA8050000	IDLH: Ca [2300 ppm]
Conversion: 1 ppm = 3.47 mg/m^3	**DOT:** 1593 160			

Synonyms/Trade Names: Dichloromethane, Methylene dichloride

Exposure Limits:
NIOSH REL: Ca
See Appendix A
OSHA PEL: [1910.1052] TWA 25 ppm
ST 125 ppm

Measurement Methods (see Table 1):
NIOSH 1005, 3800
OSHA 59, 80

Physical Description: Colorless liquid with a chloroform-like odor. [**Note:** A gas above 104°F.]

Chemical & Physical Properties:
MW: 84.9
BP: 104°F
Sol: 2%
Fl.P: ?
IP: 11.32 eV
Sp.Gr: 1.33
VP: 350 mmHg
FRZ: -139°F
UEL: 23%
LEL: 13%
Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

See Appendix E (page 351)

Incompatibilities and Reactivities: Strong oxidizers; caustics; chemically-active metals such as aluminum, magnesium powders, potassium & sodium; concentrated nitric acid

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin; lass, drow, dizz; numb, tingle limbs; nau; [carc]
TO: Eyes, skin, CVS, CNS [in animals: lung, liver, salivary & mammary gland tumors]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

4,4'-Methylenedianiline	Formula: $CH_2(C_6H_4NH_2)_2$	CAS#: 101-77-9	RTECS#: BY5425000	IDLH: Ca [N.D.]
Conversion:	DOT:			

Synonyms/Trade Names: 4,4'-Diaminodiphenylmethane; para, para'-Diaminodiphenyl-methane; Dianilinomethane; 4,4'-Diphenylmethanediamine; MDA

Exposure Limits:
NIOSH REL: Ca
See Appendix A
OSHA PEL: [1910.1050] TWA 0.010 ppm
ST 0.100 ppm

Measurement Methods (see Table 1):
NIOSH 5029

Physical Description: Pale-brown, crystalline solid with a faint, amine-like odor.

Chemical & Physical Properties:
MW: 198.3
BP: 748°F
Sol: 0.1%
Fl.P: 374°F
IP: 10.70 eV
Sp.Gr: 1.06 (Liquid at 212°F)
VP(77°F): 0.0000002 mmHg
MLT: 198°F
UEL: ?
LEL: ?
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

See Appendix E (page 351)

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes; jaun, hepatitis; myocardial damage; in animals: heart, liver, spleen damage; [carc]
TO: Eyes, liver, CVS, spleen [in animals: bladder cancer]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Methyl ethyl ketone peroxide	Formula: $C_8H_{16}O_4$	CAS#: 1338-23-4	RTECS#: EL9450000	IDLH: N.D.
Conversion: 1 ppm = 7.21 mg/m^3	DOT:			

Synonyms/Trade Names: 2-Butanone peroxide, Ethyl methyl ketone peroxide, MEKP, MEK peroxide, Methyl ethyl ketone hydroperoxide

Exposure Limits:
NIOSH REL: C 0.2 ppm (1.5 mg/m^3)
OSHA PEL†: none

Measurement Methods (see Table 1):
NIOSH 3508
OSHA 77

Physical Description: Colorless liquid with a characteristic odor.
[**Note:** Explosive decomposition occurs at 230°F.]

Chemical & Physical Properties:
MW: 176.2
BP: 244°F (Decomposes)
Sol: Soluble
Fl.P(oc): 125-200°F (60% MEKP)
IP: ?
Sp.Gr(59°F): 1.12
VP: ?
FRZ: ?
UEL: ?
LEL: ?
Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Organic materials, heat, flames, sunlight, trace contaminants
[**Note:** A strong oxidizing agent. Pure MEKP is shock sensitive. Commercial product is diluted with 40% dimethyl phthalate, cyclohexane peroxide, or diallyl phthalate to reduce sensitivity to shock.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose, throat; cough, dysp, pulm edema; blurred vision; blisters, scars skin; abdom pain, vomit, diarr; derm; in animals: liver, kidney damage
TO: Eyes, skin, resp sys, liver, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water wash immed
Breath: Resp support
Swallow: Medical attention immed

Methyl formate

Formula:	CAS#:	RTECS#:	IDLH:
$HCOOCH_3$	107-31-3	LQ8925000	4500 ppm

Conversion: 1 ppm = 2.46 mg/m^3 **DOT:** 1243 129

Synonyms/Trade Names: Methyl ester of formic acid, Methyl methanoate

Exposure Limits:
NIOSH REL: TWA 100 ppm (250 mg/m^3)
ST 150 ppm (375 mg/m^3)
OSHA PEL†: TWA 100 ppm (250 mg/m^3)

Physical Description: Colorless liquid with a pleasant odor.
[**Note:** A gas above 89°F.]

Measurement Methods (see Table 1):
NIOSH S291 (II-5)
OSHA PV2041

Chemical & Physical Properties:
MW: 60.1
BP: 89°F
Sol: 30%
Fl.P: -2°F
IP: 10.82 eV
Sp.Gr: 0.98
VP: 476 mmHg
FRZ: -148°F
UEL: 23%
LEL: 4.5%
Class IA Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
1000 ppm: Sa*
2500 ppm: Sa:Cf*
4500 ppm: ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers
[**Note:** Reacts slowly with water to form methanol & formic acid.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, nose; chest tight, dysp; vis dist; CNS depres; in animals: pulm edema; narco
TO: Eyes, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

M

5-Methyl-3-heptanone

Formula:	CAS#:	RTECS#:	IDLH:
$C_2H_5COCH_2CH(CH_3)CH_2CH_3$	541-85-5	MJ7350000	100 ppm

Conversion: 1 ppm = 5.24 mg/m^3 **DOT:** 2271 127

Synonyms/Trade Names: Amyl ethyl ketone, Ethyl amyl ketone, 3-Methyl-5-heptanone

Exposure Limits:
NIOSH REL: TWA 25 ppm (130 mg/m^3)
OSHA PEL: TWA 25 ppm (130 mg/m^3)

Physical Description: Colorless liquid with a pungent odor.

Measurement Methods (see Table 1):
NIOSH 1301, 2553

Chemical & Physical Properties:
MW: 128.2
BP: 315°F
Sol: Insoluble
Fl.P: 138°F
IP: ?
Sp.Gr: 0.82
VP: 2 mmHg
FRZ: -70°F
UEL: ?
LEL: ?
Class II Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
100 ppm: CcrOv*/PaprOv*/GmFOv/Sa*/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, muc memb; head; narco, coma; derm
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush
Breath: Resp support
Swallow: Medical attention immed

Methyl hydrazine

Formula:	CAS#:	RTECS#:	IDLH:
CH_3NHNH_2	60-34-4	MV5600000	Ca [20 ppm]

Conversion: 1 ppm = 1.89 mg/m^3 **DOT:** 1244 131

Synonyms/Trade Names: MMH, Monomethylhydrazine

Exposure Limits:
NIOSH REL: Ca
C 0.04 ppm (0.08 mg/m^3) [2-hr]
See Appendix A
OSHA PEL: C 0.2 ppm (0.35 mg/m^3) [skin]

Measurement Methods (see Table 1):
NIOSH 3510

Physical Description: Fuming, colorless liquid with an ammonia-like odor.

Chemical & Physical Properties:
MW: 46.1
BP: 190°F
Sol: Miscible
Fl.P: 17°F
IP: 8.00 eV
Sp.Gr(77°F): 0.87
VP: 38 mmHg
FRZ: -62°F
UEL: 92%
LEL: 2.5%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: ScbaE

Incompatibilities and Reactivities: Oxides of iron; copper; manganese; lead; copper alloys; porous materials such as earth, asbestos, wood & cloth; strong oxidizers such as fluorine & chlorine; nitric acid; hydrogen peroxide

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, resp sys; vomit, diarr, tremor, ataxia; anoxia, cyan; convuls; [carc]
TO: Eyes, skin, resp sys, CNS, liver, blood, CVS [in animals: lung, liver, blood vessel & intestine tumors]

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

M

Methyl iodide

Formula:	CAS#:	RTECS#:	IDLH:
CH_3I	74-88-4	PA9450000	Ca [100 ppm]

Conversion: 1 ppm = 5.80 mg/m^3 **DOT:** 2644 151

Synonyms/Trade Names: Iodomethane, Monoiodomethane

Exposure Limits:
NIOSH REL: Ca
TWA 2 ppm (10 mg/m^3) [skin]
See Appendix A
OSHA PEL: TWA 5 ppm (28 mg/m^3) [skin]

Measurement Methods (see Table 1):
NIOSH 1014

Physical Description: Colorless liquid with a pungent, ether-like odor. [**Note:** Turns yellow, red, or brown on exposure to light & moisture.]

Chemical & Physical Properties:
MW: 141.9
BP: 109°F
Sol: 1%
Fl.P: NA
IP: 9.54 eV
Sp.Gr: 2.28
VP: 400 mmHg
FRZ: -88°F
UEL: NA
LEL: NA
Noncombustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers [**Note:** Decomposes at 518°F.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, resp sys; nau, vomit; dizz, ataxia; slurred speech, drow; derm; [carc]
TO: Eyes, skin, resp sys, CNS [in animals: lung, kidney & forestomach tumors]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap flush immed
Breath: Resp support
Swallow: Medical attention immed

Methyl isoamyl ketone	**Formula:** $CH_3COCH_2CH_2CH(CH_3)_2$	**CAS#:** 110-12-3	**RTECS#:** MP3850000	**IDLH:** N.D.
Conversion: 1 ppm = 4.67 mg/m^3	**DOT:** 2302 127			

Synonyms/Trade Names: Isoamyl methyl ketone, Isopentyl methyl ketone, 2-Methyl-5-hexanone, 5-Methyl-2-hexanone, MIAK

Exposure Limits:
NIOSH REL: TWA 50 ppm (240 mg/m^3)
OSHA PEL†: TWA 100 ppm (475 mg/m^3)

Measurement Methods (see Table 1):
OSHA PV2042

Physical Description: Colorless, clear liquid with a pleasant, fruity odor.

Chemical & Physical Properties:
MW: 114.2
BP: 291°F
Sol: 0.5%
Fl.P: 97°F
IP: 9.284 eV
Sp.Gr: 0.81
VP: 5 mmHg
FRZ: -101°F
UEL(200°F): 8.2%
LEL(200°F): 1.0%
Class IC Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
500 ppm: CcrOv*/Sa*
1250 ppm: Sa:Cf*/PaprOv*
2500 ppm: CcrFOv/GmFOv/PaprTOv*/SaT:Cf*/ScbaF/SaF
5000 ppm: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, muc memb; head, narco, coma; derm; in animals: liver, kidney damage
TO: Eyes, skin, resp sys, CNS, liver, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap flush prompt
Breath: Resp support
Swallow: Medical attention immed

M

Methyl isobutyl carbinol	**Formula:** $(CH_3)_2CHCH_2CH(OH)CH_3$	**CAS#:** 108-11-2	**RTECS#:** SA7350000	**IDLH:** 400 ppm
Conversion: 1 ppm = 4.18 mg/m^3	**DOT:** 2053 129			

Synonyms/Trade Names: Isobutylmethylcarbinol, Methyl amyl alcohol, 4-Methyl-2-pentanol, MIBC

Exposure Limits:
NIOSH REL: TWA 25 ppm (100 mg/m^3)
ST 40 ppm (165 mg/m^3) [skin]
OSHA PEL†: TWA 25 ppm (100 mg/m^3) [skin]

Measurement Methods (see Table 1):
NIOSH 1402, 1405
OSHA 7

Physical Description: Colorless liquid with a mild odor.

Chemical & Physical Properties:
MW: 102.2
BP: 271°F
Sol: 2%
Fl.P: 106°F
IP: ?
Sp.Gr: 0.81
VP: 3 mmHg
FRZ: -130°F
UEL: 5.5%
LEL: 1.0%
Class II Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
250 ppm: Sa*
400 ppm: Sa:Cf*/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin; head, drow; derm; in animals: narco
TO: Eyes, skin, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush prompt
Breath: Resp support
Swallow: Medical attention immed

Methyl isocyanate	Formula: CH_3NCO	CAS#: 624-83-9	RTECS#: NQ9450000	IDLH: 3 ppm
Conversion: 1 ppm = 2.34 mg/m^3	**DOT:** 2480 155			

Synonyms/Trade Names: Methyl ester of isocyanic acid, MIC

Exposure Limits:
NIOSH REL: TWA 0.02 ppm (0.05 mg/m^3) [skin]
OSHA PEL: TWA 0.02 ppm (0.05 mg/m^3) [skin]

Measurement Methods (see Table 1):
OSHA 54

Physical Description: Colorless liquid with a sharp, pungent odor.

Chemical & Physical Properties:
MW: 57.1
BP: 102-104°F
Sol(59°F): 10%
Fl.P: 19°F
IP: 10.67 eV
Sp.Gr: 0.96
VP: 348 mmHg
FRZ: -49°F
UEL: 26%
LEL: 5.3%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
0.2 ppm: Sa*
0.5 ppm: Sa:Cf*
1 ppm: ScbaF/SaF
3 ppm: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Water, oxidizers, acids, alkalis, amines, iron, tin, copper
[**Note:** Usually contains inhibitors to prevent polymerization.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, nose, throat; resp sens, cough, pulm secretions, chest pain, dysp; asthma; eye, skin damage; in animals: pulm edema
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

M

Methyl isopropyl ketone	Formula: $CH_3COCH(CH_3)_2$	CAS#: 563-80-4	RTECS#: EL9100000	IDLH: N.D.
Conversion: 1 ppm = 3.53 mg/m^3	**DOT:** 2397 127			

Synonyms/Trade Names: 2-Acetyl propane, Isopropyl methyl ketone, 3-Methyl-2-butanone, 3-Methyl butan-2-one, MIPK

Exposure Limits:
NIOSH REL: TWA 200 ppm (705 mg/m^3)
OSHA PEL†: none

Measurement Methods (see Table 1):
None available

Physical Description: Colorless liquid with an acetone-like odor.

Chemical & Physical Properties:
MW: 86.2
BP: 199°F
Sol: Very slight
Fl.P: ?
IP: 9.32 eV
Sp.Gr: 0.81
VP: 42 mmHg
FRZ: -134°F
UEL: ?
LEL: ?
Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, muc memb, resp sys; cough
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Methyl mercaptan	Formula: CH_3SH	CAS#: 74-93-1	RTECS#: PB4375000	IDLH: 150 ppm
Conversion: 1 ppm = 1.97 mg/m^3	**DOT:** 1064 117			

Synonyms/Trade Names: Mercaptomethane, Methanethiol, Methyl sulfhydrate

Exposure Limits:
NIOSH REL: C 0.5 ppm (1 mg/m^3) [15-minute]
OSHA PEL†: C 10 ppm (20 mg/m^3)

Physical Description: Colorless gas with a disagreeable odor like garlic or rotten cabbage. [**Note:** A liquid below 43°F. Shipped as a liquefied compressed gas.]

Measurement Methods (see Table 1):
NIOSH 2542
OSHA 26

Chemical & Physical Properties:
MW: 48.1
BP: 43°F
Sol: 2%
Fl.P: NA (Gas)
(oc) 0°F (Liquid)
IP: 9.44 eV
RGasD: 1.66
Sp.Gr: 0.90 (Liquid at 32°F)
VP: 1.7 atm
FRZ: -186°F
UEL: 21.8%
LEL: 3.9%
Flammable Gas

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact (liquid)
Frostbite
Eyes: Prevent eye contact (liquid)
Frostbite
Wash skin: N.R.
Remove: When wet (flamm)
Change: N.R.
Provide: Eyewash (liquid)
Quick drench (liquid)
Frostbite wash

Respirator Recommendations (see Tables 3 and 4):
NIOSH
5 ppm: CcrOv/Sa
12.5 ppm: Sa:Cf/PaprOv
25 ppm: CcrFOv/GmFOv/PaprTOv/
SaT:Cf/ScbaF/SaF
150 ppm: Sa:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, bleaches, copper, aluminum, nickel-copper alloys

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con (liquid)
SY: Irrit eyes, skin, resp sys; narco; cyan; convuls; liquid: frostbite
TO: Eyes, skin, resp sys, CNS, blood

First Aid (see Table 6):
Eye: Irr immed (liquid)/Frostbite
Skin: Water flush immed (liquid)/Frostbite
Breath: Resp support

M

Methyl methacrylate	Formula: $CH_2=C(CH_3)COOCH_3$	CAS#: 80-62-6	RTECS#: OZ5075000	IDLH: 1000 ppm
Conversion: 1 ppm = 4.09 mg/m^3	**DOT:** 1247 129P (inhibited)			

Synonyms/Trade Names: Methacrylate monomer, Methyl ester of methacrylic acid, Methyl-2-methyl-2-propenoate

Exposure Limits:
NIOSH REL: TWA 100 ppm (410 mg/m^3)
OSHA PEL: TWA 100 ppm (410 mg/m^3)

Physical Description: Colorless liquid with an acrid, fruity odor.

Measurement Methods (see Table 1):
NIOSH 2537
OSHA 94

Chemical & Physical Properties:
MW: 100.1
BP: 214°F
Sol: 1.5%
Fl.P(oc): 50°F
IP: 9.70 eV
Sp.Gr: 0.94
VP: 29 mmHg
FRZ: -54°F
UEL: 8.2%
LEL: 1.7%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
1000 ppm: Sa:Cf£/CcrFOv/GmFOv/
PaprOv£/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Nitrates, oxidizers, peroxides, strong alkalis, moisture [**Note:** May polymerize if subjected to heat, oxidizers, or ultraviolet light. Usually contains an inhibitor such as hydroquinone.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose, throat; derm
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush prompt
Breath: Resp support
Swallow: Medical attention immed

Methyl parathion	Formula: $(CH_3O)_2P(S)OC_6H_4NO_2$	CAS#: 298-00-0	RTECS#: TG0175000	IDLH: N.D.
Conversion:	**DOT:** 2783 152 (solid); 3018 152 (liquid)			

Synonyms/Trade Names: Azophos®; O,O-Dimethyl-O-p-nitrophenylphosphorothioate; Parathion methyl

Exposure Limits:
NIOSH REL: TWA 0.2 mg/m^3 [skin]
OSHA PEL†: none

Measurement Methods (see Table 1):
NIOSH 5600
OSHA PV2112

Physical Description: White to tan, crystalline solid or powder with a pungent, garlic-like odor. [pesticide] [**Note:** The commercial product in xylene is a tan liquid.]

Chemical & Physical Properties:
MW: 263.2
BP: 289°F
Sol(77°F): 0.006%
Fl.P: ?
IP: ?
Sp.Gr: 1.36
VP: 0.00001 mmHg
MLT: 99°F
UEL: ?
LEL: ?
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
2 mg/m^3: CcrOv95/Sa
5 mg/m^3: Sa:Cf/PaprOvHie
10 mg/m^3: CcrFOv100/GmFOv100/PaprTOvHie/SaT:Cf/ScbaF/SaF
200 mg/m^3: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, water [**Note:** Explosive risk when heated above 122°F.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin; nau, vomit, abdom cramps, diarr, salv; head, dizz, lass; rhin, chest tight; blurred vision, miosis; card irreg; musc fasc; dysp
TO: Eyes, skin, resp sys, CNS, CVS, blood chol

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

M

Methyl silicate	Formula: $(CH_3O)_4Si$	CAS#: 681-84-5	RTECS#: VV9800000	IDLH: N.D.
Conversion: 1 ppm = 6.23 mg/m^3	**DOT:** 2606 155			

Synonyms/Trade Names: Methyl orthosilicate, Tetramethoxysilane, Tetramethyl ester of silicic acid, Tetramethyl silicate

Exposure Limits:
NIOSH REL: TWA 1 ppm (6 mg/m^3)
OSHA PEL†: none

Measurement Methods (see Table 1):
None available

Physical Description: Clear, colorless liquid. [**Note:** A solid below 28°F.]

Chemical & Physical Properties:
MW: 152.3
BP: 250°F
Sol: Soluble
Fl.P: 205°F
IP: ?
Sp.Gr: 1.02
VP(77°F): 12 mmHg
FRZ: 28°F
UEL: ?
LEL: ?
Class IIIB Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: Daily
Remove: When wet or contam
Change: N.R.
Provide: Eyewash

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Oxidizers; hexafluorides of rhenium, molybdenum & tungsten

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, corn damage (following even short-term exposure to the vapor); lung, kidney inj; pulm edema
TO: Eyes, resp sys, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Resp support
Swallow: Medical attention immed

α-Methyl styrene	Formula: $C_6H_5C(CH_3)=CH_2$	CAS#: 98-83-9	RTECS#: WL5075300	IDLH: 700 ppm
Conversion: 1 ppm = 4.83 mg/m^3	**DOT:**			

Synonyms/Trade Names: AMS, Isopropenyl benzene, 1-Methyl-1-phenylethylene, 2-Phenyl propylene

Exposure Limits:
NIOSH REL: TWA 50 ppm (240 mg/m^3)
ST 100 ppm (485 mg/m^3)
OSHA PEL†: C 100 ppm (480 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1501
OSHA 7

Physical Description: Colorless liquid with a characteristic odor.

Chemical & Physical Properties:
MW: 118.2
BP: 330°F
Sol: Insoluble
Fl.P: 129°F
IP: 8.35 eV
Sp.Gr: 0.91
VP: 2 mmHg
FRZ: -10°F
UEL: 6.1%
LEL: 1.9%
Class II Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
500 ppm: CcrOv*/Sa*
700 ppm: Sa:Cf*/CcrFOv/GmFOv/PaprOv*/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Oxidizers, peroxides, halogens, catalysts for vinyl or ionic polymers; aluminum, iron chloride, copper [**Note:** Usually contains an inhibitor such as tert-butyl catechol.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose, throat; drow; derm
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush prompt
Breath: Resp support
Swallow: Medical attention immed

Metribuzin	Formula: $C_8H_{14}N_4OS$	CAS#: 21087-64-9	RTECS#: XZ2990000	IDLH: N.D.
Conversion:	**DOT:**			

Synonyms/Trade Names: 4-Amino-6-(1,1-dimethylethyl)-3-(methylthio)-1,2,4-triazin-5(4H)-one

Exposure Limits:
NIOSH REL: TWA 5 mg/m^3
OSHA PEL†: none

Measurement Methods (see Table 1):
OSHA PV2044

Physical Description: Colorless, crystalline solid. [herbicide]

Chemical & Physical Properties:
MW: 214.3
BP: ?
Sol: 0.1%
Fl.P: NA
IP: ?
Sp.Gr: 1.31
VP: 0.0000004 mmHg
MLT: 257°F
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: None reported

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: In animals: CNS depres; thyroid, liver enzyme changes
TO: CNS, thyroid, liver

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Fresh air
Swallow: Medical attention immed

Mica (containing less than 1% quartz)	Formula:	CAS#: 12001-26-2	RTECS#: VV8760000	IDLH: 1500 mg/m^3
Conversion:	**DOT:**			

Synonyms/Trade Names: Biotite, Lepidolite, Margarite, Muscovite, Phlogopite, Roscoelite, Zimmwaldite

Exposure Limits:
NIOSH REL: TWA 3 mg/m^3 (resp)
OSHA PEL†: TWA 20 mppcf

Measurement Methods (see Table 1):
NIOSH 0600

Physical Description: Colorless, odorless flakes or sheets of hydrous silicates.

Chemical & Physical Properties:
MW: 797 (approx)
BP: ?
Sol: Insoluble
Fl.P: NA
IP: NA
Sp.Gr: 2.6-3.2
VP: 0 mmHg (approx)
MLT: ?
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
15 mg/m^3: Qm
30 mg/m^3: 95XQ/Sa
75 mg/m^3: Sa:Cf/PaprHie
150 mg/m^3: 100F/SaT:Cf/PaprTHie/ ScbaF/SaF
1500 mg/m^3: Sa:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: None reported

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Irrit eyes; pneumoconiosis, cough, dysp; lass; low-wgt
TO: Resp sys

First Aid (see Table 6):
Eye: Irr immed
Breath: Fresh air

M

Mineral wool fiber	Formula:	CAS#:	RTECS#: PY8070000	IDLH: N.D.
Conversion:	**DOT:**			

Synonyms/Trade Names: Manmade mineral fibers, Rock wool, Slag wool, Synthetic vitreous fibers
[**Note:** Produced by blowing steam or air through molten rock (rock wool) or various furnace slags that are by-products of metal smelting or refining processes (slag wool).]

Exposure Limits:
NIOSH REL: TWA 3 fibers/cm^3 (fibers ≤ 3.5 µm diameter & ≥ 10 µm in length)
TWA 5 mg/m^3 (total)
OSHA PEL: TWA 15 mg/m^3 (total)
TWA 5 mg/m^3 (resp)

Measurement Methods (see Table 1):
NIOSH 0500, 7400

Physical Description: Typically, a mineral "wool" with diameters >0.5 µm & >1.5 µm in length.

Chemical & Physical Properties:
MW: varies
BP: NA
Sol: Insoluble
Fl.P: NA
IP: NA
Sp.Gr: ?
VP: 0 mmHg (approx)
MLT: ?
UEL: NA
LEL: NA
Noncombustible Fibers

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: Daily
Remove: N.R.
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH
5X REL: Qm
10X REL: 95XQ/Sa
25X REL: Sa:Cf/PaprHie
50X REL: 100F/PaprTHie/ScbaF/SaF
1000X REL: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: None reported

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Irrit eyes, skin, resp sys; dysp
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Breath: Fresh air

Molybdenum	**Formula:** Mo	**CAS#:** 7439-98-7	**RTECS#:** QA4680000	**IDLH:** 5000 mg/m^3 (as Mo)
Conversion:	**DOT:**			

Synonyms/Trade Names: Molybdenum metal

Exposure Limits:
NIOSH REL*: See Appendix D
OSHA PEL*†: TWA 15 mg/m^3
[***Note:** The PEL also applies to other insoluble molybdenum compounds (as Mo).]

Physical Description: Dark gray or black powder with a metallic luster.

Measurement Methods (see Table 1):
NIOSH 7300, 7301, 7303, 9102
OSHA ID121, ID125G

Chemical & Physical Properties:
MW: 95.9
BP: 8717°F
Sol: Insoluble
Fl.P: NA
IP: NA
Sp.Gr: 10.28
VP: 0 mmHg (approx)
MLT: 4752°F
UEL: NA
LEL: NA
Combustible Solid in form of dust or powder.

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
OSHA
75 mg/m^3: Qm
150 mg/m^3: 95XQ/Sa
375 mg/m^3: Sa:Cf/PaprHie
750 mg/m^3: 100F/SaT:Cf/PaprTHie/ ScbaF/SaF
5000 mg/m^3: Sa:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: In animals: irrit eyes, nose, throat; anor, diarr, low-wgt; listlessness; liver, kidney damage
TO: Eyes, resp sys, liver, kidneys

First Aid (see Table 6):
Eye: Irr immed
Breath: Resp support
Swallow: Medical attention immed

M

Molybdenum (soluble compounds, as Mo)	**Formula:**	**CAS#:**	**RTECS#:**	**IDLH:** 1000 mg/m^3 (as Mo)
Conversion:	**DOT:**			

Synonyms/Trade Names: Synonyms vary depending upon the specific soluble molybdenum compound.

Exposure Limits:
NIOSH REL: See Appendix D
OSHA PEL: TWA 5 mg/m^3

Physical Description: Appearance and odor vary depending upon the specific soluble molybdenum compound.

Measurement Methods (see Table 1):
NIOSH 7300, 7301, 7303, 9102
OSHA ID121, ID125G

Chemical & Physical Properties:
Properties vary depending upon the specific soluble molybdenum compound.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
OSHA
25 mg/m^3: Qm*
50 mg/m^3: 95XQ*/Sa*
125 mg/m^3: Sa:Cf*/PaprHie*
250 mg/m^3: 100F/SaT:Cf*/PaprTHie*/ ScbaF/SaF
1000 mg/m^3: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Varies

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: In animals: irrit eyes, nose, throat; anor; inco; dysp; anemia
TO: Eyes, resp sys, kidneys, blood

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush
Breath: Resp support
Swallow: Medical attention immed

Monocrotophos	Formula: $C_7H_{14}NO_5P$	CAS#: 6923-22-4	RTECS#: TC4375000	IDLH: N.D.
Conversion:	**DOT:** 2783 152 (organophosphorus pesticide, solid)			

Synonyms/Trade Names: Azodrin®, 3-Hydroxy-N-methylcrotonamide dimethylphosphate, Monocron

Exposure Limits:
NIOSH REL: TWA 0.25 mg/m^3
OSHA PEL†: none

Physical Description: Colorless to reddish-brown solid with a mild, ester odor. [insecticide]

Measurement Methods (see Table 1):
NIOSH 5600
OSHA PV2045

Chemical & Physical Properties:
MW: 223.2
BP: 257°F
Sol: Miscible
Fl.P: >200°F
IP: ?
Sp.Gr: ?
VP: 0.000007 mmHg
MLT: 129°F
UEL: ?
LEL: ?
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Metals, low molecular weight alcohols & glycols
[**Note:** Corrosive to black iron, drum steel, stainless steel 304 & brass. Should be stored at 70-80°F.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, miosis, blurred vision; dizz, convuls; dysp; salv, abdom cramps, nau, diarr, vomit; in animals: possible terato effects
TO: Eyes, resp sys, CNS, CVS, blood chol, repro sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

M

Monomethyl aniline	Formula: $C_6H_5NHCH_3$	CAS#: 100-61-8	RTECS#: BY4550000	IDLH: 100 ppm
Conversion: 1 ppm = 4.38 mg/m^3	**DOT:** 2294 153			

Synonyms/Trade Names: MA, (Methylamino)benzene, N-Methyl aniline, Methylphenylamine, N-Phenylmethylamine

Exposure Limits:
NIOSH REL: TWA 0.5 ppm (2 mg/m^3) [skin]
OSHA PEL†: TWA 2 ppm (9 mg/m^3) [skin]

Physical Description: Yellow to light-brown liquid with a weak, ammonia-like odor.

Measurement Methods (see Table 1):
NIOSH 3511

Chemical & Physical Properties:
MW: 107.2
BP: 384°F
Sol: Insoluble
Fl.P: 175°F
IP: 7.32 eV
Sp.Gr: 0.99
VP: 0.3 mmHg
FRZ: -71°F
UEL: ?
LEL: ?
Class IIIA Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
5 ppm: Sa
12.5 ppm: Sa:Cf
25 ppm: SaT:Cf/ScbaF/SaF
100 ppm: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS/ScbaE

Incompatibilities and Reactivities: Strong acids, strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Lass, dizz, head; dysp, cyan; methemo; pulm edema; liver, kidney damage
TO: Resp sys, liver, kidneys, blood, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Morpholine

Formula:	CAS#:	RTECS#:	IDLH:
C_4H_9ON	110-91-8	QD6475000	1400 ppm [10%LEL]

Conversion: 1 ppm = 3.56 mg/m^3 **DOT:** 2054 132

Synonyms/Trade Names: Diethylene imidoxide; Diethylene oximide; Tetrahydro-1,4-oxazine; Tetrahydro-p-oxazine

Exposure Limits:
NIOSH REL: TWA 20 ppm (70 mg/m^3) [skin]
ST 30 ppm (105 mg/m^3)
OSHA PEL†: TWA 20 ppm (70 mg/m^3) [skin]

Physical Description: Colorless liquid with a weak, ammonia- or fish-like odor.
[**Note:** A solid below 23°F.]

Measurement Methods (see Table 1):
NIOSH S150 (II-3)

Chemical & Physical Properties:
MW: 87.1
BP: 264°F
Sol: Miscible
Fl.P(oc): 98°F
IP: 8.88 eV
Sp.Gr: 1.007
VP: 6 mmHg
FRZ: 23°F
UEL: 11.2%
LEL: 1.4%
Class IC Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.
Provide: Eyewash (>15%)
Quick drench (>25%)

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
500 ppm: Sa:Cf£/PaprOv£
1000 ppm: CcrFOv/GmFOv/PaprTOv£/ ScbaF/SaF
1400 ppm: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong acids, strong oxidizers, metals, nitro compounds
[**Note:** Corrosive to metals.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, nose, resp sys; vis dist; cough; in animals: liver, kidney damage
TO: Eyes, skin, resp sys, liver, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

N

Naphtha (coal tar)

Formula:	CAS#:	RTECS#:	IDLH:
	8030-30-6	DE3030000	1000 ppm [10%LEL]

Conversion: 1 ppm = 4.50 mg/m^3 (approx) **DOT:**

Synonyms/Trade Names: Crude solvent coal tar naphtha, High solvent naphtha, Naphtha

Exposure Limits:
NIOSH REL: TWA 100 ppm (400 mg/m^3)
OSHA PEL: TWA 100 ppm (400 mg/m^3)

Physical Description: Reddish-brown, mobile liquid with an aromatic odor.

Measurement Methods (see Table 1):
NIOSH 1550

Chemical & Physical Properties:
MW: 110 (approx)
BP: 320-428°F
Sol: Insoluble
Fl.P: 100-109°F
IP: ?
Sp.Gr: 0.89-0.97
VP: <5 mmHg
FRZ: ?
UEL: ?
LEL: ?
Class II Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
1000 ppm: Sa:Cf£/CcrFOv/GmFOv/ PaprOv£/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose; dizz, drow; derm; in animals: liver, kidney damage
TO: Eyes, skin, resp sys, CNS, liver, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

Naphthalene	Formula: $C_{10}H_8$	CAS#: 91-20-3	RTECS#: QJ0525000	IDLH: 250 ppm
Conversion: 1 ppm = 5.24 mg/m^3	**DOT:** 1334 133 (crude or refined); 2304 133 (molten)			

Synonyms/Trade Names: Naphthalin, Tar camphor, White tar

Exposure Limits:
NIOSH REL: TWA 10 ppm (50 mg/m^3)
ST 15 ppm (75 mg/m^3)
OSHA PEL†: TWA 10 ppm (50 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1501
OSHA 35

Physical Description: Colorless to brown solid with an odor of mothballs.
[**Note:** Shipped as a molten solid.]

Chemical & Physical Properties:
MW: 128.2
BP: 424°F
Sol: 0.003%
Fl.P: 174°F
IP: 8.12 eV
Sp.Gr: 1.15
VP: 0.08 mmHg
MLT: 176°F
UEL: 5.9%
LEL: 0.9%
Combustible Solid, but will take some effort to ignite.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
100 ppm: CcrOv95*/Sa*
250 ppm: Sa:Cf*/CcrFOv100/PaprOvHie*/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, chromic anhydride

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes; head, conf, excitement, mal; nau, vomit, abdom pain; irrit bladder; profuse sweat; jaun; hema, renal shutdown; derm, optical neuritis, corn damage
TO: Eyes, skin, blood, liver, kidneys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Molten flush immed/sol-liq soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

N

Naphthalene diisocyanate	Formula: $C_{10}H_6(NCO)_2$	CAS#: 3173-72-6	RTECS#: NQ9600000	IDLH: N.D.
Conversion: 1 ppm = 8.60 mg/m^3	**DOT:**			

Synonyms/Trade Names: 1,5-Diisocyanatonaphthalene; 1,5-Naphthalene diisocyanate; 1,5-Naphthalene ester of isocyanic acid; NDI

Exposure Limits:
NIOSH REL: TWA 0.040 mg/m^3 (0.005 ppm)
C 0.170 mg/m^3 (0.020 ppm) [10-minute]
OSHA PEL: none

Measurement Methods (see Table 1):
NIOSH 5525
OSHA PV2046

Physical Description: White to light-yellow, crystalline flakes.

Chemical & Physical Properties:
MW: 210.2
BP: 505°F
Sol: ?
Fl.P(oc): 311°F
IP: ?
Sp.Gr: ?
VP(75°F): 0.003 mmHg
MLT: 261°F
UEL: ?
LEL: ?
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH
0.05 ppm: Sa*
0.125 ppm: Sa:Cf*
0.25 ppm: ScbaF/SaF
1 ppm: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: None reported

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, nose, throat; resp sens, cough, pulm secretions, chest pain, dysp; asthma
TO: Eyes, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

α-Naphthylamine	Formula: $C_{10}H_7NH_2$	CAS#: 134-32-7	RTECS#: QM1400000	IDLH: Ca [N.D.]
Conversion:	**DOT:** 2077 153			

Synonyms/Trade Names: 1-Aminonaphthalene, 1-Naphthylamine

Exposure Limits:
NIOSH REL: Ca
See Appendix A
OSHA PEL: [1910.1004] See Appendix B

Measurement Methods (see Table 1):
NIOSH 5518
OSHA 93

Physical Description: Colorless crystals with an ammonia-like odor.
[**Note:** Darkens in air to a reddish-purple color.]

Chemical & Physical Properties:
MW: 143.2
BP: 573°F
Sol: 0.002%
Fl.P: 315°F
IP: 7.30 eV
Sp.Gr: 1.12
VP(220°F): 1 mmHg
MLT: 122°F
UEL: ?
LEL: ?
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

See Appendix E (page 351)

Incompatibilities and Reactivities: Oxidizes in air

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Derm; hemorrhagic cystitis; dysp, ataxia, methemo; hema; dysuria; [carc]
TO: Bladder, skin [bladder cancer]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

N

β-Naphthylamine	Formula: $C_{10}H_7NH_2$	CAS#: 91-59-8	RTECS#: QM2100000	IDLH: Ca [N.D.]
Conversion:	**DOT:** 1650 153			

Synonyms/Trade Names: 2-Aminonaphthalene, 2-Naphthylamine

Exposure Limits:
NIOSH REL: Ca
See Appendix A
OSHA PEL: [1910.1009] See Appendix B

Measurement Methods (see Table 1):
NIOSH 5518
OSHA 93

Physical Description: Odorless, white to red crystals with a faint, aromatic odor.
[**Note:** Darkens in air to a reddish-purple color.]

Chemical & Physical Properties:
MW: 143.2
BP: 583°F
Sol: Miscible in hot water
Fl.P: 315°F
IP: 9.71 eV
Sp.Gr(208°F): 1.06
VP(226°F): 1 mmHg
MLT: 232°F
UEL: ?
LEL: ?
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

See Appendix E (page 351)

Incompatibilities and Reactivities: None reported

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Derm; hemorrhagic cystitis; dysp; ataxia; methemo, hema; dysuria; [carc]
TO: Bladder, skin [bladder cancer]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Niax® Catalyst ESN	Formula:	CAS#: 62765-93-9	RTECS#: QR3900000	IDLH: N.D.
Conversion:	DOT:			

Synonyms/Trade Names: None
[**Note:** A mixture of 95% dimethylaminopropionitrile & 5% bis(2-dimethylamino)ethyl ether.]

Exposure Limits:
NIOSH REL: See Appendix C
OSHA PEL: See Appendix C

Measurement Methods (see Table 1):
None available

Physical Description: A liquid mixture.
[**Note:** Used in the past as a catalyst in the manufacture of flexible polyurethane foams.]

Chemical & Physical Properties:
MW: mixture
BP: ?
Sol: ?
Fl.P: ?
IP: ?
Sp.Gr: ?
VP: ?
FRZ: ?
UEL: ?
LEL: ?

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin; urinary dist; neurological disorders; pins & needles in hands & feet; musc weak, lass, nau, vomit; decr nerve conduction in lower legs
TO: Eyes, skin, urinary tract, PNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap flush immed
Breath: Resp support
Swallow: Medical attention immed

N

Nickel carbonyl	Formula: $Ni(CO)_4$	CAS#: 13463-39-3	RTECS#: QR6300000	IDLH: Ca [2 ppm]
Conversion: 1 ppm = 6.98 mg/m^3	DOT: 1259 131			

Synonyms/Trade Names: Nickel tetracarbonyl, Tetracarbonyl nickel

Exposure Limits:
NIOSH REL: Ca
TWA 0.001 ppm (0.007 mg/m^3)
See Appendix A
OSHA PEL: TWA 0.001 ppm (0.007 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 6007

Physical Description: Colorless to yellow liquid with a musty odor. [**Note:** A gas above 110°F.]

Chemical & Physical Properties:
MW: 170.7
BP: 110°F
Sol: 0.05%
Fl.P: <-4°F
IP: 8.28 eV
Sp.Gr(63°F): 1.32
VP: 315 mmHg
FRZ: -13°F
UEL: ?
LEL: 2%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS/ScbaE

Incompatibilities and Reactivities: Nitric acid, bromine, chlorine & other oxidizers; flammable materials

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Abs, Con
SY: Head, dizz; nau, vomit, epigastric pain; substernal pain; cough, hyperpnea; cyan; lass; leucyt, pneu; delirium, convuls; [carc]; in animals: repro, terato effects
TO: Lungs, paranasal sinus, CNS, repro sys [lung & nasal cancer]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Nickel metal and other compounds (as Ni)	Formula: Ni (metal)	CAS#: 7440-02-0 (metal)	RTECS#: QR5950000 (metal)	IDLH: Ca [10 mg/m^3 (as Ni)]
Conversion:	DOT:			

Synonyms/Trade Names: **Nickel metal:** Elemental nickel, Nickel catalyst
Synonyms of other nickel compounds vary depending upon the specific compound.

Exposure Limits:
NIOSH REL*: Ca
TWA 0.015 mg/m^3
See Appendix A
OSHA PEL*†: TWA 1 mg/m^3
[***Note:** The REL and PEL do not apply to Nickel carbonyl.]

Measurement Methods (see Table 1):
NIOSH 7300, 7301, 7303, 9102
OSHA ID121, ID125G

Physical Description: Metal: Lustrous, silvery, odorless solid.

Chemical & Physical Properties:
MW: 58.7
BP: 5139°F
Sol: Insoluble
Fl.P: NA
IP: NA
Sp.Gr: 8.90 (Metal)
VP: 0 mmHg (approx)
MLT: 2831°F
UEL: NA
LEL: NA
Metal: Combustible Solid; nickel sponge catalyst may ignite SPONTANEOUSLY in air.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: N.R.
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Strong acids, sulfur, selenium, wood & other combustibles, nickel nitrate

N

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Sens derm, allergic asthma, pneu; [carc]
TO: Nasal cavities, lungs, skin [lung and nasal cancer]

First Aid (see Table 6):
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

Nicotine	Formula: $C_5H_4NC_4H_7NCH_3$	CAS#: 54-11-5	RTECS#: QS5250000	IDLH: 5 mg/m^3
Conversion:	DOT: 1654 151			

Synonyms/Trade Names: 3-(1-Methyl-2-pyrrolidyl)pyridine

Exposure Limits:
NIOSH REL: TWA 0.5 mg/m^3 [skin]
OSHA PEL: TWA 0.5 mg/m^3 [skin]

Measurement Methods (see Table 1):
NIOSH 2544, 2551

Physical Description: Pale-yellow to dark-brown liquid with a fish-like odor when warm. [insecticide]

Chemical & Physical Properties:
MW: 162.2
BP: 482°F (Decomposes)
Sol: Miscible
Fl.P: 203°F
IP: 8.01 eV
Sp.Gr: 1.01
VP: 0.08 mmHg
FRZ: -110°F
UEL: 4.0%
LEL: 0.7%
Class IIIB Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
5 mg/m^3: Sa/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, strong acids

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Nau, salv, abdom pain, vomit, diarr; head, dizz, hearing, vis dist; conf, lass, inco; card arrhy; convuls, dysp; in animals: terato effects
TO: CNS, CVS, lungs, GI tract, repro sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

Nitric acid	**Formula:** HNO_3	**CAS#:** 7697-37-2	**RTECS#:** QU5775000	**IDLH:** 25 ppm
Conversion: 1 ppm = 2.58 mg/m^3	**DOT:** 2032 157 (fuming); 2031 157 (other than red fuming)			

Synonyms/Trade Names: Aqua fortis, Engravers acid, Hydrogen nitrate, Red fuming nitric acid (RFNA), White fuming nitric acid (WFNA)

Exposure Limits:
NIOSH REL: TWA 2 ppm (5 mg/m^3)
ST 4 ppm (10 mg/m^3)
OSHA PEL†: TWA 2 ppm (5 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 7903
OSHA ID165SG

Physical Description: Colorless, yellow, or red, fuming liquid with an acrid, suffocating odor. [**Note:** Often used in an aqueous solution. Fuming nitric acid is concentrated nitric acid that contains dissolved nitrogen dioxide.]

Chemical & Physical Properties:
MW: 63.0
BP: 181°F
Sol: Miscible
Fl.P: NA
IP: 11.95 eV
Sp.Gr(77°F): 1.50
VP: 48 mmHg
FRZ: -44°F
UEL: NA
LEL: NA
Noncombustible Liquid, but increases the flammability of combustible materials.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash (pH<2.5)
Quick drench (pH<2.5)

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
25 ppm: Sa:Cf*/CcrFS¿/GmFS¿/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS¿/ScbaE

Incompatibilities and Reactivities: Combustible materials, metallic powders, hydrogen sulfide, carbides, alcohols [**Note:** Reacts with water to produce heat. Corrosive to metals.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, muc memb; delayed pulm edema, pneu, bron; dental erosion
TO: Eyes, skin, resp sys, teeth

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

N

Nitric oxide	**Formula:** NO	**CAS#:** 10102-43-9	**RTECS#:** QX0525000	**IDLH:** 100 ppm
Conversion: 1 ppm = 1.23 mg/m^3	**DOT:** 1660 124			

Synonyms/Trade Names: Mononitrogen monoxide, Nitrogen monoxide

Exposure Limits:
NIOSH REL: TWA 25 ppm (30 mg/m^3)
OSHA PEL: TWA 25 ppm (30 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 6014
OSHA ID190

Physical Description: Colorless gas. [**Note:** Shipped as a nonliquefied compressed gas.]

Chemical & Physical Properties:
MW: 30.0
BP: -241°F
Sol: 5%
Fl.P: NA
IP: 9.27 eV
RGasD: 1.04
VP: 34.2 atm
FRZ: -263°F
UEL: NA
LEL: NA
Nonflammable Gas, but will accelerate the burning of combustible materials.

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
100 ppm: Sa:Cf*/CcrFS¿/PaprS*¿/GmFS¿/Sa*/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS¿/ScbaE

Incompatibilities and Reactivities: Fluorine, combustible materials, ozone, NH_3, chlorinated hydrocarbons, metals, carbon disulfide [**Note:** Reacts with water to form nitric acid. Rapidly converted in air to nitrogen dioxide.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh
SY: Irrit eyes, wet skin, nose, throat; drow, uncon; methemo
TO: Eyes, skin, resp sys, blood, CNS

First Aid (see Table 6):
Breath: Resp support

p-Nitroaniline	**Formula:** $NO_2C_6H_4NH_2$	**CAS#:** 100-01-6	**RTECS#:** BY7000000	**IDLH:** 300 mg/m^3
Conversion:	**DOT:** 1661 153			

Synonyms/Trade Names: para-Aminonitrobenzene, 4-Nitroaniline, 4-Nitrobenzenamine, p-Nitrophenylamine, PNA

Exposure Limits:
NIOSH REL: TWA 3 mg/m^3 [skin]
OSHA PEL†: TWA 6 mg/m^3 (1 ppm) [skin]

Measurement Methods (see Table 1):
NIOSH 5033

Physical Description: Bright yellow, crystalline powder with a slight ammonia-like odor.

Chemical & Physical Properties:
MW: 138.1
BP: 630°F
Sol: 0.08%
Fl.P: 390°F
IP: 8.85 eV
Sp.Gr: 1.42
VP: 0.00002 mmHg
MLT: 295°F
UEL: ?
LEL: ?
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily
Provide: Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
30 mg/m^3: Sa*
75 mg/m^3: Sa:Cf*
150 mg/m^3: ScbaF/SaF
300 mg/m^3: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, strong reducers
[**Note:** May result in spontaneous heating of organic materials in the presence of moisture.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit nose, throat; cyan, ataxia; tacar, tachypnea; dysp; irrity; vomit, diarr; convuls; resp arrest; anemia; methemo; jaundice
TO: Resp sys, blood, heart, liver

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

N

Nitrobenzene	**Formula:** $C_6H_5NO_2$	**CAS#:** 98-95-3	**RTECS#:** DA6475000	**IDLH:** 200 ppm
Conversion: 1 ppm = 5.04 mg/m^3	**DOT:** 1662 152			

Synonyms/Trade Names: Essence of mirbane, Nitrobenzol, Oil of mirbane

Exposure Limits:
NIOSH REL: TWA 1 ppm (5 mg/m^3) [skin]
OSHA PEL: TWA 1 ppm (5 mg/m^3) [skin]

Measurement Methods (see Table 1):
NIOSH 2005, 2017

Physical Description: Yellow, oily liquid with a pungent odor like paste shoe polish.
[**Note:** A solid below 42°F.]

Chemical & Physical Properties:
MW: 123.1
BP: 411°F
Sol: 0.2%
Fl.P: 190°F
IP: 9.92 eV
Sp.Gr: 1.20
VP(77°F): 0.3 mmHg
FRZ: 42°F
UEL: ?
LEL(200°F): 1.8%
Class IIIA Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: N.R.
Remove: When wet or contam
Change: Daily
Provide: Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
10 ppm: CcrOv*/Sa*
25 ppm: Sa:Cf*/PaprOv*
50 ppm: CcrFOv/GmFOv/PaprTOv*/ ScbaF/SaF
200 ppm: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Concentrated nitric acid, nitrogen tetroxide, caustics, phosphorus pentachloride, chemically-active metals such as tin or zinc

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin; anoxia; derm; anemia; methemo; in animals: liver, kidney damage; testicular effects
TO: Eyes, skin, blood, liver, kidneys, CVS, repro sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

4-Nitrobiphenyl

Formula:	CAS#:	RTECS#:	IDLH:
$C_6H_5C_6H_4NO_2$	92-93-3	DV5600000	Ca [N.D.]

Conversion: **DOT:**

Synonyms/Trade Names: p-Nitrobiphenyl, p-Nitrodiphenyl, 4-Nitrodiphenyl, p-Phenylnitrobenzene, 4-Phenylnitrobenzene, PNB

Exposure Limits:
NIOSH REL: Ca
See Appendix A
OSHA PEL: [1910.1003] See Appendix B

Measurement Methods (see Table 1):
NIOSH P&CAM273 (II-4)
OSHA PV2082

Physical Description: White to yellow, needle-like, crystalline solid with a sweetish odor.

Chemical & Physical Properties:
MW: 199.2
BP: 644°F
Sol: Insoluble
Fl.P: 290°F
IP: ?
Sp.Gr: ?
VP: ?
MLT: 237°F
UEL: ?
LEL: ?
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

See Appendix E (page 351)

Incompatibilities and Reactivities: Strong reducers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Head, drow, dizz; dysp; ataxia, lass; methemo; urinary burning; acute hemorrhagic cystitis; [carc]
TO: Bladder, blood [in animals: bladder tumors]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

N

p-Nitrochlorobenzene

Formula:	CAS#:	RTECS#:	IDLH:
$ClC_6H_4NO_2$	100-00-5	CZ1050000	Ca [100 mg/m^3]

Conversion: **DOT:** 1578 152

Synonyms/Trade Names: p-Chloronitrobenzene, 4-Chloronitrobenzene, 1-Chloro-4-nitrobenzene, 4-Nitrochlorobenzene, PCNB, PNCB

Exposure Limits:
NIOSH REL: Ca
See Appendix A [skin]
OSHA PEL: TWA 1 mg/m^3 [skin]

Measurement Methods (see Table 1):
NIOSH 2005

Physical Description: Yellow, crystalline solid with a sweet odor.

Chemical & Physical Properties:
MW: 157.6
BP: 468°F
Sol: Slight
Fl.P: 261°F
IP: 9.96 eV
Sp.Gr: 1.52
VP(86°F): 0.2 mmHg
MLT: 182°F
UEL: ?
LEL: ?
Solid that does not burn, or burns with difficulty.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, alkalis

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Anoxia; unpleasant taste; anemia; methemo; in animals: hema; spleen, kidney, bone marrow changes; repro effects; [carc]
TO: Blood, liver, kidneys, CVS, spleen, bone marrow, repro sys [in animals: vascular & liver tumors]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Nitroethane	Formula: $CH_3CH_2NO_2$	CAS#: 79-24-3	RTECS#: KI5600000	IDLH: 1000 ppm
Conversion: 1 ppm = 3.07 mg/m^3	**DOT:** 2842 129			

Synonyms/Trade Names: Nitroetan

Exposure Limits:
NIOSH REL: TWA 100 ppm (310 mg/m^3)
OSHA PEL: TWA 100 ppm (310 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 2526

Physical Description: Colorless, oily liquid with a mild, fruity odor.

Chemical & Physical Properties:
MW: 75.1
BP: 237°F
Sol: 5%
Fl.P: 82°F
IP: 10.88 eV
Sp.Gr: 1.05
VP(77°F): 21 mmHg
FRZ: -130°F
UEL: ?
LEL: 3.4%
Class IC Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
1000 ppm: ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: ScbaE

Incompatibilities and Reactivities: Amines; strong acids, alkalis & oxidizers; hydrocarbons; combustibles; metal oxides

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Derm; in animals: lac; dysp, pulm rales, edema; liver, kidney inj; narco
TO: Skin, resp sys, CNS, kidneys, liver

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

N

Nitrogen dioxide	Formula: NO_2	CAS#: 10102-44-0	RTECS#: QW9800000	IDLH: 20 ppm
Conversion: 1 ppm = 1.88 mg/m^3	**DOT:** 1067 124			

Synonyms/Trade Names: Dinitrogen tetroxide (N_2O_4), Nitrogen peroxide

Exposure Limits:
NIOSH REL: ST 1 ppm (1.8 mg/m^3)
OSHA PEL†: C 5 ppm (9 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 6014
OSHA ID182

Physical Description: Yellowish-brown liquid or reddish-brown gas (above 70°F) with a pungent, acrid odor. [**Note:** In solid form (below 15°F) it is found structurally as N_2O_4.]

Chemical & Physical Properties:
MW: 46.0
BP: 70°F
Sol: Reacts
Fl.P: NA
IP: 9.75 eV
RGasD: 2.62
Sp.Gr: 1.44 (Liquid at 68°F)
VP: 720 mmHg
FRZ: 15°F
UEL: NA
LEL: NA
Noncombustible Liquid/Gas, but will accelerate the burning of combustible materials.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
20 ppm: Sa:Cf£/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS¿/ScbaE

Incompatibilities and Reactivities: Combustible material, water, chlorinated hydrocarbons, carbon disulfide, ammonia [**Note:** Reacts with water to form nitric acid.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, nose, throat; cough, mucoid frothy sputum, decr pulm func, chronic bron, dysp; chest pain; pulm edema, cyan, tachypnea, tacar
TO: Eyes, resp sys, CVS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

Nitrogen trifluoride	Formula: NF_3	CAS#: 7783-54-2	RTECS#: QX1925000	IDLH: 1000 ppm
Conversion: 1 ppm = 2.90 mg/m^3	**DOT:** 2451 122			

Synonyms/Trade Names: Nitrogen fluoride, Trifluoramine, Trifluorammonia

Exposure Limits:
NIOSH REL: TWA 10 ppm (29 mg/m^3)
OSHA PEL: TWA 10 ppm (29 mg/m^3)

Physical Description: Colorless gas with a moldy odor.
[**Note:** Shipped as a nonliquefied compressed gas.]

Measurement Methods (see Table 1):
None available

Chemical & Physical Properties:
MW: 71.0
BP: -200°F
Sol: Slight
Fl.P: NA
IP: 12.97 eV
RGasD: 2.46
VP: >1 atm
FRZ: -340°F
UEL: NA
LEL: NA
Nonflammable Gas

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
100 ppm: CcrS/Sa
250 ppm: Sa:Cf/PaprS
500 ppm: CcrFS/GmFS/PaprTS*/SaT:Cf*/ScbaF/SaF
1000 ppm: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS/ScbaE

Incompatibilities and Reactivities: Water, oil, grease, oxidizable materials, ammonia, carbon monoxide, methane, hydrogen, hydrogen sulfide, activated charcoal, diborane

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh
SY: In animals: anoxia, cyan; methemo; lass, dizz, head; liver, kidney inj
TO: Blood, liver, kidneys

First Aid (see Table 6):
Breath: Resp support

N

Nitroglycerine	Formula: $CH_2NO_3CHNO_3CH_2NO_3$	CAS#: 55-63-0	RTECS#: QX2100000	IDLH: 75 mg/m^3
Conversion: 1 ppm = 9.29 mg/m^3	**DOT:** 1204 127 (≤ 1% solution in alcohol); 3064 127 (1-5% solution in alcohol)			

Synonyms/Trade Names: Glyceryl trinitrate; NG; 1,2,3-Propanetriol trinitrate; Trinitroglycerine

Exposure Limits:
NIOSH REL: ST 0.1 mg/m^3 [skin]
OSHA PEL†: C 0.2 ppm (2 mg/m^3) [skin]

Physical Description: Colorless to pale-yellow, viscous liquid or solid (below 56°F).
[**Note:** An explosive ingredient in dynamite (20-40%) with ethylene glycol dinitrate (80-60%).]

Measurement Methods (see Table 1):
NIOSH 2507
OSHA 43

Chemical & Physical Properties:
MW: 227.1
BP: Begins to decompose at 122-140°F
Sol: 0.1%
Fl.P: Explodes
IP: ?
Sp.Gr: 1.60
VP: 0.0003 mmHg
FRZ: 56°F
UEL: ?
LEL: ?
Explosive Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: Daily
Provide: Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
1 mg/m^3: Sa*
2.5 mg/m^3: Sa:Cf*
5 mg/m^3: SaT:Cf*/ScbaF/SaF
75 mg/m^3: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Heat, ozone, shock, acids [**Note:** An OSHA Class A Explosive (1910.109).]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Throb head; dizz; nau, vomit, abdom pain; hypotension; flush; palp; methemo; delirium, CNS depres; angina; skin irrit
TO: CVS, blood, skin, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Nitromethane

Formula:	CAS#:	RTECS#:	IDLH:
CH_3NO_2	75-52-5	PA9800000	750 ppm

Conversion: 1 ppm = 2.50 mg/m^3

DOT: 1261 129

Synonyms/Trade Names: Nitrocarbol

Exposure Limits:
NIOSH REL: See Appendix D
OSHA PEL: TWA 100 ppm (250 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 2527

Physical Description: Colorless, oily liquid with a disagreeable odor.

Chemical & Physical Properties:
MW: 61.0
BP: 214°F
Sol: 10%
Fl.P: 95°F
IP: 11.08 eV
Sp.Gr: 1.14
VP: 28 mmHg
FRZ: -20°F
UEL: ?
LEL: 7.3%
Class IC Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
OSHA
750 ppm: Sa:Cf£/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: ScbaE

Incompatibilities and Reactivities: Amines; strong acids, alkalis & oxidizers; hydrocarbons & other combustible materials; metallic oxides [**Note:** Slowly corrodes steel & copper when wet.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Derm; in animals: irrit eyes, resp sys; convuls, narco; liver damage
TO: Eyes, skin, CNS, liver

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

N

2-Nitronaphthalene

Formula:	CAS#:	RTECS#:	IDLH:
$C_{10}H_7NO_2$	581-89-5	QJ9760000	Ca [N.D.]

Conversion:

DOT: 2538 133

Synonyms/Trade Names: β-Nitronaphthalene

Exposure Limits:
NIOSH REL: Ca*
See Appendix A
[***Note:** Since metabolized to β-Naphthylamine.]
OSHA PEL: none

Measurement Methods (see Table 1):
None available

Physical Description: Colorless solid.

Chemical & Physical Properties:
MW: 178.2
BP: ?
Sol: Insoluble
Fl.P: ?
IP: 8.67 eV
Sp.Gr: ?
VP: ?
MLT: 174°F
UEL: ?
LEL: ?
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: For "Nitrates" in general: Aluminum, cyanides, esters, phosphorus, tin chlorides, thiocyanates, sodium hypophosphite

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit skin, resp sys; derm; [carc]
TO: Skin, resp sys [bladder cancer]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

1-Nitropropane	Formula: $CH_3CH_2CH_2NO_2$	CAS#: 108-03-2	RTECS#: TZ5075000	IDLH: 1000 ppm
Conversion: 1 ppm = 3.64 mg/m^3	**DOT:** 2608 129			

Synonyms/Trade Names: Nitropropane, 1-NP

Exposure Limits:
NIOSH REL: TWA 25 ppm (90 mg/m^3)
OSHA PEL: TWA 25 ppm (90 mg/m^3)

Measurement Methods (see Table 1):
OSHA 46

Physical Description: Colorless liquid with a somewhat disagreeable odor.

Chemical & Physical Properties:
MW: 89.1
BP: 269°F
Sol: 1%
Fl.P: 96°F
IP: 10.81 eV
Sp.Gr: 1.00
VP: 8 mmHg
FRZ: -162°F
UEL: ?
LEL: 2.2%
Class IC Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: Prevent eye contact
Wash skin: N.R.
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
250 ppm: Sa*
625 ppm: Sa:Cf*
1000 ppm: ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: ScbaE

Incompatibilities and Reactivities: Amines; strong acids, alkalis & oxidizers; hydrocarbons & other combustible materials; metal oxides

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes; head, nau, vomit, diarr; in animals: liver, kidney damage
TO: Eyes, CNS, liver, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

N

2-Nitropropane	Formula: $(CH_3)_2CH(NO_2)$	CAS#: 79-46-9	RTECS#: TZ5250000	IDLH: Ca [100 ppm]
Conversion: 1 ppm = 3.64 mg/m^3	**DOT:** 2608 129			

Synonyms/Trade Names: Dimethylnitromethane, iso-Nitropropane, 2-NP

Exposure Limits:
NIOSH REL: Ca
See Appendix A
OSHA PEL†: TWA 25 ppm (90 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 2528
OSHA 15, 46

Physical Description: Colorless liquid with a pleasant, fruity odor.

Chemical & Physical Properties:
MW: 89.1
BP: 249°F
Sol: 2%
Fl.P: 75°F
IP: 10.71 eV
Sp.Gr: 0.99
VP: 13 mmHg
FRZ: -135°F
UEL: 11.0%
LEL: 2.6%
Class IC Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: ScbaE

Incompatibilities and Reactivities: Amines; strong acids, alkalis & oxidizers; metal oxides; combustible materials

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose, resp sys; head, anor, nau, vomit, diarr; kidney, liver damage; [carc]
TO: Eyes, skin, resp sys, CNS, kidneys, liver [in animals: liver tumors]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

N-Nitrosodimethylamine

Formula:	CAS#:	RTECS#:	IDLH:
$(CH_3)_2N_2O$	62-75-9	IQ0525000	Ca [N.D.]

Conversion: **DOT:**

Synonyms/Trade Names: Dimethylnitrosamine; N,N-Dimethylnitrosamine; DMNA; N-Methyl-N-nitroso-methanamine; NDMA; N-Nitroso-N,N-dimethylamine

Exposure Limits:
NIOSH REL: Ca
See Appendix A
OSHA PEL: [1910.1016] See Appendix B

Measurement Methods (see Table 1):
NIOSH 2522
OSHA 38

Physical Description: Yellow, oily liquid with a faint, characteristic odor.

Chemical & Physical Properties:
MW: 74.1
BP: 306°F
Sol: Soluble
Fl.P: ?
IP: 8.69 eV
Sp.Gr: 1.005
VP: 3 mmHg
FRZ: ?
UEL: ?
LEL: ?
Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

See Appendix E (page 351)

Incompatibilities and Reactivities: Strong oxidizers [**Note:** Should be stored in dark bottles.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Nau, vomit, diarr, abdom cramps; head; fever; enlarged liver, jaun; decr liver, kidney, pulm func; [carc]
TO: Liver, kidneys,lungs [in animals; lung, kidney, liver & nasal cavity tumors]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

N

m-Nitrotoluene

Formula:	CAS#:	RTECS#:	IDLH:
$NO_2C_6H_4CH_3$	99-08-1	XT2975000	200 ppm

Conversion: 1 ppm = 5.61 mg/m^3 **DOT:** 1664 152

Synonyms/Trade Names: m-Methylnitrobenzene, 3-Methylnitrobenzene, meta-Nitrotoluene, 3-Nitrotoluene

Exposure Limits:
NIOSH REL: TWA 2 ppm (11 mg/m^3) [skin]
OSHA PEL†: TWA 5 ppm (30 mg/m^3) [skin]

Measurement Methods (see Table 1):
NIOSH 2005

Physical Description: Yellow liquid with a weak, aromatic odor. [**Note:** A solid below 59°F.]

Chemical & Physical Properties:
MW: 137.1
BP: 450°F
Sol: 0.05%
Fl.P: 223°F
IP: 9.48 eV
Sp.Gr: 1.16
VP: 0.1 mmHg
FRZ: 59°F
UEL: ?
LEL: 1.6%
Class IIIB Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
20 ppm: Sa*
50 ppm: Sa:Cf*
100 ppm: SaT:Cf*/ScbaF/SaF
200 ppm: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, sulfuric acid

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Anoxia, cyan; head, lass, dizz; ataxia; dysp; tacar; nau, vomit
TO: Blood, CNS, CVS, skin, GI tract

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

o-Nitrotoluene	Formula: $NO_2C_6H_4CH_3$	CAS#: 88-72-2	RTECS#: XT3150000	IDLH: 200 ppm
Conversion: 1 ppm = 5.61 mg/m^3	**DOT:** 1664 152			

Synonyms/Trade Names: o-Methylnitrobenzene, 2-Methylnitrobenzene, ortho-Nitrotoluene, 2-Nitrotoluene

Exposure Limits:
NIOSH REL: TWA 2 ppm (11 mg/m^3) [skin]
OSHA PEL†: TWA 5 ppm (30 mg/m^3) [skin]

Physical Description: Yellow liquid with a weak, aromatic odor.
[**Note:** A solid below 25°F.]

Measurement Methods (see Table 1):
NIOSH 2005

Chemical & Physical Properties:
MW: 137.1
BP: 432°F
Sol: 0.07%
Fl.P: 223°F
IP: 9.43 eV
Sp.Gr: 1.16
VP: 0.1 mmHg
FRZ: 25°F
UEL: ?
LEL: 2.2%
Class IIIB Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
20 ppm: Sa*
50 ppm: Sa:Cf*
100 ppm: SaT:Cf*/ScbaF/SaF
200 ppm: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, sulfuric acid

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Anoxia, cyan; head, lass, dizz; ataxia; dysp; tacar; nau, vomit
TO: Blood, CNS, CVS, skin, GI tract

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

N

p-Nitrotoluene	Formula: $NO_2C_6H_4CH_3$	CAS#: 99-99-0	RTECS#: XT3325000	IDLH: 200 ppm
Conversion: 1 ppm = 5.61 mg/m^3	**DOT:** 1664 152			

Synonyms/Trade Names: p-Methylnitrobenzene, 4-Methylnitrobenzene, para-Nitrotoluene, 4-Nitrotoluene

Exposure Limits:
NIOSH REL: TWA 2 ppm (11 mg/m^3) [skin]
OSHA PEL†: TWA 5 ppm (30 mg/m^3) [skin]

Physical Description: Crystalline solid with a weak, aromatic odor.

Measurement Methods (see Table 1):
NIOSH 2005

Chemical & Physical Properties:
MW: 137.1
BP: 460°F
Sol: 0.04%
Fl.P: 223°F
IP: 9.50 eV
Sp.Gr: 1.12
VP: 0.1 mmHg
MLT: 126°F
UEL: ?
LEL: 1.6%
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH
20 ppm: Sa*
50 ppm: Sa:Cf*
100 ppm: SaT:Cf*/ScbaF/SaF
200 ppm: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, sulfuric acid

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Anoxia, cyan; head, lass, dizz; ataxia; dysp; tacar; nau, vomit
TO: Blood, CNS, CVS, skin, GI tract

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Nitrous oxide	Formula: N_2O	CAS#: 10024-97-2	RTECS#: QX1350000	IDLH: N.D.
Conversion: 1 ppm = 1.80 mg/m^3	**DOT:** 1070 122; 2201 122 (refrigerated liquid)			
Synonyms/Trade Names: Dinitrogen monoxide, Hyponitrous acid anhydride, Laughing gas				

Exposure Limits:
NIOSH REL*: TWA 25 ppm (46 mg/m^3) (TWA over the time exposed)
[***Note:** REL for exposure to waste anesthetic gas.]
OSHA PEL: none

Measurement Methods (see Table 1):
NIOSH 3800, 6600
OSHA ID166

Physical Description: Colorless gas with a slightly sweet odor. [inhalation anesthetic]
[**Note:** Shipped as a liquefied compressed gas.]

Chemical & Physical Properties:
MW: 44.0
BP: -127°F
Sol(77°F): 0.1%
Fl.P: NA
IP: 12.89 eV
RGasD: 1.53
VP: 51.3 atm
FRZ: -132°F
UEL: NA
LEL: NA
Nonflammable Gas, but supports combustion at elevated temperatures.

Personal Protection/Sanitation (see Table 2):
Skin: Frostbite
Eyes: Frostbite
Wash skin: N.R.
Remove: N.R.
Change: N.R.
Provide: Frostbite wash

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Aluminum, boron, hydrazine, lithium hydride, phosphine, sodium

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con (liquid)
SY: Dysp; drow, head; asphy; repro effects; liquid: frostbite
TO: Resp sys, CNS, repro sys

First Aid (see Table 6):
Eye: Frostbite
Skin: Frostbite
Breath: Fresh air

N

Nonane	Formula: $CH_3(CH_2)_7CH_3$	CAS#: 111-84-2	RTECS#: RA6115000	IDLH: N.D.
Conversion: 1 ppm = 5.25 mg/m^3	**DOT:** 1920 128			
Synonyms/Trade Names: n-Nonane, Nonyl hydride				

Exposure Limits:
NIOSH REL: TWA 200 ppm (1050 mg/m^3)
OSHA PEL†: none

Measurement Methods (see Table 1):
None available

Physical Description: Colorless liquid with a gasoline-like odor.

Chemical & Physical Properties:
MW: 128.3
BP: 303°F
Sol: Insoluble
Fl.P: 88°F
IP: 10.21 eV
Sp.Gr: 0.72
VP: 3 mmHg
FRZ: -60°F
UEL: 2.9%
LEL: 0.8%
Class IC Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: Prevent eye contact
Wash skin: Daily
Remove: When wet (flamm)
Change: N.R.
Provide: Eyewash

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Strong oxidizers (e.g., peroxides, nitrates, perchlorates)

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose, throat; head, drow, dizz, conf, nau, tremor, inco; chemical pneu (aspir liquid)
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

1-Nonanethiol	Formula: $CH_3(CH_2)_8SH$	CAS#: 1455-21-6	RTECS#:	IDLH: N.D.
Conversion: 1 ppm = 6.56 mg/m^3	**DOT:** 1228 131			

Synonyms/Trade Names: 1-Mercaptononane, n-Nonyl mercaptan, Nonylthiol

Exposure Limits:
NIOSH REL: C 0.5 ppm (3.3 mg/m^3) [15-minute]
OSHA PEL: none

Measurement Methods (see Table 1):
None available

Physical Description: Liquid.

Chemical & Physical Properties:
MW: 160.3
BP: ?
Sol: Insoluble
Fl.P: ?
IP: ?
Sp.Gr: ?
VP: ?
FRZ: ?
UEL: ?
LEL: ?
Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
5 ppm: CcrOv/Sa
12.5 ppm: Sa:Cf/PaprOv
25 ppm: CcrFOv/GmFOv/PaprTOv/ ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Oxidizers, reducing agents, strong acids & bases, alkali metals

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose, throat; lass, cyan, incr respiration, nau, drow, head, vomit
TO: Eyes, skin, resp sys, blood, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Resp support
Swallow: Medical attention immed

O

Octachloronaphthalene	Formula: $C_{10}C_{l8}$	CAS#: 2234-13-1	RTECS#: QK0250000	IDLH: See Appendix F
Conversion:	**DOT:**			

Synonyms/Trade Names: Halowax® 1051; 1,2,3,4,5,6,7,8-Octachloronaphthalene; Perchloronaphthalene

Exposure Limits:
NIOSH REL: TWA 0.1 mg/m^3
ST 0.3 mg/m^3 [skin]
OSHA PEL†: TWA 0.1 mg/m^3 [skin]

Measurement Methods (see Table 1):
NIOSH S97 (II-2)

Physical Description: Waxy, pale-yellow solid with an aromatic odor.

Chemical & Physical Properties:
MW: 403.7
BP: 770°F
Sol: Insoluble
Fl.P: NA
IP: ?
Sp.Gr: 2.00
VP: <1 mmHg
MLT: 365°F
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
1 mg/m^3: Sa/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

See Appendix F

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Acne-form derm; liver damage, jaun
TO: Skin, liver

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

1-Octadecanethiol	Formula: $CH_3(CH_2)_{17}SH$	CAS#: 2885-00-9	RTECS#:	IDLH: N.D.
Conversion: 1 ppm = 11.72 mg/m^3	**DOT:** 1228 131 (liquid)			

Synonyms/Trade Names: 1-Mercaptooctadecane, Octadecyl mercaptan, Stearyl mercaptan

Exposure Limits:
NIOSH REL: C 0.5 ppm (5.9 mg/m^3) [15-minute]
OSHA PEL: none

Measurement Methods (see Table 1):
None available

Physical Description: Solid or liquid (above 77°F).

Chemical & Physical Properties:
MW: 286.6
BP: ?
Sol: Insoluble
Fl.P: ?
IP: ?
Sp.Gr: 0.85
VP: ?
MLT: 77°F
UEL: ?
LEL: ?
Combustible Solid
Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH
5 ppm: CcrOv/Sa
12.5 ppm: Sa:Cf/PaprOv
25 ppm: CcrFOv/GmFOv/PaprTOv/ ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Oxidizers, reducing agents, strong acids & bases, alkali metals

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, resp sys; head, dizz, lass, cyan, nau, convuls
TO: Eyes, skin, resp sys, CNS, blood

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

O

Octane	Formula: $CH_3[CH_2]_6CH_3$	CAS#: 111-65-9	RTECS#: RG8400000	IDLH: 1000 ppm [10%LEL]
Conversion: 1 ppm = 4.67 mg/m^3	**DOT:** 1262 128			

Synonyms/Trade Names: n-Octane, normal-Octane

Exposure Limits:
NIOSH REL: TWA 75 ppm (350 mg/m^3)
C 385 ppm (1800 mg/m^3) [15-minute]
OSHA PEL†: TWA 500 ppm (2350 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1500
OSHA 7

Physical Description: Colorless liquid with a gasoline-like odor.

Chemical & Physical Properties:
MW: 114.2
BP: 258°F
Sol(77°F): 0.00007%
Fl.P: 56°F
IP: 9.82 eV
Sp.Gr: 0.70
VP: 10 mmHg
FRZ: -70°F
UEL: 6.5%
LEL: 1.0%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
750 ppm: Sa*
1000 ppm: Sa:Cf*/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, nose; drow; derm; chemical pneu (aspir liquid); in animals: narco
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

1-Octanethiol	Formula: $CH_3(CH_2)_7SH$	CAS#: 111-88-6	RTECS#:	IDLH: N.D.
Conversion: 1 ppm = 5.98 mg/m^3	**DOT:** 1228 131			

Synonyms/Trade Names: 1-Mercaptooctane, n-Octyl mercaptan, Octylthiol, 1-Octylthiol

Exposure Limits:
NIOSH REL: C 0.5 ppm (3.0 mg/m^3) [15-minute]
OSHA PEL: none

Measurement Methods (see Table 1):
NIOSH 2510

Physical Description: Water-white liquid with a mild odor.

Chemical & Physical Properties:
MW: 146.3
BP: 390°F
Sol: Insoluble
Fl.P(oc): 115°F
IP: ?
Sp.Gr: 0.84
VP(212°F): 3 mmHg
FRZ: -57°F
UEL: ?
LEL: ?
Class II Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
5 ppm: CcrOv/Sa
12.5 ppm: Sa:Cf/PaprOv
25 ppm: CcrFOv/GmFOv/PaprTOv/ ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Oxidizers, reducing agents, strong acids & bases, alkali metals

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose, throat; lass, cyan, incr respiration, nau, drow, head, vomit
TO: Eyes, skin, resp sys, blood, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

O

Oil mist (mineral)	Formula:	CAS#: 8012-95-1	RTECS#: PY8030000	IDLH: 2500 mg/m^3
Conversion:	**DOT:**			

Synonyms/Trade Names: Heavy mineral oil mist, Paraffin oil mist, White mineral oil mist

Exposure Limits:
NIOSH REL: TWA 5 mg/m^3
ST 10 mg/m^3
OSHA PEL: TWA 5 mg/m^3

Measurement Methods (see Table 1):
NIOSH 5026, 5524

Physical Description: Colorless, oily liquid aerosol dispersed in air.
[**Note:** Has an odor like burned lubricating oil.]

Chemical & Physical Properties:
MW: Varies
BP: 680°F
Sol: Insoluble
Fl.P(oc): 380°F
IP: ?
Sp.Gr: 0.90
VP: <0.5 mmHg
FRZ: 0°F
UEL: ?
LEL: ?
Class IIIB Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: N.R.
Wash skin: When contam
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
50 mg/m^3: 100XQ/Sa
125 mg/m^3: Sa:Cf/PaprHie
250 mg/m^3: 100F/SaT:Cf/PaprTHie/ ScbaF/SaF
2500 mg/m^3: Sa:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: None reported

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Irrit eyes, skin, resp sys
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Skin: Soap wash
Breath: Fresh air

Osmium tetroxide

Formula: OsO_4 | **CAS#:** 20816-12-0 | **RTECS#:** RN1140000 | **IDLH:** 1 mg/m^3

Conversion: 1 ppm = 10.40 mg/m^3 | **DOT:** 2471 154

Synonyms/Trade Names: Osmic acid anhydride, Osmium oxide

Exposure Limits:
NIOSH REL: TWA 0.002 mg/m^3 (0.0002 ppm)
ST 0.006 mg/m^3 (0.0006 ppm)
OSHA PEL†: TWA 0.002 mg/m^3

Physical Description: Colorless, crystalline solid or pale-yellow mass with an unpleasant, acrid, chlorine-like odor. [**Note:** A liquid above 105°F.]

Measurement Methods (see Table 1):
None available

Chemical & Physical Properties:
MW: 254.2
BP: 266°F
Sol(77°F): 6%
Fl.P: NA
IP: 12.60 eV
Sp.Gr: 5.10
VP: 7 mmHg
MLT: 105°F
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
0.1 mg/m^3: CcrFS100/GmFS100/ ScbaF/SaF
1 mg/m^3: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS100/ScbaE

Incompatibilities and Reactivities: Hydrochloric acid, easily oxidized organic materials
[**Note:** Begins to sublime below BP. Contact with other materials may cause fire.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, resp sys; lac, vis dist; conj; head; cough, dysp; derm
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

O

Oxalic acid

Formula: $HOOCCOOH \times 2H_2O$ | **CAS#:** 144-62-7 | **RTECS#:** RO2450000 | **IDLH:** 500 mg/m^3

Conversion: | **DOT:**

Synonyms/Trade Names: Ethanedioic acid, Oxalic acid (aqueous), Oxalic acid dihydrate

Exposure Limits:
NIOSH REL: TWA 1 mg/m^3
ST 2 mg/m^3
OSHA PEL†: TWA 1 mg/m^3

Physical Description: Colorless, odorless powder or granular solid.
[**Note:** The anhydrous form $(COOH)_2$ is an odorless, white solid.]

Measurement Methods (see Table 1):
None available

Chemical & Physical Properties:
MW: 126.1
BP: Sublimes
Sol: 14%
Fl.P: ?
IP: ?
Sp.Gr: 1.90
VP: <0.001 mmHg
MLT: 215°F (Sublimes)
UEL: ?
LEL: ?
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
25 mg/m^3: Sa:Cf£/PaprHie£
50 mg/m^3: 100F/ScbaF/SaF
500 mg/m^3: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, silver compounds, strong alkalis, chlorites
[**Note:** Gives off water of crystallization at 215°F and begins to sublime.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, muc memb; eye burns; local pain, cyan; shock, collapse, convuls; kidney damage
TO: Eyes, skin, resp sys, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush prompt
Breath: Resp support
Swallow: Medical attention immed

Oxygen difluoride	Formula: OF_2	CAS#: 7783-41-7	RTECS#: RS2100000	IDLH: 0.5 ppm
Conversion: 1 ppm = 2.21 mg/m^3	**DOT:** 2190 124			

Synonyms/Trade Names: Difluorine monoxide, Fluorine monoxide, Oxygen fluoride

Exposure Limits:
NIOSH REL: C 0.05 ppm (0.1 mg/m^3)
OSHA PEL†: TWA 0.05 ppm (0.1 mg/m^3)

Measurement Methods (see Table 1):
None available

Physical Description: Colorless gas with a peculiar, foul odor.
[**Note:** Shipped as a nonliquefied compressed gas.]

Chemical & Physical Properties:
MW: 54.0
BP: -230°F
Sol: 0.02%
Fl.P: NA
IP: 13.11 eV
RGasD: 1.88
VP: >1 atm
FRZ: -371°F
UEL: NA
LEL: NA
Nonflammable Gas, but a strong oxidizer.

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
0.5 ppm: Sa/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS¿/ScbaE

Incompatibilities and Reactivities: Combustible materials, chlorine, bromine, iodine, platinum, metal oxides, moist air, hydrogen sulfide, hydrocarbons, water [**Note:** Reacts very slowly with water to form hydrofluoric acid.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Irrit eyes, skin, resp sys; head; pulm edema; eye, skin burns (from contact with the gas under pressure)
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support

O

Ozone	Formula: O_3	CAS#: 10028-15-6	RTECS#: RS8225000	IDLH: 5 ppm
Conversion: 1 ppm = 1.96 mg/m^3	**DOT:**			

Synonyms/Trade Names: Triatomic oxygen

Exposure Limits:
NIOSH REL: C 0.1 ppm (0.2 mg/m^3)
OSHA PEL†: TWA 0.1 ppm (0.2 mg/m^3)

Measurement Methods (see Table 1):
OSHA ID214

Physical Description: Colorless to blue gas with a very pungent odor.

Chemical & Physical Properties:
MW: 48.0
BP: -169°F
Sol(32°F): 0.001%
Fl.P: NA
IP: 12.52 eV
RGasD: 1.66
VP: >1 atm
FRZ: -315°F
UEL: NA
LEL: NA
Nonflammable Gas, but a powerful oxidizer.

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
1 ppm: CcrS¿/Sa
2.5 ppm: Sa:Cf/PaprS¿
5 ppm: CcrFS¿/GmFS¿/SaT:Cf/ ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS¿/ScbaE

Incompatibilities and Reactivities: All oxidizable materials (both organic & inorganic)

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Irrit eyes, muc memb; pulm edema; chronic resp disease
TO: Eyes, resp sys

First Aid (see Table 6):
Eye: Medical attention
Breath: Fresh air; 100% O_2

Paraffin wax fume	**Formula:** C_nH_{2n+2}	**CAS#:** 8002-74-2	**RTECS#:** RV0350000	**IDLH:** N.D.
Conversion:	**DOT:**			

Synonyms/Trade Names: Paraffin fume, Paraffin scale fume

Exposure Limits:
NIOSH REL: TWA 2 mg/m^3
OSHA PEL†: none

Measurement Methods (see Table 1):
OSHA PV2047

Physical Description: Paraffin wax is a white to slightly yellowish, odorless solid.
[**Note:** Consists of a mixture of high molecular weight hydrocarbons (e.g., $C_{36}H_{74}$).]

Chemical & Physical Properties:
MW: 350-420
BP: ?
Sol: Insoluble
Fl.P: 390°F
IP: ?
Sp.Gr: 0.88-0.92
VP: ?
MLT: 115-154°F
UEL: ?
LEL: ?
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: Prevent eye contact
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: None reported

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Irrit eyes, skin, resp sys; discomfort, nau
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Breath: Resp support

P

Paraquat (Paraquat dichloride)	**Formula:** $CH_3(C_5H_4N)_2CH_3{\times}2Cl$	**CAS#:** 1910-42-5	**RTECS#:** DW2275000	**IDLH:** 1 mg/m^3
Conversion:	**DOT:**			

Synonyms/Trade Names: 1,1'-Dimethyl-4,4'-bipyridinium dichloride; N,N'-Dimethyl-4,4'-bipyridinium dichloride; Paraquat chloride; Paraquat dichloride
[**Note:** Paraquat is a cation ($C_{12}H_{14}N_2^{++}$; 1,1-Dimethyl-4,4-bipyridinium ion); the commercial product is the dichloride salt of paraquat.]

Exposure Limits:
NIOSH REL: TWA 0.1 mg/m^3 (resp) [skin]
OSHA PEL†: TWA 0.5 mg/m^3 (resp) [skin]

Measurement Methods (see Table 1):
NIOSH 5003

Physical Description: Yellow solid with a faint, ammonia-like odor. [herbicide]
[**Note:** Paraquat may also be found commercially as a methyl sulfate salt $C_{12}H_{14}N_2{\times}2CH_3SO_4$.]

Chemical & Physical Properties:
MW: 257.2
BP: Decomposes
Sol: Miscible
Fl.P: NA
IP: ?
Sp.Gr: 1.24
VP: <0.0000001 mmHg
MLT: 572°F (Decomposes)
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
1 mg/m^3: CcrOv95*/PaprOvHie*/Sa*/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, alkylaryl-sulfonate wetting agents
[**Note:** Corrosive to metals. Decomposes in presence of ultraviolet light.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, nose, throat, resp sys; epis; derm; fingernail damage; irrit GI tract; heart, liver, kidney damage
TO: Eyes, skin, resp sys, heart, liver, kidneys, GI tract

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

Parathion	**Formula:** $(C_2H_5O)_2P(S)OC_6H_4NO_2$	**CAS#:** 56-38-2	**RTECS#:** TF4550000	**IDLH:** 10 mg/m^3
Conversion:	**DOT:** 2783 152			

Synonyms/Trade Names: O,O-Diethyl-O(p-nitrophenyl) phosphorothioate; Diethyl parathion; Ethyl parathion; Parathion-ethyl

Exposure Limits:
NIOSH REL: TWA 0.05 mg/m^3 [skin]
OSHA PEL: TWA 0.1 mg/m^3 [skin]

Physical Description: Pale-yellow to dark-brown liquid with a garlic-like odor.
[**Note:** A solid below 43°F. Pesticide that may be absorbed on a dry carrier.]

Measurement Methods (see Table 1):
NIOSH 5600
OSHA 62

Chemical & Physical Properties:
MW: 291.3
BP: 707°F
Sol: 0.001%
Fl.P(oc): 392°F
IP: ?
Sp.Gr: 1.27
VP: 0.00004 mmHg
FRZ: 43°F
UEL: ?
LEL: ?
Class IIIB Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
0.5 mg/m^3: CcrOv95/Sa
1.25 mg/m^3: Sa:Cf/PaprOvHie
2.5 mg/m^3: CcrFOv100/SaT:Cf/PaprTOvHie/ScbaF/SaF
10 mg/m^3: Sa:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, alkaline materials

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, resp sys; miosis; rhin; head; chest tight, wheez, lar spasm, salv, cyan; anor, nau, vomit, abdom cramps, diarr; sweat; musc fasc, lass, para; dizz, conf, ataxia; convuls, coma; low BP; card irreg
TO: Eyes, skin, resp sys, CNS, CVS, blood chol

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

P

Particulates not otherwise regulated	**Formula:**	**CAS#:**	**RTECS#:**	**IDLH:** N.D.
Conversion:	**DOT:**			

Synonyms/Trade Names: "Inert" dusts, Nuisance dusts, PNOR
[**Note:** Includes all inert or nuisance dusts, whether mineral, inorganic, not listed specifically in 1910.1000.]

Exposure Limits:
NIOSH REL: See Appendix D
OSHA PEL: TWA 15 mg/m^3 (total)
TWA 5 mg/m^3 (resp)

Physical Description: Dusts from solid substances without specific occupational exposure standards.

Measurement Methods (see Table 1):
NIOSH 0500, 0600

Chemical & Physical Properties:
Properties vary depending upon the specific solid.

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Varies

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Irrit eyes, skin, throat, upper resp sys
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Breath: Fresh air

Pentaborane

Formula: B_5H_9 | **CAS#:** 19624-22-7 | **RTECS#:** RY8925000 | **IDLH:** 1 ppm

Conversion: 1 ppm = 2.58 mg/m^3 | **DOT:** 1380 135

Synonyms/Trade Names: Pentaboron nonahydride

Exposure Limits:
NIOSH REL: TWA 0.005 ppm (0.01 mg/m^3)
ST 0.015 ppm (0.03 mg/m^3)
OSHA PEL†: TWA 0.005 ppm (0.01 mg/m^3)

Measurement Methods (see Table 1):
None available

Physical Description: Colorless liquid with a pungent odor like sour milk.

Chemical & Physical Properties:
MW: 63.1
BP: 140°F
Sol: Reacts
Fl.P: 86°F
IP: 9.90 eV
Sp.Gr: 0.62
VP: 171 mmHg
FRZ: -52°F
UEL: ?
LEL: 0.42%
Class IC Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
0.05 ppm: Sa
0.125 ppm: Sa:Cf
0.25 ppm: SaT:Cf/ScbaF/SaF
1 ppm: Sa:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS/ScbaE

Incompatibilities and Reactivities: Oxidizers, halogens, water, halogenated hydrocarbons
[**Note:** May ignite SPONTANEOUSLY in moist air. Corrosive to natural rubber. Hydrolyzes slowly with heat in water to form boric acid.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin; dizz, head, drow, inco, tremor, convuls, behavioral changes; tonic spasm face, neck, abdom, limbs
TO: Eyes, skin, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

P

Pentachloroethane

Formula: $CHCl_2CCl_3$ | **CAS#:** 76-01-7 | **RTECS#:** KI6300000 | **IDLH:** N.D.

Conversion: | **DOT:** 1669 151

Synonyms/Trade Names: Ethane pentachloride, Pentalin

Exposure Limits:
NIOSH REL: Handle with care in the workplace.
See Appendix C (Chloroethanes)
OSHA PEL: none

Measurement Methods (see Table 1):
NIOSH 2517

Physical Description: Colorless liquid with a sweetish, chloroform-like odor.

Chemical & Physical Properties:
MW: 202.3
BP: 322°F
Sol: 0.05%
Fl.P: ?
IP: 11.28 eV
Sp.Gr: 1.68
VP: 3 mmHg
FRZ: -20°F
UEL: ?
LEL: ?
Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: (Sodium-potassium alloy + bromoform), alkalis, metals, water
[**Note:** Hydrolysis produces dichloroacetic acid. Reaction with alkalis & metals produces spontaneously explosive chloroacetylenes.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: In animals: irrit eyes, skin; lass, restless, irreg respiration, musc inco; liver, kidney, lung changes
TO: Eyes, skin, resp sys, CNS, liver, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Resp support
Swallow: Medical attention immed

Pentachloronaphthalene	Formula: $C_{10}H_3Cl_5$	CAS#: 1321-64-8	RTECS#: QK0300000	IDLH: See Appendix F
Conversion:	**DOT:**			

Synonyms/Trade Names: Halowax® 1013; 1,2,3,4,5-Pentachloronaphthalene

Exposure Limits:
NIOSH REL: TWA 0.5 mg/m^3 [skin]
OSHA PEL: TWA 0.5 mg/m^3 [skin]

Measurement Methods (see Table 1):
NIOSH S96 (II-2)

Physical Description: Pale-yellow or white solid or powder with an aromatic odor.

Chemical & Physical Properties:
MW: 300.4
BP: 636°F
Sol: Insoluble
Fl.P: NA
IP: ?
Sp.Gr: 1.67
VP: <1 mmHg
MLT: 248°F
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
5 mg/m^3: Sa*/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

See Appendix F

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Head, lass, dizz, anor; pruritus, acne-form skin eruptions; jaun, liver nec
TO: Skin, liver, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap prompt/molten flush immed
Breath: Resp support
Swallow: Medical Attention immed

Pentachlorophenol	Formula: C_6Cl_5OH	CAS#: 87-86-5	RTECS#: SM6300000	IDLH: 2.5 mg/m^3
Conversion:	**DOT:** 3155 154			

P

Synonyms/Trade Names: PCP; Penta; 2,3,4,5,6-Pentachlorophenol

Exposure Limits:
NIOSH REL: TWA 0.5 mg/m^3 [skin]
OSHA PEL: TWA 0.5 mg/m^3 [skin]

Measurement Methods (see Table 1):
NIOSH 5512

Physical Description: Colorless to white, crystalline solid with a benzene-like odor. [fungicide]

Chemical & Physical Properties:
MW: 266.4
BP: 588°F (Decomposes)
Sol: 0.001%
Fl.P: NA
IP: NA
Sp.Gr: 1.98
VP(77°F): 0.0001 mmHg
MLT: 374°F
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
2.5 mg/m^3: CcrOv95*/PaprOvHie*/ Sa*/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, acids, alkalis

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, nose, throat; sneez, cough; lass, anor, low-wgt; sweat; head, dizz; nau, vomit; dysp, chest pain; high fever; derm
TO: Eyes, skin, resp sys, CVS, liver, kidneys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Pentaerythritol

Formula:	CAS#:	RTECS#:	IDLH:
$C(CH_2OH)_4$	115-77-5	RZ2490000	N.D.

Conversion:

DOT:

Synonyms/Trade Names: 2,2-bis(Hydroxymethyl)-1,3-propanediol; Methane tetramethylol; Monopentaerythritol; PE; Tetrahydroxymethylolmethane; Tetramethylolmethane

Exposure Limits:
NIOSH REL: TWA 10 mg/m^3 (total)
TWA 5 mg/m^3 (resp)
OSHA PEL†: TWA 15 mg/m^3 (total)
TWA 5 mg/m^3 (resp)

Physical Description: Colorless to white, crystalline, odorless powder.
[**Note:** Technical grade is 88% monopentaerythritol & 12% dipentaerythritol.]

Measurement Methods (see Table 1):
NIOSH 0500, 0600

Chemical & Physical Properties:
MW: 136.2
BP: Sublimes
Sol(59°F): 6%
Fl.P: ?
IP: ?
Sp.Gr: 1.38
VP: 0.00000008 mmHg
MLT: 500°F (Sublimes)
UEL: ?
LEL: ?
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Organic acids, oxidizers
[**Note:** Explosive compound is formed when a mixture of PE & thiophosphoryl chloride is heated.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, resp sys
TO: Eyes, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water wash
Breath: Fresh air
Swallow: Medical attention immed

P

n-Pentane

Formula:	CAS#:	RTECS#:	IDLH:
$CH_3[CH_2]_3CH_3$	109-66-0	RZ9450000	1500 ppm [10%LEL]

Conversion: 1 ppm = 2.95 mg/m^3

DOT: 1265 128

Synonyms/Trade Names: Pentane, normal-Pentane

Exposure Limits:
NIOSH REL: TWA 120 ppm (350 mg/m^3)
C 610 ppm (1800 mg/m^3) [15-minute]
OSHA PEL†: TWA 1000 ppm (2950 mg/m^3)

Physical Description: Colorless liquid with a gasoline-like odor.
[**Note:** A gas above 97°F. May be utilized as a fuel.]

Measurement Methods (see Table 1):
NIOSH 1500
OSHA 7

Chemical & Physical Properties:
MW: 72.2
BP: 97°F
Sol: 0.04%
Fl.P: -57°F
IP: 10.34 eV
Sp.Gr: 0.63
VP: 420 mmHg
FRZ: -202°F
UEL: 7.8%
LEL: 1.5%
Class IA Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
1200 ppm: Sa
1500 ppm: Sa:Cf/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose; derm; chemical pneu (aspir liquid); drow; in animals: narco
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water wash prompt
Breath: Resp support
Swallow: Medical attention immed

1-Pentanethiol	Formula: $CH_3(CH_2)_4SH$	CAS#: 110-66-7	RTECS#: SA3150000	IDLH: N.D.
Conversion: 1 ppm = 4.26 mg/m^3	**DOT:** 1111 130			

Synonyms/Trade Names: Amyl hydrosulfide, Amyl mercaptan, Amyl sulfhydrate, Pentyl mercaptan

Exposure Limits:
NIOSH REL: C 0.5 ppm (2.1 mg/m^3) [15-minute]
OSHA PEL: none

Measurement Methods (see Table 1):
None available

Physical Description: Water-white to yellowish liquid with a strong, garlic-like odor.

Chemical & Physical Properties:
MW: 104.2
BP: 260°F
Sol: Insoluble
Fl.P(oc): 65°F
IP: ?
Sp.Gr: 0.84
VP(77°F): 14 mmHg
FRZ: -104°F
UEL: ?
LEL: ?
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
5 ppm: CcrOv/Sa
12.5 ppm: Sa:Cf/PaprOv
25 ppm: CcrFOv/GmFOv/PaprTOv/ ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Oxidizers, reducing agents, alkali metals, calcium hypochlorite, concentrated nitric acid

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose, throat, resp sys; head, nau, dizz; vomit, diarr; derm, skin sens
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

2-Pentanone	Formula: $CH_3COCH_2CH_2CH_3$	CAS#: 107-87-9	RTECS#: SA7875000	IDLH: 1500 ppm
Conversion: 1 ppm = 3.52 mg/m^3	**DOT:** 1249 127			

Synonyms/Trade Names: Ethyl acetone, Methyl propyl ketone, MPK

Exposure Limits:
NIOSH REL: TWA 150 ppm (530 mg/m^3)
OSHA PEL†: TWA 200 ppm (700 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1300, 2555

Physical Description: Colorless to water-white liquid with a characteristic acetone-like odor.

Chemical & Physical Properties:
MW: 86.1
BP: 215°F
Sol: 6%
Fl.P: 45°F
IP: 9.39 eV
Sp.Gr: 0.81
VP: 27 mmHg
FRZ: -108°F
UEL: 8.2%
LEL: 1.5%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
1500 ppm: CcrOv*/PaprOv*/GmFOv/ Sa*/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Oxidizers, bromine trifluoride

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, muc memb; head; derm; narco, coma
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush
Breath: Resp support
Swallow: Medical attention immed

Perchloromethyl mercaptan

Formula:	CAS#:	RTECS#:	IDLH:
Cl_3CSCl	594-42-3	PB0370000	10 ppm

Conversion: 1 ppm = 7.60 mg/m^3 | **DOT:** 1670 157

Synonyms/Trade Names: PCM, PMM, Trichloromethane sulfenyl chloride, Trichloromethyl sulfur chloride

Exposure Limits:
NIOSH REL: TWA 0.1 ppm (0.8 mg/m^3)
OSHA PEL: TWA 0.1 ppm (0.8 mg/m^3)

Measurement Methods (see Table 1):
None available

Physical Description: Pale-yellow, oily liquid with an unbearable, acrid odor.

Chemical & Physical Properties:
MW: 185.9
BP: 297°F (Decomposes)
Sol: Insoluble
Fl.P: NA
IP: ?
Sp.Gr: 1.69
VP: 3 mmHg
FRZ: ?
UEL: NA
LEL: NA
Noncombustible Liquid, but will support combustion.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
1 ppm: CcrOv*/Sa*
2.5 ppm: Sa:Cf*/PaprOv*
5 ppm: CcrFOv/GmFOv/PaprTOv*/SaT:Cf*/ScbaF/SaF
10 ppm: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Alkalis, amines, hot iron, water
[**Note:** Corrosive to most metals. Forms HCl, sulfur & CO_2 on contact with water.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, nose, throat; lac; cough, dysp, deep breath pain, coarse rales; vomit; pallor, tacar; acidosis; anuria; liver, kidney damage
TO: Eyes, skin, resp sys, liver, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

P

Perchloryl fluoride

Formula:	CAS#:	RTECS#:	IDLH:
ClO_3F	7616-94-6	SD1925000	100 ppm

Conversion: 1 ppm = 4.19 mg/m^3 | **DOT:** 3083 124

Synonyms/Trade Names: Chlorine fluoride oxide, Chlorine oxyfluoride, Trioxychlorofluoride

Exposure Limits:
NIOSH REL: TWA 3 ppm (14 mg/m^3)
ST 6 ppm (28 mg/m^3)
OSHA PEL†: TWA 3 ppm (13.5 mg/m^3)

Measurement Methods (see Table 1):
None available

Physical Description: Colorless gas with a characteristic, sweet odor.
[**Note:** Shipped as a liquefied compressed gas.]

Chemical & Physical Properties:
MW: 102.5
BP: -52°F
Sol: 0.06%
Fl.P: NA
IP: 13.60 eV
RGasD: 3.64
VP: 10.5 atm
FRZ: -234°F
UEL: NA
LEL: NA
Nonflammable Gas, but will support combustion.

Personal Protection/Sanitation (see Table 2):
Skin: Frostbite
Eyes: Frostbite
Wash skin: N.R.
Remove: N.R.
Change: N.R.
Provide: Frostbite wash

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
30 ppm: Sa
75 ppm: Sa:Cf*
100 ppm: ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS¿/ScbaE

Incompatibilities and Reactivities: Combustibles, strong bases, amines, finely divided metals, reducing agents, alcohols

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con (liquid)
SY: Irrit resp sys; liquid: frostbite; in animals: methemo; cyan; lass, dizz, head; pulm edema; pneu; anoxia
TO: Skin, resp sys, blood

First Aid (see Table 6):
Eye: Frostbite
Skin: Frostbite
Breath: Resp support

Perlite	Formula:	CAS#: 93763-70-3	RTECS#: SD5254000	IDLH: N.D.
Conversion:	**DOT:**			

Synonyms/Trade Names: Expanded perlite
[**Note:** An amorphous material consisting of fused sodium potassium aluminum silicate.]

Exposure Limits:
NIOSH REL: TWA 10 mg/m^3 (total)
TWA 5 mg/m^3 (resp)
OSHA PEL: TWA 15 mg/m^3 (total)
TWA 5 mg/m^3 (resp)

Measurement Methods (see Table 1):
NIOSH 0500, 0600

Physical Description: Odorless, light-gray to glassy-black solid.
[**Note:** Expanded perlite is a fluffy, white particulate.]

Chemical & Physical Properties:
MW: varies
BP: ?
Sol: <1%
Fl.P: NA
IP: NA
Sp.Gr: 2.2 - 2.4 (crude)
0.05 - 0.3 (expanded)
VP: 0 mmHg (approx)
MLT: >2000°F
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: None reported

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Irrit eyes, skin, throat, upper resp sys
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Breath: Fresh air

P

Petroleum distillates (naphtha)	Formula:	CAS#: 8002-05-9	RTECS#: SE7449000	IDLH: 1100 ppm [10%LEL]
Conversion: 1 ppm = 4.05 mg/m^3	**DOT:**			

Synonyms/Trade Names: Aliphatic petroleum naphtha, Petroleum naphtha, Rubber solvent

Exposure Limits:
NIOSH REL: TWA 350 mg/m^3
C 1800 mg/m^3 [15-minute]
OSHA PEL†: TWA 500 ppm (2000 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1550

Physical Description: Colorless liquid with a gasoline- or kerosene-like odor.
[**Note:** A mixture of paraffins (C_5 to C_{13}) that may contain a small amount of aromatic hydrocarbons.]

Chemical & Physical Properties:
MW: 99 (approx)
BP: 86-460°F
Sol: Insoluble
Fl.P: -40 to -86°F
IP: ?
Sp.Gr: 0.63-0.66
VP: 40 mmHg (approx)
FRZ: -99°F
UEL: 5.9%
LEL: 1.1%
Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
850 ppm: Sa
1100 ppm: Sa:Cf*/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, nose, throat; dizz, drow, head, nau; dry cracked skin; chemical pneu (aspir liquid)
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

Phenol

Formula:	CAS#:	RTECS#:	IDLH:
C_6H_5OH	108-95-2	SJ3325000	250 ppm

Conversion: 1 ppm = 3.85 mg/m^3

DOT: 1671 153 (solid); 2312 153 (molten); 2821 153 (solution)

Synonyms/Trade Names: Carbolic acid, Hydroxybenzene, Monohydroxybenzene, Phenyl alcohol, Phenyl hydroxide

Exposure Limits:
NIOSH REL: TWA 5 ppm (19 mg/m^3) [skin]
C 15.6 ppm (60 mg/m^3) [15-minute]
OSHA PEL: TWA 5 ppm (19 mg/m^3) [skin]

Measurement Methods (see Table 1):
NIOSH 2546
OSHA 32

Physical Description: Colorless to light-pink, crystalline solid with a sweet, acrid odor. [**Note:** Phenol liquefies by mixing with about 8% water.]

Chemical & Physical Properties:
MW: 94.1
BP: 359°F
Sol(77°F): 9%
Fl.P: 175°F
IP: 8.50 eV
Sp.Gr: 1.06
VP: 0.4 mmHg
MLT: 109°F
UEL: 8.6%
LEL: 1.8%
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
50 ppm: CcrOv95/Sa
125 ppm: Sa:Cf/PaprOvHie
250 ppm: CcrFOv100/GmFOv100/PaprTOvHie/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, calcium hypochlorite, aluminum chloride, acids

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, nose, throat; anor, low-wgt; lass, musc ache, pain; dark urine; cyan; liver, kidney damage; skin burns; derm; ochronosis; tremor, convuls, twitch
TO: Eyes, skin, resp sys, liver, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

P

Phenothiazine

Formula:	CAS#:	RTECS#:	IDLH:
$S(C_6H_4)_2NH$	92-84-2	SN5075000	N.D.

Conversion:

DOT:

Synonyms/Trade Names: Dibenzothiazine, Fenothiazine, Thiodiphenylamine

Exposure Limits:
NIOSH REL: TWA 5 mg/m^3 [skin]
OSHA PEL†: none

Measurement Methods (see Table 1):
OSHA PV2048

Physical Description: Grayish-green to greenish-yellow solid. [insecticide]

Chemical & Physical Properties:
MW: 199.3
BP: 700°F
Sol: Insoluble
Fl.P: ?
IP: ?
Sp.Gr: ?
VP: 0 mmHg (approx)
MLT: 365°F
UEL: ?
LEL: ?
Combustible Solid, but not a high fire risk.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: N.R.
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: None reported

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Itching, irrit, reddening skin; hepatitis, hemolytic anemia, abdom cramps, tacar; kidney damage; skin photo sens
TO: Skin, CVS, liver, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

p-Phenylene diamine	Formula: $C_6H_4(NH_2)_2$	CAS#: 106-50-3	RTECS#: SS8050000	IDLH: 25 mg/m^3
Conversion:	**DOT:** 1673 153			

Synonyms/Trade Names: 4-Aminoaniline; 1,4-Benzenediamine; p-Diaminobenzene; 1,4-Diaminobenzene; 1,4-Phenylene diamine

Exposure Limits:
NIOSH REL: TWA 0.1 mg/m^3 [skin]
OSHA PEL: TWA 0.1 mg/m^3 [skin]

Measurement Methods (see Table 1):
OSHA 87

Physical Description: White to slightly red, crystalline solid.

Chemical & Physical Properties:
MW: 108.2
BP: 513°F
Sol(75°F): 4%
Fl.P: 312°F
IP: 6.89 eV
Sp.Gr: ?
VP: <1 mmHg
MLT: 295°F
UEL: ?
LEL: ?
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
2.5 mg/m^3: Sa:Cf£
5 mg/m^3: ScbaF/SaF
25 mg/m^3: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS100/ScbaE

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit pharynx, larynx; bronchial asthma; sens derm
TO: Resp sys, skin

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

P

Phenyl ether (vapor)	Formula: $C_6H_5OC_6H_5$	CAS#: 101-84-8	RTECS#: KN8970000	IDLH: 100 ppm
Conversion: 1 ppm = 6.96 mg/m^3	**DOT:**			

Synonyms/Trade Names: Diphenyl ether, Diphenyl oxide, Phenoxy benzene, Phenyl oxide

Exposure Limits:
NIOSH REL: TWA 1 ppm (7 mg/m^3)
OSHA PEL: TWA 1 ppm (7 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1617
OSHA PV2022

Physical Description: Colorless, crystalline solid or liquid (above 82°F) with a geranium-like odor.

Chemical & Physical Properties:
MW: 170.2
BP: 498°F
Sol: Insoluble
Fl.P: 239°F
IP: 8.09 eV
Sp.Gr: 1.08
VP(77°F): 0.02 mmHg
MLT: 82°F
UEL: 6.0%
LEL: 0.7%
Combustible Solid
Class IIIB Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
25 ppm: Sa:Cf£/PaprOvHie£
50 ppm: CcrFOv100/GmFOv100/ ScbaF/SaF
100 ppm: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Irrit eyes, nose, skin; nau
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support

Phenyl ether-biphenyl mixture (vapor)	Formula: $C_6H_5OC_6H_5/C_6H_5C_6H_5$	CAS#: 8004-13-5	RTECS#: DV1500000	IDLH: 10 ppm
Conversion: 1 ppm = 6.79 mg/m^3 (approx)	**DOT:**			

Synonyms/Trade Names: Diphenyl oxide-diphenyl mixture, Dowtherm® A

Exposure Limits:
NIOSH REL: TWA 1 ppm (7 mg/m^3)
OSHA PEL: TWA 1 ppm (7 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 2013

Physical Description: Colorless to straw-colored liquid or solid (below 54°F) with a disagreeable, aromatic odor.
[**Note:** A mixture typically contains 75% phenyl ether & 25% biphenyl.]

Chemical & Physical Properties:
MW: 166 (approx)
BP: 495°F
Sol: Insoluble
Fl.P: 239°F
IP: ?
Sp.Gr(77°F): 1.06
VP(77°F): 0.08 mmHg
FRZ: 54°F
UEL: ?
LEL: ?
Class IIIB Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
10 ppm: Sa:Cf£/CcrFOv100/GmFOv100/PaprOvHie£/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Irrit eyes, nose, skin; nau
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support

P

Phenyl glycidyl ether	Formula: $C_9H_{10}O_2$	CAS#: 122-60-1	RTECS#: TZ3675000	IDLH: Ca [100 ppm]
Conversion: 1 ppm = 6.14 mg/m^3	**DOT:**			

Synonyms/Trade Names: 1,2-Epoxy-3-phenoxy propane; Glycidyl phenyl ether; PGE; Phenyl 2,3-epoxypropyl ether

Exposure Limits:
NIOSH REL: Ca
C 1 ppm (6 mg/m^3) [15-minute]
See Appendix A
OSHA PEL†: TWA 10 ppm (60 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1619
OSHA 7

Physical Description: Colorless liquid. [**Note:** A solid below 38°F.]

Chemical & Physical Properties:
MW: 150.1
BP: 473°F
Sol: 0.2%
Fl.P: 248°F
IP: ?
Sp.Gr: 1.11
VP: 0.01 mmHg
FRZ: 38°F
UEL: ?
LEL: ?
Class IIIB Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, amines, strong acids, strong bases

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin; upper resp sys; skin sens; narco; possible hemato, repro effects; [carc]
TO: Eyes, skin, CNS, hemato sys, repro sys [in animals: nasal cancer]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

Phenylhydrazine	Formula: $C_6H_5NHNH_2$	CAS#: 100-63-0	RTECS#: MV8925000	IDLH: Ca [15 ppm]
Conversion: 1 ppm = 4.42 mg/m^3	**DOT:** 2572 153			

Synonyms/Trade Names: Hydrazinobenzene, Monophenylhydrazine

Exposure Limits:
NIOSH REL: Ca
C 0.14 ppm (0.6 mg/m^3) [2-hr] [skin]
See Appendix A
OSHA PEL†: TWA 5 ppm (22 mg/m^3) [skin]

Measurement Methods (see Table 1):
NIOSH 3518

Physical Description: Colorless to pale-yellow liquid or solid (below 67°F) with a faint, aromatic odor.

Chemical & Physical Properties:
MW: 108.1
BP: 470°F (Decomposes)
Sol: Slight
Fl.P: 190°F
IP: 7.64 eV
Sp.Gr: 1.10
VP(77°F): 0.04 mmHg
FRZ: 67°F
UEL: ?
LEL: ?
Class IIIA Combustible Liquid
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: ScbaE

Incompatibilities and Reactivities: Strong oxidizers, lead dioxide

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Skin sens, hemolytic anemia, dysp, cyan; jaun; kidney damage; vascular thrombosis; [carc]
TO: Blood, resp sys, liver, kidneys, skin [in animals: tumors of the lungs, liver, blood vessels & intestine]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

P

N-Phenyl-β-naphthylamine	Formula: $C_{10}H_7NHC_6H_5$	CAS#: 135-88-6	RTECS#: QM4550000	IDLH: Ca [N.D.]
Conversion:	**DOT:**			

Synonyms/Trade Names: 2-Anilinonaphthalene, β-Naphthylphenylamine, PBNA, 2-Phenylaminonaphthalene, Phenyl-β-naphthylamine

Exposure Limits:
NIOSH REL: Ca*
See Appendix A
[***Note:** Since metabolized to β-Naphthylamine.]
OSHA PEL: none

Measurement Methods (see Table 1):
OSHA 96

Physical Description: White to yellow crystals or gray to tan flakes or powder.
[**Note:** Commercial product may contain 20-30 ppm of β-Naphthylamine.]

Chemical & Physical Properties:
MW: 219.3
BP: 743°F
Sol: Insoluble
Fl.P: ?
IP: ?
Sp.Gr: 1.24
VP: ?
MLT: 226°F
UEL: ?
LEL: ?
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irritation; leucoplakia; acne, hypersensitivity to sunlight; [carc]
TO: Eyes, skin, bladder [bladder cancer]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Phenylphosphine	**Formula:** $C_6H_5PH_2$	**CAS#:** 638-21-1	**RTECS#:** SZ2100000	**IDLH:** N.D.
Conversion: 1 ppm = 4.50 mg/m^3	**DOT:**			

Synonyms/Trade Names: Fenylfosfin, PF, Phosphaniline

Exposure Limits:
NIOSH REL: C 0.05 ppm (0.25 mg/m^3)
OSHA PEL†: none

Measurement Methods (see Table 1):
None available

Physical Description: Clear, colorless liquid with a foul odor.

Chemical & Physical Properties:
MW: 110.1
BP: 320°F
Sol: Insoluble
Fl.P: ?
IP: ?
Sp.Gr(59°F): 1.001
VP: ?
FRZ: ?
UEL: ?
LEL: ?
Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: Daily
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: None reported [**Note:** Spontaneously combustible in high concentrations in air. Potential exposure to gaseous PF when polyphosphinates are heated above 392°F.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: In animals: blood changes, anemia, testicular degeneration; loss of appetite, diarr, lac, hind leg tremor; derm
TO: Blood, CNS, skin, repro sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Resp support
Swallow: Medical attention immed

P

Phorate	**Formula:** $(C_2H_5O)_2P(S)SCH_2SC_2H_5$	**CAS#:** 298-02-2	**RTECS#:** TD9450000	**IDLH:** N.D.
Conversion:	**DOT:** 3018 152 (organophosphorus pesticide, liquid, toxic)			

Synonyms/Trade Names: O,O-Diethyl S-(ethylthio)methylphosphorodithioate; O,O-Diethyl S-ethylthiomethylthiothionophosphate; Thimet; Timet

Exposure Limits:
NIOSH REL: TWA 0.05 mg/m^3
ST 0.2 mg/m^3 [skin]
OSHA PEL†: none

Measurement Methods (see Table 1):
NIOSH 5600

Physical Description: Clear liquid with a skunk-like odor. [insecticide]

Chemical & Physical Properties:
MW: 260.4
BP: ?
Sol: 0.005%
Fl.P(oc): 320°F
IP: ?
Sp.Gr(77°F): 1.16
VP: 0.0008 mmHg
FRZ: -45°F
UEL: ?
LEL: ?
Class IIIB Combustible Liquid, but does not readily ignite.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Water, alkalis [**Note:** Hydrolyzed in the presence of moisture and by alkalis.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, resp sys; miosis; rhin; head; chest tight, wheez, lar spasm, salv, cyan; anor, nau, vomit, abdom cramps, diarr; sweat; musc fasc, lass, para; dizz, conf, ataxia; convuls, coma; low BP; card irreg
TO: Eyes, skin, resp sys, CNS, CVS, blood chol

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap flush immed
Breath: Resp support
Swallow: Medical attention immed

Phosdrin

Formula:	CAS#:	RTECS#:	IDLH:
$C_7H_{13}PO_6$	7786-34-7	GQ5250000	4 ppm

Conversion: 1 ppm = 9.17 mg/m^3 **DOT:** 2783 152

Synonyms/Trade Names: 2-Carbomethoxy-1-methylvinyl dimethyl phosphate, Mevinphos
[**Note:** Commercial product is a mixture of the cis- & trans-isomers.]

Exposure Limits:
NIOSH REL: TWA 0.01 ppm (0.1 mg/m^3) [skin]
ST 0.03 ppm (0.3 mg/m^3)
OSHA PEL†: TWA 0.1 mg/m^3 [skin]

Physical Description: Pale-yellow to orange liquid with a weak odor.
[**Note:** Insecticide that may be absorbed on a dry carrier.]

Measurement Methods (see Table 1):
NIOSH 5600

Chemical & Physical Properties:
MW: 224.2
BP: Decomposes
Sol: Miscible
Fl.P(oc): 347°F
IP: ?
Sp.Gr: 1.25
VP: 0.003 mmHg
FRZ: 44°F (trans-)
70°F (cis-)
UEL: ?
LEL: ?
Class IIIB Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
0.1 ppm: Sa
0.25 ppm: Sa:Cf
0.5 ppm: SaT:Cf/ScbaF/SaF
4 ppm: Sa:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Strong oxidizers [**Note:** Corrosive to cast iron, some stainless steels & brass.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, resp sys; miosis; rhin; head; chest tight, wheez, lar spasm, salv, cyan; anor, nau, vomit, abdom cramps, diarr; para; ataxia, convuls; low BP, card irreg
TO: Eyes, skin, resp sys, CNS, CVS, blood chol

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

P

Phosgene

Formula:	CAS#:	RTECS#:	IDLH:
$COCl_2$	75-44-5	SY5600000	2 ppm

Conversion: 1 ppm = 4.05 mg/m^3 **DOT:** 1076 125

Synonyms/Trade Names: Carbon oxychloride, Carbonyl chloride, Carbonyl dichloride, Chloroformyl chloride

Exposure Limits:
NIOSH REL: TWA 0.1 ppm (0.4 mg/m^3)
C 0.2 ppm (0.8 mg/m^3) [15-minute]
OSHA PEL: TWA 0.1 ppm (0.4 mg/m^3)

Physical Description: Colorless gas with a suffocating odor like musty hay.
[**Note:** A fuming liquid below 47°F. Shipped as a liquefied compressed gas.]

Measurement Methods (see Table 1):
OSHA 61

Chemical & Physical Properties:
MW: 98.9
BP: 47°F
Sol: Slight
Fl.P: NA
IP: 11.55 eV
RGasD: 3.48
Sp.Gr: 1.43 (Liquid at 32°F)
VP: 1.6 atm
FRZ: -198°F
UEL: NA
LEL: NA
Nonflammable Gas

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact (liquid)
Eyes: Prevent eye contact (liquid)
Wash skin: When contam (liquid)
Remove: When wet or contam (liquid)
Change: N.R.
Provide: Quick drench (liquid)

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
1 ppm: Sa*
2 ppm: ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS/ScbaE

Incompatibilities and Reactivities: Moisture, alkalis, ammonia, alcohols, copper
[**Note:** Reacts slowly in water to form hydrochloric acid & carbon dioxide.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con (liquid)
SY: Irrit eyes; dry burning throat; vomit; cough, foamy sputum, dysp, chest pain, cyan; liquid: frostbite
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed (liquid)
Skin: Water flush immed (liquid)
Breath: Resp support

Phosphine

Formula:	CAS#:	RTECS#:	IDLH:
PH_3	7803-51-2	SY7525000	50 ppm

Conversion: 1 ppm = 1.39 mg/m^3 **DOT:** 2199 119

Synonyms/Trade Names: Hydrogen phosphide, Phosphorated hydrogen, Phosphorus hydride, Phosphorus trihydride

Exposure Limits:
NIOSH REL: TWA 0.3 ppm (0.4 mg/m^3)
ST 1 ppm (1 mg/m^3)
OSHA PEL†: TWA 0.3 ppm (0.4 mg/m^3)

Measurement Methods (see Table 1):
OSHA 1003, ID180

Physical Description: Colorless gas with a fish- or garlic-like odor. [pesticide]
[**Note:** Shipped as a liquefied compressed gas. Pure compound is odorless.]

Chemical & Physical Properties:
MW: 34.0
BP: -126°F
Sol: Slight
Fl.P: NA (Gas)
IP: 9.96 eV
RGasD: 1.18
VP: 41.3 atm
FRZ: -209°F
UEL: ?
LEL: 1.79%
Flammable Gas

Personal Protection/Sanitation (see Table 2):
Skin: Frostbite
Eyes: Frostbite
Wash skin: N.R.
Remove: When wet (flamm)
Change: N.R.
Provide: Frostbite wash

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
3 ppm: Sa
7.5 ppm: Sa:Cf
15 ppm: GmFS/ScbaF/SaF
50 ppm: Sa:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS/ScbaE

Incompatibilities and Reactivities: Air, oxidizers, chlorine, acids, moisture, halogenated hydrocarbons, copper [**Note:** May ignite SPONTANEOUSLY on contact with air.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con (liquid)
SY: Nau, vomit, abdom pain, diarr; thirst; chest tight, dysp; musc pain, chills; stupor or syncope; pulm edema; liquid: frostbite
TO: Resp sys

First Aid (see Table 6):
Eye: Frostbite
Skin: Frostbite
Breath: Resp support

P

Phosphoric acid

Formula:	CAS#:	RTECS#:	IDLH:
H_3PO_4	7664-38-2	TB6300000	1000 mg/m^3

Conversion: **DOT:** 1805 154 (liquid or solution); 3453 154 (solid)

Synonyms/Trade Names: Orthophosphoric acid, Phosphoric acid (aqueous), White phosphoric acid

Exposure Limits:
NIOSH REL: TWA 1 mg/m^3
ST 3 mg/m^3
OSHA PEL†: TWA 1 mg/m^3

Measurement Methods (see Table 1):
NIOSH 7903
OSHA ID165SG

Physical Description: Thick, colorless, odorless, crystalline solid. [**Note:** Often used in an aqueous solution.]

Chemical & Physical Properties:
MW: 98.0
BP: 415°F
Sol: Miscible
Fl.P: NA
IP: ?
Sp.Gr(77°F): 1.87 (pure)
1.33 (50% solution)
VP: 0.03 mmHg
MLT: 108°F
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash (>1.6%)
Quick drench (>1.6%)

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
25 mg/m^3: Sa:Cf*
50 mg/m^3: 100F/ScbaF/SaF
1000 mg/m^3: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Strong caustics, most metals [**Note:** Readily reacts with metals to form flammable hydrogen gas. DO NOT MIX WITH SOLUTIONS CONTAINING BLEACH OR AMMONIA.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, upper resp sys; eye, skin, burns; derm
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush Immed
Breath: Resp support
Swallow: Medical attention immed

Phosphorus (yellow)	Formula: P_4	CAS#: 7723-14-0	RTECS#: TH3500000	IDLH: 5 mg/m^3
Conversion:	**DOT:** 1381 136			

Synonyms/Trade Names: Elemental phosphorus, White phosphorus

Exposure Limits:
NIOSH REL: TWA 0.1 mg/m^3
OSHA PEL: TWA 0.1 mg/m^3

Measurement Methods (see Table 1):
NIOSH 7905

Physical Description: White to yellow, soft, waxy solid with acrid fumes in air.
[**Note:** Usually shipped or stored in water.]

Chemical & Physical Properties:
MW: 124.0
BP: 536°F
Sol: 0.0003%
Fl.P: ?
IP: ?
Sp.Gr: 1.82
VP: 0.03 mmHg
MLT: 111°F
UEL: ?
LEL: ?
Flammable Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact*
[***Note:** Flame retardant personal protective equipment should be provided.]
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
1 mg/m^3: Sa
2.5 mg/m^3: Sa:Cf£
5 mg/m^3: ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: ScbaE

Incompatibilities and Reactivities: Air, oxidizers (including elemental sulfur & strong caustics), halogens
[**Note:** Ignites SPONTANEOUSLY in moist air.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, resp tract; eye, skin burns; abdom pain, nau, jaun; anemia; cachexia; dental pain, salv, jaw pain, swell
TO: Eyes, skin, resp sys, liver, kidneys, jaw, teeth, blood

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

P

Phosphorus oxychloride	Formula: $POCl_3$	CAS#: 10025-87-3	RTECS#: TH4897000	IDLH: N.D.
Conversion: 1 ppm = 6.27 mg/m^3	**DOT:** 1810 137			

Synonyms/Trade Names: Phosphorus chloride, Phosphorus oxytrichloride, Phosphoryl chloride

Exposure Limits:
NIOSH REL: TWA 0.1 ppm (0.6 mg/m^3)
ST 0.5 ppm (3 mg/m^3)
OSHA PEL†: none

Measurement Methods (see Table 1):
None available

Physical Description: Clear, colorless to yellow, oily liquid with a pungent & musty odor.
[**Note:** A solid below 34°F.]

Chemical & Physical Properties:
MW: 153.3
BP: 222°F
Sol: Decomposes
Fl.P: NA
IP: ?
Sp.Gr(77°F): 1.65
VP(81°F): 40 mmHg
FRZ: 34°F
UEL: NA
LEL: NA
Noncombustible Liquid, but may set fire to combustible materials.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Water, combustible materials, carbon disulfide, dimethyl-formamide, metals (except nickel & lead) [**Note:** Decomposes in water to hydrochloric & phosphoric acids.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, resp sys; eye, skin burns; dysp, cough, pulm edema; dizz, head, lass; abdom pain, nau, vomit; neph
TO: Eyes, skin, resp sys, CNS, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

Phosphorus pentachloride	Formula: PCl_5	CAS#: 10026-13-8	RTECS#: TB6125000	IDLH: 70 mg/m^3
Conversion:	DOT: 1806 137			

Synonyms/Trade Names: Pentachlorophosphorus, Phosphoric chloride, Phosphorus perchloride

Exposure Limits:
NIOSH REL: TWA 1 mg/m^3
OSHA PEL: TWA 1 mg/m^3

Measurement Methods (see Table 1):
NIOSH S257 (II-5)

Physical Description: White to pale-yellow, crystalline solid with a pungent, unpleasant odor.

Chemical & Physical Properties:
MW: 208.3
BP: Sublimes
Sol: Reacts
Fl.P: NA
IP: ?
Sp.Gr: 3.60
VP(132°F): 1 mmHg
MLT: 324°F (Sublimes)
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
10 mg/m^3: Sa*
25 mg/m^3: Sa:Cf*
50 mg/m^3: ScbaF/SaF
70 mg/m^3: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Water, magnesium oxide, chemically-active metals such as sodium and potassium, alkalis, amines
[**Note:** Hydrolyzes in water (even in humid air) to form hydrochloric acid & phosphoric acid. Corrosive to metals.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, resp sys; bron; derm
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

P

Phosphorus pentasulfide	Formula: P_2S_5/P_4S_{10}	CAS#: 1314-80-3	RTECS#: TH4375000	IDLH: 250 mg/m^3
Conversion:	DOT: 1340 139			

Synonyms/Trade Names: Phosphorus persulfide, Phosphorus sulfide, Sulfur phosphide

Exposure Limits:
NIOSH REL: TWA 1 mg/m^3
ST 3 mg/m^3
OSHA PEL†: TWA 1 mg/m^3

Measurement Methods (see Table 1):
None available

Physical Description: Greenish-gray to yellow, crystalline solid with an odor of rotten eggs.

Chemical & Physical Properties:
MW: 222.3 (P_2S_5)
444.6 (P_4S_{10})
BP: 957°F
Sol: Reacts
Fl.P: ?
IP: ?
Sp.Gr: 2.09
VP(572°F): 1 mmHg
MLT: 550°F
UEL: ?
LEL: ?
Flammable Solid, which may SPONTANEOUSLY ignite in presence of moisture.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
10 mg/m^3: Sa*
25 mg/m^3: Sa:Cf*
50 mg/m^3: ScbaF/SaF
250 mg/m^3: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS100/ScbaE

Incompatibilities and Reactivities: Water, alcohols, strong oxidizers, acids, alkalis [**Note:** Reacts with water to form hydrogen sulfide, sulfur dioxide, and phosphoric acid.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, resp sys; apnea, coma, convuls; conj pain, lac, photo, kerato-conj, corn vesic; dizz; head; lass; irrity, insom; GI dist
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Dust off solid; water flush
Breath: Resp support
Swallow: Medical attention immed

Phosphorus trichloride

Formula: PCl_3 | **CAS#:** 7719-12-2 | **RTECS#:** TH3675000 | **IDLH:** 25 ppm

Conversion: 1 ppm = 5.62 mg/m^3 | **DOT:** 1809 137

Synonyms/Trade Names: Phosphorus chloride

Exposure Limits:
NIOSH REL: TWA 0.2 ppm (1.5 mg/m^3)
ST 0.5 ppm (3 mg/m^3)
OSHA PEL†: TWA 0.5 ppm (3 mg/m^3)

Physical Description: Colorless to yellow, fuming liquid with an odor like hydrochloric acid.

Measurement Methods (see Table 1):
NIOSH 6402

Chemical & Physical Properties:
MW: 137.4
BP: 169°F
Sol: Reacts
Fl.P: NA
IP: 9.91 eV
Sp.Gr: 1.58
VP: 100 mmHg
FRZ: -170°F
UEL: NA
LEL: NA
Noncombustible Liquid; however, a strong oxidizer that may ignite combustibles upon contact.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
10 ppm: ScbaF/SaF
25 ppm: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS¿/ScbaE

Incompatibilities and Reactivities: Water, chemically-active metals such as sodium & potassium, aluminum, strong nitric acid, acetic acid, organic matter [**Note:** Hydrolyzes in water to form hydrochloric acid and phosphoric acid.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose, throat; pulm edema; eye, skin burns
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

P

Phthalic anhydride

Formula: $C_6H_4(CO)_2O$ | **CAS#:** 85-44-9 | **RTECS#:** TI3150000 | **IDLH:** 60 mg/m^3

Conversion: 1 ppm = 6.06 mg/m^3 | **DOT:** 2214 156

Synonyms/Trade Names: 1,2-Benzenedicarboxylic anhydride; PAN; Phthalic acid anhydride

Exposure Limits:
NIOSH REL: TWA 6 mg/m^3 (1 ppm)
OSHA PEL†: TWA 12 mg/m^3 (2 ppm)

Physical Description: White solid (flake) or a clear, colorless, mobile liquid (molten) with a characteristic, acrid odor.

Measurement Methods (see Table 1):
NIOSH S179 (II-3)
OSHA 90

Chemical & Physical Properties:
MW: 148.1
BP: 563°F
Sol: 0.6%
Fl.P: 305°F
IP: 10.00 eV
Sp.Gr: 1.53 (Flake)
1.20 (Molten)
VP: 0.0015 mmHg
MLT: 267°F
UEL: 10.5%
LEL: 1.7%
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH
30 mg/m^3: Qm*
60 mg/m^3: 95XQ*/95F/PaprHie*/
Sa*/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, water [**Note:** Converted to phthalic acid in hot water.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, upper resp sys; conj; nasal ulcer bleeding; bron, bronchial asthma; derm; in animals: liver, kidney damage
TO: Eyes, skin, resp sys, liver, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

m-Phthalodinitrile	Formula: $C_6H_4(CN)_2$	CAS#: 626-17-5	RTECS#: CZ1900000	IDLH: N.D.
Conversion:	DOT:			

Synonyms/Trade Names: 1,3-Benzenedicarbonitrile; m-Dicyanobenzene; 1,3-Dicyanobenzene; Isophthalodinitrile; m-PDN

Exposure Limits:
NIOSH REL: TWA 5 mg/m^3
OSHA PEL†: none

Physical Description: Needle-like, colorless to white, crystalline, flaky solid with an almond-like odor.

Measurement Methods (see Table 1):
None available

Chemical & Physical Properties:
MW: 128.1
BP: Sublimes
Sol: Slight
Fl.P: ?
IP: ?
Sp.Gr: 4.42
VP: 0.01 mmHg
MLT: 324°F (Sublimes)
UEL: ?
LEL: ?
Combustible Solid and a severe explosion hazard.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: Daily
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Strong oxidizers (e.g., chlorine, bromine, fluorine)

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Head, nau, conf; in animals: irrit eyes, skin
TO: Eyes, skin, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

P

Picloram	Formula: $C_6H_3Cl_3O_2N_2$	CAS#: 1918-02-1	RTECS#: TJ7525000	IDLH: N.D.
Conversion:	DOT:			

Synonyms/Trade Names: 4-Amino-3,5,6-trichloropicolinic acid; 4-Amino-3,5,6-trichloro-2-picolinic acid; ATCP; Tordon®

Exposure Limits:
NIOSH REL: See Appendix D
OSHA PEL†: TWA 15 mg/m^3 (total) TWA 5 mg/m^3 (resp)

Physical Description: Colorless to white crystals with a chlorine-like odor. [herbicide]

Measurement Methods (see Table 1):
NIOSH 0500, 0600

Chemical & Physical Properties:
MW: 241.5
BP: Decomposes
Sol: 0.04%
Fl.P: ?
IP: ?
Sp.Gr: ?
VP(95°F): 0.0000006 mmHg
MLT: 424°F (Decomposes)
UEL: ?
LEL: ?
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: N.R.
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Hot concentrated alkali (hydrolyzes)

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, resp sys; nau; in animals: liver, kidney changes
TO: Eyes, skin, resp sys, liver, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Fresh air
Swallow: Medical attention immed

Picric acid

Formula: $(NO_2)_3C_6H_2OH$ | **CAS#:** 88-89-1 | **RTECS#:** TJ7875000 | **IDLH:** 75 mg/m^3

Conversion: 1 ppm = 9.37 mg/m^3

DOT: 1344 113 (wet, ≥ 10% water);
3364 113 (wetted, ≥ 10% water)

Synonyms/Trade Names: Phenol trinitrate; 2,4,6-Trinitrophenol [**Note:** An OSHA Class A Explosive (1910.109).]

Exposure Limits:
NIOSH REL: TWA 0.1 mg/m^3
ST 0.3 mg/m^3 [skin]
OSHA PEL: TWA 0.1 mg/m^3 [skin]

Physical Description: Yellow, odorless solid. [**Note:** Usually used as an aqueous solution.]

Measurement Methods (see Table 1):
NIOSH S228 (II-4)

Chemical & Physical Properties:
MW: 229.1
BP: Explodes above 572°F
Sol: 1%
Fl.P: 302°F
IP: ?
Sp.Gr: 1.76
VP(383°F): 1 mmHg
MLT: 252°F
UEL: ?
LEL: ?
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
0.5 mg/m^3: Qm
1 mg/m^3: 95XQ/Sa
2.5 mg/m^3: Sa:Cf/PaprHie
5 mg/m^3: 100F/SaT:Cf/PaprTHie/ScbaF/SaF
75 mg/m^3: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Copper, lead, zinc & other metals; salts; plaster; concrete; ammonia [**Note:** Corrosive to metals. An explosive mixture results when the aqueous solution crystallizes.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin; sens derm; yellow-stained hair, skin; lass, myalgia, anuria, polyuria; bitter taste, GI dist; hepatitis, hema, album, neph
TO: Eyes, skin, kidneys, liver, blood

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

P

Pindone

Formula: $C_9H_5O_2C(O)C(CH_3)_3$ | **CAS#:** 83-26-1 | **RTECS#:** NK6300000 | **IDLH:** 100 mg/m^3

Conversion:

DOT:

Synonyms/Trade Names: tert-Butyl valone; 1,3-Dioxo-2-pivaloy-lindane; Pival®; Pivalyl; 2-Pivalyl-1,3-indandione

Exposure Limits:
NIOSH REL: TWA 0.1 mg/m^3
OSHA PEL: TWA 0.1 mg/m^3

Physical Description: Bright-yellow powder with almost no odor. [rodenticide]

Measurement Methods (see Table 1):
None available

Chemical & Physical Properties:
MW: 230.3
BP: Decomposes
Sol(77°F): 0.002%
Fl.P: ?
IP: ?
Sp.Gr: 1.06
VP: Very low
MLT: 230°F
UEL: ?
LEL: ?

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
0.5 mg/m^3: Qm
1 mg/m^3: 95XQ/Sa
2.5 mg/m^3: Sa:Cf/PaprHie
5 mg/m^3: 100F/SaT:Cf/PaprTHie/ScbaF/SaF
100 mg/m^3: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: None reported

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing
SY: Epis, excess bleeding from minor cuts, bruises; smoky urine, black tarry stools; abdom, back pain
TO: Blood prothrombin

First Aid (see Table 6):
Eye: Irr immed
Breath: Resp support
Swallow: Medical attention immed

Piperazine dihydrochloride	Formula: $C_4H_{10}N_2 \times 2HCl$	CAS#: 142-64-3	RTECS#: TL4025000	IDLH: N.D.
Conversion:	DOT:			

Synonyms/Trade Names: Piperazine hydrochloride
[**Note:** The monochloride, $C_4H_{10}N_2 \times HCl$ is also commercially available.]

Exposure Limits:
NIOSH REL: TWA 5 mg/m^3
OSHA PEL†: none

Measurement Methods (see Table 1):
None available

Physical Description: White to cream-colored needles or powder.

Chemical & Physical Properties:
MW: 159.1
BP: ?
Sol: 41%
Fl.P: ?
IP: ?
Sp.Gr: ?
VP: ?
MLT: 635°F
UEL: ?
LEL: ?
Combustible Solid, but does not ignite easily.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Water [**Note:** Slightly hygroscopic (i.e., absorbs moisture from the air).]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, resp sys; skin burns, sens; asthma; GI upset, head, nau, vomit, inco, musc weak
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

P

Plaster of Paris	Formula: $CaSO_4 \cdot 0.5H_2O$	CAS#: 26499-65-0	RTECS#: TP0700000	IDLH: N.D.
Conversion:	DOT:			

Synonyms/Trade Names: Calcium sulfate hemihydrate, Dried calcium sulfate, Gypsum hemihydrate, Hemihydrate gypsum
[**Note:** Plaster of Paris is the hemihydrate form of Calcium Sulfate & Gypsum is the dihydrate form.]

Exposure Limits:
NIOSH REL: TWA 10 mg/m^3 (total)
TWA 5 mg/m^3 (resp)
OSHA PEL: TWA 15 mg/m^3 (total)
TWA 5 mg/m^3 (resp)

Measurement Methods (see Table 1):
NIOSH 0500, 0600

Physical Description: White or yellowish, finely divided, odorless powder.

Chemical & Physical Properties:
MW: 145.2
BP: ?
Sol(77°F): 0.3%
Fl.P: NA
IP: NA
Sp.Gr: 2.5
VP: 0 mmHg (approx)
MLT: 325°F (Loses H_2O)
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Moisture, water
[**Note:** Hygroscopic (i.e., absorbs moisture from the air). Reacts with water to form Gypsum.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, muc memb, resp sys; cough
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Breath: Resp support
Swallow: Medical attention immed

Platinum	Formula: Pt	CAS#: 7440-06-4	RTECS#: TP2160000	IDLH: N.D.
Conversion:	**DOT:**			

Synonyms/Trade Names: Platinum black, Platinum metal, Platinum sponge

Exposure Limits:
NIOSH REL: TWA 1 mg/m^3
OSHA PEL†: none

Physical Description: Silvery, whitish-gray, malleable, ductile metal.

Measurement Methods (see Table 1):
NIOSH 7300, 7303
OSHA ID121, ID130SG

Chemical & Physical Properties:
MW: 195.1
BP: 6921°F
Sol: Insoluble
Fl.P: NA
IP: NA
Sp.Gr: 21.45
VP: 0 mmHg (approx)
MLT: 3222°F
UEL: NA
LEL: NA
Noncombustible Solid in bulk form, but finely divided powder can be dangerous to handle.

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Aluminum, acetone, arsenic, ethane, hydrazine, hydrogen peroxide, lithium, phosphorus, selenium, tellurium, various fluorides

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit skin, resp sys; derm
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Resp support
Swallow: Medical attention immed

P

Platinum (soluble salts, as Pt)	Formula:	CAS#:	RTECS#:	IDLH: 4 mg/m^3 (as Pt)
Conversion:	**DOT:**			

Synonyms/Trade Names: Synonyms vary depending upon the specific soluble platinum salt.

Exposure Limits:
NIOSH REL: TWA 0.002 mg/m^3
OSHA PEL: TWA 0.002 mg/m^3

Physical Description: Appearance and odor vary depending upon the specific soluble platinum salt.

Measurement Methods (see Table 1):
NIOSH 7300, 7303, S191 (II-7)

Chemical & Physical Properties:
Properties vary depending upon the specific soluble platinum salt.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
0.05 mg/m^3: Sa:Cf£
0.1 mg/m^3: 100F/ScbaF/SaF
4 mg/m^3: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Varies

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, nose; cough, dysp, wheez, cyan; derm, sens skin; lymphocytosis
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

Portland cement	**Formula:**	**CAS#:** 65997-15-1	**RTECS#:** VV8770000	**IDLH:** 5000 mg/m^3
Conversion:	**DOT:**			

Synonyms/Trade Names: Cement, Hydraulic cement, Portland cement silicate [**Note:** A class of hydraulic cements containing tri- and dicalcium silicate in addition to alumina, tricalcium aluminate, and iron oxide.]

Exposure Limits:
NIOSH REL: TWA 10 mg/m^3 (total)
TWA 5 mg/m^3 (resp)
OSHA PEL†: TWA 50 mppcf

Measurement Methods (see Table 1):
NIOSH 0500
OSHA ID207

Physical Description: Gray, odorless powder.

Chemical & Physical Properties:
MW: ?
BP: NA
Sol: Insoluble
Fl.P: NA
IP: NA
Sp.Gr: ?
VP: 0 mmHg (approx)
MLT: NA
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
50 mg/m^3: Qm
100 mg/m^3: 95XQ/Sa
250 mg/m^3: Sa:Cf/PaprHie
500 mg/m^3: 100F/SaT:Cf/PaprTHie/ ScbaF/SaF
5000 mg/m^3: Sa:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: None reported

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose; cough, expectoration; exertional dysp, wheez, chronic bron; derm
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Fresh air
Swallow: Medical attention immed

P

Potassium cyanide (as CN)	**Formula:** KCN	**CAS#:** 151-50-8	**RTECS#:** TS8750000	**IDLH:** 25 mg/m^3 (as CN)
Conversion:	**DOT:** 1680 157 (solid); 3413 157 (solution)			

Synonyms/Trade Names: Potassium salt of hydrocyanic acid

Exposure Limits:
NIOSH REL*: C 5 mg/m^3 (4.7 ppm) [10-minute]
OSHA PEL*: TWA 5 mg/m^3
[***Note:** The REL and PEL also apply to other cyanides (as CN) except Hydrogen cyanide.]

Measurement Methods (see Table 1):
NIOSH 6010, 7904

Physical Description: White, granular or crystalline solid with a faint, almond-like odor.

Chemical & Physical Properties:
MW: 65.1
BP: 2957°F
Sol(77°F): 72%
Fl.P: NA
IP: NA
Sp.Gr: 1.55
VP: 0 mmHg (approx)
MLT: 1173°F
UEL: NA
LEL: NA
Noncombustible Solid, but contact with acids releases highly flammable hydrogen cyanide.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
25 mg/m^3: Sa/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS100/ScbaE

Incompatibilities and Reactivities: Strong oxidizers (such as acids, acid salts, chlorates & nitrates)
[**Note:** Absorbs moisture from the air forming a syrup.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, upper resp sys; asphy; lass, head, conf; nau, vomit; incr resp rate, slow gasping respiration; thyroid, blood changes
TO: Eyes, skin, resp sys, CVS, CNS, thyroid, blood

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Potassium hydroxide

Formula:	CAS#:	RTECS#:	IDLH:
KOH	1310-58-3	TT2100000	N.D.

Conversion: **DOT:** 1813 154 (dry, solid); 1814 154 (solution)

Synonyms/Trade Names: Caustic potash, Lye, Potassium hydrate

Exposure Limits:
NIOSH REL: C 2 mg/m^3
OSHA PEL†: none

Measurement Methods (see Table 1):
NIOSH 7401

Physical Description: Odorless, white or slightly yellow lumps, rods, flakes, sticks, or pellets. [**Note:** May be used as an aqueous solution.]

Chemical & Physical Properties:
MW: 56.1
BP: 2415°F
Sol(59°F): 107%
Fl.P: NA
IP: ?
Sp.Gr: 2.04
VP(1317°F): 1 mmHg
MLT: 716°F
UEL: NA
LEL: NA
Noncombustible Solid; however, may react with H_2O & other substances and generate sufficient heat to ignite combustible materials.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Acids, water, metals (when wet), halogenated hydrocarbons, maleic anhydride [**Note:** Heat is generated if KOH comes in contact with H_2O & CO_2 from the air.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, resp sys; cough, sneez; eye, skin burns; vomit, diarr
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

P

Propane

Formula:	CAS#:	RTECS#:	IDLH:
$CH_3CH_2CH_3$	74-98-6	TX2275000	2100 ppm [10%LEL]

Conversion: 1 ppm = 1.80 mg/m^3 **DOT:** 1075 115; 1978 115

Synonyms/Trade Names: Bottled gas, Dimethyl methane, n-Propane, Propyl hydride

Exposure Limits:
NIOSH REL: TWA 1000 ppm (1800 mg/m^3)
OSHA PEL: TWA 1000 ppm (1800 mg/m^3)

Measurement Methods (see Table 1):
NIOSH S87 (II-2)
OSHA PV2077

Physical Description: Colorless, odorless gas. [**Note:** A foul-smelling odorant is often added when used for fuel purposes. Shipped as a liquefied compressed gas.]

Chemical & Physical Properties:
MW: 44.1
BP: -44°F
Sol: 0.01%
Fl.P: NA (Gas)
IP: 11.07 eV
RGasD: 1.55
VP(70°F): 8.4 atm
FRZ: -306°F
UEL: 9.5%
LEL: 2.1%
Flammable Gas

Personal Protection/Sanitation (see Table 2):
Skin: Frostbite
Eyes: Frostbite
Wash skin: N.R.
Remove: When wet (flamm)
Change: N.R.
Provide: Frostbite wash

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
2100 ppm: Sa/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: ScbaE

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con (liquid)
SY: Dizz, conf, excitation, asphy; liquid: frostbite
TO: CNS

First Aid (see Table 6):
Eye: Frostbite
Skin: Frostbite
Breath: Resp support

Propane sultone

Formula:	CAS#:	RTECS#:	IDLH:
$C_3H_6O_3S$	1120-71-4	RP5425000	Ca [N.D.]

Conversion:

DOT:

Synonyms/Trade Names: 3-Hydroxy-1-propanesulphonic acid sultone; 1,3-Propane sultone

Exposure Limits:
NIOSH REL: Ca
See Appendix A
OSHA PEL: none

Measurement Methods (see Table 1):
None available

Physical Description: White, crystalline solid or a colorless liquid (above 86°F). [**Note:** Releases a foul odor as it melts.]

Chemical & Physical Properties:
MW: 122.2
BP: ?
Sol: 10%
Fl.P: >235°F
IP: ?
Sp.Gr: 1.39
VP: ?
MLT: 86°F
UEL: ?
LEL: ?
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: None reported

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, resp sys; [carc]
TO: Eyes, skin, resp sys [in animals: skin tumors, leukemia, gliomas]

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

P

1-Propanethiol

Formula:	CAS#:	RTECS#:	IDLH:
$CH_3CH_2CH_2SH$	107-03-9	TZ7300000	N.D.

Conversion: 1 ppm = 3.12 mg/m^3

DOT: 2402 130

Synonyms/Trade Names: 3-Mercaptopropane, Propane-1-thiol, Propyl mercaptan, n-Propyl mercaptan

Exposure Limits:
NIOSH REL: C 0.5 ppm (1.6 mg/m^3) [15-minute]
OSHA PEL: none

Measurement Methods (see Table 1):
None available

Physical Description: Colorless liquid with an offensive, cabbage-like odor.

Chemical & Physical Properties:
MW: 76.2
BP: 153°F
Sol: Slight
Fl.P: -5°F
IP: 9.195 eV
Sp.Gr: 0.84
VP(77°F): 155 mmHg
FRZ: -172°F
UEL: ?
LEL: ?
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: Prevent eye contact
Wash skin: N.R.
Remove: When wet (flamm)
Change: N.R.
Provide: Eyewash

Respirator Recommendations (see Tables 3 and 4):
NIOSH
5 ppm: CcrOv/Sa
12.5 ppm: Sa:Cf/PaprOv
25 ppm: CcrFOv/GmFOv/PaprTOv/ ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Oxidizers, reducing agents, strong acids & bases, alkali metals, calcium hypochlorite

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose, throat, resp sys; head, nau, dizz, cyan; in animals: liver, kidney damage
TO: Eyes, skin, resp sys, CNS, blood, liver, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Resp support
Swallow: Medical attention immed

Propargyl alcohol	Formula: C_3H_3OH	CAS#: 107-19-7	RTECS#: UK5075000	IDLH: N.D.

Conversion: 1 ppm = 2.29 mg/m^3 **DOT:** 1986 131

Synonyms/Trade Names: 1-Propyn-3-ol; 2-Propyn-1-ol; 2-Propynyl alcohol

Exposure Limits:
NIOSH REL: TWA 1 ppm (2 mg/m^3) [skin]
OSHA PEL†: none

Measurement Methods (see Table 1):
OSHA 97

Physical Description: Colorless to straw-colored liquid with a mild, geranium odor.

Chemical & Physical Properties:
MW: 56.1
BP: 237°F
Sol: Miscible
Fl.P(oc): 97°F
IP: 10.51 eV
Sp.Gr: 0.97
VP: 12 mmHg
FRZ: -62°F
UEL: ?
LEL: ?
Class IC Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Phosphorus pentoxide, oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit skin, muc memb; CNS depres; in animals: liver, kidney damage
TO: Skin, resp sys, CNS, liver, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush prompt
Breath: Resp support
Swallow: Medical attention immed

β-Propiolactone	Formula: $C_3H_4O_2$	CAS#: 57-57-8	RTECS#: RQ7350000	IDLH: Ca [N.D]

Conversion: **DOT:**

Synonyms/Trade Names: BPL; Hydroacrylic acid, β-lactone; 3-Hydroxy-β-lactone; 3-Hydroxy-propionic acid; β-Lactone; 2-Oxetanone; 3-Propiolactone

Exposure Limits:
NIOSH REL: Ca
See Appendix A
OSHA PEL: [1910.1013]
See Appendix B

Measurement Methods (see Table 1):
None available

Physical Description: Colorless liquid with a slightly sweet odor.

Chemical & Physical Properties:
MW: 72.1
BP: 323°F (Decomposes)
Sol: 37%
Fl.P: 165°F
IP: ?
Sp.Gr: 1.15
VP(77°F): 3 mmHg
FRZ: -28°F
UEL: ?
LEL: 2.9%
Class IIIA Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

See Appendix E (page 351)

Incompatibilities and Reactivities: Acetates, halogens, thiocyanates, thiosulfates
[**Note:** May polymerize upon storage.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Skin irrit, blistering, burns; corn opac; frequent urination; dysuria; hema; [carc]
TO: Kidneys, skin, lungs, eyes [in animals: tumors of the liver, skin & stomach]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Propionic acid

Formula:	CAS#:	RTECS#:	IDLH:
CH_3CH_2COOH	79-09-4	UE5950000	N.D.

Conversion: 1 ppm = 3.03 mg/m^3 **DOT:** 1848 132

Synonyms/Trade Names: Carboxyethane, Ethanecarboxylic acid, Ethylformic acid, Metacetonic acid, Methyl acetic acid, Propanoic acid

Exposure Limits:
NIOSH REL: TWA 10 ppm (30 mg/m^3)
ST 15 ppm (45 mg/m^3)
OSHA PEL†: none

Measurement Methods (see Table 1):
None available

Physical Description: Colorless, oily liquid with a pungent, disagreeable, rancid odor. [**Note:** A solid below 5°F.]

Chemical & Physical Properties:
MW: 74.1
BP: 286°F
Sol: Miscible
Fl.P: 126°F
IP: 10.24 eV
Sp.Gr: 0.99
VP: 3 mmHg
FRZ: 5°F
UEL: 12.1%
LEL: 2.9%
Class II Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Alkalis, strong oxidizers (e.g., chromium trioxide) [**Note:** Corrosive to steel.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, nose, throat; blurred vision, corn burns; skin burns; abdom pain, nau, vomit
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

P

Propionitrile

Formula:	CAS#:	RTECS#:	IDLH:
CH_3CH_2CN	107-12-0	UF9625000	N.D.

Conversion: 1 ppm = 2.25 mg/m^3 **DOT:** 2404 131

Synonyms/Trade Names: Cyanoethane, Ethyl cyanide, Propanenitrile, Propionic nitrile, Propiononitrile

Exposure Limits:
NIOSH REL: TWA 6 ppm (14 mg/m^3)
OSHA PEL: none

Measurement Methods (see Table 1):
NIOSH 1606 (adapt)

Physical Description: Colorless liquid with a pleasant, sweetish, ethereal odor. [**Note:** Forms cyanide in the body.]

Chemical & Physical Properties:
MW: 55.1
BP: 207°F
Sol: 11.9%
Fl.P: 36°F
IP: 11.84 eV
Sp.Gr: 0.78
VP: 35 mmHg
FRZ: -133°F
UEL: ?
LEL: 3.1%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
60 ppm: CcrOv/Sa
150 ppm: Sa:Cf/PaprOv
300 ppm: CcrFOv/GmFOv/PaprTOv/ ScbaF/SaF
1000 ppm: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers & reducing agents, strong acids & bases
[**Note:** Hydrogen cyanide is produced when propionitrile is heated to decomposition.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, resp sys; nau, vomit; chest pain; lass; stupor, convuls; in animals: liver, kidney damage
TO: Eyes, skin, resp sys, CVS, CNS, liver, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

Propoxur	Formula: $CH_3NHCOOC_6H_4OCH(CH_3)_2$	CAS#: 114-26-1	RTECS#: FC3150000	IDLH: N.D.
Conversion:	DOT:			

Synonyms/Trade Names: Aprocarb®, o-Isopropoxyphenyl-N-methylcarbamate, N-Methyl-2-isopropoxyphenyl-carbamate

Exposure Limits:
NIOSH REL: TWA 0.5 mg/m^3
OSHA PEL†: none

Physical Description: White to tan, crystalline powder with a faint, characteristic odor. [insecticide]

Measurement Methods (see Table 1):
NIOSH 5601
OSHA PV2007

Chemical & Physical Properties:
MW: 209.3
BP: Decomposes
Sol: 0.2%
Fl.P: >300°F
IP: ?
Sp.Gr: ?
VP: 0.000007 mmHg
MLT: 187-197°F
UEL: ?
LEL: ?
Class IIIB Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: Daily
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Strong oxidizers, alkalis
[**Note:** Emits highly toxic methyl isocyanate fumes when heated to decomposition.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Miosis, blurred vision; sweat, salv; abdom cramps, nau, diarr, vomit; head, lass, musc twitch
TO: CNS, liver, kidneys, GI tract, blood chol

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

P

n-Propyl acetate	Formula: $CH_3COOCH_2CH_2CH_3$	CAS#: 109-60-4	RTECS#: AJ3675000	IDLH: 1700 ppm
Conversion: 1 ppm = 4.18 mg/m^3	DOT: 1276 129			

Synonyms/Trade Names: Propylacetate, n-Propyl ester of acetic acid

Exposure Limits:
NIOSH REL: TWA 200 ppm (840 mg/m^3)
ST 250 ppm (1050 mg/m^3)
OSHA PEL†: TWA 200 ppm (840 mg/m^3)

Physical Description: Colorless liquid with a mild, fruity odor.

Measurement Methods (see Table 1):
NIOSH 1450
OSHA 7

Chemical & Physical Properties:
MW: 102.2
BP: 215°F
Sol: 2%
Fl.P: 55°F
IP: 10.04 eV
Sp.Gr: 0.84
VP: 25 mmHg
FRZ: -134°F
UEL: 8%
LEL(100°F): 1.7%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
1700 ppm: Sa:Cf£/CcrFOv/GmFOv/PaprOv£/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Nitrates; strong oxidizers, alkalis & acids

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: In animals: irrit eyes, nose, throat; narco; derm
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush prompt
Breath: Resp support
Swallow: Medical attention immed

n-Propyl alcohol

Formula:	CAS#:	RTECS#:	IDLH:
$CH_3CH_2CH_2OH$	71-23-8	UH8225000	800 ppm

Conversion: 1 ppm = 2.46 mg/m^3 | **DOT:** 1274 129

Synonyms/Trade Names: Ethyl carbinol, 1-Propanol, n-Propanol, Propyl alcohol

Exposure Limits:
NIOSH REL: TWA 200 ppm (500 mg/m^3) [skin]
ST 250 ppm (625 mg/m^3)
OSHA PEL†: TWA 200 ppm (500 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1401, 1405
OSHA 7

Physical Description: Colorless liquid with a mild, alcohol-like odor.

Chemical & Physical Properties:
MW: 60.1
BP: 207°F
Sol: Miscible
Fl.P: 72°F
IP: 10.15 eV
Sp.Gr: 0.81
VP: 15 mmHg
FRZ: -196°F
UEL: 13.7%
LEL: 2.2%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
800 ppm: CcrOv*/PaprOv*/GmFOv/Sa*/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, nose, throat; dry cracking skin; drow, head; ataxia, GI pain; abdom cramps, nau, vomit, diarr; in animals: narco
TO: Eyes, skin, resp sys, GI tract, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush
Breath: Resp support
Swallow: Medical attention immed

P

Propylene dichloride

Formula:	CAS#:	RTECS#:	IDLH:
$CH_3CHClCH_2Cl$	78-87-5	TX9625000	Ca [400 ppm]

Conversion: 1 ppm = 4.62 mg/m^3 | **DOT:** 1279 130

Synonyms/Trade Names: Dichloro-1,2-propane; 1,2-Dichloropropane

Exposure Limits:
NIOSH REL: Ca
See Appendix A
OSHA PEL†: TWA 75 ppm (350 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1013
OSHA 7

Physical Description: Colorless liquid with a chloroform-like odor. [pesticide]

Chemical & Physical Properties:
MW: 113.0
BP: 206°F
Sol: 0.3%
Fl.P: 60°F
IP: 10.87 eV
Sp.Gr: 1.16
VP: 40 mmHg
FRZ: -149°F
UEL: 14.5%
LEL: 3.4%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, strong acids, active metals

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, resp sys; drow, dizz; liver, kidney damage; in animals: CNS depres; [carc]
TO: Eyes, skin, resp sys, liver, kidneys, CNS [in animals: liver & mammary gland tumors]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

Propylene glycol dinitrate	Formula: $CH_3CNO_2OHCHNO_2OH$	CAS#: 6423-43-4	RTECS#: TY6300000	IDLH: N.D.
Conversion: 1 ppm = 6.79 mg/m^3	**DOT:**			

Synonyms/Trade Names: PGDN; Propylene glycol-1,2-dinitrate; 1,2-Propylene glycol dinitrate

Exposure Limits:
NIOSH REL: TWA 0.05 ppm (0.3 mg/m^3) [skin]
OSHA PEL†: none

Physical Description: Colorless liquid with a disagreeable odor.
[**Note:** A solid below 18°F.]

Measurement Methods (see Table 1):
None available

Chemical & Physical Properties:
MW: 166.1
BP: ?
Sol: 0.1%
Fl.P: ?
IP: ?
Sp.Gr(77°F): 1.23
VP(72°F): 0.07 mmHg
FRZ: 18°F
UEL: ?
LEL: ?
Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Ammonia compounds, amines, oxidizers, reducing agents, combustible materials [**Note:** Similar to Ethylene glycol dinitrate in explosion potential.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes; conj; methemo; head, impaired balance, vis dist; in animals: liver, kidney damage
TO: Eyes, CNS, blood, liver, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Resp support
Swallow: Medical attention immed

Propylene glycol monomethyl ether	Formula: $CH_3OCH_2CHCH_3$	CAS#: 107-98-2	RTECS#: UB7700000	IDLH: N.D.
Conversion: 1 ppm = 3.69 mg/m^3	**DOT:**			

Synonyms/Trade Names: Dowtherm® 209, 1-Methoxy-2-hydroxypropane, 1-Methoxy-2-propanol, 2-Methoxy-1-methylethanol, Propylene glycol methyl ether

Exposure Limits:
NIOSH REL: TWA 100 ppm (360 mg/m^3)
ST 150 ppm (540 mg/m^3)
OSHA PEL†: none

Physical Description: Clear, colorless liquid with a mild, ethereal odor.

Measurement Methods (see Table 1):
NIOSH 2554
OSHA 99

Chemical & Physical Properties:
MW: 90.1
BP: 248°F
Sol: Miscible
Fl.P: 97°F
IP: ?
Sp.Gr: 0.96
VP(77°F): 12 mmHg
FRZ: -139°F (Sets to glass)
UEL(calc): 13.8%
LEL(calc.): 1.6%
Class IC Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: Prevent eye contact
Wash skin: N.R.
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Oxidizers, strong acids [**Note:** Hygroscopic (i.e., absorbs moisture from air). May slowly form reactive peroxides during prolonged storage.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose, throat; head, nau, dizz, drow, inco; vomit, diarr
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water wash
Breath: Resp support
Swallow: Medical attention immed

Propylene imine	Formula: C_3H_7N	CAS#: 75-55-8	RTECS#: CM8050000	IDLH: Ca [100 ppm]
Conversion: 1 ppm = 2.34 mg/m^3	**DOT:** 1921 131P (inhibited)			

Synonyms/Trade Names: 2-Methylaziridine, 2-Methylethyleneimine, Propyleneimine, Propylene imine (inhibited), Propylenimine

Exposure Limits:
NIOSH REL: Ca
TWA 2 ppm (5 mg/m^3) [skin]
See Appendix A
OSHA PEL: TWA 2 ppm (5 mg/m^3) [skin]

Measurement Methods (see Table 1):
None available

Physical Description: Colorless, oily liquid with an ammonia-like odor.

Chemical & Physical Properties:
MW: 57.1
BP: 152°F
Sol: Miscible
Fl.P: 25°F
IP: 9.00 eV
Sp.Gr: 0.80
VP: 112 mmHg
FRZ: -85°F
UEL: ?
LEL: ?
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS/ScbaE

Incompatibilities and Reactivities: Acids, strong oxidizers, water, carbonyl compounds, quinones, sulfonyl halides
[**Note:** Subject to violent polymerization in contact with acids. Hydrolyzes in water to form methylethanolamine.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Eye, skin burns; [carc]
TO: Eyes, skin [in animals: nasal tumors]

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

P

Propylene oxide	Formula: C_3H_6O	CAS#: 75-56-9	RTECS#: TZ2975000	IDLH: Ca [400 ppm]
Conversion: 1 ppm = 2.38 mg/m^3	**DOT:** 1280 127P			

Synonyms/Trade Names: 1,2-Epoxy propane; Methyl ethylene oxide; Methyloxirane; Propene oxide; 1,2-Propylene oxide

Exposure Limits:
NIOSH REL: Ca
See Appendix A
OSHA PEL†: TWA 100 ppm (240 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1612
OSHA 88

Physical Description: Colorless liquid with a benzene-like odor. [**Note:** A gas above 94°F.]

Chemical & Physical Properties:
MW: 58.1
BP: 94°F
Sol: 41%
Fl.P: -35°F
IP: 9.81 eV
Sp.Gr: 0.83
VP: 445 mmHg
FRZ: -170°F
UEL: 36%
LEL: 2.3%
Class IA Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.
Provide: Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS/ScbaE

Incompatibilities and Reactivities: Anhydrous metal chlorides; iron; strong acids, caustics & peroxides
[**Note:** Polymerization may occur due to high temperatures or contamination with alkalis, aqueous acids, amines & acidic alcohols.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, resp sys; skin blisters, burns; [carc]
TO: Eyes, skin, resp sys [in animals: nasal tumors]

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

n-Propyl nitrate

Formula: $CH_3CH_2CH_2ONO_2$ | **CAS#:** 627-13-4 | **RTECS#:** UK0350000 | **IDLH:** 500 ppm

Conversion: 1 ppm = 4.30 mg/m^3 | **DOT:** 1865 131

Synonyms/Trade Names: Propyl ester of nitric acid

Exposure Limits:
NIOSH REL: TWA 25 ppm (105 mg/m^3)
ST 40 ppm (170 mg/m^3)
OSHA PEL†: TWA 25 ppm (110 mg/m^3)

Measurement Methods (see Table 1):
NIOSH S227 (II-3)
OSHA 7

Physical Description: Colorless to straw-colored liquid with an ether-like odor.

Chemical & Physical Properties:
MW: 105.1
BP: 231°F
Sol: Slight
Fl.P: 68°F
IP: 11.07 eV
Sp.Gr: 1.07
VP: 18 mmHg
FRZ: -148°F
UEL: 100%
LEL: 2%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
250 ppm: Sa
500 ppm: Sa:Cf/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS¿/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, combustible materials
[**Note:** Forms explosive mixtures with combustible materials.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: In animals: irrit eyes, skin; methemo, anoxia, cyan; dysp, lass, dizz, head
TO: Eyes, skin, blood

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

P

Pyrethrum

Formula: $C_{20}H_{28}O_3/C_{21}H_{28}O_5/C_{21}H_{30}O_3/C_{22}H_{30}O_5/C_{21}H_{28}O_3/C_{22}H_{28}O_5$ | **CAS#:** 8003-34-7 | **RTECS#:** UR4200000 | **IDLH:** 5000 mg/m^3

Conversion: | **DOT:**

Synonyms/Trade Names: Cinerin I or II, Jasmolin I or II, Pyrethrin I or II, Pyrethrum I or II
[**Note:** Pyrethrum is a variable mixture of Cinerin, Jasmolin, and Pyrethrin.]

Exposure Limits:
NIOSH REL: TWA 5 mg/m^3
OSHA PEL: TWA 5 mg/m^3

Measurement Methods (see Table 1):
NIOSH 5008
OSHA 70

Physical Description: Brown, viscous oil or solid. [insecticide]

Chemical & Physical Properties:
MW: 316-374
BP: ?
Sol: Insoluble
Fl.P: 180-190°F
IP: ?
Sp.Gr: 1 (approx)
VP: Low
MLT: ?
UEL: ?
LEL: ?
Class IIIA Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
50 mg/m^3: CcrOv95*/Sa*
125 mg/m^3: Sa:Cf*/PaprOvHie*
250 mg/m^3: CcrFOv100/PaprTOvHie*/ScbaF/SaF
5000 mg/m^3: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Erythema, derm, papules, pruritus, rhin; sneez; asthma
TO: Resp sys, skin, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Pyridine	Formula: C_5H_5N	CAS#: 110-86-1	RTECS#: UR8400000	IDLH: 1000 ppm
Conversion: 1 ppm = 3.24 mg/m^3	**DOT:** 1282 129			

Synonyms/Trade Names: Azabenzene, Azine

Exposure Limits:
NIOSH REL: TWA 5 ppm (15 mg/m^3)
OSHA PEL: TWA 5 ppm (15 mg/m^3)

Physical Description: Colorless to yellow liquid with a nauseating, fish-like odor.

Measurement Methods (see Table 1):
NIOSH 1613
OSHA 7

Chemical & Physical Properties:
MW: 79.1
BP: 240°F
Sol: Miscible
Fl.P: 68°F
IP: 9.27 eV
Sp.Gr: 0.98
VP: 16 mmHg
FRZ: -44°F
UEL: 12.4%
LEL: 1.8%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
125 ppm: Sa:Cf£/PaprOv£
50 ppm: CcrFOv/GmFOv/PaprTOv£/ ScbaF/SaF
1000 ppm: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, strong acids

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes; head, anxi, dizz, insom; nau, anor; derm; liver, kidney damage
TO: Eyes, skin, CNS, liver, kidneys, GI tract,

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

Quinone	Formula: OC_6H_4O	CAS#: 106-51-4	RTECS#: DK2625000	IDLH: 100 mg/m^3
Conversion: 1 ppm = 4.42 mg/m^3	**DOT:** 2587 153			

Q

Synonyms/Trade Names: 1,4-Benzoquinone; p-Benzoquinone; 1,4-Cyclohexadiene dioxide; p-Quinone

Exposure Limits:
NIOSH REL: TWA 0.4 mg/m^3 (0.1 ppm)
OSHA PEL: TWA 0.4 mg/m^3 (0.1 ppm)

Physical Description: Pale-yellow solid with an acrid, chlorine-like odor.

Measurement Methods (see Table 1):
NIOSH S181 (II-4)

Chemical & Physical Properties:
MW: 108.1
BP: Sublimes
Sol: Slight
Fl.P: 100-200°F
IP: 9.68 eV
Sp.Gr: 1.32
VP(77°F): 0.1 mmHg
MLT: 240°F
UEL: ?
LEL: ?
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
10 mg/m^3: Sa:Cf£
20 mg/m^3: ScbaF/SaF
100 mg/m^3: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Eye irrit, conj; kera; skin irrit
TO: Eyes, skin

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Resorcinol	**Formula:** $C_6H_4(OH)_2$	**CAS#:** 108-46-3	**RTECS#:** VG9625000	**IDLH:** N.D.
Conversion: 1 ppm = 4.50 mg/m^3	**DOT:** 2876 153			

Synonyms/Trade Names: 1,3-Benzenediol; m-Benzenediol; 1,3-Dihydroxybenzene; m-Dihydroxybenzene; 3-Hydroxyphenol; m-Hydroxyphenol

Exposure Limits:
NIOSH REL: TWA 10 ppm (45 mg/m^3)
ST 20 ppm (90 mg/m^3)
OSHA PEL†: none

Measurement Methods (see Table 1):
NIOSH 5701
OSHA PV2053

Physical Description: White needles, plates, crystals, flakes, or powder with a faint odor. [**Note:** Turns pink on exposure to air or light, or contact with iron.]

Chemical & Physical Properties:
MW: 110.1
BP: 531°F
Sol: 110%
Fl.P: 261°F
IP: 8.63 eV
Sp.Gr: 1.27
VP(77°F): 0.0002 mmHg
MLT: 228°F
UEL: ?
LEL(392°F): 1.4%
Class IIIB Combustible Liquid, but may be difficult to ignite.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Acetanilide, albumin, alkalis, antipyrine, camphor, ferric salts, menthol, spirit nitrous ether, strong oxidizers & bases
[**Note:** Hygroscopic (i.e., absorbs moisture from the air).]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose, throat, upper resp sys; methemo; cyan, convuls; restless, bluish skin, incr heart rate, dysp; dizz, drow, hypothermia, hema; spleen, kidney, liver changes; derm
TO: Eyes, skin, resp sys, CVS, CNS, blood, spleen, liver, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water wash immed
Breath: Resp support
Swallow: Medical attention immed

Rhodium (metal fume and insoluble compounds, as Rh)	**Formula:** Rh (metal)	**CAS#:** 7440-16-6 (metal)	**RTECS#:** VI9069000	**IDLH:** 100 mg/m^3 (as Rh)
Conversion:	**DOT:**			

Synonyms/Trade Names: **Rhodium metal:** Elemental rhodium
Synonyms of other insoluble rhodium compounds vary depending upon the specific compound.

Exposure Limits:
NIOSH REL: TWA 0.1 mg/m^3
OSHA PEL: TWA 0.1 mg/m^3

Measurement Methods (see Table 1):
NIOSH S188 (II-3)

Physical Description: Metal: White, hard, ductile, malleable solid with a bluish-gray luster.

Chemical & Physical Properties:
MW: 102.9
BP: 6741°F
Sol: Insoluble
Fl.P: NA
IP: NA
Sp.Gr: 12.41 (metal)
VP: 0 mmHg (approx)
MLT: 3571°F
UEL: NA
LEL: NA
Metal: Noncombustible Solid in bulk form, but flammable as dust or powder.

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
0.5 mg/m^3: Qm
1 mg/m^3: 95XQ/Sa
2.5 mg/m^3: Sa:Cf/PaprHie
5 mg/m^3: 100F/SaT:Cf/PaprTHie/ ScbaF/SaF
100 mg/m^3: Sa:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Chlorine trifluoride, oxygen difluoride

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh
SY: Possible resp sens
TO: Resp sys

First Aid (see Table 6):
Breath: Resp support
Swallow: Medical attention immed

R

Rhodium (soluble compounds, as Rh)	Formula:	CAS#:	RTECS#:	IDLH: 2 mg/m^3 (as Rh)
Conversion:	**DOT:**			

Synonyms/Trade Names: Synonyms vary depending upon the specific soluble rhodium compound.

Exposure Limits:
NIOSH REL: TWA 0.001 mg/m^3
OSHA PEL: TWA 0.001 mg/m^3

Physical Description: Appearance and odor vary depending upon the specific soluble rhodium compound.

Measurement Methods (see Table 1):
NIOSH S189 (II-3)

Chemical & Physical Properties:
Properties vary depending upon the specific soluble rhodium compound.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
0.01 mg/m^3: 100XQ*/Sa*
0.025 mg/m^3: Sa:Cf*/PaprHie*
0.05 mg/m^3: 100F/PaprTHie*/ScbaF/SaF
2 mg/m^3: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Varies

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: In animals: irrit eyes; CNS damage
TO: Eyes, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush
Breath: Resp support
Swallow: Medical attention immed

Ronnel	Formula: $(CH_3O)_2P(S)OC_6H_2Cl_3$	CAS#: 299-84-3	RTECS#: TG0525000	IDLH: 300 mg/m^3
Conversion:	**DOT:**			

Synonyms/Trade Names: O,O-Dimethyl O-(2,4,5-trichlorophenyl) phosphorothioate; Fenchlorophos

Exposure Limits:
NIOSH REL: TWA 10 mg/m^3
OSHA PEL†: TWA 15 mg/m^3

Physical Description: White to light-tan, crystalline solid. [insecticide]
[**Note:** A liquid above 106°F.]

Measurement Methods (see Table 1):
NIOSH 5600
OSHA PV2054

R

Chemical & Physical Properties:
MW: 321.6
BP: Decomposes
Sol(77°F): 0.004%
Fl.P: NA
IP: ?
Sp.Gr(77°F): 1.49
VP(77°F): 0.0008 mmHg
MLT: 106°F
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH
100 mg/m^3: CcrOv95/Sa
250 mg/m^3: Sa:Cf/PaprOvHie
300 mg/m^3: CcrFOv100/GmFOv100/ PaprTOvHie*/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: In animals: irrit eyes; chol inhibition; liver, kidney damage
TO: Eyes, liver, kidneys, blood plasma

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

Rosin core solder, pyrolysis products (as formaldehyde)	**Formula:**	**CAS#:**	**RTECS#:**	**IDLH:** N.D.
Conversion:	**DOT:**			

Synonyms/Trade Names: Rosin flux pyrolysis products, Rosin core soldering flux pyrolysis products

Exposure Limits:
NIOSH REL*: TWA 0.1 mg/m^3
[***Note:** "Ca" in the presence of formaldehyde, acetaldehyde, or malonaldehyde. See Appendices A & C (Aldehydes).]
OSHA PEL†: none

Measurement Methods (see Table 1):
NIOSH 2541, 3500

Physical Description: Pyrolysis products of rosin core solder include acetone, aliphatic aldehydes, methyl alcohol, methane, ethane, various abietic acids (the major components of rosin), CO & CO_2.

Chemical & Physical Properties:
Properties vary depending upon the specific rosin core solder being used.

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

In the presence of Formaldeyde, Acetaldehyde, or Malonaldehyde:
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Varies

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh
SY: Irrit eyes, nose, throat, upper resp sys [carc (in the presence of Formaldehyde, Acetaldehyde, or Malonaldehyde)]
TO: Eyes, resp sys [nasal cancer; thyroid gland tumors in animals (in the presence of Formaldehyde, Acetaldehyde, or Malonaldehyde)]

First Aid (see Table 6):
Eye: Irr immed
Breath: Resp support

Rotenone	**Formula:** $C_{23}H_{22}O_6$	**CAS#:** 83-79-4	**RTECS#:** DJ2800000	**IDLH:** 2500 mg/m^3
Conversion:	**DOT:**			

Synonyms/Trade Names:
1,2,12,12a-Tetrahydro-8,9-dimethoxy-2-(1-methylethenyl)-[1]benzopyrano[3,4-b]furo[2,3-h][1]benzopyran-6(6aH)-one

Exposure Limits:
NIOSH REL: TWA 5 mg/m^3
OSHA PEL: TWA 5 mg/m^3

Measurement Methods (see Table 1):
NIOSH 5007

Physical Description: Colorless to red, odorless, crystalline solid. [insecticide]

Chemical & Physical Properties:
MW: 394.4
BP: Decomposes
Sol: Insoluble
Fl.P: ?
IP: ?
Sp.Gr: 1.27
VP: <0.00004 mmHg
MLT: 330°F
UEL: ?
LEL: ?
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
5 mg/m^3: CcrOv95/Sa
125 mg/m^3: Sa:Cf/PaprOvHie
250 mg/m^3: CcrFOv100/GmFOv100/PaprTOvHie/SaT:Cf/ScbaF/SaF
2500 mg/m^3: Sa:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, alkalis

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, resp sys; numb muc memb; nau, vomit, abdom pain; musc tremor, inco, clonic convuls, stupor
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

R

Rouge	Formula: Fe_2O_3	CAS#: 1309-37-1	RTECS#: NO7400000	IDLH: N.D.
Conversion:	DOT:			

Synonyms/Trade Names: Iron(III)oxide, Iron oxide red, Red iron oxide, Red oxide

Exposure Limits:
NIOSH REL: See Appendix D
OSHA PEL†: TWA 15 mg/m^3 (total)
TWA 5 mg/m^3 (resp)

Physical Description: A fine, red powder of ferric oxide.
[**Note:** Usually used in cake form or impregnated in paper or cloth.]

Measurement Methods (see Table 1):
NIOSH 0500, 0600

Chemical & Physical Properties:
MW: 159.7
BP: ?
Sol: Insoluble
Fl.P: NA
IP: NA
Sp.Gr: 5.24
VP: 0 mmHg (approx)
MLT: 2849°F
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Calcium hypochlorite, carbon monoxide, hydrogen peroxide

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Irrit eyes, skin, resp sys
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Breath: Fresh air

Selenium	Formula: Se	CAS#: 7782-49-2	RTECS#: VS7700000	IDLH: 1 mg/m^3 (as Se)
Conversion:	DOT: 2658 152 (powder)			

Synonyms/Trade Names: Elemental selenium, Selenium alloy

Exposure Limits:
NIOSH REL*: TWA 0.2 mg/m^3
OSHA PEL*: TWA 0.2 mg/m^3
[***Note:** The REL and PEL also apply to other selenium compounds (as Se) except Selenium hexafluoride.]

Physical Description: Amorphous or crystalline, red to gray solid.
[**Note:** Occurs as an impurity in most sulfide ores.]

Measurement Methods (see Table 1):
NIOSH 7300, 7301, 7303, 9102, S190 (II-7)
OSHA ID121

Chemical & Physical Properties:
MW: 79.0
BP: 1265°F
Sol: Insoluble
Fl.P: NA
IP: NA
Sp.Gr: 4.28
VP: 0 mmHg (approx)
MLT: 392°F
UEL: NA
LEL: NA
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: N.R.
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
1 mg/m^3: Qm*/95XQ*/100F/PaprHie*/PaprHie*/Sa*/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Acids, strong oxidizers, chromium trioxide, potassium bromate, cadmium

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose, throat; vis dist; head; chills, fever; dysp, bron; metallic taste, garlic breath, GI dist; derm; eye, skin burns; in animals: anemia; liver nec, cirr; kidney, spleen damage
TO: Eyes, skin, resp sys, liver, kidneys, blood, spleen

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Selenium hexafluoride	Formula: SeF_6	CAS#: 7783-79-1	RTECS#: VS9450000	IDLH: 2 ppm
Conversion: 1 ppm = 7.89 mg/m^3	**DOT:** 2194 125			

Synonyms/Trade Names: Selenium fluoride

Exposure Limits:
NIOSH REL: TWA 0.05 ppm
OSHA PEL: TWA 0.05 ppm (0.4 mg/m^3)

Measurement Methods (see Table 1):
None available

Physical Description: Colorless gas.

Chemical & Physical Properties:
MW: 193.0
BP: -30°F
Sol: Insoluble
Fl.P: NA
IP: ?
RGasD: 6.66
VP: >1 atm
FRZ: -59°F
UEL: NA
LEL: NA
Nonflammable Gas

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
0.5 ppm: Sa
1.25 ppm: Sa:Cf
2 ppm: SaT:Cf/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS/ScbaE

Incompatibilities and Reactivities: Water [**Note:** Hydrolyzes very slowly in cold water.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh
SY: In animals: pulm irrit, edema
TO: Resp sys

First Aid (see Table 6):
Breath: Resp support

Silica, amorphous	Formula: SiO_2	CAS#: 7631-86-9	RTECS#: VV7310000	IDLH: 3000 mg/m^3
Conversion:	**DOT:**			

Synonyms/Trade Names: Diatomaceous earth, Diatomaceous silica, Diatomite, Precipitated amorphous silica, Silica gel, Silicon dioxide (amorphous)

Exposure Limits:
NIOSH REL: TWA 6 mg/m^3
OSHA PEL†: TWA 20 mppcf [(80 mg/m^3)/%SiO_2]

Measurement Methods (see Table 1):
NIOSH 7501

Physical Description: Transparent to gray, odorless powder.
[**Note:** Amorphous silica is the non-crystalline form of SiO_2.]

Chemical & Physical Properties:
MW: 60.1
BP: 4046°F
Sol: Insoluble
Fl.P: NA
IP: NA
Sp.Gr: 2.20
VP: 0 mmHg (approx)
MLT: 3110°F
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
30 mg/m^3: Qm
60 mg/m^3: 95XQ/Sa
150 mg/m^3: Sa:Cf/PaprHie
300 mg/m^3: 100F/SaT:Cf/PaprTHie/ ScbaF/SaF
3000 mg/m^3: Sa:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Fluorine, oxygen difluoride, chlorine trifluoride

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Irrit eyes, pneumoconiosis
TO: Eyes, resp sys

First Aid (see Table 6):
Eye: Irr immed
Breath: Fresh air

S

Silica, crystalline (as respirable dust)	**Formula:** SiO_2	**CAS#:** 14808-60-7	**RTECS#:** VV7330000	**IDLH:** Ca [25 mg/m^3 (cristobalite, tridymite); 50 mg/m^3 (quartz, tripoli)]
Conversion:	**DOT:**			

Synonyms/Trade Names: Cristobalite, Quartz, Tridymite, Tripoli

Exposure Limits:
NIOSH REL: Ca
TWA 0.05 mg/m^3
See Appendix A
OSHA PEL: See Appendix C (Mineral Dusts)

Measurement Methods (see Table 1):
NIOSH 7500, 7601, 7602
OSHA ID142

Physical Description: Colorless, odorless solid. [**Note:** A component of many mineral dusts.]

Chemical & Physical Properties:
MW: 60.1
BP: 4046°F
Sol: Insoluble
Fl.P: NA
IP: NA
Sp.Gr: 2.66
VP: 0 mmHg (approx)
MLT: 3110°F
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
0.5 mg/m^3: 95XQ
1.25 mg/m^3: PaprHie/Sa:Cf
2.5 mg/m^3: 100F/PaprTHie
25 mg/m^3: Sa:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Powerful oxidizers: fluorine, chlorine trifluoride, manganese trioxide, oxygen difluoride, hydrogen peroxide, etc.; acetylene; ammonia

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Cough, dysp, wheez; decr pulm func, progressive resp symptoms (silicosis); irrit eyes; [carc]
TO: Eyes, resp sys [in animals: lung cancer]

First Aid (see Table 6):
Eye: Irr immed
Breath: Fresh air

Silicon	**Formula:** Si	**CAS#:** 7440-21-3	**RTECS#:** VW0400000	**IDLH:** N.D.
Conversion:	**DOT:** 1346 170 (amorphous powder)			

Synonyms/Trade Names: Elemental silicon
[**Note:** Does not occur free in nature, but is found in silicon dioxide (silica) & in various silicates.]

S

Exposure Limits:
NIOSH REL: TWA 10 mg/m^3 (total)
TWA 5 mg/m^3 (resp)
OSHA PEL†: TWA 15 mg/m^3 (total)
TWA 5 mg/m^3 (resp)

Measurement Methods (see Table 1):
NIOSH 0500, 0600

Physical Description: Black to gray, lustrous, needle-like crystals.
[**Note:** The amorphous form is a dark-brown powder.]

Chemical & Physical Properties:
MW: 28.1
BP: 4271°F
Sol: Insoluble
Fl.P: NA
IP: NA
Sp.Gr(77°F): 2.33
VP: 0 mmHg (approx)
MLT: 2570°F
UEL: NA
LEL: NA
MEC: 160 g/m^3
Combustible Solid in powder form.

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: Prevent eye contact
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Chlorine, fluorine, oxidizers, calcium, cesium carbide, alkaline carbonates

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, upper resp sys; cough
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Breath: Fresh air
Swallow: Medical attention immed

Silicon carbide	Formula: SiC	CAS#: 409-21-2	RTECS#: VW0450000	IDLH: N.D.
Conversion:	**DOT:**			

Synonyms/Trade Names: Carbon silicide, Carborundum®, Silicon monocarbide

Exposure Limits:
NIOSH REL: TWA 10 mg/m^3 (total)
TWA 5 mg/m^3 (resp)
OSHA PEL†: TWA 15 mg/m^3 (total)
TWA 5 mg/m^3 (resp)

Measurement Methods (see Table 1):
NIOSH 0500, 0600

Physical Description: Yellow to green to bluish-black, iridescent crystals.

Chemical & Physical Properties:
MW: 40.1
BP: Sublimes
Sol: Insoluble
Fl.P: NA
IP: 9.30 eV
Sp.Gr: 3.23
VP: 0 mmHg (approx)
MLT: 4892°F (Sublimes)
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: None reported [**Note:** Sublimes with decomposition at 4892°F.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, upper resp sys; cough
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Breath: Fresh air
Swallow: Medical attention immed

Silicon tetrahydride	Formula: SiH_4	CAS#: 7803-62-5	RTECS#: VV1400000	IDLH: N.D.
Conversion: 1 ppm = 1.31 mg/m^3	**DOT:** 2203 116			

Synonyms/Trade Names: Monosilane, Silane, Silicane

Exposure Limits:
NIOSH REL: TWA 5 ppm (7 mg/m^3)
OSHA PEL†: none

Measurement Methods (see Table 1):
None available

Physical Description: Colorless gas with a repulsive odor.

Chemical & Physical Properties:
MW: 32.1
BP: -169°F
Sol: Decomposes
Fl.P: NA (Gas)
IP: ?
RGasD: 1.11
VP: >1 atm
FRZ: -301°F
UEL: ?
LEL: ?
Flammable Gas (may ignite SPONTANEOUSLY in air).

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Halogens (bromine, chlorine, carbonyl chloride, antimony pentachloride, tin(IV) chloride), water

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh
SY: Irrit eyes, skin, muc memb; nau, head
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Breath: Resp support

S

Silver (metal dust and soluble compounds, as Ag)	Formula: Ag (metal)	CAS#: 7440-22-4 (metal)	RTECS#: VW3500000 (metal)	IDLH: 10 mg/m^3 (as Ag)
Conversion:	DOT:			

Synonyms/Trade Names: **Silver metal:** Argentum
Synonyms of soluble silver compounds such as Silver nitrate ($AgNO_3$) vary depending upon the specific compound.

Exposure Limits:
NIOSH REL: TWA 0.01 mg/m^3
OSHA PEL: TWA 0.01 mg/m^3

Measurement Methods (see Table 1):
NIOSH 7300, 7301, 9102
OSHA ID121

Physical Description: Metal: White, lustrous solid.

Chemical & Physical Properties:
MW: 107.9
BP: 3632°F
Sol: Insoluble
Fl.P: NA
IP: NA
Sp.Gr: 10.49 (metal)
VP: 0 mmHg (approx)
MLT: 1761°F
UEL: NA
LEL: NA
Metal: Noncombustible Solid, but flammable in form of dust or powder.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam ($AgNO_3$)
Change: Daily
Provide: Eyewash

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
0.25 mg/m^3: Sa:Cf£/PaprHie£
0.5 mg/m^3: 100F/ScbaF/SaF
10 mg/m^3: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Acetylene, ammonia, hydrogen peroxide, bromoazide, chlorine trifluoride, ethyleneimine, oxalic acid, tartaric acid

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Blue-gray eyes, nasal septum, throat, skin; irrit, ulceration skin; GI dist
TO: Nasal septum, skin, eyes

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush
Breath: Resp support
Swallow: Medical attention immed

Soapstone (containing less than 1% quartz)	Formula: 3MgO-4SiO$_2$-H$_2$O	CAS#:	RTECS#: VV8780000	IDLH: 3000 mg/m^3
Conversion:	DOT:			

Synonyms/Trade Names: Massive talc, Soapstone silicate, Steatite

S

Exposure Limits:
NIOSH REL: TWA 6 mg/m^3 (total)
TWA 3 mg/m^3 (resp)
OSHA PEL†: TWA 20 mppcf

Measurement Methods (see Table 1):
NIOSH 0500

Physical Description: Odorless, white-gray powder.

Chemical & Physical Properties:
MW: 379.3
BP: ?
Sol: Insoluble
Fl.P: NA
IP: NA
Sp.Gr: 2.7-2.8
VP: 0 mmHg (approx)
MLT: ?
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
30 mg/m^3: Qm
60 mg/m^3: 95XQ/Sa
150 mg/m^3: PaprHie
300 mg/m^3: 100F/SaT:Cf*/PaprTHie*/ ScbaF/SaF
3000 mg/m^3: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: None reported

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Pneumoconiosis: cough, dysp; digital clubbing; cyan; basal crackles, cor pulmonale
TO: Resp sys, CVS

First Aid (see Table 6):
Eye: Irr immed
Breath: Resp support

Sodium aluminum fluoride (as F)	Formula: Na_3AlF_6	CAS#: 15096-52-3	RTECS#: WA9625000	IDLH: 250 mg/m^3 (as F)
Conversion:	**DOT:**			

Synonyms/Trade Names: Cryocide, Cryodust, Cryolite, Sodium hexafluoroaluminate

Exposure Limits:
NIOSH REL*: TWA 2.5 mg/m^3
OSHA PEL*: TWA 2.5 mg/m^3
[***Note:** The REL and PEL also apply to other inorganic, solid fluorides (as F).]

Measurement Methods (see Table 1):
NIOSH 7902
OSHA ID110

Physical Description: Colorless to dark odorless solid. [pesticide]
[**Note:** Loses color on heating.]

Chemical & Physical Properties:
MW: 209.9
BP: Decomposes
Sol: 0.04%
Fl.P: NA
IP: NA
Sp.Gr: 2.90
VP: 0 mmHg (approx)
MLT: 1832°F
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
12.5 mg/m^3: Qm
25 mg/m^3: 95XQ*/Sa*
62.5 mg/m^3: Sa:Cf*/PaprHie*+
125 mg/m^3: 100F+/ScbaF/SaF
250 mg/m^3: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F+/ScbaE

+Note: May need acid gas sorbent

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, resp sys; nau, abdom pain, diarr; salv, thirst, sweat; stiff spine; derm; calcification of ligaments of ribs, pelvis
TO: Eyes, skin, resp sys, CNS, skeleton, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Fresh air
Swallow: Medical attention immed

Sodium azide	Formula: NaN_3	CAS#: 26628-22-8	RTECS#: VY8050000	IDLH: N.D.
Conversion:	**DOT:** 1687 153			

Synonyms/Trade Names: Azide, Azium, Sodium salt of hydrazoic acid

Exposure Limits:
NIOSH REL: C 0.1 ppm (as HN_3) [skin]
C 0.3 mg/m^3 (as NaN_3) [skin]
OSHA PEL†: none

Measurement Methods (see Table 1):
OSHA ID121, ID211

Physical Description: Colorless to white, odorless, crystalline solid. [pesticide]
[**Note:** Forms hydrazoic acid (HN_3) in water.]

Chemical & Physical Properties:
MW: 65.0
BP: Decomposes
Sol(63°F): 42%
Fl.P: ?
IP: 11.70 eV
Sp.Gr: 1.85
VP: ?
MLT: 527°F (Decomposes)
UEL: ?
LEL: ?
Combustible Solid (if heated above 572°F).

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Acids, metals, water
[**Note:** Over a period of time, sodium azide may react with copper, lead, brass, or solder in plumbing systems to form an accumulation of the HIGHLY EXPLOSIVE compounds of lead azide & copper azide.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin; head, dizz, lass, blurred vision; low BP, bradycardia; kidney changes
TO: Eyes, skin, CNS, CVS, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

Sodium bisulfite	**Formula:** $NaHSO_3$	**CAS#:** 7631-90-5	**RTECS#:** VZ2000000	**IDLH:** N.D.
Conversion:	**DOT:** 2693 154 (solution)			

Synonyms/Trade Names: Monosodium salt of sulfurous acid, Sodium acid bisulfite, Sodium bisulphite, Sodium hydrogen sulfite

Exposure Limits:
NIOSH REL: TWA 5 mg/m^3
OSHA PEL†: none

Measurement Methods (see Table 1):
NIOSH 0500

Physical Description: White crystals or powder with a slight odor of sulfur dioxide.

Chemical & Physical Properties:
MW: 104.1
BP: Decomposes
Sol: 29%
Fl.P: NA
IP: NA
Sp.Gr: 1.48
VP: ?
MLT: Decomposes
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Heat (decomposes) [**Note:** Slowly oxidized to the sulfate on exposure to air.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, muc memb
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Breath: Fresh air
Swallow: Medical attention immed

Sodium cyanide (as CN)	**Formula:** NaCN	**CAS#:** 143-33-9	**RTECS#:** VZ7525000	**IDLH:** 25 mg/m^3 (as CN)
Conversion:	**DOT:** 1689 157 (solid); 3414 157 (solution)			

Synonyms/Trade Names: Sodium salt of hydrocyanic acid

Exposure Limits:
NIOSH REL*: C 5 mg/m^3 (4.7 ppm) [10-minute]
OSHA PEL*: TWA 5 mg/m^3
[***Note:** The REL and PEL also apply to other cyanides (as CN) except Hydrogen cyanide.]

Measurement Methods (see Table 1):
NIOSH 6010, 7904

S

Physical Description: White, granular or crystalline solid with a faint, almond-like odor.

Chemical & Physical Properties:
MW: 49.0
BP: 2725°F
Sol(77°F): 58%
Fl.P: NA
IP: NA
Sp.Gr: 1.60
VP: 0 mmHg (approx)
MLT: 1047°F
UEL: NA
LEL: NA
Noncombustible Solid, but contact with acids releases highly flammable hydrogen cyanide.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
25 mg/m^3: Sa/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS100/ScbaE

Incompatibilities and Reactivities: Strong oxidizers (such as acids, acid salts, chlorates & nitrates) [**Note:** Absorbs moisture from the air forming a syrup.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin; asphy; lass, head, conf; nau, vomit; incr resp rate; slow gasping respiration; thyroid, blood changes
TO: Eyes, skin, CVS, CNS, thyroid, blood

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Sodium fluoride (as F)	Formula: NaF	CAS#: 7681-49-4	RTECS#: WB0350000	IDLH: 250 mg/m^3 (as F)
Conversion:	**DOT:** 1690 154			

Synonyms/Trade Names: Floridine, Sodium monofluoride

Exposure Limits:
NIOSH REL*: TWA 2.5 mg/m^3
OSHA PEL*: TWA 2.5 mg/m^3
[***Note:** The REL and PEL also apply to other inorganic, solid fluorides (as F).]

Measurement Methods (see Table 1):
NIOSH 7902, 7906
OSHA ID110

Physical Description: Odorless, white powder or colorless crystals.
[**Note:** Pesticide grade is often dyed blue.]

Chemical & Physical Properties:
MW: 42.0
BP: 3099°F
Sol: 4%
Fl.P: NA
IP: NA
Sp.Gr: 2.78
VP: 0 mmHg (approx)
MLT: 1819°F
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
12.5 mg/m^3: Qm
25 mg/m^3: 95XQ*/Sa*
62.5 mg/m^3: Sa:Cf*/PaprHie*+
125 mg/m^3: 100F+/ScbaF/SaF
250 mg/m^3: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F+/ScbaE

+Note: May need acid gas sorbent

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, resp sys; nau, abdom pain, diarr; salv, thirst, sweat; stiff spine; derm; calcification of ligaments of ribs, pelvis
TO: Eyes, skin, resp sys, CNS, skeleton, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Fresh air
Swallow: Medical attention immed

Sodium fluoroacetate	Formula: FCH_2COONa	CAS#: 62-74-8	RTECS#: AH9100000	IDLH: 2.5 mg/m^3
Conversion:	**DOT:** 2629 151			

Synonyms/Trade Names: SFA, Sodium monofluoroacetate

Exposure Limits:
NIOSH REL: TWA 0.05 mg/m^3
ST 0.15 mg/m^3 [skin]
OSHA PEL†: TWA 0.05 mg/m^3 [skin]

Measurement Methods (see Table 1):
NIOSH S301 (II-5)

Physical Description: Fluffy, colorless to white (sometimes dyed black), odorless powder. [**Note:** A liquid above 95°F.] [rodenticide]

Chemical & Physical Properties:
MW: 100.0
BP: Decomposes
Sol: Miscible
Fl.P: NA
IP: ?
Sp.Gr: ?
VP: Low
MLT: 392°F
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
0.25 mg/m^3: Qm
0.5 mg/m^3: 95XQ/Sa
1.25 mg/m^3: Sa:Cf/PaprHie
2.5 mg/m^3: 100F/SaT:Cf/PaprTHie/ ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: None reported

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Vomit; anxi, auditory halu; facial pares; twitch face musc; pulsus altenans, ectopic heartbeat, tacar, card arrhy; pulm edema; nystagmus; convuls; liver, kidney damage
TO: Resp sys, CVS, liver, kidneys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

S

Sodium hydroxide	**Formula:** NaOH	**CAS#:** 1310-73-2	**RTECS#:** WB4900000	**IDLH:** 10 mg/m^3
Conversion:	**DOT:** 1823 154 (dry, solid); 1824 154 (solution)			

Synonyms/Trade Names: Caustic soda, Lye, Soda lye, Sodium hydrate

Exposure Limits:
NIOSH REL: C 2 mg/m^3
OSHA PEL†: TWA 2 mg/m^3

Measurement Methods (see Table 1):
NIOSH 7401

Physical Description: Colorless to white, odorless solid (flakes, beads, granular form).

Chemical & Physical Properties:
MW: 40.0
BP: 2534°F
Sol: 111%
Fl.P: NA
IP: NA
Sp.Gr: 2.13
VP: 0 mmHg (approx)
MLT: 605°F
UEL: NA
LEL: NA
Noncombustible Solid, but when in contact with water may generate sufficient heat to ignite combustible materials.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
10 mg/m^3: Sa:Cf£/100F/PaprHie£/ ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Water; acids; flammable liquids; organic halogens; metals such as aluminum, tin & zinc; nitromethane [**Note:** Corrosive to metals.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, muc memb; pneu; eye, skin burns; temporary loss of hair
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

Sodium metabisulfite	**Formula:** $Na_2S_2O_5$	**CAS#:** 7681-57-4	**RTECS#:** UX8225000	**IDLH:** N.D.
Conversion:	**DOT:**			

S

Synonyms/Trade Names: Disodium pyrosulfite, Sodium metabisulphite, Sodium pyrosulfite

Exposure Limits:
NIOSH REL: TWA 5 mg/m^3
OSHA PEL†: none

Measurement Methods (see Table 1):
NIOSH 0500

Physical Description: White to yellowish crystals or powder with an odor of sulfur dioxide.

Chemical & Physical Properties:
MW: 190.1
BP: Decomposes
Sol: 54%
Fl.P: NA
IP: NA
Sp.Gr: 1.4
VP: ?
MLT: >302°F (Decomposes)
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Heat (decomposes)
[**Note:** Slowly oxidized to the sulfate on exposure to air & moisture.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, muc memb
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Breath: Fresh air
Swallow: Medical attention immed

Starch

Formula: $(C_6H_{10}O_5)n$
CAS#: 9005-25-8
RTECS#: GM5090000
IDLH: N.D.

Conversion:
DOT:

Synonyms/Trade Names: Corn starch, Rice starch, Sorghum gum, α-Starch, Starch gum, Tapioca starch

Exposure Limits:
NIOSH REL: TWA 10 mg/m^3 (total)
TWA 5 mg/m^3 (resp)
OSHA PEL: TWA 15 mg/m^3 (total)
TWA 5 mg/m^3 (resp)

Measurement Methods (see Table 1):
NIOSH 0500, 0600

Physical Description: Fine, white, odorless powder.
[**Note:** A carbohydrate polymer composed of 25% amylose & 75% amylpectin.]

Chemical & Physical Properties:
MW: varies
BP: Decomposes
Sol: Insoluble
Fl.P: NA
IP: NA
Sp.Gr: 1.45
VP: 0 mmHg (approx)
MLT: Decomposes
UEL: NA
LEL: NA
MEC: 50 g/m^3
Noncombustible Solid, but may form explosive mixture with air.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: Daily
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Oxidizers, acids, iodine, alkalis

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, muc memb; cough, chest pain; derm; rhin
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Fresh air
Swallow: Medical attention immed

Stibine

Formula: SbH_3
CAS#: 7803-52-3
RTECS#: WJ0700000
IDLH: 5 ppm

Conversion: 1 ppm = 5.10 mg/m^3
DOT: 2676 119

Synonyms/Trade Names: Antimony hydride, Antimony trihydride, Hydrogen antimonide

Exposure Limits:
NIOSH REL: TWA 0.1 ppm (0.5 mg/m^3)
OSHA PEL: TWA 0.1 ppm (0.5 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 6008

Physical Description: Colorless gas with a disagreeable odor like hydrogen sulfide.

Chemical & Physical Properties:
MW: 124.8
BP: -1°F
Sol: Slight
Fl.P: NA (Gas)
IP: 9.51 eV
RGasD: 4.31
VP: >1 atm
FRZ: -126°F
UEL: ?
LEL: ?
Flammable Gas

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
1 ppm: Sa
2.5 ppm: Sa:Cf
5 ppm: SaT:Cf/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS/ScbaE

Incompatibilities and Reactivities: Acids, halogenated hydrocarbons, oxidizers, moisture, chlorine, ozone, ammonia

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh
SY: Head, lass; nau, abdom pain; lumbar pain, hema, hemolytic anemia; jaun; pulm irrit
TO: Blood, liver, kidneys, resp sys

First Aid (see Table 6):
Breath: Resp support

Stoddard solvent	**Formula:**	**CAS#:** 8052-41-3	**RTECS#:** WJ8925000	**IDLH:** 20,000 mg/m^3
Conversion:	**DOT:** 1268 128 (petroleum distillates, n.o.s.)			

Synonyms/Trade Names: Dry cleaning safety solvent, Mineral spirits, Petroleum solvent, Spotting naphtha [**Note:** A refined petroleum solvent with a flash point of 102-110°F, boiling point of 309-396°F, and containing >65% C_{10} or higher hydrocarbons.]

Exposure Limits:
NIOSH REL: TWA 350 mg/m^3
C 1800 mg/m^3 [15-minute]
OSHA PEL†: TWA 500 ppm (2900 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1550

Physical Description: Colorless liquid with a kerosene-like odor.

Chemical & Physical Properties:
MW: Varies
BP: 309-396°F
Sol: Insoluble
Fl.P: 102-110°F
IP: ?
Sp.Gr: 0.78
VP: ?
FRZ: ?
UEL: ?
LEL: ?
Class II Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
3500 mg/m^3: CcrOv*/Sa*
8750 mg/m^3: Sa:Cf*/PaprOv*
17,500 mg/m^3: CcrFOv/GmFOv/PaprTOv*/ ScbaF/SaF
20,000 mg/m^3: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, nose, throat; dizz; derm; chemical pneu (aspir liquid); in animals: kidney damage
TO: Eyes, skin, resp sys, CNS, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

Strychnine	**Formula:** $C_{21}H_{22}N_2O_2$	**CAS#:** 57-24-9	**RTECS#:** WL2275000	**IDLH:** 3 mg/m^3
Conversion:	**DOT:** 1692 151			

Synonyms/Trade Names: Nux vomica, Strynchnos

S

Exposure Limits:
NIOSH REL: TWA 0.15 mg/m^3
OSHA PEL: TWA 0.15 mg/m^3

Measurement Methods (see Table 1):
NIOSH 5016

Physical Description: Colorless to white, odorless, crystalline solid. [pesticide]

Chemical & Physical Properties:
MW: 334.4
BP: Decomposes
Sol: 0.02%
Fl.P: ?
IP: ?
Sp.Gr: 1.36
VP: Low
MLT: 514°F
UEL: ?
LEL: ?
Combustible Solid, but difficult to ignite.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: N.R.
Wash skin: When contam
Remove: N.R.
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
0.75 mg/m^3: Qm
1.5 mg/m^3: 95XQ/Sa
3 mg/m^3: Sa:Cf/PaprHie/100F/ ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Stiff neck, facial musc; restless, anxi, incr acuity of perception; incr reflex excitability; cyan; tetanic convuls with opisthotonos
TO: CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

Styrene	**Formula:** $C_6H_5CH=CH_2$	**CAS#:** 100-42-5	**RTECS#:** WL3675000	**IDLH:** 700 ppm
Conversion: 1 ppm = 4.26 mg/m^3	**DOT:** 2055 128P (inhibited)			

Synonyms/Trade Names: Ethenyl benzene, Phenylethylene, Styrene monomer, Styrol, Vinyl benzene

Exposure Limits:
NIOSH REL: TWA 50 ppm (215 mg/m^3)
ST 100 ppm (425 mg/m^3)
OSHA PEL†: TWA 100 ppm
C 200 ppm
600 ppm (5-minute maximum peak in any 3 hours)

Measurement Methods (see Table 1):
NIOSH 1501, 3800
OSHA 9, 89

Physical Description: Colorless to yellow, oily liquid with a sweet, floral odor.

Chemical & Physical Properties:
MW: 104.2
BP: 293°F
Sol: 0.03%
Fl.P: 88°F
IP: 8.40 eV
Sp.Gr: 0.91
VP: 5 mmHg
FRZ: -23°F
UEL: 6.8%
LEL: 0.9%
Class IC Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
500 ppm: CcrOv*/Sa*
700 ppm: Sa:Cf*/CcrFOv/GmFOv/PaprOv*/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Oxidizers, catalysts for vinyl polymers, peroxides, strong acids, aluminum chloride [**Note:** May polymerize if contaminated or subjected to heat. Usually contains an inhibitor such as tert-butylcatechol.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, nose, resp sys; head, lass, dizz, conf, mal, drow, unsteady gait; narco; defatting derm; possible liver inj; repro effects
TO: Eyes, skin, resp sys, CNS, liver, repro sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush
Breath: Resp support
Swallow: Medical attention immed

Subtilisins	**Formula:**	**CAS#:** 1395-21-7 (BPN) 9014-01-1 (Carlsburg)	**RTECS#:** CO9450000 (BPN) CO9550000 (Carlsburg)	**IDLH:** N.D.
Conversion:	**DOT:**			

Synonyms/Trade Names: Bacillus subtilis, Bacillus subtilis BPN, Bacillus subtilis Carlsburg, Proteolytic enzymes, Subtilisin BPN, Subtilisin Carlsburg [**Note:** Commercial proteolytic enzymes are used in laundry detergents.]

Exposure Limits:
NIOSH REL: ST 0.00006 mg/m^3 [60-minute]
OSHA PEL†: none

Measurement Methods (see Table 1):
None available

Physical Description: Light-colored, free-flowing powders.
[**Note:** A protein containing numerous amino acids.]

Chemical & Physical Properties:
MW: 28,000 (approx)
BP: ?
Sol: ?
Fl.P: NA
IP: NA
Sp.Gr: ?
VP: 0 mmHg (approx)
MLT: ?
UEL: NA
LEL: NA

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: None reported

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, resp sys; resp sens (enzyme asthma): sweat, head, chest pain, flu-like symptoms, cough, breathlessness, wheez
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Resp support
Swallow: Medical attention immed

S

Succinonitrile

Formula:	CAS#:	RTECS#:	IDLH:
$NCCH_2CH_2CN$	110-61-2	WN3850000	N.D.

Conversion: 1 ppm = 3.28 mg/m^3

DOT:

Synonyms/Trade Names: Butanedinitrile; 1,2-Dicyanoethane; Dinile; Ethylene cyanide; Ethylene dicyanide; Succinic dinitrile

Exposure Limits:
NIOSH REL: TWA 6 ppm (20 mg/m^3)
OSHA PEL: none

Measurement Methods (see Table 1):
NIOSH Nitriles Criteria Document

Physical Description: Colorless, odorless, waxy solid.
[**Note:** Forms cyanide in the body.]

Chemical & Physical Properties:
MW: 80.1
BP: 509°F
Sol: 13%
Fl.P: 270°F
IP: ?
Sp.Gr: 0.99
VP(212°F): 2 mmHg
MLT: 134°F
UEL: ?
LEL: ?
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash

Respirator Recommendations (see Tables 3 and 4):
NIOSH
60 ppm: Sa
150 ppm: Sa:Cf
250 ppm: ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, resp sys; head, dizz, lass, conf, convuls; blurred vision; dysp; abdom pain, nau, vomit
TO: Eyes, skin, resp sys, CNS, CVS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water wash immed
Breath: Resp support
Swallow: Medical attention immed

Sucrose

Formula:	CAS#:	RTECS#:	IDLH:
$C_{12}H_{22}O_{11}$	57-50-1	WN6500000	N.D.

Conversion:

DOT:

Synonyms/Trade Names: Beet sugar, Cane sugar, Confectioner's sugar, Granulated sugar, Rock candy, Saccarose, Sugar, Table sugar

S

Exposure Limits:
NIOSH REL: TWA 10 mg/m^3 (total)
TWA 5 mg/m^3 (resp)
OSHA PEL: TWA 15 mg/m^3 (total)
TWA 5 mg/m^3 (resp)

Measurement Methods (see Table 1):
NIOSH 0500, 0600

Physical Description: Hard, white, odorless crystals, lumps, or powder.
[**Note:** May have a characteristic, caramel odor when heated.]

Chemical & Physical Properties:
MW: 342.3
BP: Decomposes
Sol: 200%
Fl.P: NA
IP: NA
Sp.Gr: 1.59
VP: 0 mmHg (approx)
MLT: 320-367°F (Decomposes)
UEL: NA
LEL: NA
MEC: 45 g/m^3
Noncombustible Solid, but fine airborne dust may explode.

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Oxidizers, sulfuric acid, nitric acid

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Irrit eyes, skin, upper resp sys; cough
TO: Eyes, resp sys

First Aid (see Table 6):
Eye: Irr immed
Breath: Fresh air

Sulfur dioxide

Formula:	CAS#:	RTECS#:	IDLH:
SO_2	7446-09-5	WS4550000	100 ppm

Conversion: 1 ppm = 2.62 mg/m^3 **DOT:** 1079 125

Synonyms/Trade Names: Sulfurous acid anhydride, Sulfurous oxide, Sulfur oxide

Exposure Limits:
NIOSH REL: TWA 2 ppm (5 mg/m^3)
ST 5 ppm (13 mg/m^3)
OSHA PEL†: TWA 5 ppm (13 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 3800, 6004
OSHA ID104, ID200

Physical Description: Colorless gas with a characteristic, irritating, pungent odor. [**Note:** A liquid below 14°F. Shipped as a liquefied compressed gas.]

Chemical & Physical Properties:
MW: 64.1
BP: 14°F
Sol: 10%
Fl.P: NA
IP: 12.30 eV
RGasD: 2.26
VP: 3.2 atm
FRZ: -104°F
UEL: NA
LEL: NA
Nonflammable Gas

Personal Protection/Sanitation (see Table 2):
Skin: Frostbite
Eyes: Frostbite
Wash skin: N.R.
Remove: When wet or contam (liquid)
Change: N.R.
Provide: Frostbite wash

Respirator Recommendations (see Tables 3 and 4):
NIOSH
20 ppm: CcrS*/Sa*
50 ppm: Sa:Cf*/PaprS*
100 ppm: CcrFS/GmFS/PaprTS*/SaT:Cf*/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS/ScbaE

Incompatibilities and Reactivities: Powdered alkali metals (such as sodium & potassium), water, ammonia, zinc, aluminum, brass, copper [**Note:** Reacts with water to form sulfurous acid (H_2SO_3).]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Irrit eyes, nose, throat; rhin; choking, cough; reflex bronchoconstriction; liquid: frostbite
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Frostbite
Skin: Frostbite
Breath: Resp support

Sulfur hexafluoride

Formula:	CAS#:	RTECS#:	IDLH:
SF_6	2551-62-4	WS4900000	N.D.

Conversion: 1 ppm = 5.98 mg/m^3 **DOT:** 1080 126

Synonyms/Trade Names: Sulfur fluoride [**Note:** May contain highly toxic sulfur pentafluoride as an impurity.]

Exposure Limits:
NIOSH REL: TWA 1000 ppm (6000 mg/m^3)
OSHA PEL: TWA 1000 ppm (6000 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 6602

Physical Description: Colorless, odorless gas. [**Note:** Shipped as a liquefied compressed gas. Condenses directly to a solid upon cooling.]

Chemical & Physical Properties:
MW: 146.1
BP: Sublimes
Sol(77°F): 0.003%
Fl.P: NA
IP: 19.30 eV
RGasD: 5.11
VP: 21.5 atm
FRZ: -83°F (Sublimes)
UEL: NA
LEL: NA
Nonflammable Gas

Personal Protection/Sanitation (see Table 2):
Skin: Frostbite
Eyes: Frostbite
Wash skin: N.R.
Remove: N.R.
Change: N.R.
Provide: Frostbite wash

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Disilane

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh
SY: Asphy: incr breath rate, pulse rate; slight musc inco, emotional upset; lass, nau, vomit, convuls; liquid: frostbite
TO: Resp sys

First Aid (see Table 6):
Eye: Frostbite
Skin: Frostbite
Breath: Resp support

Sulfuric acid

Formula: H_2SO_4 | **CAS#:** 7664-93-9 | **RTECS#:** WS5600000 | **IDLH:** 15 mg/m^3

Conversion: | **DOT:** 1830 137; 1831 137 (fuming); 1832 137 (spent)

Synonyms/Trade Names: Battery acid, Hydrogen sulfate, Oil of vitriol, Sulfuric acid (aqueous)

Exposure Limits:
NIOSH REL: TWA 1 mg/m^3
OSHA PEL: TWA 1 mg/m^3

Measurement Methods (see Table 1):
NIOSH 7903
OSHA ID113, ID165SG

Physical Description: Colorless to dark-brown, oily, odorless liquid.
[**Note:** Pure compound is a solid below 51°F. Often used in an aqueous solution.]

Chemical & Physical Properties:
MW: 98.1
BP: 554°F
Sol: Miscible
Fl.P: NA
IP: ?
Sp.Gr: 1.84 (96-98% acid)
VP: 0.001 mmHg
FRZ: 51°F
UEL: NA
LEL: NA
Noncombustible Liquid, but capable of igniting finely divided combustible materials.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash (>1%)
Quick drench (>1%)

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
15 mg/m^3: Sa:Cf£/PaprAgHie£/CcrFAg100/GmFAg100/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFAg100/ScbaE

Incompatibilities and Reactivities: Organic materials, chlorates, carbides, fulminates, water, powdered metals
[**Note:** Reacts violently with water with evolution of heat. Corrosive to metals.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose, throat; pulm edema, bron; emphy; conj; stomatis; dental erosion; eye, skin burns; derm
TO: Eyes, skin, resp sys, teeth

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

Sulfur monochloride

Formula: S_2Cl_2 | **CAS#:** 10025-67-9 | **RTECS#:** WS4300000 | **IDLH:** 5 ppm

Conversion: 1 ppm = 5.52 mg/m^3 | **DOT:** 1828 137

Synonyms/Trade Names: Sulfur chloride, Sulfur subchloride, Thiosulfurous dichloride

S

Exposure Limits:
NIOSH REL: C 1 ppm (6 mg/m^3)
OSHA PEL†: TWA 1 ppm (6 mg/m^3)

Measurement Methods (see Table 1):
None available

Physical Description: Light-amber to yellow-red, oily liquid with a pungent, nauseating, irritating odor.

Chemical & Physical Properties:
MW: 135.0
BP: 280°F
Sol: Decomposes
Fl.P: 245°F
IP: 9.40 eV
Sp.Gr: 1.68
VP: 7 mmHg
FRZ: -107°F
UEL: ?
LEL: ?
Class IIIB Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
5 ppm: CcrFS/GmFS/PaprS£/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS/ScbaE

Incompatibilities and Reactivities: Peroxides, oxides of phosphorous, organics, water
[**Note:** Decomposes violently in water to form hydrochloric acid, sulfur dioxide, sulfur, sulfite, thiosulfate, and hydrogen sulfide. Corrosive to metals.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, muc memb; lac; cough; eye, skin burns; pulm edema
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

Sulfur pentafluoride	Formula: S_2F_{10}	CAS#: 5714-22-7	RTECS#: WS4480000	IDLH: 1 ppm
Conversion: 1 ppm = 10.39 mg/m^3	**DOT:**			

Synonyms/Trade Names: Disulfur decafluoride, Sulfur decafluoride

Exposure Limits:
NIOSH REL: C 0.01 ppm (0.1 mg/m^3)
OSHA PEL†: TWA 0.025 ppm (0.25 mg/m^3)

Measurement Methods (see Table 1):
None available

Physical Description: Colorless liquid or gas (above 84°F) with an odor like sulfur dioxide.

Chemical & Physical Properties:
MW: 254.1
BP: 84°F
Sol: Insoluble
Fl.P: NA
IP: ?
RGasD: 8.77
Sp.Gr(32°F): 2.08
VP: 561 mmHg
FRZ: -134°F
UEL: NA
LEL: NA
Noncombustible Liquid
Nonflammable Gas

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: N.R.
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
0.1 ppm: Sa
0.25 ppm: Sa:Cf
0.5 ppm: SaT:Cf/ScbaF/SaF
1 ppm: Sa:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFAg/ScbaE

Incompatibilities and Reactivities: None reported

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, resp sys; in animals: pulm edema, hemorr
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Sulfur tetrafluoride	Formula: SF_4	CAS#: 7783-60-0	RTECS#: WT4800000	IDLH: N.D.
Conversion: 1 ppm = 4.42 mg/m^3	**DOT:** 2418 125			

Synonyms/Trade Names: Tetrafluorosulfurane

Exposure Limits:
NIOSH REL: C 0.1 ppm (0.4 mg/m^3)
OSHA PEL†: none

Measurement Methods (see Table 1):
OSHA ID110

Physical Description: Colorless gas with an odor like sulfur dioxide.
[**Note:** Shipped as a liquefied compressed gas.]

Chemical & Physical Properties:
MW: 108.1
BP: -41°F
Sol: Reacts
Fl.P: NA
IP: 12.63 eV
RGasD: 3.78
VP(70°F): 10.5 atm
FRZ: -185°F
UEL: NA
LEL: NA
Nonflammable Gas

Personal Protection/Sanitation (see Table 2):
Skin: Frostbite
Eyes: Frostbite
Wash skin: N.R.
Remove: N.R.
Change: N.R.
Provide: Frostbite wash

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Moisture, concentrated sulfuric acid, dioxygen difluoride
[**Note:** Readily hydrolyzed by moisture, forming hydrofluoric acid & thionyl fluoride.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Irrit eyes, skin, muc memb; eye, skin burns (from SF_4 releasing hydrofluoric acid on exposure to moisture); liquid: frostbite; in animals: dysp, lass, rhin
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Frostbite
Skin: Frostbite
Breath: Resp support

S

Sulfuryl fluoride

Formula: SO_2F_2 | **CAS#:** 2699-79-8 | **RTECS#:** WT5075000 | **IDLH:** 200 ppm

Conversion: 1 ppm = 4.18 mg/m^3 | **DOT:** 2191 123

Synonyms/Trade Names: Sulfur difluoride dioxide, Vikane®

Exposure Limits:
NIOSH REL: TWA 5 ppm (20 mg/m^3)
ST 10 ppm (40 mg/m^3)
OSHA PEL†: TWA 5 ppm (20 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 6012

Physical Description: Colorless, odorless gas. [insecticide/fumigant]
[**Note:** Shipped as a liquefied compressed gas.]

Chemical & Physical Properties:
MW: 102.1
BP: -68°F
Sol(32°F): 0.2%
Fl.P: NA
IP: 13.04 eV
RGasD: 3.72
VP(70°F): 15.8 atm
FRZ: -212°F
UEL: NA
LEL: NA
Nonflammable Gas

Personal Protection/Sanitation (see Table 2):
Skin: Frostbite
Eyes: Frostbite
Wash skin: N.R.
Remove: N.R.
Change: N.R.
Provide: Frostbite wash

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
50 ppm: Sa*
125 ppm: Sa:Cf*
200 ppm: ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS/ScbaE

Incompatibilities and Reactivities: None reported

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con (liquid)
SY: Conj, rhinitis, pharyngitis, pares; liquid: frostbite: in animals: narco, tremor, convuls; pulm edema; kidney inj
TO: Eyes, skin, resp sys, CNS, kidneys

First Aid (see Table 6):
Eye: Frostbite
Skin: Frostbite
Breath: Resp support

Sulprofos

Formula: $C_{12}H_{19}O_2PS_3$ | **CAS#:** 35400-43-2 | **RTECS#:** TE4165000 | **IDLH:** N.D.

Conversion: 1 ppm = 13.19 mg/m^3 | **DOT:**

Synonyms/Trade Names: Bolstar®, O-Ethyl O-(4-methylthio)phenyl S-propylphosphorodithioate

S

Exposure Limits:
NIOSH REL: TWA 1 mg/m^3
OSHA PEL†: none

Measurement Methods (see Table 1):
NIOSH 5600
OSHA PV2037

Physical Description: Tan-colored liquid with a sulfide-like odor.

Chemical & Physical Properties:
MW: 322.5
BP: ?
Sol: Low
Fl.P: ?
IP: ?
Sp.Gr: 1.20
VP: <8 mmHg
FRZ: ?
UEL: ?
LEL: ?

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: N.R.
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: None reported

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing
SY: Nau, vomit, abdom cramps, diarr, salv; head, dizz, lass; rhin, chest tight; blurred vision, miosis; card irreg; musc fasc; dysp
TO: Resp sys, CNS, CVS, blood chol

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

2,4,5-T	Formula: $Cl_3C_6H_2OCH_2COOH$	CAS#: 93-76-5	RTECS#: AJ8400000	IDLH: 250 mg/m^3
Conversion:	**DOT:** 2765 152			

Synonyms/Trade Names: 2,4,5-Trichlorophenoxyacetic acid

Exposure Limits:
NIOSH REL: TWA 10 mg/m^3
OSHA PEL: TWA 10 mg/m^3

Measurement Methods (see Table 1):
NIOSH 5001

Physical Description: Colorless to tan, odorless, crystalline solid. [herbicide]

Chemical & Physical Properties:
MW: 255.5
BP: Decomposes
Sol(77°F): 0.03%
Fl.P: ?
IP: ?
Sp.Gr: 1.80
VP: 1 x 10^{-7} mmHg
MLT: 307°F
UEL: ?
LEL: ?
Combustible Solid, but burns with difficulty.

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
50 mg/m^3: Qm
100 mg/m^3: 95XQ/Sa
250 mg/m^3: Sa:Cf/100F/PaprHie/ ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: None reported

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: In animals: ataxia; skin irrit, acne-like rash; liver damage
TO: Skin, liver, GI tract

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Resp support
Swallow: Medical attention immed

Talc (containing no asbestos and less than 1% quartz)	Formula: $Mg_3Si_4O_{10}(OH)_2$	CAS#: 14807-96-6	RTECS#: WW2710000	IDLH: 1000 mg/m^3
Conversion:	**DOT:**			

Synonyms/Trade Names: Hydrous magnesium silicate, Steatite talc

Exposure Limits:
NIOSH REL: TWA 2 mg/m^3 (resp)
OSHA PEL†: TWA 20 mppcf

Measurement Methods (see Table 1):
NIOSH P&CAM355 (III)

Physical Description: Odorless, white powder.

Chemical & Physical Properties:
MW: Varies
BP: ?
Sol: Insoluble
Fl.P: NA
IP: NA
Sp.Gr: 2.70-2.80
VP: 0 mmHg (approx)
MLT: 1652°F to 1832°F
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
10 mg/m^3: Qm
20 mg/m^3: 95XQ/Sa
50 mg/m^3: PaprHie/Sa:Cf
100 mg/m^3: 100F/SaT:Cf/PaprTHie/ ScbaF/SaF
1000 mg/m^3: Sa:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: None reported

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Fibrotic pneumoconiosis, irrit eyes
TO: Eyes, resp sys, CVS

First Aid (see Table 6):
Eye: Irr immed
Breath: Fresh air

T

Tantalum (metal and oxide dust, as Ta)

Formula: Ta (metal)
CAS#: 7440-25-7 (metal)
RTECS#: WW5505000 (metal)
IDLH: 2500 mg/m^3 (as Ta)

Conversion:
DOT:

Synonyms/Trade Names: **Tantalum metal:** Tantalum-181
Synonyms of other tantalum dusts (including oxide dusts) vary depending upon the specific compound.

Exposure Limits:
NIOSH REL: TWA 5 mg/m^3
ST 10 mg/m^3
OSHA PEL: TWA 5 mg/m^3

Measurement Methods (see Table 1):
NIOSH 0500

Physical Description: Metal: Steel-blue to gray solid or black, odorless powder.

Chemical & Physical Properties:
MW: 180.9
BP: 9797°F
Sol: Insoluble
Fl.P: NA
IP: NA
Sp.Gr: 16.65 (metal)
14.40 (powder)
VP: 0 mmHg (approx)
MLT: 5425°F
UEL: NA
LEL: NA
MEC: <200 g/m^3
Metal: Combustible Solid; powder ignites SPONTANEOUSLY in air.

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
25 mg/m^3: Qm
50 mg/m^3: 95XQ/Sa
125 mg/m^3: Sa:Cf/PaprHie
250 mg/m^3: 100F/SaT:Cf/PaprTHie/ScbaF/SaF
2500 mg/m^3: Sa:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: HieF/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, bromine trifluoride, fluorine

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Irrit eyes, skin; in animals: pulm irrit
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Breath: Resp support

TEDP

Formula: $[(CH_3CH_2O)_2PS]_2O$
CAS#: 3689-24-5
RTECS#: XN4375000
IDLH: 10 mg/m^3

Conversion: 1 ppm = 13.18 mg/m^3
DOT: 1704 153

Synonyms/Trade Names: Bladafum®, Dithion®, Sulfotep, Tetraethyl dithionopyrophosphate, Tetraethyl dithiopyrophosphate, Thiotepp®

Exposure Limits:
NIOSH REL: TWA 0.2 mg/m^3 [skin]
OSHA PEL: TWA 0.2 mg/m^3 [skin]

Measurement Methods (see Table 1):
None available

Physical Description: Pale-yellow liquid with a garlic-like odor. [**Note:** A pesticide that may be absorbed on a solid carrier or mixed in a more flammable liquid.]

Chemical & Physical Properties:
MW: 322.3
BP: Decomposes
Sol: 0.0007%
Fl.P: ?
IP: ?
Sp.Gr(77°F): 1.20
VP: 0.0002 mmHg
FRZ: ?
UEL: ?
LEL: ?
Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
2 mg/m^3: Sa
5 mg/m^3: Sa:Cf
10 mg/m^3: ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, iron [**Note:** Corrosive to iron.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin; eye pain, blurred vision, lac; rhin; head; cyan; anor, nau, vomit, diarr; local sweat, lass, twitch, para, Cheyne-Stokes respiration, convuls, low BP, card irreg
TO: Eyes, skin, resp sys, CNS, CVS, blood chol

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Tellurium	**Formula:** Te	**CAS#:** 13494-80-9	**RTECS#:** WY2625000	**IDLH:** 25 mg/m^3 (as Te)
Conversion:	**DOT:**			
Synonyms/Trade Names: Aurum paradoxum, Metallum problematum				

Exposure Limits:
NIOSH REL*: TWA 0.1 mg/m^3
OSHA PEL*: TWA 0.1 mg/m^3
[***Note:** The REL and PEL also apply to other tellurium compounds (as Te) except Tellurium hexafluoride and Bismuth telluride.]

Measurement Methods (see Table 1):
NIOSH 7300, 7301, 7303, 9102
OSHA ID121

Physical Description: Odorless, dark-gray to brown, amorphous powder or grayish-white, brittle solid.

Chemical & Physical Properties:
MW: 127.6
BP: 1814°F
Sol: Insoluble
Fl.P: NA
IP: NA
Sp.Gr: 6.24
VP: 0 mmHg (approx)
MLT: 842°F
UEL: NA
LEL: NA
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
0.5 mg/m^3: Qm
1 mg/m^3: 95XQ/Sa
2.5 mg/m^3: Sa:Cf/PaprHie
5 mg/m^3: 100F/SaT:Cf/PaprTHie/ScbaF/SaF
25 mg/m^3: Sa:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Oxidizers, chlorine, cadmium

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Garlic breath, sweat; dry mouth, metallic taste; drow; anor, nau, no sweat; derm; in animals: CNS, red blood cell changes
TO: Skin, CNS, blood

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

Tellurium hexafluoride	**Formula:** TeF_6	**CAS#:** 7783-80-4	**RTECS#:** WY2800000	**IDLH:** 1 ppm
Conversion: 1 ppm = 9.88 mg/m^3	**DOT:** 2195 125			
Synonyms/Trade Names: Tellurium fluoride				

Exposure Limits:
NIOSH REL: TWA 0.02 ppm (0.2 mg/m^3)
OSHA PEL: TWA 0.02 ppm (0.2 mg/m^3)

Measurement Methods (see Table 1):
NIOSH S187 (II-3)

Physical Description: Colorless gas with a repulsive odor.

Chemical & Physical Properties:
MW: 241.6
BP: Sublimes
Sol: Decomposes
Fl.P: NA
IP: ?
RGasD: 8.34
VP: >1 atm
FRZ: -36°F (Sublimes)
UEL: NA
LEL: NA
Nonflammable Gas

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
0.2 ppm: Sa
0.5 ppm: Sa:Cf
1 ppm: SaT:Cf/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS/ScbaE

Incompatibilities and Reactivities: Water [**Note:** Hydrolyzes slowly in water to telluric acid.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh
SY: Head; dysp; garlic breath; in animals: pulm edema
TO: Resp sys

First Aid (see Table 6):
Breath: Resp support

T

Temephos

Formula: $S[C_6H_4OP(S)(OCH_3)_2]_2$ | **CAS#:** 3383-96-8 | **RTECS#:** TF6890000 | **IDLH:** N.D.

Conversion: | **DOT:**

Synonyms/Trade Names: Abate®; Temefos; O,O,O'O'-Tetramethyl O,O'-thiodi-p-phenylene phosphorothioate

Exposure Limits:
NIOSH REL: TWA 10 mg/m^3 (total)
TWA 5 mg/m^3 (resp)
OSHA PEL†: TWA 15 mg/m^3 (total)
TWA 5 mg/m^3 (resp)

Measurement Methods (see Table 1):
NIOSH 0500, 0600
OSHA PV2056

Physical Description: White, crystalline solid or liquid (above 87°F). [insecticide]
[**Note:** Technical grade is a viscous, brown liquid.]

Chemical & Physical Properties:
MW: 466.5
BP: 248-257°F (Decomposes)
Sol: Insoluble
Fl.P: ?
IP: ?
Sp.Gr: 1.32
VP(77°F): 0.00000007 mmHg
MLT: 87°F
UEL: ?
LEL: ?
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: None reported

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, blurred vision; dizz; dysp; salv; abdom cramps, nau, diarr, vomit
TO: Eyes, resp sys, CNS, CVS, blood chol

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

TEPP

Formula: $[(CH_3CH_2O)_2PO]_2O$ | **CAS#:** 107-49-3 | **RTECS#:** UX6825000 | **IDLH:** 5 mg/m^3

Conversion: 1 ppm = 11.87 mg/m^3 | **DOT:** 2783 152 (solid); 3018 152 (liquid)

Synonyms/Trade Names: Ethyl pyrophosphate, Tetraethyl pyrophosphate, Tetron®

Exposure Limits:
NIOSH REL: TWA 0.05 mg/m^3 [skin]
OSHA PEL: TWA 0.05 mg/m^3 [skin]

Measurement Methods (see Table 1):
NIOSH 2504

Physical Description: Colorless to amber liquid with a faint, fruity odor. [insecticide]
[**Note:** A solid below 32°F.]

Chemical & Physical Properties:
MW: 290.2
BP: Decomposes
Sol: Miscible
Fl.P: NA
IP: ?
Sp.Gr: 1.19
VP: 0.0002 mmHg
FRZ: 32°F
UEL: NA
LEL: NA
Noncombustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
0.5 mg/m^3: Sa
1.25 mg/m^3: Sa:Cf
2.5 mg/m^3: SaT:Cf/ScbaF/SaF
5 mg/m^3: Sa:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, alkalis, water
[**Note:** Hydrolyzes quickly in water to form pyrophosphoric acid.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Eye pain, blurred vision, lac; rhin; head, chest tight, cyan; anor, nau, vomit, diarr; lass, twitch, para, Cheyne-Stokes respiration, convuls; low BP, card irreg; sweat
TO: Eyes, resp sys, CNS, CVS, GI tract, blood chol

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

m-Terphenyl

Formula:	CAS#:	RTECS#:	IDLH:
$C_6H_5C_6H_4C_6H_5$	92-06-8	WZ6470000	500 mg/m^3

Conversion: 1 ppm = 9.57 mg/m^3

DOT:

Synonyms/Trade Names: m-Diphenylbenzene; 1,3-Diphenylbenzene; Isodiphenylbenzene; 3-Phenylbiphenyl; 1,3-Terphenyl; meta-Terphenyl; m-Triphenyl

Exposure Limits:
NIOSH REL: C 5 mg/m^3 (0.5 ppm)
OSHA PEL†: C 9 mg/m^3 (1 ppm)

Measurement Methods (see Table 1):
NIOSH 5021

Physical Description: Yellow solid (needles).

Chemical & Physical Properties:
MW: 230.3
BP: 689°F
Sol: Insoluble
Fl.P(oc): 375°F
IP: 8.01
Sp.Gr: 1.23
VP(200°F): 0.01 mmHg
MLT: 192°F
UEL: ?
LEL: ?
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
25 mg/m^3: Qm£
50 mg/m^3: 95XQ£/Sa£
125 mg/m^3: Sa:Cf£/PaprHie£
250 mg/m^3: 100F/ScbaF/SaF
500 mg/m^3: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: None reported

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, muc memb; thermal skin burns; head; sore throat; in animals: liver, kidney damage
TO: Eyes, skin, resp sys, liver, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

o-Terphenyl

Formula:	CAS#:	RTECS#:	IDLH:
$C_6H_5C_6H_4C_6H_5$	84-15-1	WZ6472000	500 mg/m^3

Conversion: 1 ppm = 9.42 mg/m^3

DOT:

Synonyms/Trade Names: o-Diphenylbenzene; 1,2-Diphenylbenzene; 2-Phenylbiphenyl; 1,2-Terphenyl; ortho-Terphenyl; o-Triphenyl

Exposure Limits:
NIOSH REL: C 5 mg/m^3 (0.5 ppm)
OSHA PEL†: C 9 mg/m^3 (1 ppm)

Measurement Methods (see Table 1):
NIOSH 5021

Physical Description: Colorless or light-yellow solid.

Chemical & Physical Properties:
MW: 230.3
BP: 630°F
Sol: Insoluble
Fl.P(oc): 325°F
IP: 7.99 eV
Sp.Gr: 1.1
VP(200°F): 0.09 mmHg
MLT: 136°F
UEL: ?
LEL: ?
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
25 mg/m^3: Qm£
50 mg/m^3: 95XQ£/Sa£
125 mg/m^3: Sa:Cf£/PaprHie£
250 mg/m^3: 100F/ScbaF/SaF
500 mg/m^3: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: None reported

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, muc memb; thermal skin burns; head; sore throat; in animals: liver, kidney damage
TO: Eyes, skin, resp sys, liver, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

p-Terphenyl	Formula: $C_6H_5C_6H_4C_6H_5$	CAS#: 92-94-4	RTECS#: WZ6475000	IDLH: 500 mg/m^3
Conversion: 1 ppm = 9.57 mg/m^3	**DOT:**			

Synonyms/Trade Names: p-Diphenylbenzene; 1,4-Diphenylbenzene; 4-Phenylbiphenyl; 1,4-Terphenyl; para-Terphenyl; p-Triphenyl

Exposure Limits:
NIOSH REL: C 5 mg/m^3 (0.5 ppm)
OSHA PEL†: C 9 mg/m^3 (1 ppm)

Measurement Methods (see Table 1):
NIOSH 5021

Physical Description: White or light-yellow solid.

Chemical & Physical Properties:
MW: 230.3
BP: 761°F
Sol: Insoluble
Fl.P: 405°F
IP: 7.78
Sp.Gr: 1.23
VP: Very low
MLT: 415°F
UEL: ?
LEL: ?
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
25 mg/m^3: Qm£
50 mg/m^3: 95XQ£/Sa£
125 mg/m^3: Sa:Cf£/PaprHie£
250 mg/m^3: 100F/ScbaF/SaF
500 mg/m^3: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: None reported

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, muc memb; thermal skin burns; head; sore throat; in animals: liver, kidney damage
TO: Eyes, skin, resp sys, liver, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

2,3,7,8-Tetrachloro-dibenzo-p-dioxin	Formula: $C_{12}H_4Cl_4O_2$	CAS#: 1746-01-6	RTECS#: HP3500000	IDLH: Ca [N.D.]
Conversion:	**DOT:**			

Synonyms/Trade Names: Dioxin; Dioxine; TCDBD; TCDD; 2,3,7,8-TCDD
[**Note:** Formed during past production of 2,4,5-trichlorophenol, 2,4,5-T & 2(2,4,5-trichlorophenoxy)propionic acid.]

Exposure Limits:
NIOSH REL: Ca
See Appendix A
OSHA PEL: none

Measurement Methods (see Table 1):
None available

Physical Description: Colorless to white, crystalline solid.
[**Note:** Exposure may occur through contact at previously contaminated worksites.]

T

Chemical & Physical Properties:
MW: 322.0
BP: Decomposes
Sol: 0.00000002%
Fl.P: ?
IP: ?
Sp.Gr: ?
VP(77°F): 0.000002 mmHg
MLT: 581°F
UEL: ?
LEL: ?

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: UV light (decomposes)

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes; allergic derm, chloracne; porphyria; GI dist; possible repro, terato effects; in animals: liver, kidney damage; hemorr; [carc]
TO: Eyes, skin, liver, kidneys, repro sys [in animals: tumors at many sites]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap flush immed
Breath: Resp support
Swallow: Medical attention immed

1,1,1,2-Tetrachloro-2,2-difluoroethane	Formula: CCl_3CClF_2	CAS#: 76-11-9	RTECS#: KI1425000	IDLH: 2000 ppm
Conversion: 1 ppm = 8.34 mg/m^3	**DOT:**			

Synonyms/Trade Names: 2,2-Difluoro-1,1,1,2-tetrachloroethane; Freon® 112a; Halocarbon 112a; Refrigerant 112a

Exposure Limits:
NIOSH REL: TWA 500 ppm (4170 mg/m^3)
OSHA PEL: TWA 500 ppm (4170 mg/m^3)

Physical Description: Colorless solid with a slight, ether-like odor.
[**Note:** A liquid above 105°F.]

Measurement Methods (see Table 1):
NIOSH 1016
OSHA 7

Chemical & Physical Properties:
MW: 203.8
BP: 197°F
Sol: 0.01%
Fl.P: NA
IP: ?
Sp.Gr: 1.65
VP: 40 mmHg
MLT: 105°F
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
2000 ppm: Sa/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Chemically-active metals such as potassium, beryllium, powdered aluminum, zinc, calcium, magnesium & sodium; acids

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin; CNS depres; pulm edema; drow; dysp
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

1,1,2,2-Tetrachloro-1,2-difluoroethane	Formula: CCl_2FCCl_2F	CAS#: 76-12-0	RTECS#: KI1420000	IDLH: 2000 ppm
Conversion: 1 ppm = 8.34 mg/m^3	**DOT:**			

Synonyms/Trade Names: 1,2-Difluoro-1,1,2,2-tetrachloroethane; Freon® 112; Halocarbon 112; Refrigerant 112

Exposure Limits:
NIOSH REL: TWA 500 ppm (4170 mg/m^3)
OSHA PEL: TWA 500 ppm (4170 mg/m^3)

Physical Description: Colorless solid or liquid (above 77°F) with a slight, ether-like odor.

Measurement Methods (see Table 1):
NIOSH 1016
OSHA 7

Chemical & Physical Properties:
MW: 203.8
BP: 199°F
Sol(77°F): 0.01%
Fl.P: NA
IP: 11.30 eV
Sp.Gr: 1.65
VP: 40 mmHg
MLT: 77°F
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
2000 ppm: Sa/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Chemically-active metals such as potassium, beryllium, powdered aluminum, zinc, magnesium, calcium & sodium; acids

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: In animals: irrit eyes, skin; conj; pulm edema; narco
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

1,1,1,2-Tetrachloroethane	Formula: CCl_3CH_2Cl	CAS#: 630-20-6	RTECS#: KI8450000	IDLH: N.D.
Conversion:	DOT: 1702 151			

Synonyms/Trade Names: None

Exposure Limits:
NIOSH REL: Handle with caution in the workplace.
See Appendix C (Chloroethanes)
OSHA PEL: none

Measurement Methods (see Table 1):
None available

Physical Description: Yellowish-red liquid.

Chemical & Physical Properties:
MW: 167.9
BP: 267°F
Sol: 0.1%
Fl.P: ?
IP: ?
Sp.Gr: 1.54
VP(77°F): 14 mmHg
FRZ: -94°F
UEL: ?
LEL: ?

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Potassium; sodium; dinitrogen tetraoxide; potassium hydroxide; nitrogen tetroxide; sodium potassium alloy; 2,4-dinitrophenyl disulfide

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin; lass, restless, irreg respiration, musc inco; in animals: liver changes
TO: Eyes, skin, CNS, liver

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

1,1,2,2-Tetrachloroethane	Formula: $CHCl_2CHCl_2$	CAS#: 79-34-5	RTECS#: KI8575000	IDLH: Ca [100 ppm]
Conversion: 1 ppm = 6.87 mg/m^3	DOT: 1702 151			

Synonyms/Trade Names: Acetylene tetrachloride, Symmetrical tetrachloroethane

Exposure Limits:
NIOSH REL: Ca
TWA 1 ppm (7 mg/m^3) [skin]
See Appendix A
See Appendix C (Chloroethanes)
OSHA PEL†: TWA 5 ppm (35 mg/m^3) [skin]

Measurement Methods (see Table 1):
NIOSH 1019, 2562
OSHA 7

T

Physical Description: Colorless to pale-yellow liquid with a pungent, chloroform-like odor.

Chemical & Physical Properties:
MW: 167.9
BP: 296°F
Sol: 0.3%
Fl.P: NA
IP: 11.10 eV
Sp.Gr(77°F): 1.59
VP: 5 mmHg
FRZ: -33°F
UEL: NA
LEL: NA
Noncombustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Chemically-active metals, strong caustics, fuming sulfuric acid
[**Note:** Degrades slowly when exposed to air.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Nau, vomit, abdom pain; tremor fingers; jaun, hepatitis, liver tend; derm; leucyt; kidney damage; [carc]
TO: Skin, liver, kidneys, CNS, GI tract [in animals: liver tumors]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

Tetrachloroethylene	Formula: $Cl_2C=CCl_2$	CAS#: 127-18-4	RTECS#: KX3850000	IDLH: Ca [150 ppm]
Conversion: 1 ppm = 6.78 mg/m^3	**DOT:** 1897 160			

Synonyms/Trade Names: Perchlorethylene, Perchloroethylene, Perk, Tetrachlorethylene

Exposure Limits:
NIOSH REL: Ca
Minimize workplace exposure concentrations.
See Appendix A
OSHA PEL†: TWA 100 ppm
C 200 ppm
300 ppm (5-minute maximum peak in any 3-hours)

Measurement Methods (see Table 1):
NIOSH 1003
OSHA 1001

Physical Description: Colorless liquid with a mild, chloroform-like odor.

Chemical & Physical Properties:
MW: 165.8
BP: 250°F
Sol: 0.02%
Fl.P: NA
IP: 9.32 eV
Sp.Gr: 1.62
VP: 14 mmHg
FRZ: -2°F
UEL: NA
LEL: NA
Noncombustible Liquid, but decomposes in a fire to hydrogen chloride and phosgene.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers; chemically-active metals such as lithium, beryllium & barium; caustic soda; sodium hydroxide; potash

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, nose, throat, resp sys; nau; flush face, neck; dizz, inco; head, drow; skin eryt; liver damage; [carc]
TO: Eyes, skin, resp sys, liver, kidneys, CNS [in animals: liver tumors]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

Tetrachloronaphthalene	Formula: $C_{10}H_4Cl_4$	CAS#: 1335-88-2	RTECS#: QK3700000	IDLH: See Appendix F
Conversion:	**DOT:**			

Synonyms/Trade Names: Halowax®, Nibren wax, Seekay wax

Exposure Limits:
NIOSH REL: TWA 2 mg/m^3 [skin]
OSHA PEL: TWA 2 mg/m^3 [skin]

Measurement Methods (see Table 1):
NIOSH S130 (II-2)

Physical Description: Colorless to pale-yellow solid with an aromatic odor.

Chemical & Physical Properties:
MW: 265.9
BP: 599-680°F
Sol: Insoluble
Fl.P(oc): 410°F
IP: ?
Sp.Gr: 1.59-1.65
VP: <1 mmHg
MLT: 360°F
UEL: ?
LEL: ?
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
20 mg/m^3: ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

See Appendix F

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Acne-form derm; head, lass, anor, dizz; jaun, liver inj
TO: Liver, skin, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

T

Tetraethyl lead (as Pb)	Formula: $Pb(C_2H_5)_4$	CAS#: 78-00-2	RTECS#: TP4550000	IDLH: 40 mg/m^3 (as Pb)
Conversion:	**DOT:** 1649 131			

Synonyms/Trade Names: Lead tetraethyl, TEL, Tetraethylplumbane

Exposure Limits:
NIOSH REL: TWA 0.075 mg/m^3 [skin]
OSHA PEL: TWA 0.075 mg/m^3 [skin]

Measurement Methods (see Table 1):
NIOSH 2533

Physical Description: Colorless liquid (unless dyed red, orange, or blue) with a pleasant, sweet odor.
[**Note:** Main usage is in anti-knock additives for gasoline.]

Chemical & Physical Properties:
MW: 323.5
BP: 228°F (Decomposes)
Sol: 0.00002%
Fl.P: 200°F
IP: 11.10 eV
Sp.Gr: 1.65
VP: 0.2 mmHg
FRZ: -202°F
UEL: ?
LEL: 1.8%
Class IIIB Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact (>0.1%)
Eyes: Prevent eye contact
Wash skin: When contam (>0.1%)
Remove: When wet or contam (>0.1%)
Change: Daily
Provide: Quick drench (>0.1%)

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
0.75 mg/m^3: Sa
1.875 mg/m^3: Sa:Cf
3.75 mg/m^3: SaT:Cf/ScbaF/SaF
40 mg/m^3: Sa:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, sulfuryl chloride, rust, potassium permanganate
[**Note:** Decomposes slowly at room temperature and more rapidly at higher temperatures.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Insom, lass, anxiety; tremor, hyper-reflexia, spasticity; bradycardia, hypotension, hypothermia, pallor, nau, anor, low-wgt; conf, halu, psychosis, mania, convuls, coma; eye irrit
TO: CNS, CVS, kidneys, eyes

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Tetrahydrofuran	Formula: C_4H_8O	CAS#: 109-99-9	RTECS#: LU5950000	IDLH: 2000 ppm [10%LEL]
Conversion: 1 ppm = 2.95 mg/m^3	**DOT:** 2056 127			

Synonyms/Trade Names: Diethylene oxide; 1,4-Epoxybutane; Tetramethylene oxide; THF

Exposure Limits:
NIOSH REL: TWA 200 ppm (590 mg/m^3)
ST 250 ppm (735 mg/m^3)
OSHA PEL†: TWA 200 ppm (590 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1609, 3800
OSHA 7

Physical Description: Colorless liquid with an ether-like odor.

Chemical & Physical Properties:
MW: 72.1
BP: 151°F
Sol: Miscible
Fl.P: 6°F
IP: 9.45 eV
Sp.Gr: 0.89
VP: 132 mmHg
FRZ: -163°F
UEL: 11.8%
LEL: 2%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
2000 ppm: Sa:Cf£/CcrFOv/GmFOv/PaprOv£/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, lithium-aluminum alloys
[**Note:** Peroxides may accumulate upon prolonged storage in presence of air.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con, Ing
SY: Irrit eyes, upper resp sys; nau, dizz, head, CNS depres
TO: Eyes, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush prompt
Breath: Resp support
Swallow: Medical attention immed

Tetramethyl lead (as Pb)	Formula: $Pb(CH_3)_4$	CAS#: 75-74-1	RTECS#: TP4725000	IDLH: 40 mg/m^3 (as Pb)
Conversion:	**DOT:**			

Synonyms/Trade Names: Lead tetramethyl, Tetramethylplumbane, TML

Exposure Limits:
NIOSH REL: TWA 0.075 mg/m^3 [skin]
OSHA PEL: TWA 0.075 mg/m^3 [skin]

Measurement Methods (see Table 1):
NIOSH 2534

Physical Description: Colorless liquid (unless dyed red, orange, or blue) with a fruity odor. [**Note:** Main usage is in anti-knock additives for gasoline.]

Chemical & Physical Properties:
MW: 267.3
BP: 212°F (Decomposes)
Sol: 0.002%
Fl.P: 100°F
IP: 8.50 eV
Sp.Gr: 2.00
VP: 23 mmHg
FRZ: -15°F
UEL: ?
LEL: ?
Class II Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact (>0.1%)
Eyes: Prevent eye contact
Wash skin: When contam (>0.1%)
Remove: When wet or contam (>0.1%)
Change: Daily
Provide: Quick drench (>0.1%)

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
0.75 mg/m^3: Sa
1.875 mg/m^3: Sa:Cf
3.75 mg/m^3: SaT:Cf/ScbaF/SaF
40 mg/m^3: Sa:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers such as sulfuryl chloride or potassium permanganate

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Insom, bad dreams, restless, anxious; hypotension; nau, anor; delirium, mania, convuls; coma
TO: CNS, CVS, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Tetramethyl succinonitrile	Formula: $(CH_3)_2C(CN)C(CN)(CH_3)_2$	CAS#: 3333-52-6	RTECS#: WN4025000	IDLH: 5 ppm
Conversion: 1 ppm = 5.57 mg/m^3	**DOT:**			

Synonyms/Trade Names: Tetramethyl succinodinitrile, TMSN

Exposure Limits:
NIOSH REL: TWA 3 mg/m^3 (0.5 ppm) [skin]
OSHA PEL: TWA 3 mg/m^3 (0.5 ppm) [skin]

Measurement Methods (see Table 1):
NIOSH S155 (II-3)
OSHA 7

Physical Description: Colorless, odorless solid. [**Note:** Forms cyanide in the body.]

Chemical & Physical Properties:
MW: 136.2
BP: Sublimes
Sol: Insoluble
Fl.P: ?
IP: ?
Sp.Gr: 1.07
VP: ?
MLT: 338°F (Sublimes)
UEL: ?
LEL: ?
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
28 mg/m^3: Sa/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Head, nau; convuls, coma; liver, kidney, GI effects
TO: CNS, liver, kidneys, GI tract

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

T

Tetranitromethane	**Formula:** $C(NO_2)_4$	**CAS#:** 509-14-8	**RTECS#:** PB4025000	**IDLH:** 4 ppm
Conversion: 1 ppm = 8.02 mg/m^3	**DOT:** 1510 143			

Synonyms/Trade Names: Tetan, TNM

Exposure Limits:
NIOSH REL: TWA 1 ppm (8 mg/m^3)
OSHA PEL: TWA 1 ppm (8 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 3513

Physical Description: Colorless to pale-yellow liquid or solid (below 57°F) with a pungent odor.

Chemical & Physical Properties:
MW: 196.0
BP: 259°F
Sol: Insoluble
Fl.P: ?
IP: ?
Sp.Gr: 1.62
VP: 8 mmHg
FRZ: 57°F
UEL: ?
LEL: ?
Combustible Liquid, but difficult to ignite.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: Daily
Provide: Eyewash

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
4 ppm: Sa:Cf£/CcrFS¿/GmFS¿/PaprS¿£/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS¿/ScbaE

Incompatibilities and Reactivities: Hydrocarbons, alkalis, metals, oxidizers, aluminum, toluene, cotton
[**Note:** Combustible material wet with tetranitromethane may be highly explosive.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose, throat; dizz, head; chest pain, dysp; methemo, cyan; skin burns
TO: Eyes, skin, resp sys, blood, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

Tetrasodium pyrophosphate	**Formula:** $Na_4P_2O_7$	**CAS#:** 7722-88-5	**RTECS#:** UX7350000	**IDLH:** N.D.
Conversion:	**DOT:**			

Synonyms/Trade Names: Pyrophosphate, Sodium pyrophosphate, Tetrasodium diphosphate, Tetrasodium pyrophosphate (anhydrous), TSPP

Exposure Limits:
NIOSH REL: TWA 5 mg/m^3
OSHA PEL†: none

Measurement Methods (see Table 1):
NIOSH 0500

Physical Description: Odorless, white powder or granules.
[**Note:** The decahydrate ($Na_4P_2O_7 \times 10H_2O$) is in the form of colorless, transparent crystals.]

Chemical & Physical Properties:
MW: 265.9
BP: Decomposes
Sol(77°F): 7%
Fl.P: NA
IP: NA
Sp.Gr: 2.45
VP: 0 mmHg (approx)
MLT: 1810°F
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash (solution)

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Strong acids

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose, throat; derm
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water wash prompt
Breath: Resp support
Swallow: Medical attention immed

Tetryl	**Formula:** $(NO_2)_3C_6H_2N(NO_2)CH_3$	**CAS#:** 479-45-8	**RTECS#:** BY6300000	**IDLH:** 750 mg/m^3
Conversion:	**DOT:**			

Synonyms/Trade Names: N-Methyl-N,2,4,6-tetranitroaniline; Nitramine; 2,4,6-Tetryl; 2,4,6-Trinitrophenyl-N-methylnitramine

Exposure Limits:
NIOSH REL: TWA 1.5 mg/m^3 [skin]
OSHA PEL: TWA 1.5 mg/m^3 [skin]

Physical Description: Colorless to yellow, odorless, crystalline solid.

Measurement Methods (see Table 1):
NIOSH S225 (II-3)

Chemical & Physical Properties:
MW: 287.2
BP: 356-374°F (Explodes)
Sol: 0.02%
Fl.P: Explodes
IP: ?
Sp.Gr: 1.57
VP: <1 mmHg
MLT: 268°F
UEL: ?
LEL: ?
Combustible Solid
(Class A Explosive)

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
7.5 mg/m^3: Qm
15 mg/m^3: 95XQ*/Sa*
37.5 mg/m^3: Sa:Cf*/PaprHie*
75 mg/m^3: 100F/ScbaF/SaF
750 mg/m^3: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Oxidizable materials, hydrazine

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Sens derm, itch, eryt; edema on nasal folds, cheeks, neck; kera; sneez; anemia; cough, coryza; irrity; mal, head, lass, insom; nau, vomit; liver, kidney damage
TO: Eyes, skin, resp sys, CNS, liver, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

Thallium (soluble compounds, as Tl)	**Formula:**	**CAS#:**	**RTECS#:**	**IDLH:** 15 mg/m^3 (as Tl)
Conversion:	**DOT:** 1707 151 (compounds, n.o.s.)			

Synonyms/Trade Names: Synonyms vary depending upon the specific soluble thallium compound.

Exposure Limits:
NIOSH REL: TWA 0.1 mg/m^3 [skin]
OSHA PEL: TWA 0.1 mg/m^3 [skin]

Physical Description: Appearance and odor vary depending upon the specific soluble thallium compound.

Measurement Methods (see Table 1):
NIOSH 7300, 7301, 7303, 9102
OSHA ID121

Chemical & Physical Properties:
Properties vary depending upon the specific soluble thallium compound.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
0.5 mg/m^3: Qm
1 mg/m^3: 95XQ/Sa
2.5 mg/m^3: Sa:Cf/PaprHie
5 mg/m^3: 100F/SaT:Cf/PaprTHie/ScbaF/SaF
15 mg/m^3: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Varies

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Nau, diarr, abdom pain, vomit; ptosis, strabismus; peri neuritis, tremor; retster tight, chest pain, pulm edema; convuls, chorea, psychosis; liver, kidney damage; alopecia; pares legs
TO: Eyes, resp sys, CNS, liver, kidneys, GI tract, body hair

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush prompt
Breath: Resp support
Swallow: Medical attention immed

T

4,4'-Thiobis(6-tert-butyl-m-cresol)	Formula: $[CH_3(OH)C_6H_2C(CH_3)_3]_2S$	CAS#: 96-69-5	RTECS#: GP3150000	IDLH: N.D.
Conversion:	DOT:			

Synonyms/Trade Names: 4,4'-Thiobis(3-methyl-6-tert-butylphenol); 1,1'-Thiobis(2-methyl-4-hydroxy-5-tert-butylbenzene)

Exposure Limits:
NIOSH REL: TWA 10 mg/m^3 (total)
TWA 5 mg/m^3 (resp)
OSHA PEL†: TWA 15 mg/m^3 (total)
TWA 5 mg/m^3 (resp)

Measurement Methods (see Table 1):
NIOSH 0500, 0600

Physical Description: Light-gray to tan powder with a slightly aromatic odor.

Chemical & Physical Properties:
MW: 358.6
BP: ?
Sol: 0.08%
Fl.P: 420°F
IP: ?
Sp.Gr: 1.10
VP: 0.0000006 mmHg
MLT: 302°F
UEL: NA
LEL: NA
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: None reported

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, resp sys
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Breath: Fresh air
Swallow: Medical attention immed

Thioglycolic acid	Formula: $HSCH_2COOH$	CAS#: 68-11-1	RTECS#: AI5950000	IDLH: N.D.
Conversion: 1 ppm = 3.77 mg/m^3	DOT: 1940 153			

Synonyms/Trade Names: Acetyl mercaptan, Mercaptoacetate, Mercaptoacetic acid, 2-Mercaptoacetic acid, 2-Thioglycolic acid, Thiovanic acid

Exposure Limits:
NIOSH REL: TWA 1 ppm (4 mg/m^3) [skin]
OSHA PEL†: none

Measurement Methods (see Table 1):
None available

Physical Description: Colorless liquid with a strong, disagreeable odor characteristic of mercaptans. [**Note:** Olfactory fatigue may occur after short exposures.]

Chemical & Physical Properties:
MW: 92.1
BP: ?
Sol: Miscible
Fl.P: >230°F
IP: ?
Sp.Gr: 1.32
VP(64°F): 10 mmHg
FRZ: 2°F
UEL: ?
LEL: 5.9%
Class IIIB Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Air, strong oxidizers, bases, active metals (e.g., sodium potassium, magnesium, calcium) [**Note:** Readily oxidized by air.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, nose, throat; lac, corn damage; skin burns, blisters; in animals: lass; gasping respirations; convuls
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

Thionyl chloride	Formula: $SOCl_2$	CAS#: 7719-09-7	RTECS#: XM5150000	IDLH: N.D.
Conversion: 1 ppm = 4.87 mg/m^3	**DOT:** 1836 137			

Synonyms/Trade Names: Sulfinyl chloride, Sulfur chloride oxide, Sulfurous dichloride, Sulfurous oxychloride, Thionyl dichloride

Exposure Limits:
NIOSH REL: C 1 ppm (5 mg/m^3)
OSHA PEL†: none

Measurement Methods (see Table 1):
None available

Physical Description: Colorless to yellow to reddish liquid with a pungent odor like sulfur dioxide. [**Note:** Fumes form when exposed to moist air.]

Chemical & Physical Properties:
MW: 119.0
BP: 169°F
Sol: Reacts
Fl.P: NA
IP: ?
Sp.Gr: 1.64
VP(70°F): 100 mmHg
FRZ: -156°F
UEL: NA
LEL: NA
Noncombustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Water, acids, alkalis, ammonia, chloryl perchlorate
[**Note:** Reacts violently with water to form sulfur dioxide & hydrogen chloride.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, muc memb; eye, skin burns
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

Thiram	Formula: $C_6H_{12}N_2S_4$	CAS#: 137-26-8	RTECS#: JO1400000	IDLH: 100 mg/m^3
Conversion:	**DOT:** 2771 151			

Synonyms/Trade Names: bis(Dimethylthiocarbamoyl) disulfide, Tetramethylthiuram disulfide

Exposure Limits:
NIOSH REL: TWA 5 mg/m^3
OSHA PEL: TWA 5 mg/m^3

Measurement Methods (see Table 1):
NIOSH 5005

Physical Description: Colorless to yellow, crystalline solid with a characteristic odor. [**Note:** Commercial pesticide products may be dyed blue.]

Chemical & Physical Properties:
MW: 240.4
BP: Decomposes
Sol: 0.003%
Fl.P: ?
IP: ?
Sp.Gr: 1.29
VP: 0.000008 mmHg
MLT: 312°F
UEL: ?
LEL: ?
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
50 mg/m^3: CcrOv95*/Sa*
100 mg/m^3: Sa:Cf*/CcrFOv100/GmFOv100/PaprOvHie*/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, strong acids, oxidizable materials

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, muc memb; derm; Antabuse-like effects
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

T

Tin	Formula: Sn	CAS#: 7440-31-5	RTECS#: XP7320000	IDLH: 100 mg/m^3 (as Sn)
Conversion:	**DOT:**			

Synonyms/Trade Names: Metallic tin, Tin flake, Tin metal, Tin powder

Exposure Limits:
NIOSH REL*: TWA 2 mg/m^3
OSHA PEL*: TWA 2 mg/m^3
[***Note:** The REL and PEL also apply to other inorganic tin compounds (as Sn) except tin oxides.]

Measurement Methods (see Table 1):
NIOSH 7300, 7301, 7303
OSHA ID121, ID206

Physical Description: Gray to almost silver-white, ductile, malleable, lustrous solid.

Chemical & Physical Properties:
MW: 118.7
BP: 4545°F
Sol: Insoluble
Fl.P: NA
IP: NA
Sp.Gr: 7.28
VP: 0 mmHg (approx)
MLT: 449°F
UEL: NA
LEL: NA
Noncombustible Solid, but powdered form may ignite.

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
10 mg/m^3: Qm*
20 mg/m^3: 95XQ*/Sa*
50 mg/m^3: Sa:Cf*/PaprHie*
100 mg/m^3: 100F/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Chlorine, turpentine, acids, alkalis

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Irrit eyes, skin, resp sys; in animals: vomit, diarr, para with musc twitch
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Tin (organic compounds, as Sn)	Formula:	CAS#:	RTECS#:	IDLH: 25 mg/m^3 (as Sn)
Conversion:	**DOT:**			

Synonyms/Trade Names: Synonyms vary depending upon the specific organic tin compound.
[**Note:** Also see specific listing for Cyhexatin.]

Exposure Limits:
NIOSH REL*: TWA 0.1 mg/m^3 [skin]
[***Note:** The REL applies to all organic tin compounds except Cyhexatin.]
OSHA PEL*: TWA 0.1 mg/m^3
[***Note:** The PEL applies to all organic tin compounds.]

Measurement Methods (see Table 1):
NIOSH 5504

Physical Description: Appearance and odor vary depending upon the specific organic tin compound.

Chemical & Physical Properties:
Properties vary depending upon the specific organic tin compound.

Personal Protection/Sanitation (see Table 2):
Recommendations regarding personal protective clothing vary depending upon the specific compound.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
1 mg/m^3: CcrOv95/Sa
2.5 mg/m^3: Sa:Cf/PaprOvHie
5 mg/m^3: CcrFOv100/GmFOv100/PaprTOvHie/SaT:Cf/ScbaF/SaF
25 mg/m^3: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Varies

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, resp sys; head, dizz; psycho-neurologic dist; sore throat, cough; abdom pain, vomit; urine retention; paresis, focal anes; skin burns, pruritus; in animals: hemolysis; hepatic nec; kidney damage
TO: Eyes, skin, resp sys, CNS, liver, kidneys, urinary tract, blood

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

Tin(II) oxide (as Sn)	Formula: SnO	CAS#: 21651-19-4	RTECS#: XQ3700000	IDLH: N.D.
Conversion:	DOT:			

Synonyms/Trade Names: Stannous oxide, Tin protoxide [**Note:** Also see specific listing for Tin(IV) oxide (as Sn).]

Exposure Limits:
NIOSH REL: TWA 2 mg/m^3
OSHA PEL†: none

Measurement Methods (see Table 1):
NIOSH 7300, 7301, 7303

Physical Description: Brownish-black powder.

Chemical & Physical Properties:
MW: 134.7
BP: Decomposes
Sol: Insoluble
Fl.P: NA
IP: NA
Sp.Gr: 6.3
VP: 0 mmHg (approx)
MLT(600 mmHg): 1976°F (Decomposes)
UEL: NA
LEL: NA

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: None reported

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Stannosis (benign pneumoconiosis): dysp, decr pulm func
TO: Resp sys

First Aid (see Table 6):
Eye: Irr immed
Breath: Fresh air

Tin(IV) oxide (as Sn)	Formula: SnO_2	CAS#: 18282-10-5	RTECS#: XQ4000000	IDLH: N.D.
Conversion:	DOT:			

Synonyms/Trade Names: Stannic dioxide, Stannic oxide, White tin oxide
[**Note:** Also see specific listing for Tin(II) oxide (as Sn).]

Exposure Limits:
NIOSH REL: TWA 2 mg/m^3
OSHA PEL†: none

Measurement Methods (see Table 1):
NIOSH 7300, 7301, 7303

Physical Description: White or slightly gray powder.

Chemical & Physical Properties:
MW: 150.7
BP: Decomposes
Sol: Insoluble
Fl.P: NA
IP: NA
Sp.Gr: 6.95
VP: 0 mmHg (approx)
MLT: 2966°F (Decomposes)
UEL: NA
LEL: NA

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Chlorine trifluoride

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Stannosis (benign pneumoconiosis): dysp, decr pulm func
TO: Resp sys

First Aid (see Table 6):
Eye: Irr immed
Breath: Fresh air

Titanium dioxide	Formula: TiO_2	CAS#: 13463-67-7	RTECS#: XR2275000	IDLH: Ca [5000 mg/m^3]
Conversion:	**DOT:**			

Synonyms/Trade Names: Rutile, Titanium oxide, Titanium peroxide

Exposure Limits:
NIOSH REL: Ca
See Appendix A
OSHA PEL†: TWA 15 mg/m^3

Measurement Methods (see Table 1):
NIOSH S385 (II-3)

Physical Description: White, odorless powder.

Chemical & Physical Properties:
MW: 79.9
BP: 4532-5432°F
Sol: Insoluble
Fl.P: NA
IP: NA
Sp.Gr: 4.26
VP: 0 mmHg (approx)
MLT: 3326-3362°F
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: None reported

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh
SY: Lung fib; [carc]
TO: Resp sys [in animals: lung tumors]

First Aid (see Table 6):
Breath: Resp support

o-Tolidine	Formula: $C_{14}H_{16}N_2$	CAS#: 119-93-7	RTECS#: DD1225000	IDLH: Ca [N.D.]
Conversion:	**DOT:**			

Synonyms/Trade Names: 4,4'-Diamino-3,3'-dimethylbiphenyl; Diaminoditolyl; 3,3'-Dimethylbenzidine; 3,3'-Dimethyl-4,4'-diphenyldiamine; 3,3'-Tolidine

Exposure Limits:
NIOSH REL: Ca
C 0.02 mg/m^3 [60-minute] [skin]
See Appendix A
See Appendix C
OSHA PEL: See Appendix C

Measurement Methods (see Table 1):
NIOSH 5013
OSHA 71

T

Physical Description: White to reddish crystals or powder.
[**Note:** Darkens on exposure to air. Often used in paste or wet cake form. Used as a basis for many dyes.]

Chemical & Physical Properties:
MW: 212.3
BP: 572°F
Sol: 0.1%
Fl.P: ?
IP: ?
Sp.Gr: ?
VP: ?
MLT: 264°F
UEL: ?
LEL: ?
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, nose; in animals: liver, kidney damage; [carc]
TO: Eyes, resp sys, liver, kidneys [in animals: liver, bladder & mammary gland tumors]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap flush immed
Breath: Resp support
Swallow: Medical attention immed

Toluene	**Formula:** $C_6H_5CH_3$	**CAS#:** 108-88-3	**RTECS#:** XS5250000	**IDLH:** 500 ppm
Conversion: 1 ppm = 3.77 mg/m^3	**DOT:** 1294 130			

Synonyms/Trade Names: Methyl benzene, Methyl benzol, Phenyl methane, Toluol

Exposure Limits:
NIOSH REL: TWA 100 ppm (375 mg/m^3)
ST 150 ppm (560 mg/m^3)
OSHA PEL†: TWA 200 ppm
C 300 ppm
500 ppm (10-minute maximum peak)

Measurement Methods (see Table 1):
NIOSH 1500, 1501, 3800, 4000
OSHA 111

Physical Description: Colorless liquid with a sweet, pungent, benzene-like odor.

Chemical & Physical Properties:
MW: 92.1
BP: 232°F
Sol(74°F): 0.07%
Fl.P: 40°F
IP: 8.82 eV
Sp.Gr: 0.87
VP: 21 mmHg
FRZ: -139°F
UEL: 7.1%
LEL: 1.1%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
500 ppm: CcrOv*/PaprOv*/
GmFOv/Sa*/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, nose; lass, conf, euph, dizz, head; dilated pupils, lac; anxi, musc ftg, insom; pares; derm; liver, kidney damage
TO: Eyes, skin, resp sys, CNS, liver, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

Toluenediamine	**Formula:** $CH_3C_6H_3(NH_2)_2$	**CAS#:** 25376-45-8 95-80-7 (2,4-TDA)	**RTECS#:** XS9445000 XS9625000 (2,4-TDA)	**IDLH:** Ca [N.D.]
Conversion:	**DOT:** 1709 151 (2,4-Toluenediamine)			

Synonyms/Trade Names: Diaminotoluene, Methylphenylene diamine, TDA, Toluenediamine isomers, Tolylenediamine [**Note:** Various isomers of TDA exist.]

Exposure Limits:
NIOSH REL: Ca (all isomers)
See Appendix A
OSHA PEL: none

Measurement Methods (see Table 1):
NIOSH 5516
OSHA 65

Physical Description: Colorless to brown, needle-shaped crystals or powder.
[**Note:** Tends to darken on storage and exposure to air. Properties given are for 2,4-TDA.]

Chemical & Physical Properties:
MW: 122.2
BP: 558°F
Sol: Soluble
Fl.P: 300°F
IP: ?
Sp.Gr: 1.05 (Liquid at 212°F)
VP(224°F): 1 mmHg
MLT: 210°F
UEL: ?
LEL: ?
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: None reported

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, nose, throat; derm; ataxia, tacar, nau, vomit, convuls, resp depres; methemo, cyan, head, lass, dizz, bluish skin; liver inj; [carc]
TO: Eyes, skin, resp sys, blood, CVS, liver [in animals: liver, skin & mammary gland tumors]

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

T

Toluene-2,4-diisocyanate

Formula:	CAS#:	RTECS#:	IDLH:
$CH_3C_6H_3(NCO)_2$	584-84-9	CZ6300000	Ca [2.5 ppm]

Conversion: 1 ppm = 7.13 mg/m^3 **DOT:** 2078 156

Synonyms/Trade Names: TDI; 2,4-TDI; 2,4-Toluene diisocyanate

Exposure Limits:
NIOSH REL: Ca
See Appendix A
OSHA PEL†: C 0.02 ppm (0.14 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 2535, 5521, 5522, 5525
OSHA 18, 33, 42

Physical Description: Colorless to pale-yellow solid or liquid (above 71°F) with a sharp, pungent odor.

Chemical & Physical Properties:
MW: 174.2
BP: 484°F
Sol: Insoluble
Fl.P: 260°F
IP: ?
Sp.Gr: 1.22
VP(77°F): 0.01 mmHg
MLT: 71°F
UEL: 9.5%
LEL: 0.9%
Class IIIB Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, water, acids, bases & amines (may cause foam & spatter); alcohols [**Note:** Reacts slowly with water to form carbon dioxide and polyureas.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose, throat; choke, paroxysmal cough; chest pain, retster soreness; nau, vomit, abdom pain; bron, bronchospasm, pulm edema; dysp, asthma; conj, lac; derm, skin sens; [carc]
TO: Eyes, skin, resp sys [in animals: pancreas, liver, mammary gland, circulatory sys & skin tumors]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

m-Toluidine

Formula:	CAS#:	RTECS#:	IDLH:
$CH_3C_6H_4NH_2$	108-44-1	XU2800000	N.D.

Conversion: **DOT:** 1708 153

Synonyms/Trade Names: 3-Amino-1-methylbenzene, 1-Aminophenylmethane, m-Aminotoluene, 3-Methylaniline, 3-Methylbenzenamine, 3-Toluidine, meta-Toluidine, m-Tolylamine

Exposure Limits:
NIOSH REL: See Appendix D
OSHA PEL†: none

Measurement Methods (see Table 1):
NIOSH 2002
OSHA 73

Physical Description: Colorless to light-yellow liquid with an aromatic, amine-like odor. [**Note:** Used as a basis for many dyes.]

Chemical & Physical Properties:
MW: 107.2
BP: 397°F
Sol: 2%
Fl.P: 187°F
IP: 7.50 eV
Sp.Gr: 0.999
VP(106°F): 1 mmHg
FRZ: -23°F
UEL: ?
LEL: ?
Class IIIA Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Oxidizers, acids

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin; derm; hema, methemo; cyan, nau, vomit, low BP, convuls; anemia, lass
TO: Eyes, skin, blood, CVS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

o-Toluidine	Formula: $CH_3C_6H_4NH_2$	CAS#: 95-53-4	RTECS#: XU2975000	IDLH: Ca [50 ppm]
Conversion: 1 ppm = 4.38 mg/m^3	**DOT:** 1708 153			

Synonyms/Trade Names: o-Aminotoluene, 2-Aminotoluene, 1-Methyl-2-aminobenzene, o-Methylaniline, 2-Methylaniline, ortho-Toluidine, o-Tolylamine

Exposure Limits:
NIOSH REL: Ca [skin]
See Appendix A
OSHA PEL: TWA 5 ppm (22 mg/m^3) [skin]

Measurement Methods (see Table 1):
NIOSH 2002, 2017, 8317
OSHA 73

Physical Description: Colorless to pale-yellow liquid with an aromatic, aniline-like odor.

Chemical & Physical Properties:
MW: 107.2
BP: 392°F
Sol: 2%
Fl.P: 185°F
IP: 7.44 eV
Sp.Gr: 1.01
VP: 0.3 mmHg
FRZ: 6°F
UEL: ?
LEL: ?
Class IIIA Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, nitric acid, bases

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes; anoxia, head, cyan; lass, dizz, drow; micro hema; eye burns; derm; [carc]
TO: Eyes, skin, blood, kidneys, liver, CVS [bladder cancer]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

p-Toluidine	Formula: $CH_3C_6H_4NH_2$	CAS#: 106-49-0	RTECS#: XU3150000	IDLH: Ca [N.D.]
Conversion:	**DOT:** 1708 153			

Synonyms/Trade Names: 4-Aminotoluene, 4-Methylaniline, 4-Methylbenzenamine, 4-Toluidine, para-Toluidine, p-Tolylamine

Exposure Limits:
NIOSH REL: Ca
See Appendix A
OSHA PEL†: none

Measurement Methods (see Table 1):
NIOSH 2002
OSHA 73

Physical Description: White solid with an aromatic odor.
[**Note:** Used as a basis for many dyes.]

Chemical & Physical Properties:
MW: 107.2
BP: 393°F
Sol: 0.7%
Fl.P: 188°F
IP: 7.50 eV
Sp.Gr: 1.05
VP(108°F): 1 mmHg
MLT: 111°F
UEL: ?
LEL: ?
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Oxidizers, acids

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin; derm; hema, methemo; cyan, nau, vomit, low BP, convuls; anemia, lass; [carc]
TO: Eyes, skin, blood, CVS [in animals: liver tumors]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

T

Tributyl phosphate

Formula: $(CH_3[CH_2]_3O)_3PO$
CAS#: 126-73-8
RTECS#: TC7700000
IDLH: 30 ppm

Conversion: 1 ppm = 10.89 mg/m^3
DOT:

Synonyms/Trade Names: Butyl phosphate, TBP, Tributyl ester of phosphoric acid, Tri-n-butyl phosphate

Exposure Limits:
NIOSH REL: TWA 0.2 ppm (2.5 mg/m^3)
OSHA PEL†: TWA 5 mg/m^3

Measurement Methods (see Table 1):
NIOSH 5034

Physical Description: Colorless to pale-yellow, odorless liquid.

Chemical & Physical Properties:
MW: 266.3
BP: 552°F (Decomposes)
Sol: 0.6%
Fl.P(oc): 295°F
IP: ?
Sp.Gr: 0.98
VP(77°F): 0.004 mmHg
FRZ: -112°F
UEL: ?
LEL: ?
Class IIIB Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
2 ppm: Sa
5 ppm: Sa:Cf
10 ppm: ScbaF/SaF
30 ppm: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Alkalis, oxidizers, water, moist air

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, resp sys, head; nau
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

Trichloroacetic acid

Formula: CCl_3COOH
CAS#: 76-03-9
RTECS#: AJ7875000
IDLH: N.D.

Conversion: 1 ppm = 6.68 mg/m^3
DOT: 1839 153 (solid); 2564 153 (solution)

Synonyms/Trade Names: TCA, Trichloroethanoic acid

Exposure Limits:
NIOSH REL: TWA 1 ppm (7 mg/m^3)
OSHA PEL†: none

Measurement Methods (see Table 1):
OSHA PV2017

Physical Description: Colorless to white, crystalline solid with a sharp, pungent odor.

Chemical & Physical Properties:
MW: 163.4
BP: 388°F
Sol: Miscible
Fl.P: NA
IP: ?
Sp.Gr: 1.62
VP(124°F): 1 mmHg
MLT: 136°F
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Moisture, iron, zinc, aluminum, strong oxidizers
[**Note:** Decomposes on heating to form phosgene & hydrogen chloride. Corrosive to metals.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose, throat, resp sys; cough, dysp, delayed pulm edema; eye, skin burns; derm; salv, vomit, diarr
TO: Eyes, skin, resp sys, GI tract

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

1,2,4-Trichlorobenzene

Formula:	CAS#:	RTECS#:	IDLH:
$C_6H_3Cl_3$	120-82-1	DC2100000	N.D.

Conversion: 1 ppm = 7.42 mg/m^3

DOT: 2321 153 (liquid)

Synonyms/Trade Names: unsym-Trichlorobenzene; 1,2,4-Trichlorobenzol

Exposure Limits:
NIOSH REL: C 5 ppm (40 mg/m^3)
OSHA PEL†: none

Physical Description: Colorless liquid or crystalline solid (below 63°F) with an aromatic odor.

Measurement Methods (see Table 1):
NIOSH 5517

Chemical & Physical Properties:
MW: 181.4
BP: 416°F
Sol: 0.003%
Fl.P: 222°F
IP: ?
Sp.Gr: 1.45
VP: 1 mmHg
FRZ: 63°F
UEL(302°F): 6.6%
LEL(302°F): 2.5%
Class IIIB Combustible Liquid
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Acids, acid fumes, oxidizers, steam

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, muc memb; in animals: liver, kidney damage; possible terato effects
TO: Eyes, skin, resp sys, liver, repro sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Resp support
Swallow: Medical attention immed

1,1,2-Trichloroethane

Formula:	CAS#:	RTECS#:	IDLH:
$CHCl_2CH_2Cl$	79-00-5	KJ3150000	Ca [100 ppm]

Conversion: 1 ppm = 5.46 mg/m^3

DOT:

Synonyms/Trade Names: Ethane trichloride, β-Trichloroethane, Vinyl trichloride

Exposure Limits:
NIOSH REL: Ca
TWA 10 ppm (45 mg/m^3) [skin]
See Appendix A
See Appendix C (Chloroethanes)
OSHA PEL: TWA 10 ppm (45 mg/m^3) [skin]

Physical Description: Colorless liquid with a sweet, chloroform-like odor.

Measurement Methods (see Table 1):
NIOSH 1003
OSHA 11

Chemical & Physical Properties:
MW: 133.4
BP: 237°F
Sol: 0.4%
Fl.P: ?
IP: 11.00 eV
Sp.Gr: 1.44
VP: 19 mmHg
FRZ: -34°F
UEL: 15.5%
LEL: 6%
Combustible Liquid, forms dense soot.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers & caustics; chemically-active metals (such as aluminum, magnesium powders, sodium & potassium)

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, nose; CNS depres; liver, kidney damage; derm; [carc]
TO: Eyes, resp sys, CNS, liver, kidneys [in animals: liver cancer]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

T

Trichloroethylene

Formula:	CAS#:	RTECS#:	IDLH:
$ClCH=CCl_2$	79-01-6	KX4550000	Ca [1000 ppm]

Conversion: 1 ppm = 5.37 mg/m^3

DOT: 1710 160

Synonyms/Trade Names: Ethylene trichloride, TCE, Trichloroethene, Trilene

Exposure Limits:
NIOSH REL: Ca
See Appendix A
See Appendix C
OSHA PEL†: TWA 100 ppm
C 200 ppm
300 ppm (5-minute maximum peak in any 2 hours)

Measurement Methods (see Table 1):
NIOSH 1022, 3800
OSHA 1001

Physical Description: Colorless liquid (unless dyed blue) with a chloroform-like odor.

Chemical & Physical Properties:
MW: 131.4
BP: 189°F
Sol: 0.1%
Fl.P: ?
IP: 9.45 eV
Sp.Gr: 1.46
VP: 58 mmHg
FRZ: -99°F
UEL(77°F): 10.5%
LEL(77°F): 8%
Combustible Liquid, but burns with difficulty.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong caustics & alkalis; chemically-active metals (such as barium, lithium, sodium, magnesium, titanium & beryllium)

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin; head, vis dist, lass, dizz, tremor, drow, nau, vomit; derm; card arrhy, pares; liver inj; [carc]
TO: Eyes, skin, resp sys, heart, liver, kidneys, CNS [in animals: liver & kidney cancer]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

Trichloronaphthalene

Formula:	CAS#:	RTECS#:	IDLH:
$C_{10}H_5Cl_3$	1321-65-9	QK4025000	See Appendix F

Conversion:

DOT:

Synonyms/Trade Names: Halowax®, Nibren wax, Seekay wax

T

Exposure Limits:
NIOSH REL: TWA 5 mg/m^3 [skin]
OSHA PEL: TWA 5 mg/m^3 [skin]

Measurement Methods (see Table 1):
NIOSH S128 (II-2)

Physical Description: Colorless to pale-yellow solid with an aromatic odor.

Chemical & Physical Properties:
MW: 231.5
BP: 579-669°F
Sol: Insoluble
Fl.P(oc): 392°F
IP: ?
Sp.Gr: 1.58
VP: <1 mmHg
MLT: 199°F
UEL: ?
LEL: ?
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
50 mg/m^3: ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

See Appendix F

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Anor, nau; dizz; jaun, liver inj
TO: Liver

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Resp support
Swallow: Medical attention immed

1,2,3-Trichloropropane

Formula:	CAS#:	RTECS#:	IDLH:
$CH_2ClCHClCH_2Cl$	96-18-4	TZ9275000	Ca [100 ppm]

Conversion: 1 ppm = 6.03 mg/m^3

DOT:

Synonyms/Trade Names: Allyl trichloride, Glycerol trichlorohydrin, Glyceryl trichlorohydrin, Trichlorohydrin

Exposure Limits:
NIOSH REL: Ca
TWA 10 ppm (60 mg/m^3) [skin]
See Appendix A
OSHA PEL†: TWA 50 ppm (300 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1003
OSHA 7

Physical Description: Colorless liquid with a chloroform-like odor.

Chemical & Physical Properties:
MW: 147.4
BP: 314°F
Sol: 0.1%
Fl.P: 160°F
IP: ?
Sp.Gr: 1.39
VP: 3 mmHg
FRZ: 6°F
UEL(302°F): 12.6%
LEL(248°F): 3.2%
Class IIIA Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Chemically-active metals, strong caustics & oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, nose, throat; CNS depres; in animals: liver, kidney inj; [carc]
TO: Eyes, skin, resp sys, CNS, liver, kidneys [in animals: forestomach, liver & mammary gland cancer]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Resp support
Swallow: Medical attention immed

1,1,2-Trichloro-1,2,2-trifluoroethane

Formula:	CAS#:	RTECS#:	IDLH:
CCl_2FCClF_2	76-13-1	KJ4000000	2000 ppm

Conversion: 1 ppm = 7.67 mg/m^3

DOT:

Synonyms/Trade Names: Chlorofluorocarbon-113, CFC-113, Freon® 113, Genetron® 113, Halocarbon 113, Refrigerant 113, TTE

Exposure Limits:
NIOSH REL: TWA 1000 ppm (7600 mg/m^3)
ST 1250 ppm (9500 mg/m^3)
OSHA PEL†: TWA 1000 ppm (7600 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1020
OSHA 113

Physical Description: Colorless to water-white liquid with an odor like carbon tetrachloride at high concentrations. [**Note:** A gas above 118°F.]

Chemical & Physical Properties:
MW: 187.4
BP: 118°F
Sol(77°F): 0.02%
Fl.P: ?
IP: 11.99 eV
Sp.Gr(77°F): 1.56
VP: 285 mmHg
FRZ: -31°F
UEL: ?
LEL: ?
Noncombustible Liquid at ordinary temperatures, but the gas will ignite and burn weakly at 1256°F.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
2000 ppm: Sa/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Chemically-active metals such as calcium, powdered aluminum, zinc, magnesium & beryllium
[**Note:** Decomposes if in contact with alloys containing >2% magnesium.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit skin, throat, drow, derm; CNS depres; in animals: card arrhy, narco
TO: Skin, heart, CNS, CVS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

T

Triethylamine

Formula:	CAS#:	RTECS#:	IDLH:
$(C_2H_5)_3N$	121-44-8	YE0175000	200 ppm

Conversion: 1 ppm = 4.14 mg/m^3

DOT: 1296 132

Synonyms/Trade Names: TEA

Exposure Limits:
NIOSH REL: See Appendix D
OSHA PEL†: TWA 25 ppm (100 mg/m^3)

Physical Description: Colorless liquid with a strong, ammonia-like odor.

Measurement Methods (see Table 1):
NIOSH S152 (II-3)
OSHA PV2060

Chemical & Physical Properties:
MW: 101.2
BP: 193°F
Sol: 2%
Fl.P: 20°F
IP: 7.50 eV
Sp.Gr: 0.73
VP: 54 mmHg
FRZ: -175°F
UEL: 8.0%
LEL: 1.2%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.
Provide: Eyewash (>1%)
Quick drench (>1%)

Respirator Recommendations (see Tables 3 and 4):
OSHA
200 ppm: Sa:Cf£/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, strong acids, chlorine, hypochlorite, halogenated compounds

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, resp sys; in animals: myocardial, kidney, liver damage
TO: Eyes, skin, resp sys, CVS, liver, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Trifluorobromomethane

Formula:	CAS#:	RTECS#:	IDLH:
$CBrF_3$	75-63-8	PA5425000	40,000 ppm

Conversion: 1 ppm = 6.09 mg/m^3

DOT: 1009 126

Synonyms/Trade Names: Bromotrifluoromethane, Fluorocarbon 1301, Freon® 13B1, Halocarbon 13B1, Halon® 1301, Monobromotrifluoromethane, Refrigerant 13B1, Trifluoromonobromomethane

Exposure Limits:
NIOSH REL: TWA 1000 ppm (6100 mg/m^3)
OSHA PEL: TWA 1000 ppm (6100 mg/m^3)

Physical Description: Colorless, odorless gas. [**Note:** Shipped as a liquefied compressed gas.]

Measurement Methods (see Table 1):
NIOSH 1017

Chemical & Physical Properties:
MW: 148.9
BP: -72°F
Sol: 0.03%
Fl.P: NA
IP: 11.78 eV
RGasD: 5.14
VP: >1 atm
FRZ: -267°F
UEL: NA
LEL: NA
Nonflammable Gas

Personal Protection/Sanitation (see Table 2):
Skin: Frostbite
Eyes: Frostbite
Wash skin: N.R.
Remove: N.R.
Change: N.R.
Provide: Frostbite wash

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
10,000 ppm: Sa
25,000 ppm: Sa:Cf
40,000 ppm: SaT:Cf/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Chemically-active metals (such as calcium, powdered aluminum, zinc, and magnesium)

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con (liquid)
SY: Dizz; card arrhy; liquid: frostbite
TO: CNS, heart

First Aid (see Table 6):
Eye: Frostbite
Skin: Frostbite
Breath: Resp support

Trimellitic anhydride

Formula:	CAS#:	RTECS#:	IDLH:
$C_9H_4O_5$	552-30-7	DC2050000	N.D.

Conversion: 1 ppm = 7.86 mg/m^3

DOT:

Synonyms/Trade Names: 1,2,4-Benzenetricarboxylic anhydride; 4-Carboxyphthalic anhydride; TMA; TMAN; Trimellic acid anhydride [**Note:** TMA is also a synonym for Trimethylamine.]

Exposure Limits:
NIOSH REL: TWA 0.005 ppm (0.04 mg/m^3)
Should be handled in the workplace as an extremely toxic substance.
OSHA PEL†: none

Measurement Methods (see Table 1):
NIOSH 5036
OSHA 98

Physical Description: Colorless solid.

Chemical & Physical Properties:
MW: 192.1
BP: ?
Sol: ?
Fl.P: NA
IP: ?
Sp.Gr: ?
VP: 0.000004 mmHg
MLT: 322°F
UEL: NA
LEL: NA
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: None reported

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose, resp sys; pulm edema, resp sens; rhinitis, asthma, cough, wheez, dysp, mal, fever, musc aches, sneez
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Resp support
Swallow: Medical attention immed

Trimethylamine

Formula:	CAS#:	RTECS#:	IDLH:
$(CH_3)_3N$	75-50-3	PA0350000	N.D.

Conversion: 1 ppm = 2.42 mg/m^3

DOT: 1083 118 (anhydrous); 1297 132 (aqueous solution)

Synonyms/Trade Names: N,N-Dimethylmethanamine; TMA
[**Note:** May be used in an aqueous solution (typically 25%, 30%, or 40% TMA.]

Exposure Limits:
NIOSH REL: TWA 10 ppm (24 mg/m^3)
ST 15 ppm (36 mg/m^3)
OSHA PEL†: none

Measurement Methods (see Table 1):
OSHA PV2060

Physical Description: Colorless gas with a fishy, amine odor.
[**Note:** A liquid below 37°F. Shipped as a liquefied compressed gas.]

Chemical & Physical Properties:
MW: 59.1
BP: 37°F
Sol(86°F): 48%
Fl.P: NA (Gas)
20°F (Liquid)
IP: 7.82 eV
RGasD: 2.09
VP(70°F): 1454 mmHg
FRZ: -179°F
UEL: 11.6%
LEL: 2.0%
Flammable Gas

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact (liquid/solution)
Frostbite
Eyes: Prevent eye contact (liquid/solution)
Frostbite
Wash skin: When contam (solution)
Remove: When wet (flamm)
Change: N.R.
Provide: Eyewash (liquid/solution)
Quick drench (liquid/solution)
Frostbite wash

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Strong oxidizers (including bromine), ethylene oxide, nitrosating agents (e.g., sodium nitrite), mercury, strong acids [**Note:** Corrosive to many metals (e.g., zinc, brass, aluminum, copper).]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing (solution), Con
SY: Irrit eyes, skin, nose, throat, resp sys; cough, dysp, delayed pulm edema; blurred vision, corn nec; skin burns; liquid: frostbite
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed (liquid/solution)/Frostbite
Skin: Water flush immed (liquid/solution)/Frostbite
Breath: Resp support
Swallow: Medical attention immed (solution)

T

1,2,3-Trimethylbenzene	Formula: $C_6H_3(CH_3)_3$	CAS#: 526-73-8	RTECS#: DC3300000	IDLH: N.D.
Conversion: 1 ppm = 4.92 mg/m^3	**DOT:**			

Synonyms/Trade Names: Hemellitol
[**Note:** Hemimellitene is a mixture of the 1,2,3-isomer with up to 10% of related aromatics such as the 1,2,4-isomer.]

Exposure Limits:
NIOSH REL: TWA 25 ppm (125 mg/m^3)
OSHA PEL†: none

Measurement Methods (see Table 1):
OSHA PV2091

Physical Description: Clear, colorless liquid with a distinctive, aromatic odor.

Chemical & Physical Properties:
MW: 120.2
BP: 349°F
Sol: Low
Fl.P: ?
IP: 8.48 eV
Sp.Gr: 0.89
VP(62°F): 1 mmHg
FRZ: -14°F
UEL: 6.6%
LEL: 0.8%
Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Oxidizers, nitric acid

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose, throat, resp sys; bron; hypochromic anemia; head, drow, lass, dizz, nau, inco; vomit, conf; chemical pneu (aspir liquid)
TO: Eyes, skin, resp sys, CNS, blood

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Resp support
Swallow: Medical attention immed

1,2,4-Trimethylbenzene	Formula: $C_6H_3(CH_3)_3$	CAS#: 95-63-6	RTECS#: DC3325000	IDLH: N.D.
Conversion: 1 ppm = 4.92 mg/m^3	**DOT:**			

Synonyms/Trade Names: Asymmetrical trimethylbenzene, psi-Cumene, Pseudocumene
[**Note:** Hemimellitene is a mixture of the 1,2,3-isomer with up to 10% of related aromatics such as the 1,2,4-isomer.]

Exposure Limits:
NIOSH REL: TWA 25 ppm (125 mg/m^3)
OSHA PEL†: none

Measurement Methods (see Table 1):
OSHA PV2091

Physical Description: Clear, colorless liquid with a distinctive, aromatic odor.

Chemical & Physical Properties:
MW: 120.2
BP: 337°F
Sol: 0.006%
Fl.P: 112°F
IP: 8.27 eV
Sp.Gr: 0.88
VP(56°F): 1 mmHg
FRZ: -77°F
UEL: 6.4%
LEL: 0.9%
Class II Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Oxidizers, nitric acid

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose, throat, resp sys; bron; hypochromic anemia; head, drow, lass, dizz, nau, inco; vomit, conf; chemical pneu (aspir liquid)
TO: Eyes, skin, resp sys, CNS, blood

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Resp support
Swallow: Medical attention immed

1,3,5-Trimethylbenzene	Formula: $C_6H_3(CH_3)_3$	CAS#: 108-67-8	RTECS#: OX6825000	IDLH: N.D.
Conversion: 1 ppm = 4.92 mg/m^3	**DOT:** 2325 129			

Synonyms/Trade Names: Mesitylene, Symmetrical trimethylbenzene, sym-Trimethylbenzene

Exposure Limits:
NIOSH REL: TWA 25 ppm (125 mg/m^3)
OSHA PEL†: none

Measurement Methods (see Table 1):
OSHA PV2091

Physical Description: Clear, colorless liquid with a distinctive, aromatic odor.

Chemical & Physical Properties:
MW: 120.2
BP: 329°F
Sol: 0.002%
Fl.P: 122°F
IP: 8.39 eV
Sp.Gr: 0.86
VP: 2 mmHg
FRZ: -49°F
UEL: ?
LEL: ?
Class II Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Oxidizers, nitric acid

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose, throat, resp sys; bron; hypochromic anemia; head, drow, lass, dizz, nau, inco; vomit, conf; chemical pneu (aspir liquid)
TO: Eyes, skin, resp sys, CNS, blood

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Resp support
Swallow: Medical attention immed

Trimethyl phosphite	Formula: $(CH_3O)_3P$	CAS#: 121-45-9	RTECS#: TH1400000	IDLH: N.D.
Conversion: 1 ppm = 5.08 mg/m^3	**DOT:** 2329 129			

Synonyms/Trade Names: Methyl phosphite, Trimethoxyphosphine, Trimethyl ester of phosphorous acid

Exposure Limits:
NIOSH REL: TWA 2 ppm (10 mg/m^3)
OSHA PEL†: none

Measurement Methods (see Table 1):
None available

Physical Description: Colorless liquid with a distinctive, pungent odor.

Chemical & Physical Properties:
MW: 124.1
BP: 232°F
Sol: Reacts
Fl.P: 82°F
IP: ?
Sp.Gr: 1.05
VP(77°F): 24 mmHg
FRZ: -108°F
UEL: ?
LEL: ?
Class IC Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.
Provide: Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Magnesium perchlorate, water [**Note:** Reacts (hydrolyzes) with water.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, upper resp sys; derm; in animals: terato effects
TO: Eyes, skin, resp sys, repro sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap flush immed
Breath: Resp support
Swallow: Medical attention immed

T

2,4,6-Trinitrotoluene

Formula: $CH_3C_6H_2(NO_2)_3$ | **CAS#:** 118-96-7 | **RTECS#:** XU0175000 | **IDLH:** 500 mg/m^3

Conversion: | **DOT:** 1356 113 (wet)

Synonyms/Trade Names: 1-Methyl-2,4,6-trinitrobenzene; TNT; Trinitrotoluene; sym-Trinitrotoluene; Trinitrotoluol

Exposure Limits:
NIOSH REL: TWA 0.5 mg/m^3 [skin]
OSHA PEL†: TWA 1.5 mg/m^3 [skin]

Measurement Methods (see Table 1):
OSHA 44

Physical Description: Colorless to pale-yellow, odorless solid or crushed flakes.

Chemical & Physical Properties:
MW: 227.1
BP: 464°F (Explodes)
Sol(77°F): 0.01%
Fl.P: ? (Explodes)
IP: 10.59 eV
Sp.Gr: 1.65
VP: 0.0002 mmHg
MLT: 176°F
UEL: ?
LEL: ?
Combustible Solid (Class A Explosive)

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH
5 mg/m^3: Sa*
12.5 mg/m^3: Sa:Cf*
25 mg/m^3: ScbaF/SaF
500 mg/m^3: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, ammonia, strong alkalis, combustible materials, heat
[**Note:** Rapid heating will result in detonation.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit skin, muc memb; liver damage, jaun; cyan; sneez; cough, sore throat; peri neur, musc pain; kidney damage; cataract; sens derm; leucyt; anemia; card irreg
TO: Eyes, skin, resp sys, blood, liver, CVS, CNS, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

Triorthocresyl phosphate

Formula: $(CH_3C_6H_40)_3PO$ | **CAS#:** 78-30-8 | **RTECS#:** TD0350000 | **IDLH:** 40 mg/m^3

Conversion: | **DOT:** 2574 151

Synonyms/Trade Names: TCP, TOCP, Tri-o-cresyl ester of phosphoric acid, Tri-o-cresyl phosphate

Exposure Limits:
NIOSH REL: TWA 0.1 mg/m^3 [skin]
OSHA PEL†: TWA 0.1 mg/m^3

Measurement Methods (see Table 1):
NIOSH 5037

Physical Description: Colorless to pale-yellow, odorless liquid or solid (below 52°F).

Chemical & Physical Properties:
MW: 368.4
BP: 770°F (Decomposes)
Sol: Slight
Fl.P: 437°F
IP: ?
Sp.Gr: 1.20
VP(77°F): 0.00002 mmHg
FRZ: 52°F
UEL: ?
LEL: ?
Class IIIB Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: N.R.
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
0.5 mg/m^3: Qm
1 mg/m^3: 95XQ/Sa
2.5 mg/m^3: Sa:Cf/PaprHie
5 mg/m^3: 100F/SaT:Cf/PaprTHie/ ScbaF/SaF
40 mg/m^3: Sa:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: GI dist; peri neur; cramps in calves, pares in feet or hands; weak feet, wrist drop, para
TO: PNS, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Triphenylamine	Formula: $(C_6H_5)_3N$	CAS#: 603-34-9	RTECS#: YK2680000	IDLH: N.D.
Conversion:	DOT:			

Synonyms/Trade Names: N,N-Diphenylaniline; N,N-Diphenylbenzenamine

Exposure Limits:
NIOSH REL: TWA 5 mg/m^3
OSHA PEL†: none

Measurement Methods (see Table 1):
None available

Physical Description: Colorless solid.

Chemical & Physical Properties:
MW: 245.3
BP: 689°F
Sol: Insoluble
Fl.P: ?
IP: 7.60 eV
Sp.Gr: 0.77
VP: ?
MLT: 261°F
UEL: ?
LEL: ?

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: Daily
Remove: N.R.
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: None reported

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: In animals: irrit skin
TO: Skin

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Resp support
Swallow: Medical attention immed

Triphenyl phosphate	Formula: $(C_6H_5O)_3PO$	CAS#: 115-86-6	RTECS#: TC8400000	IDLH: 1000 mg/m^3
Conversion:	DOT:			

Synonyms/Trade Names: Phenyl phosphate, TPP, Triphenyl ester of phosphoric acid

Exposure Limits:
NIOSH REL: TWA 3 mg/m^3
OSHA PEL: TWA 3 mg/m^3

Measurement Methods (see Table 1):
NIOSH 5038

Physical Description: Colorless, crystalline powder with a phenol-like odor.

Chemical & Physical Properties:
MW: 326.3
BP: 776°F
Sol(129°F): 0.002%
Fl.P: 428°F
IP: ?
Sp.Gr: 1.29
VP(380°F): 1 mmHg
MLT: 120°F
UEL: ?
LEL: ?
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
15 mg/m^3: Qm
30 mg/m^3: 95XQ/Sa
75 mg/m^3: Sa:Cf/PaprHie
150 mg/m^3: 100F/SaT:Cf/PaprTHie/ ScbaF/SaF
1000 mg/m^3: Sa:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: None reported

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing
SY: Minor changes in blood enzymes; in animals: musc weak, para
TO: Blood, PNS

First Aid (see Table 6):
Breath: Resp support
Swallow: Medical attention immed

T

Tungsten	**Formula:** W	**CAS#:** 7440-33-7	**RTECS#:** YO7175000	**IDLH:** N.D.
Conversion:	**DOT:**			

Synonyms/Trade Names: Tungsten metal, Wolfram

Exposure Limits:
NIOSH REL*: TWA 5 mg/m^3
ST 10 mg/m^3
[***Note:** The REL also applies to other insoluble tungsten compounds (as W).]
OSHA PEL†: none

Physical Description: Hard, brittle, steel-gray to tin-white solid.

Measurement Methods (see Table 1):
NIOSH 7074, 7300, 7301
OSHA ID213

Chemical & Physical Properties:
MW: 183.9
BP: 10,701°F
Sol: Insoluble
Fl.P: NA
IP: NA
Sp.Gr: 19.3
VP: 0 mmHg (approx)
MLT: 6170°F
UEL: NA
LEL: NA
Combustible in the form of finely divided powder; may ignite spontaneously.

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
50 mg/m^3: 100XQ/Sa/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100XQ/ScbaE

Incompatibilities and Reactivities: Bromine trifluoride, chlorine trifluoride, fluorine, iodine pentafluoride

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, resp sys; diffuse pulm fib; loss of appetite, nau, cough; blood changes
TO: Eyes, skin, resp sys, blood

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Fresh air
Swallow: Medical attention immed

Tungsten (soluble compounds, as W)	**Formula:**	**CAS#:**	**RTECS#:**	**IDLH:** N.D.
Conversion:	**DOT:**			

Synonyms/Trade Names: Synonyms vary depending upon the specific soluble tungsten compound.

Exposure Limits:
NIOSH REL: TWA 1 mg/m^3
ST 3 mg/m^3
OSHA PEL†: none

Physical Description: Appearance and odor vary depending upon the specific soluble tungsten compound.

Measurement Methods (see Table 1):
NIOSH 7074, 7300, 7301
OSHA ID213

Chemical & Physical Properties:
Properties vary depending upon the specific soluble tungsten compound.

Personal Protection/Sanitation (see Table 2):
Recommendations regarding personal protective clothing vary depending upon the specific compound.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
10 mg/m^3: 100XQ/Sa
25 mg/m^3: Sa:Cf
50 mg/m^3: 100F/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Varies

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, resp sys; in animals: CNS disturbances; diarr; resp failure; behavioral, body weight, blood changes
TO: Eyes, skin, resp sys, CNS, GI tract

First Aid (see Table 6):
Eye: Irr immed
Skin: Water wash
Breath: Resp support
Swallow: Medical attention immed

Tungsten carbide (cemented)

Formula: WC/Co/Ni/Ti

CAS#: 1: 11107-01-0 2: 12718-69-3 3: 37329-49-0

RTECS#: 1: YO7350000 2: YO7525000 3: YO7700000

IDLH: N.D.

Conversion:

DOT:

Synonyms/Trade Names: Cemented tungsten carbide, Cemented WC, Hard metal
[**Note:** The tungsten carbide (WC) content is generally 85-95% & the cobalt content is generally 5-15%.]
[**1:** 85% WC, 15% Co; **2:** 92% WC, 8% Co; **3:** 78% WC, 14% Co, 8% Ti]

Exposure Limits:
NIOSH REL: See Appendix C **OSHA PEL†:** See Appendix C

Measurement Methods (see Table 1):
None available

Physical Description: A mixture of tungsten carbide, cobalt, and sometimes other metals & metal oxides or carbides.

Chemical & Physical Properties:
Properties vary depending upon the specific mixture.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily (Ni)
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH
0.25 mg Co/m^3: Qm
0.5 mg Co/m^3: 95XQ*/Sa*
1.25 mg Co/m^3: Sa:Cf*/PaprHie*/PaprHie*
2.5 mg Co/m^3: 100F/ScbaF/SaF
20 mg Co/m^3: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Tungsten carbide (cemented) containing Nickel:
NIOSH
¥:ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Tungsten carbide: Fluorine, chlorine trifluoride, oxides of nitrogen, lead dioxide

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, resp sys; possible skin sens to cobalt, nickel; diffuse pulm fib; loss of appetite, nau, cough; blood changes
TO: Eyes, skin, resp sys, blood

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Fresh air
Swallow: Medical attention immed

Turpentine

Formula: $C_{10}H_{16}$ (approx)

CAS#: 8006-64-2

RTECS#: YO8400000

IDLH: 800 ppm

Conversion: 1 ppm = 5.56 mg/m^3 (approx)

DOT: 1299 128

Synonyms/Trade Names: Gumspirits, Gum turpentine, Spirits of turpentine, Steam distilled turpentine, Sulfate wood turpentine, Turps, Wood turpentine

Exposure Limits:
NIOSH REL: TWA 100 ppm (560 mg/m^3)
OSHA PEL: TWA 100 ppm (560 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1551

Physical Description: Colorless liquid with a characteristic odor.

Chemical & Physical Properties:
MW: 136 (approx)
BP: 309-338°F
Sol: Insoluble
Fl.P: 95°F
IP: ?
Sp.Gr: 0.86
VP: 4 mmHg
FRZ: -58 to -76°F
UEL: ?
LEL: 0.8%
Class IC Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
800 ppm: Sa:Cf£/PaprOv£/CcrFOv/GmFOv/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, chlorine, chromic anhydride, stannic chloride, chromyl chloride

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, nose, throat; head, dizz, convuls; skin sens; hema, prot; kidney damage; abdom pain, nau, vomit, diarr; chemical pneu (aspir liquid)
TO: Eyes, skin, resp sys, CNS, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

T

1-Undecanethiol	Formula: $CH_3(CH_2)_{10}SH$	CAS#: 5332-52-5	RTECS#:	IDLH: N.D.
Conversion: 1 ppm = 7.71 mg/m^3	DOT: 1228 131			

Synonyms/Trade Names: Undecyl mercaptan

Exposure Limits:
NIOSH REL: C 0.5 ppm (3.9 mg/m^3) [15-minute]
OSHA PEL: none

Measurement Methods (see Table 1):
None available

Physical Description: Liquid.

Chemical & Physical Properties:
MW: 188.4
BP: 495°F
Sol: Insoluble
Fl.P: ?
IP: ?
Sp.Gr: 0.84
VP: ?
FRZ: 27°F
UEL: ?
LEL: ?
Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
5 ppm: CcrOv/Sa
12.5 ppm: Sa:Cf/PaprOv
25 ppm: CcrFOv/GmFOv/PaprTOv/ ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Oxidizers, reducing agents, strong acids & bases, alkali metals

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, resp sys; conf, dizz, head, drow, nau, vomit, lass, convuls
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Resp support
Swallow: Medical attention immed

Uranium (insoluble compounds, as U)	Formula: U (metal)	CAS#: 7440-61-1 (metal)	RTECS#: YR3490000 (metal)	IDLH: Ca [10 mg/m^3 (as U)]
Conversion:	DOT: 2979 162 (metal, pyrophoric)			

Synonyms/Trade Names: **Uranium metal:** Uranium I
Synonyms of other insoluble uranium compounds vary depending upon the specific compound.

Exposure Limits:
NIOSH REL: Ca
TWA 0.2 mg/m^3
ST 0.6 mg/m^3
See Appendix A
OSHA PEL†: TWA 0.25 mg/m^3

Measurement Methods (see Table 1):
None available

Physical Description: Metal: Silver-white, malleable, ductile, lustrous solid. [**Note:** Weakly radioactive.]

U

Chemical & Physical Properties:
MW: 238.0
BP: 6895°F
Sol: Insoluble
Fl.P: NA
IP: NA
Sp.Gr: 19.05 (metal)
VP: 0 mmHg (approx)
MLT: 2097°F
UEL: NA
LEL: NA
MEC: 60 g/m^3
Metal: Combustible Solid, especially turnings and powder.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily
Provide: Eyewash

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Carbon dioxide, carbon tetrachloride, nitric acid, fluorine [**Note:** Complete coverage of uranium metal scrap with oil is essential for prevention of fire.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Derm; kidney damage; blood changes; [carc]; in animals: lung, lymph node damage; [carc] Potential for cancer is a result of alpha-emitting properties & radioactive decay products (e.g., radon).
TO: Skin, kidneys, bone marrow, lymphatic sys [lung cancer]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

Uranium (soluble compounds, as U)	Formula:	CAS#:	RTECS#:	IDLH: Ca [10 mg/m^3 (as U)]
Conversion:	**DOT:**			

Synonyms/Trade Names: Synonyms vary depending upon the specific soluble uranium compound.

Exposure Limits:
NIOSH REL: Ca
TWA 0.05 mg/m^3
See Appendix A
OSHA PEL: TWA 0.05 mg/m^3

Measurement Methods (see Table 1):
None available

Physical Description: Appearance and odor vary depending upon the specific soluble uranium compound.

Chemical & Physical Properties:
Properties vary depending upon the specific soluble uranium compound.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily
Provide: Eyewash (UF_6), Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape (Halides): GmFAg100/ScbaE
Escape (Non-halides): 100F/ScbaE

Incompatibilities and Reactivities: **Uranyl nitrate:** combustibles; **Uranium hexafluoride:** water

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Lac, conj; short breath, cough, chest rales; nau, vomit; skin burns; RBC, casts in urine; prot; high BUN; [carc] Potential for cancer is a result of alpha-emitting properties & radioactive decay products (e.g., radon).
TO: Resp sys, blood, liver, kidneys, lymphatic sys, skin, bone marrow [lung cancer]

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

n-Valeraldehyde	Formula: $CH_3(CH_2)_3CHO$	CAS#: 110-62-3	RTECS#: YV3600000	IDLH: N.D.
Conversion: 1 ppm = 3.53 mg/m^3	**DOT:** 2058 129			

Synonyms/Trade Names: Amyl aldehyde, Pentanal, Valeral, Valeraldehyde, Valeric aldehyde

Exposure Limits:
NIOSH REL: TWA 50 ppm (175 mg/m^3)
See Appendix C (Aldehydes)
OSHA PEL†: none

Measurement Methods (see Table 1):
NIOSH 2018, 2536
OSHA 85

Physical Description: Colorless liquid with a strong, acrid, pungent odor.

Chemical & Physical Properties:
MW: 86.2
BP: 217°F
Sol: Slight
Fl.P: 54°F
IP: 9.82 eV
Sp.Gr: 0.81
VP: 26 mmHg
FRZ: -133°F
UEL: ?
LEL: ?
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: None reported

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose, throat
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap flush immed
Breath: Resp support
Swallow: Medical attention immed

V

Vanadium dust

Formula:	CAS#:	RTECS#:	IDLH:
V_2O_5	1314-62-1	YW2450000	35 mg/m^3 (as V)

Conversion: **DOT:** 2862 151

Synonyms/Trade Names: Divanadium pentoxide dust, Vanadic anhydride dust, Vanadium oxide dust, Vanadium pentaoxide dust. Other synonyms vary depending upon the specific vanadium compound.

Exposure Limits:
NIOSH REL*: C 0.05 mg V/m^3 [15-minute]
[***Note:** The REL applies to all vanadium compounds except Vanadium metal and Vanadium carbide (see Ferrovanadium dust).]
OSHA PEL†: C 0.5 mg V_2O_5/m^3 (resp)

Measurement Methods (see Table 1):
NIOSH 7300, 7301, 7303, 7504, 9102
OSHA ID185

Physical Description: Yellow-orange powder or dark-gray, odorless flakes dispersed in air.

Chemical & Physical Properties:
MW: 181.9
BP: 3182°F (Decomposes)
Sol: 0.8%
Fl.P: NA
IP: NA
Sp.Gr: 3.36
VP: 0 mmHg (approx)
MLT: 1274°F
UEL: NA
LEL: NA
Noncombustible Solid, but may increase intensity of fire when in contact with combustible materials.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH (as V)
0.5 mg/m^3: 100XQ*/Sa*
1.25 mg/m^3: Sa:Cf*/PaprHie*
2.5 mg/m^3: 100F/PaprTHie*/ScbaF/SaF
35 mg/m^3: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Lithium, chlorine trifluoride

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, throat; green tongue, metallic taste, eczema; cough; fine rales, wheez, bron, dysp
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

Vanadium fume

Formula:	CAS#:	RTECS#:	IDLH:
V_2O_5	1314-62-1	YW2460000	35 mg/m^3 (as V)

Conversion: **DOT:** 2862 151

Synonyms/Trade Names: Divanadium pentoxide fume, Vanadic anhydride fume, Vanadium oxide fume, Vanadium pentaoxide fume. Other synonyms vary depending upon the specific vanadium compound.

Exposure Limits:
NIOSH REL: C 0.05 mg V/m^3 [15-minute]
OSHA PEL†: C 0.1 mg V_2O_5/m^3

Measurement Methods (see Table 1):
NIOSH 7300, 7301, 7303, 7504
OSHA ID185

Physical Description: Finely divided particulate dispersed in air.

Chemical & Physical Properties:
MW: 181.9
BP: 3182°F (Decomposes)
Sol: 0.8%
Fl.P: NA
IP: NA
Sp.Gr: 3.36
VP: 0 mmHg (approx)
MLT: 1274°F
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH (as V)
0.5 mg/m^3: 100XQ*/Sa*
1.25 mg/m^3: Sa:Cf*/PaprHie*
2.5 mg/m^3: 100F/PaprTHie*/ScbaF/SaF
35 mg/m^3: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Lithium, chlorine trifluoride

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Irrit eyes, throat; green tongue, metallic taste; cough, fine rales, wheez, bron, dysp; eczema
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Breath: Resp support

Vegetable oil mist

Formula:	CAS#:	RTECS#:	IDLH:
	68956-68-3	YX1850000	N.D.

Conversion:

DOT:

Synonyms/Trade Names: Vegetable mist

Exposure Limits:
NIOSH REL: TWA 10 mg/m^3 (total)
TWA 5 mg/m^3 (resp)
OSHA PEL: TWA 15 mg/m^3 (total)
TWA 5 mg/m^3 (resp)

Measurement Methods (see Table 1):
NIOSH 0500, 0600

Physical Description: An oil extracted from the seeds, fruit, or nuts of vegetables or other plant matter.

Chemical & Physical Properties:
MW: varies
BP: ?
Sol: Insoluble
Fl.P: 323-540°F
IP: ?
Sp.Gr: 0.91-0.95
VP: ?
FRZ: ?
UEL: ?
LEL: ?
Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: None reported

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Irrit eyes, skin, resp sys; lac
TO: Eyes, skin, resp sys Determine based on working conditions

First Aid (see Table 6):
Eye: Irr immed
Breath: Fresh air

Vinyl acetate

Formula:	CAS#:	RTECS#:	IDLH:
CH_2=CHOOCCH$_3$	108-05-4	AK0875000	N.D.

Conversion: 1 ppm = 3.52 mg/m^3

DOT: 1301 129P

Synonyms/Trade Names: 1-Acetoxyethylene, Ethenyl acetate, Ethenyl ethanoate, VAC, Vinyl acetate monomer, Vinyl ethanoate

Exposure Limits:
NIOSH REL: C 4 ppm (15 mg/m^3) [15-minute]
OSHA PEL†: none

Measurement Methods (see Table 1):
NIOSH 1453
OSHA 51

Physical Description: Colorless liquid with a pleasant, fruity odor.
[**Note:** Raw material for many polyvinyl resins.]

Chemical & Physical Properties:
MW: 86.1
BP: 162°F
Sol: 2%
Fl.P: 18°F
IP: 9.19 eV
Sp.Gr: 0.93
VP: 83 mmHg
FRZ: -136°F
UEL: 13.4%
LEL: 2.6%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
40 ppm: CcrOv*/Sa*
100 ppm: Sa:Cf*/PaprOv*
200 ppm: CcrFOv/GmFOv/PaprTOv*/ ScbaF/SaF
4000 ppm: Sa:Pd,Pp*
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Acids, bases, silica gel, alumina, oxidizers, azo compounds, ozone
[**Note:** Usually contains a stabilizer (e.g., hydroquinone or diphenylamine) to prevent polymerization.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose, throat; hoarseness, cough; loss of smell; eye burns, skin blisters
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap flush immed
Breath: Resp support
Swallow: Medical attention immed

V

Vinyl bromide

Formula:	CAS#:	RTECS#:	IDLH:
CH_2=CHBr	593-60-2	KU8400000	Ca [N.D.]

Conversion: 1 ppm = 4.38 mg/m^3

DOT: 1085 116P (inhibited)

Synonyms/Trade Names: Bromoethene, Bromoethylene, Monobromoethylene

Exposure Limits:
NIOSH REL: Ca
See Appendix A
OSHA PEL†: none

Measurement Methods (see Table 1):
NIOSH 1009
OSHA 8

Physical Description: Colorless gas or liquid (below 60°F) with a pleasant odor.
[**Note:** Shipped as a liquefied compressed gas with 0.1% phenol added to prevent polymerization.]

Chemical & Physical Properties:
MW: 107.0
BP: 60°F
Sol: Insoluble
Fl.P: NA (Gas)
IP: 9.80 eV
RGasD: 3.79
Sp.Gr: 1.49 (Liquid at 60°F)
VP: 1.4 atm
FRZ: -219°F
UEL: 15%
LEL: 9%
Flammable Gas

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact (liquid)
Eyes: Prevent eye contact (liquid)
Wash skin: When contam (liquid)
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers (e.g., perchlorates, peroxides, chlorates, permanganates & nitrates.)
[**Note:** May polymerize in sunlight.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing (liquid), Con
SY: Irrit eyes, skin; dizz, conf, inco, narco, nau, vomit; liquid: frostbite; [carc]
TO: Eyes, skin, CNS, liver [in animals: liver & lymph node tumors]

First Aid (see Table 6):
Eye: Irr immed (liquid)
Skin: Water flush immed (liquid)
Breath: Resp support
Swallow: Medical attention immed (liquid)

Vinyl chloride

Formula:	CAS#:	RTECS#:	IDLH:
CH_2=CHCl	75-01-4	KU9625000	Ca [N.D.]

Conversion: 1 ppm = 2.56 mg/m^3

DOT: 1086 116P (inhibited)

Synonyms/Trade Names: Chloroethene, Chloroethylene, Ethylene monochloride, Monochloroethene, Monochloroethylene, VC, Vinyl chloride monomer (VCM)

Exposure Limits:
NIOSH REL: Ca
See Appendix A
OSHA PEL: [1910.1017] TWA 1 ppm
C 5 ppm [15-minute]

Measurement Methods (see Table 1):
NIOSH 1007
OSHA 4, 75

Physical Description: Colorless gas or liquid (below 7°F) with a pleasant odor at high concentrations.
[**Note:** Shipped as a liquefied compressed gas.]

Chemical & Physical Properties:
MW: 62.5
BP: 7°F
Sol(77°F): 0.1%
Fl.P: NA (Gas)
IP: 9.99 eV
RGasD: 2.21
VP: 3.3 atm
FRZ: -256°F
UEL: 33.0%
LEL: 3.6%
Flammable Gas

Personal Protection/Sanitation (see Table 2):
Skin: Frostbite
Eyes: Frostbite
Wash skin: N.R.
Remove: When wet (flamm)
Change: N.R.
Provide: Frostbite wash

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS/ScbaE

See Appendix E (page 351)

Incompatibilities and Reactivities: Copper, oxidizers, aluminum, peroxides, iron, steel [**Note:** Polymerizes in air, sunlight, or heat unless stabilized by inhibitors such as phenol. Attacks iron & steel in presence of moisture.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con (liquid)
SY: Lass; abdom pain, GI bleeding; enlarged liver; pallor or cyan of extremities; liquid: frostbite; [carc]
TO: Liver, CNS, blood, resp sys, lymphatic sys [liver cancer]

First Aid (see Table 6):
Eye: Frostbite
Skin: Frostbite
Breath: Resp support

Vinyl cyclohexene dioxide

Formula:	CAS#:	RTECS#:	IDLH:
$C_8H_{12}O_2$	106-87-6	RN8640000	Ca [N.D.]

Conversion: 1 ppm = 5.73 mg/m^3

DOT:

Synonyms/Trade Names: 1-Epoxyethyl-3,4-epoxy-cyclohexane; 4-Vinylcyclohexene diepoxide; 4-Vinyl-1-cyclohexene dioxide

Exposure Limits:
NIOSH REL: Ca
TWA 10 ppm (60 mg/m^3) [skin]
See Appendix A
OSHA PEL†: none

Measurement Methods (see Table 1):
OSHA PV2083

Physical Description: Colorless liquid.

Chemical & Physical Properties:
MW: 140.2
BP: 441°F
Sol: High
Fl.P(oc): 230°F
IP: ?
Sp.Gr: 1.10
VP: 0.1 mmHg
FRZ: -164°F
UEL: ?
LEL: ?
Class IIIB Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Alcohols, amines, water [**Note:** Slowly hydrolyzes in water.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: In animals: irrit eyes, skin, resp sys; testicular atrophy; leupen, nec thymus; skin sens; [carc]
TO: Eyes, skin, resp sys, blood, thymus, repro sys [in animals: skin tumors]

First Aid (see Table 6):
Eye: Irr immed
Skin: Water wash immed
Breath: Resp support
Swallow: Medical attention immed

Vinyl fluoride

Formula:	CAS#:	RTECS#:	IDLH:
CH_2=CHF	75-02-5	YZ3510000	N.D.

Conversion: 1 ppm = 1.89 mg/m^3

DOT: 1860 116P (inhibited)

Synonyms/Trade Names: Fluoroethene, Fluoroethylene, Monofluoroethylene, Vinyl fluoride monomer

Exposure Limits:
NIOSH REL: TWA 1 ppm
C 5 ppm [use 1910.1017]
OSHA PEL: none

Measurement Methods (see Table 1):
None available

Physical Description: Colorless gas with a faint, ethereal odor.
[**Note:** Shipped as a liquefied compressed gas.]

Chemical & Physical Properties:
MW: 46.1
BP: -98°F
Sol: Insoluble
Fl.P: NA (Gas)
IP: 10.37 eV
RGasD: 1.60
VP: 25.2 atm
FRZ: -257°F
UEL: 21.7%
LEL: 2.6%
Flammable Gas

Personal Protection/Sanitation (see Table 2):
Skin: Frostbite
Eyes: Frostbite
Wash skin: N.R.
Remove: When wet (flamm)
Change: N.R.
Provide: Frostbite wash

Respirator Recommendations (see Tables 3 and 4):
NIOSH
10 ppm: CcrOv/Sa
25 ppm: Sa:Cf/PaprOv
50 ppm: CcrFOv/GmFOv/PaprTOv/ ScbaF/SaF
200 ppm: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: None reported [**Note:** Inhibited with 0.2% terpenes to prevent polymerization.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con (liquid)
SY: Head, dizz, conf, inco, narco, nau, vomit; liquid: frostbite
TO: CNS

First Aid (see Table 6):
Eye: Frostbite
Skin: Frostbite
Breath: Resp support

Vinylidene chloride	Formula: $CH_2=CCl_2$	CAS#: 75-35-4	RTECS#: KV9275000	IDLH: Ca [N.D.]
Conversion:	DOT: 1303 130P (inhibited)			

Synonyms/Trade Names: 1,1-DCE; 1,1-Dichloroethene; 1,1-Dichloroethylene; VDC; Vinylidene chloride monomer; Vinylidene dichloride

Exposure Limits:
NIOSH REL: Ca
See Appendix A
OSHA PEL†: none

Measurement Methods (see Table 1):
NIOSH 1015
OSHA 19

Physical Description: Colorless liquid or gas (above 89°F) with a mild, sweet, chloroform-like odor.

Chemical & Physical Properties:
MW: 96.9
BP: 89°F
Sol: 0.04%
Fl.P: -2°F
IP: 10.00 eV
Sp.Gr: 1.21
VP: 500 mmHg
FRZ: -189°F
UEL: 15.5%
LEL: 6.5%
Class IA Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Aluminum, sunlight, air, copper, heat
[**Note:** Polymerization may occur if exposed to oxidizers, chlorosulfonic acid, nitric acid, or oleum. Inhibitors such as the monomethyl ether of hydroquinone are added to prevent polymerization.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, throat; dizz, head, nau, dysp; liver, kidney dist; pneu; [carc]
TO: Eyes, skin, resp sys, CNS, liver, kidneys [in animals: liver & kidney tumors]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap flush immed
Breath: Resp support
Swallow: Medical attention immed

Vinylidene fluoride	Formula: $CH_2=CF_2$	CAS#: 75-38-7	RTECS#: KW0560000	IDLH: N.D.
Conversion: 1 ppm = 2.62 mg/m^3	DOT: 1959 116P			

Synonyms/Trade Names: Difluoro-1,1-ethylene; 1,1-Difluoroethene; 1,1-Difluoroethylene; Halocarbon 1132A; VDF; Vinylidene difluoride

Exposure Limits:
NIOSH REL: TWA 1 ppm
C 5 ppm [use 1910.1017]
OSHA PEL: none

Measurement Methods (see Table 1):
NIOSH 3800

Physical Description: Colorless gas with a faint, ethereal odor. [**Note:** Shipped as a liquefied compressed gas.]

V

Chemical & Physical Properties:
MW: 64.0
BP: -122°F
Sol: Insoluble
Fl.P: NA (Gas)
IP: 10.29 eV
RGasD: 2.21
VP: 35.2 atm
FRZ: -227°F
UEL: 21.3%
LEL: 5.5%
Flammable Gas

Personal Protection/Sanitation (see Table 2):
Skin: Frostbite
Eyes: Frostbite
Wash skin: N.R.
Remove: When wet (flamm)
Change: N.R.
Provide: Frostbite wash

Respirator Recommendations (see Tables 3 and 4):
NIOSH
10 ppm: CcrOv/Sa
25 ppm: Sa:Cf/PaprOv
50 ppm: CcrFOv/GmFOv/PaprTOv/ ScbaF/SaF
200 ppm: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Oxidizers, aluminum chloride
[**Note:** Violent reaction with hydrogen chloride when heated under pressure.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con (liquid)
SY: Dizz, head, nau; liquid: frostbite
TO: CNS

First Aid (see Table 6):
Eye: Frostbite
Skin: Frostbite
Breath: Resp support

Vinyl toluene	Formula: $CH_2=CHC_6H_4CH_3$	CAS#: 25013-15-4 (inhibited)	RTECS#: WL5075000	IDLH: 400 ppm
Conversion: 1 ppm = 4.83 mg/m^3	**DOT:** 2618 130P (inhibited)			

Synonyms/Trade Names: Ethenylmethylbenzene, Methylstyrene, Tolyethylene

Exposure Limits:
NIOSH REL: TWA 100 ppm (480 mg/m^3)
OSHA PEL: TWA 100 ppm (480 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1501
OSHA 7

Physical Description: Colorless liquid with a strong, disagreeable odor.

Chemical & Physical Properties:
MW: 118.2
BP: 339°F
Sol: 0.009%
Fl.P: 127°F
IP: 8.20 eV
Sp.Gr: 0.89
VP: 1 mmHg
FRZ: -106°F
UEL: 11.0%
LEL: 0.8%
Class II Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
400 ppm: CcrOv*/PaprOv*/GmFOv/Sa*/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Oxidizers, peroxides, strong acids, iron or aluminum salts
[**Note:** Usually inhibited with tert-butyl catechol to prevent polymerization.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, upper resp sys; drow; in animals: narco
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap flush prompt
Breath: Resp support
Swallow: Medical attention immed

VM & P Naphtha	Formula:	CAS#: 8032-32-4	RTECS#: OI6180000	IDLH: N.D.
Conversion:	**DOT:** 1268 128 (petroleum distillates, n.o.s.)			

Synonyms/Trade Names: Ligroin, Painters naphtha, Petroleum ether, Petroleum spirit, Refined solvent naphtha, Varnish makers' & painters' naphtha

Exposure Limits:
NIOSH REL: TWA 350 mg/m^3
C 1800 mg/m^3 [15-minute]
OSHA PEL†: none

Measurement Methods (see Table 1):
NIOSH 1550
OSHA 48

Physical Description: Clear to yellowish liquid with a pleasant, aromatic odor.

Chemical & Physical Properties:
MW: 87-114 (approx)
BP: 203-320°F
Sol: Insoluble
Fl.P: 20-55°F
IP: ?
Sp.Gr(60°F): 0.73-0.76
VP: 2-20 mmHg
FRZ: ?
UEL: 6.0%
LEL: 1.2%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
3500 mg/m^3: CcrOv/Sa
8750 mg/m^3: Sa:Cf/PaprOv
17,500 mg/m^3: CcrFOv/GmFOv/PaprTOv/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: None reported
[**Note:** VM&P Naphtha is a refined petroleum solvent predominantly C_7-C_{11} which is typically 55% paraffins, 30% monocycloparaffins, 2% dicycloparaffins & 12% alklybenzenes.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, upper resp sys; derm; CNS depres; chemical pneu (aspir liquid)
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

V

Warfarin	**Formula:** $C_{19}H_{16}O_4$	**CAS#:** 81-81-2	**RTECS#:** GN4550000	**IDLH:** 100 mg/m^3
Conversion:	**DOT:**			

Synonyms/Trade Names: 3-(α-Acetonyl)-benzyl-4-hydroxycoumarin; 4-Hydroxy-3-(3-oxo-1-phenyl butyl)-2H-1-benzopyran-2-one; WARF

Exposure Limits:
NIOSH REL: TWA 0.1 mg/m^3
OSHA PEL: TWA 0.1 mg/m^3

Measurement Methods (see Table 1):
NIOSH 5002

Physical Description: Colorless, odorless, crystalline powder. [rodenticide]

Chemical & Physical Properties:
MW: 308.3
BP: Decomposes
Sol: 0.002%
Fl.P: ?
IP: ?
Sp.Gr: ?
VP(71°F): 0.09 mmHg
MLT: 322°F
UEL: ?
LEL: ?
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: N.R.
Wash skin: When contam
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
0.5 mg/m^3: Qm
1 mg/m^3: 95XQ/Sa
2.5 mg/m^3: Sa:Cf/PaprHie
5 mg/m^3: 100F/SaT:Cf/PaprTHie/ ScbaF/SaF
100 mg/m^3: Sa:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Hema, back pain; hematoma arms, legs; epis, bleeding lips, muc memb hemorr; abdom pain, vomit, fecal blood; petechial rash; abnor hematologic indices
TO: Blood, CVS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

Welding fumes	**Formula:**	**CAS#:**	**RTECS#:** ZC2550000	**IDLH:** Ca [N.D.]
Conversion:	**DOT:**			

Synonyms/Trade Names: Synonyms vary depending upon the specific component of the welding fumes.

Exposure Limits:
NIOSH REL: Ca
See Appendix A
OSHA PEL†: none

Measurement Methods (see Table 1):
NIOSH 7300, 7301, 7303

Physical Description: Fumes generated by the process of joining or cutting pieces of metal by heat, pressure, or both.

Chemical & Physical Properties:
Properties vary depending upon the specific component of the welding fumes.

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Varies

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Symptoms vary depending upon the specific component of the welding fumes; metal fume fever: flu-like symptoms, dysp, cough, musc pain, fever, chills; interstitial pneu; [carc]
TO: Eyes, skin, resp sys, CNS [lung cancer]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Resp support

Wood dust	Formula:	CAS#:	RTECS#:	IDLH:
			ZC9850000	Ca [N.D.]
Conversion:	**DOT:**			

Synonyms/Trade Names: Hard wood dust, Soft wood dust, Western red cedar dust

Exposure Limits:
NIOSH REL: Ca
TWA 1 mg/m^3
See Appendix A
OSHA PEL†: TWA 15 mg/m^3 (total)
TWA 5 mg/m^3 (resp)

Measurement Methods (see Table 1):
NIOSH 0500

Physical Description: Dust from various types of wood.

Chemical & Physical Properties:
MW: varies
BP: NA
Sol: ?
Fl.P: NA
IP: NA
Sp.Gr: ?
VP: 0 mmHg (approx)
MLT: NA
UEL: NA
LEL: NA
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: None reported

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Irrit eyes; epis; derm; resp hypersensitivity; granulomatous pneu; asthma, cough, wheez, sinusitis; prolonged colds; [carc]
TO: Eyes, skin, resp sys [nasal cancer]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Fresh air

m-Xylene	Formula:	CAS#:	RTECS#:	IDLH:
	$C_6H_4(CH_3)_2$	108-38-3	ZE2275000	900 ppm
Conversion: 1 ppm = 4.34 mg/m^3	**DOT:** 1307 130			

Synonyms/Trade Names: 1,3-Dimethylbenzene; meta-Xylene; m-Xylol

Exposure Limits:
NIOSH REL: TWA 100 ppm (435 mg/m^3)
ST 150 ppm (655 mg/m^3)
OSHA PEL†: TWA 100 ppm (435 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1501, 3800
OSHA 1002

Physical Description: Colorless liquid with an aromatic odor.

Chemical & Physical Properties:
MW: 106.2
BP: 282°F
Sol: Slight
Fl.P: 82°F
IP: 8.56 eV
Sp.Gr: 0.86
VP: 9 mmHg
FRZ: -54°F
UEL: 7.0%
LEL: 1.1%
Class IC Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
900 ppm: CcrOv*/PaprOv*/Sa*/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, strong acids

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, nose, throat; dizz, excitement, drow, inco, staggering gait; corn vacuolization; anor, nau, vomit, abdom pain; derm
TO: Eyes, skin, resp sys, CNS, GI tract, blood, liver, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

o-Xylene	Formula: $C_6H_4(CH_3)_2$	CAS#: 95-47-6	RTECS#: ZE2450000	IDLH: 900 ppm
Conversion: 1 ppm = 4.34 mg/m^3	**DOT:** 1307 130			

Synonyms/Trade Names: 1,2-Dimethylbenzene; ortho-Xylene; o-Xylol

Exposure Limits:
NIOSH REL: TWA 100 ppm (435 mg/m^3)
ST 150 ppm (655 mg/m^3)
OSHA PEL†: TWA 100 ppm (435 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1501, 3800
OSHA 1002

Physical Description: Colorless liquid with an aromatic odor.

Chemical & Physical Properties:
MW: 106.2
BP: 292°F
Sol: 0.02%
Fl.P: 90°F
IP: 8.56 eV
Sp.Gr: 0.88
VP: 7 mmHg
FRZ: -13°F
UEL: 6.7%
LEL: 0.9%
Class IC Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
900 ppm: CcrOv*/PaprOv*/Sa*/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, strong acids

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, nose, throat; dizz, excitement, drow, inco, staggering gait; corn vacuolization; anor, nau, vomit, abdom pain; derm
TO: Eyes, skin, resp sys, CNS, GI tract, blood, liver, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

p-Xylene	Formula: $C_6H_4(CH_3)_2$	CAS#: 106-42-3	RTECS#: ZE2625000	IDLH: 900 ppm
Conversion: 1 ppm = 4.41 mg/m^3	**DOT:** 1307 130			

Synonyms/Trade Names: 1,4-Dimethylbenzene; para-Xylene; p-Xylol

Exposure Limits:
NIOSH REL: TWA 100 ppm (435 mg/m^3)
ST 150 ppm (655 mg/m^3)
OSHA PEL†: TWA 100 ppm (435 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1501, 3800
OSHA 1002

Physical Description: Colorless liquid with an aromatic odor. [**Note:** A solid below 56°F.]

Chemical & Physical Properties:
MW: 106.2
BP: 281°F
Sol: 0.02%
Fl.P: 81°F
IP: 8.44 eV
Sp.Gr: 0.86
VP: 9 mmHg
FRZ: 56°F
UEL: 7.0%
LEL: 1.1%
Class IC Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
900 ppm: CcrOv*/PaprOv*/Sa*/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, strong acids

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, nose, throat; dizz, excitement, drow, inco, staggering gait; corn vacuolization; anor, nau, vomit, abdom pain; derm
TO: Eyes, skin, resp sys, CNS, GI tract, blood, liver, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

m-Xylene α,α'-diamine	Formula: $C_6H_4(CH_2NH_2)_2$	CAS#: 1477-55-0	RTECS#: PF8970000	IDLH: N.D.
Conversion:	**DOT:**			

Synonyms/Trade Names: 1,3-bis(Aminomethyl)benzene; 1,3-Benzenedimethanamine; MXDA; m-Phenylenebis(methylamine); m-Xylylenediamine

Exposure Limits:
NIOSH REL: C 0.1 mg/m^3 [skin]
OSHA PEL†: none

Measurement Methods (see Table 1):
OSHA 105

Physical Description: Colorless liquid.

Chemical & Physical Properties:
MW: 136.2
BP: 477°F
Sol: Miscible
Fl.P: 243°F
IP: ?
Sp.Gr: 1.032
VP(77°F): 0.03 mmHg
FRZ: 58°F
UEL: ?
LEL: ?
Class IIIB Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: None reported

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: In animals: irrit eyes, skin; liver, kidney, lung damage
TO: Eyes, skin, resp sys, liver, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

Xylidine	Formula: $(CH_3)_2C_6H_3NH_2$	CAS#: 1300-73-8	RTECS#: ZE8575000	IDLH: 50 ppm
Conversion: 1 ppm = 4.96 mg/m^3	**DOT:** 1711 153			

Synonyms/Trade Names: Aminodimethylbenzene, Aminoxylene, Dimethylaminobenzene, Dimethylaniline, Xylidine isomers (e.g., 2,4-Dimethylaniline)
[**Note:** Dimethylaniline is also used as a synonym for N,N-Dimethylaniline.]

Exposure Limits:
NIOSH REL: TWA 2 ppm (10 mg/m^3) [skin]
OSHA PEL†: TWA 5 ppm (25 mg/m^3) [skin]

Measurement Methods (see Table 1):
NIOSH 2002

Physical Description: Pale-yellow to brown liquid with a weak, aromatic, amine-like odor.

Chemical & Physical Properties:
MW: 121.2
BP: 415-439°F
Sol: Slight
Fl.P: 206°F (2,3-)
IP: 7.65 eV (2,4-)
7.30 eV (2,6-)
Sp.Gr: 0.98
VP: <1 mmHg
FRZ: -33°F
UEL: ?
LEL: 1.0% (o-isomer)
Class IIIB Combustible Liquid (2,3-)

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
20 ppm: CcrOv/Sa
50 ppm: Sa:Cf/CcrFOv/GmFOv/PaprOv/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, hypochlorite salts

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Anoxia, cyan, methemo; lung, liver, kidney damage
TO: Resp sys, blood, liver, kidneys, CVS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Yttrium

Formula: Y | **CAS#:** 7440-65-5 | **RTECS#:** ZG2980000 | **IDLH:** 500 mg/m^3 (as Y)

Conversion: | **DOT:**

Synonyms/Trade Names: Yttrium metal

Exposure Limits:
NIOSH REL*: TWA 1 mg/m^3
OSHA PEL*: TWA 1 mg/m^3
[***Note:** The REL and PEL also apply to other yttrium compounds (as Y).]

Measurement Methods (see Table 1):
NIOSH 7300, 7301, 7303, 9102
OSHA ID121

Physical Description: Dark-gray to black, odorless solid.

Chemical & Physical Properties:
MW: 88.9
BP: 5301°F
Sol: Soluble in hot H_2O
Fl.P: NA
IP: NA
Sp.Gr: 4.47
VP: 0 mmHg (approx)
MLT: 2732°F
UEL: NA
LEL: NA
Noncombustible Solid in bulk form.

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
5 mg/m^3: Qm
10 mg/m^3: 95XQ/Sa
25 mg/m^3: Sa:Cf/PaprHie
50 mg/m^3: 100F/SaT:Cf/PaprTHie/ ScbaF/SaF
500 mg/m^3: Sa:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes; in animals: pulm irrit; eye inj; possible liver damage
TO: Eyes, resp sys, liver

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

Zinc chloride fume

Formula: $ZnCl_2$ | **CAS#:** 7646-85-7 | **RTECS#:** ZH1400000 | **IDLH:** 50 mg/m^3

Conversion: | **DOT:** 2331 154

Synonyms/Trade Names: Zinc dichloride fume

Exposure Limits:
NIOSH REL: TWA 1 mg/m^3
ST 2 mg/m^3
OSHA PEL†: TWA 1 mg/m^3

Measurement Methods (see Table 1):
OSHA ID121

Physical Description: White particulate dispersed in air.

Chemical & Physical Properties:
MW: 136.3
BP: 1350°F
Sol(70°F): 435%
Fl.P: NA
IP: NA
Sp.Gr(77°F): 2.91
VP: 0 mmHg (approx)
MLT: 554°F
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
10 mg/m^3: 95XQ*/Sa*
25 mg/m^3: Sa:Cf*/PaprHie*
50 mg/m^3: 100F/PaprTHie*/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Potassium

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Irrit eyes, skin, nose, throat; conj; cough, copious sputum; dysp, chest pain, pulm edema, pneu; pulm fib, cor pulmonale; fever; cyan; tachypnea; skin burns
TO: Eyes, skin, resp sys, CVS

First Aid (see Table 6):
Breath: Resp support

Zinc oxide

Formula:	CAS#:	RTECS#:	IDLH:
ZnO	1314-13-2	ZH4810000	500 mg/m^3

Conversion: **DOT:** 1516 143

Synonyms/Trade Names: Zinc peroxide

Exposure Limits:
NIOSH REL: Dust: TWA 5 mg/m^3
C 15 mg/m^3
Fume: TWA 5 mg/m^3
ST 10 mg/m^3
OSHA PEL†: TWA 5 mg/m^3 (fume)
TWA 15 mg/m^3 (total dust)
TWA 5 mg/m^3 (resp dust)

Measurement Methods (see Table 1):
NIOSH 7303, 7502
OSHA ID121, ID143

Physical Description: White, odorless solid.

Chemical & Physical Properties:
MW: 81.4
BP: ?
Sol(64°F): 0.0004%
Fl.P: NA
IP: NA
Sp.Gr: 5.61
VP: 0 mmHg (approx)
MLT: 3587°F
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
50 mg/m^3: 95XQ/Sa
125 mg/m^3: Sa:Cf/PaprHie
250 mg/m^3: 100F/SaT:Cf/PaprTHie/ScbaF/SaF
500 mg/m^3: Sa:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Chlorinated rubber (at 419°F), water
[**Note:** Slowly decomposed by water.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh
SY: Metal fume fever: chills, musc ache, nau, fever, dry throat, cough; lass; metallic taste; head; blurred vision; low back pain; vomit; mal; chest tight; dysp, rales, decr pulm func
TO: Resp sys

First Aid (see Table 6):
Breath: Resp support

Zinc stearate

Formula:	CAS#:	RTECS#:	IDLH:
$Zn(C_{18}H_{35}O_2)_2$	557-05-1	ZH5200000	N.D.

Conversion: **DOT:**

Synonyms/Trade Names: Dibasic zinc stearate, Zinc salt of stearic acid, Zinc distearate

Exposure Limits:
NIOSH REL: TWA 10 mg/m^3 (total)
TWA 5 mg/m^3 (resp)
OSHA PEL†: TWA 15 mg/m^3 (total)
TWA 5 mg/m^3 (resp)

Measurement Methods (see Table 1):
NIOSH 0500, 0600

Physical Description: Soft, white powder with a slight, characteristic odor.

Chemical & Physical Properties:
MW: 632.4
BP: ?
Sol: Insoluble
Fl.P(oc): 530°F
IP: NA
Sp.Gr: 1.10
VP: 0 mmHg (approx)
MLT: 266°F
UEL: ?
LEL: ?
MEC: 20 g/m^3
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Oxidizers, dilute acids
[**Note:** Hydrophobic (i.e., repels water).]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, upper resp sys; cough
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Fresh air
Swallow: Medical attention immed

Zirconium compounds (as Zr)	**Formula:** Zr (metal)	**CAS#:** 7440-67-7 (metal)	**RTECS#:** ZH7070000 (metal)	**IDLH:** 50 mg/m^3 (as Zr)
Conversion:	**DOT:** 1358 170 (powder, wet); 1932 135 (scrap); 2008 135 (powder, dry)			

Synonyms/Trade Names: **Zirconium metal:** Zirconium
Synonyms of other zirconium compounds vary depending upon the specific compound.

Exposure Limits:
NIOSH REL*: TWA 5 mg/m^3
ST 10 mg/m^3
[***Note:** The REL applies to all zirconium compounds (as Zr) except Zirconium tetrachloride.]
OSHA PEL†: TWA 5 mg/m^3

Measurement Methods (see Table 1):
NIOSH 7300, 7301, 9102
OSHA ID121

Physical Description: Metal: Soft, malleable, ductile, solid or gray to gold, amorphous powder.

Chemical & Physical Properties:
MW: 91.2
BP: 6471°F
Sol: Insoluble
Fl.P: NA
IP: NA
Sp.Gr: 6.51 (Metal)
VP: 0 mmHg (approx)
MLT: 3375°F
UEL: NA
LEL: NA
Metal: Combustible, but solid form is difficult to ignite; however, powder form may ignite SPONTANEOUSLY and can continue burning under water.

Personal Protection/Sanitation (see Table 2):
Recommendations regarding personal protective clothing vary depending upon the specific compound.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
25 mg/m^3: Qm
50 mg/m^3: 95XQ/PaprHie/100F/Sa/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Potassium nitrate, oxidizers
[**Note:** Fine powder may be stored completely immersed in water.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Skin, lung granulomas; in animals: irrit skin, muc memb; X-ray evidence of retention in lungs
TO: Skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Resp support
Swallow: Medical attention immed

Z

APPENDIX C

List of Approved Amendments/changes

CHASP Acknowledgement/Agreement Form

Visitors Log

Tailgate Safety Meeting Form

Air Quality Monitoring Record

Equipment Calibration Log

Checklist for Subsurface Investigation

Monthly Heavy Equipment Safety Inspection Checklist

CONSTRUCTION HEALTH AND SAFETY PLAN (CHASP)
List of Approved Amendments/Changes

Date	Name	Signature	Changes/Comments	Section Added

CONSTRUCTION HEALTH AND SAFETY PLAN (CHASP)
Acknowledgement/Agreement Form

(All ATC, Subcontractor & Client Personnel Must Sign)

Client Site Name: _____ Project Site No. _____

ATC Project No. _____ Task No. _____

I acknowledge I have reviewed a copy of the Health and Safety Plan for this project, understand it, and agree to comply with all of its provisions. I also understand I could be prohibited by the Site Health and Safety Coordinator or other ATC personnel from working on this project for not complying with any aspect of this Health and Safety Plan:

PRINT NAME	SIGNATURE	COMPANY	DATE

CONSTRUCTION HEALTH AND SAFETY PLAN (CHASP)
Visitors Log

Client Site Name: _____ Project Site No. _____

ATC Project No. _____ Task No. _____

PRINT NAME	SIGNATURE	COMPANY	DATE

CONSTRUCTION HEALTH AND SAFETY PLAN (CHASP)
Tailgate Safety Meeting Form

Site Name & Number: _____

ATC Project Number: _____

Work Being Performed: _____

Date & Time of Meeting: _____

Name of Presenter: _____

NOTE: On the initial day of the project, the Project Manager or designee should conduct a visual inspection of the project site (using the Site Safety Checklist) prior to the Tailgate Safety Meeting. This inspection should include a review of project site equipment, hazards, and specific job tasks, activities or operations to be performed for that day. These specific items must be covered during the Tailgate Safety Meeting. For subsequent days, any changes to the site or operations must be covered in the Tailgate Safety Meeting. In addition, "Task-Specific" Job Safety Analysis (JSA) for the tasks/activities at the project site must be integrated into the CHASP and Tailgate discussions.

Itemize the Specific Topics Discussed (if more space is needed use the back of this page):

❑ Are all employees okay? ❑ Are all employees physically able to perform their job duties? ❑ "Shared Learning" items?
❑ Has PPE been checked? ❑Emergency evacuation area identified? ❑ Asked for Sub interactions or questions?

❑ **Client Requirements** - By checking the box to the left, the Presenter of the Tailgate Meeting acknowledges that all Client-specific requirements have been completed for both ATC and Subcontractor employees.

Participants (if needed, list additional participants on back of this page):

Print Name	Signature	Company	Date

A Tailgate Safety Meeting must be conducted and documented at the beginning of each workday when two or more ATC employees and/or Subcontractor representatives are present on site. Employees, client representatives and subcontractors who arrive at the site after the Tailgate Safety Meeting has been conducted must be briefed on the topics and acknowledge by signing this form. The JSA must be completed at the beginning of each day when one or more ATC employees and/or subcontractor representatives are present on a site.

CONSTRUCTION HEALTH AND SAFETY PLAN (CHASP)
Air Quality Monitoring Record

DATE	TIME	LOCATION	INSTRUMENT	CONCENTRATION (UNITS)	SAMPLED BY

Equipment Calibration Log

DATE	INSTRUMENT/ MODEL NO.	ZERO ADJUST OK?	CALIBRATION GAS (PPM)	READING (PPM)	LEAK CHECK	PERFORMED BY	COMMENTS

CHECKLIST FOR SUBSURFACE CLEARANCE

MUST be filled out PRIOR to the Start of Field Activities
NO subsurface work in road Right of Ways or Off-Site (property boundary) without Written Authorization

Site Name: _____

Site Address: _____

Project No.: _____

To understand and use this checklist correctly you must refer to and follow ATC's Subsurface Investigation Procedures.

	Person Verifying Each Item to Place Initials On Lines Below and Sign Bottom of Page	Comments
PRE-DRILLING PREPARATION		
Review definition of "Critical" and "Non-Critical" areas.		
Request as-built drawings, and/or approval to use private utility locator service and/or air knife to locate/protect subsurface utilities.		
Obtain Site access agreement.		
Pre-plan boring locations.		
Establish surface boring method.		If not using Air Knife-type technology, why?
Obtain permits and clearances.		
Do borehole and utility mark outs.		
Establish Site-specific Health and Safety Plan		
Notify Client, owner, operator prior to mobilization.		
ON-SITE PROCEDURES		
Conduct tailgate safety meeting with topics as indicated in procedure.		
Read and follow Drilling/Probing procedures		
--1. Do Site walk and verify that utility location checklist is complete.		
--2. Locate all mark outs and planned borehole locations. Start intrusive procedures at least 5 feet away from and perpendicular to utility mark outs.		
--3. Break surface cover.		
--4. Do surface boring to required depth using hand auger, post-hole digger, shovel or "air knife".		
--5. If necessary, use alternate procedure for surface boring.		
--6. Collect soil samples by hand auguring to required depth.		
--7. Protect the borehole from pedestrian and vehicular traffic.		

*Buried utilities can be found at any depth, but are most often found within the first 5 feet below the ground surface. Proceed slowly and with extra caution when working within 5 feet of the ground surface.

NOTES:

_____

SIGNATURE DATE

MUST be filled out PRIOR to the Start of Field Activities

NO subsurface work in road Right of Ways or Off-Site (property boundary) without Written Authorization

Site Address: _____ **If Present --**

_____

Site Safety Documents (on-site during activities)	**"Yes or No"**		**Fill Out, as applicable**		
Utility Staking Request Form (properly completed for current scope of work)?	**Yes**	**No**	Ticket # and Expir. Date: #	/	/
Site Health and Safety Plan?	**Yes**	**No**	Hospital Location Map Available	**Yes**	**No**

Utility Identification "color" **Above Ground (AG) / Buried (B)**				**Identify on a Site Map the Location of ALL Lines & Meters (or actual utility) and Indicate Nearest Building Quadrant (NE, SE, SW, or NW)**			
Natural Gas (Yellow) / Staked?	AG / B	**Yes**	**No**	NW	NE	SE	SW
Electrical (Red) / Staked?	AG / B	**Yes**	**No**	NW	NE	SE	SW
Telephone/Fiber Optic (Orange) / Staked?	AG / B	**Yes**	**No**	NW	NE	SE	SW
Cable TV (Orange) / Staked?	AG / B	**Yes**	**No**	NW	NE	SE	SW
Water (Blue) / Staked?	AG / B	**Yes**	**No**	NW	NE	SE	SW
Sewer (Green) / Staked?	AG / B	**Yes**	**No**	NW	NE	SE	SW

Significant Site Features			**Site Feature Located in Closest Property Quadrant (NE, SE, SW, or NW). Also Identify on Site Map.**
UST system (UST cavity, dispenser islands, piping runs, vent pipes etc.)?	**Yes**	**No**	
Above Ground Storage Tanks – ASTs (dispenser islands, piping runs)?	**Yes**	**No**	
Electrical Transformers?	**Yes**	**No**	
Area Lighting (Pole mounted lighting, etc.)?	**Yes**	**No**	
Signage with electrical power (Business/Company signs, etc.)?	**Yes**	**No**	
Underground lawn/landscaping sprinkler system?	**Yes**	**No**	
Storm drain catch basins / man-ways and potential connecting conduits/lines?	**Yes**	**No**	

Other			**"Other" Concerns Located in Closest Property Quadrant (NE, SE, SW, or NW). Identify on Site Map.**
Pavement distress (Cracked pavement, "buckled" asphalt, etc.)?	**Yes**	**No**	

*Buried utilities can be found at any depth, but are most often found within the first 5 feet below the ground surface. Proceed slowly and with extra caution when working within 5 feet of the ground surface.

NOTES:

_____

SIGNATURE DATE

Monthly Mobile/Heavy Equipment Safety Inspection Checklist

This form is to be completed by the qualified operator of the equipment

Date:		Project No.:		Site/Location:	
Equipment Type:		Model No.:		Odometer:	
Operator/Inspector Name:				Machine Hours:	

Warning: Do not operate a malfunctioning machine until corrective measures have been taken and all discrepancies have been cleared by a qualified operator/mechanic. In addition to elements on this checklist, the owner's manual for the specific piece of equipment being operated may contain other daily inspection checks and/or preventative maintenance procedures.

General Safety	☐	Operator Qualification	☐	PPE Supplies	☐	Fire Extinguisher (ready-to-use)
	☐	Owner's Manual (present)	☐	Driver Check (decal in place)	☐	First-Aid Kit (present & stocked)
	☐	Manufacturer Specs Followed	☐	Access Ladder (secure and ok)	☐	Housekeeping (clean)
	☐	Emergency Kit (signs, flares)	☐	Flashlight	☐	Markers (cones, barricades, etc.)
Vehicle, Engine, and Hydraulic Systems (note any added fluid)	☐	Engine Oil (fluid level, condition)	☐	Fuel Level	☐	Other Fluid
	☐	Transmission (fluid level, fluid condition, unit operation)	☐	Brake Fluid	☐	Steering (power steering fluid level, no play in steering)
	☐	Radiator (coolant level, hose condition)	☐	Fan Belts (tension/condition)	☐	Brakes (vehicle, parking)
	☐	Hydraulic System (fluid level, fluid condition, hose condition, cylinders, leakage)	☐	Chassis (proper lubrication)	☐	Tires (condition, inflation)
	☐	Outriggers (operational, if equipped)	☐		☐	
Tracked Vehicles	☐	Track Tension (proper tension)	☐	Plates and/or Shoes	☐	Grouser Plates
	☐	Rollers	☐	Drive Sprockets		
Lights and alarms (clean and functional)	☐	Headlights (hi, low, run beams)	☐	Parking Lights	☐	Revolving Flashing Lights (if required)
	☐	Reverse Lights (backup)	☐	Equipment Work Lights	☐	Horn
	☐	Brake/Tail Lights	☐	Turn Signals/Hazard Flashers	☐	Reverse Alarms (backup)
Vehicle cab (clean and functional)	☐	Seatbelts (if required)	☐	Windshield Wipers	☐	Body Damage
	☐	Housekeeping	☐	2 Way Communication	☐	Speed/Hour Meter
	☐	Fuel Gauge	☐	Horn (operational)	☐	Windshield (glass ok, clean)
	☐	Controls Operational	☐	Mirrors (rear view, side)		

Maintenance/ Equipment Request	Corrected By:	Date:

Inspectors Signature:		
		Date

APPENDIX D
Excavating & Trenching

All ATC employees and subcontractors shall be trained and be familiar with the OSHA Excavation Standard and the ATC Employee Health and Safety Policy Manual, Policy No. 16 (Excavation and Trenching) and Policy No. 33 (Subsurface Investigation).

1.0 UNDERGROUND UTILITIES

Prior to any work beginning, the estimated location of utility installations (such as sewer, telephone, fuel, electric, water lines, or any other underground installation) that reasonably may be expected to be encountered during excavation work must be determined prior to opening an excavation. Utility companies or owners shall be contacted and advised of the proposed work and asked to establish the location of the utility underground installations. When utility companies or owners cannot respond to a request to locate underground utilities within 24-48 hours (unless a longer period is required by State or local law), or cannot establish the exact location of these installations, the work may proceed, provided that the work is conducted with caution, and provided detection equipment or other acceptable means to located utilities are used.

When excavation operations approach the estimated location of underground installations (approximately 18 inches from the installation), the exact location of the installations shall be determined by a safe and acceptable means. While the excavation is open, underground installations shall be protected, supported, or removed to safeguard employees.

2.0 ENTERING EXCAVATIONS OR TRENCHES

Daily inspections of excavations, the adjacent areas, and protective systems shall be made by a "*Competent Person"* for evidence of a situation that could result in a possible cave-in, indications of failure of protective systems, hazardous atmospheres, or other hazardous conditions. An inspection shall be conducted by the Competent Person prior to the start of work and as needed throughout the shift. Inspections shall also be made after every rainstorm or other hazard increasing occurrence. All inspections made by the Competent Person should be recorded in the field log book.

No person(s) shall perform work in a trench or excavation that contains accumulated water.

2.1.1 Access/Egress

A stairway, ladder, ramp, or other safe means of egress shall be located in trench excavations that are 4 feet or more in depth so as to require no more than 25 feet of lateral travel distance in any direction.

2.1.2 Exposure to Falling Loads

No employee or subcontractor is permitted underneath loads handled by lifting or digging equipment. All personnel shall be required to stand away from any vehicle being loaded or unloaded to avoid being struck by spilling or falling materials. Operators may remain in the cabs of vehicles being loaded or unloaded when the equipment is provided with a cab shield and/or canopy adequate to protect the operator from falling materials.

2.1.3 Warning Systems

When mobile equipment is operated adjacent to an excavation and the operators/drivers do not have a clear and direct view of the edge of the excavation, a warning system such as barricades, hand or mechanical signals, or stop logs are required.

APPENDIX D
Excavating & Trenching

2.1.4 Protection from Loose Rock or Soil

Adequate protection shall be provided to protect employees from loose rock or soil that could pose a hazard to personnel in the excavation. All temporary spoil piles shall be kept at least 2 feet away from the edge of the excavation. Spoil piles should be placed to channel rainwater or other run-off water away from the excavation.

2.1.5 Hazardous Atmospheres

All excavations deeper than 4 feet deep and which have the potential to have a hazardous atmosphere or oxygen deficient atmospheres (Less than 19.5% oxygen) must be tested to ensure safe working conditions, prior to entry. Air monitoring shall be conducted in accordance with Section 4.0 of the CHASP.

2.1.6 Protective Systems

Each employee in an excavation shall be protected from cave-ins by an adequate protective system except when excavations are made entirely in stable rock or the excavation is less than 5 feet in depth and examination by the Competent Person provides no indication of a potential cave-in. Protective systems consist of sloping or benching, use of trench boxes or other shielding mechanisms, or the use of a shoring system in accordance with the regulations.

APPENDIX E
Lockout/Tag out Requirements & Procedures

1.0 DEFINITIONS

1. Lockout – Involves using a device such as a padlock, blank pipe flange, chain key block, etc. to isolate energy from employee exposure.
2. Tag out – Involves applying a tag to the energy isolating device with written information concerning the date and name of person who applied the lock and tag.

2.0 LOCKOUT/TAGOUT POLICY

This procedure establishes the minimum requirements for lockout/tag out of electrical energy sources, mechanical, hydraulic, pneumatic, thermal or chemical process energy. It is to be used to ensure that conductors and circuit parts are disconnected from sources of electrical energy, locked (tagged), and tested before work begins where employees or subcontractor could be exposed to dangerous conditions. Sources of stored energy, such as capacitors or springs, shall be relieved of their energy, and a mechanism shall be engaged to prevent the re-accumulation of energy.

Lockout/tag out procedures shall be used prior to performing tie-in operations, maintenance, repair or adjustment of any device where exposure to hazardous energy sources may occur.

3.0 RESPONSIBILITY

All effected employees and subcontractors shall be instructed in the safety significance of the lockout/tag out procedure. All new or transferred employees and all other persons whose work operations are or might be in the area shall be instructed in the purpose and use of this procedure. The ATC Project Manager shall ensure that appropriate personnel receive instructions on their roles and responsibilities. All persons installing a lockout/tag out device shall sign their names and the date on the tag and on the Lockout/Tag out Isolation Record (see Appendix E.1).

4.0 PREPARATION FOR LOCKOUT/TAGOUT

1. Review current diagrammatic drawings (or other equally effective means), tags, labels, and signs to identify and locate all disconnecting means to determine that the source of energy is interrupted by a physical break and not deenergized by a circuit interlock. Make a list of disconnecting means to be locked/tagged.
2. Review other work activities to identify where and how other personnel might be exposed to sources of energy. Establish energy control methods for control of other hazardous energy sources in the area.
3. Provide an adequately rated voltage detector to test each electrical phase conductor or circuit part to verify that they are deenergized. Test the voltage detector to make sure that it is working properly.

5.0 LOCKOUT PROCEDURE

1. Complete the Lockout/Tag out Isolation Record (see Appendix E.1).
2. All affected employees in the area shall be notified that a lockout is being performed.
3. The equipment being locked out shall be shut down using normal shutdown procedures. (I.e. operator's control station, stop button, etc.).
4. Any residual energy shall be identified and dissipated at this time.
5. All equipment energy sources shall be neutralized. (i.e. electrical disconnects shall be opened, valves closed, blanks inserted in piping, springs returned to neutral position, other energy sources as required)

6. The qualified employee performing the lockout shall place his/her personal lock and tag on EACH energy isolation point isolated in Step 4. If more than two (2) isolation points are required to lockout the device, a group lockbox may be used. A tag indicating all persons who applied a lock, date, time, equipment type, and number and duration of lockout shall also be applied at this time. A subcontractor representative and an ATC employee shall also apply a lock at this time.
7. Test the lockout by clearing the area and attempting to operate the machine or attempting to operate disconnecting means to determine that the operation is prohibited. A voltage-detecting instrument should be used for electrical components. Inspect the instrument prior to use for physical damage and operation.

6.0 REMOVAL OF LOCKOUT/TAGOUT

1. Upon completion of the lockout an authorized employee must check the area for completeness of work. If the employee who initiated the lockout is available, he/she should conduct this inspection.
2. Remove all tools and nonessential items from the area.
3. Replace all guards.
4. Ensure all employees are clear of the equipment/process.
5. Notify all affected employees in the area that the lockout device(s) are being removed.
6. Remove lockout device(s).
7. Restart the machine to insure proper operation.

7.0 GROUP LOCKOUT

1. When multiple isolation points, three (3) or more, must be controlled during a lockout, or when multiple persons (craft) are involved, a group lockout shall be used.
2. Follow the steps for a normal lockout as documented in steps 1-6 above.
3. Each key for the locks used shall be placed in a group lockout box. The group lockbox shall be kept in view of the work being performed when practical.
4. A Job Control Lock shall be installed on the group lockbox by an ATC Employee. This lock shall remain in place until the lockout has been completed.
5. Each employee shall remove their own lock when their portion of the work is completed or at the end of each shift.
6. Upon completion of the work, the ATC employee shall inspect the work area for completeness.
7. When all of the conditions of the lockout termination procedures have been satisfied, the Job Control Lock shall be removed from the group lockbox.

8.0 EMERGENCY REMOVAL LOCKOUT/TAGOUT DEVICE

1. If an employee leaves the facility without removing his/her lock and tag, an effort shall be made to notify the employee that the supervisor in charge will authorize the removal of their lock. It must be deemed necessary that removal of the lock is required by at least two supervisory personnel, but only after confirming beyond any doubt it is safe to do so.
2. Verify the employee has left the Site.
3. Check with co-workers.
4. Check the employee's time card.
5. Attempt to reach him/her at home.

APPENDIX E
Lockout/Tag out Requirements & Procedures

6. Verify the employee is not in the equipment.
7. Visually confirm the completeness of work.
8. Contact the Regional Safety Coordinator and the Project Manager.
9. An authorized employee, under the direct supervision of an ATC Supervisor shall remove the lock.
10. Upon return to the Site by the employee involved, he/she shall be informed of the removal.
11. A review of the incident may be conducted by the ATC RSC Coordinator to determine any disciplinary actions necessary.

APPENDIX E-1
Lockout/Tag out Isolation Record

System:		Isolation Record	Status	Tagging Authority
Equipment Tag:		Equipment Description:	☐ Construction	
			☐ Startup	
			☐ Operations	

LOTO No.	DNO Tag No.	Equipment Tag No.	Equipment Description	Pos.	LOTO Placed By:	Date	LOTO Removed BY:	Date

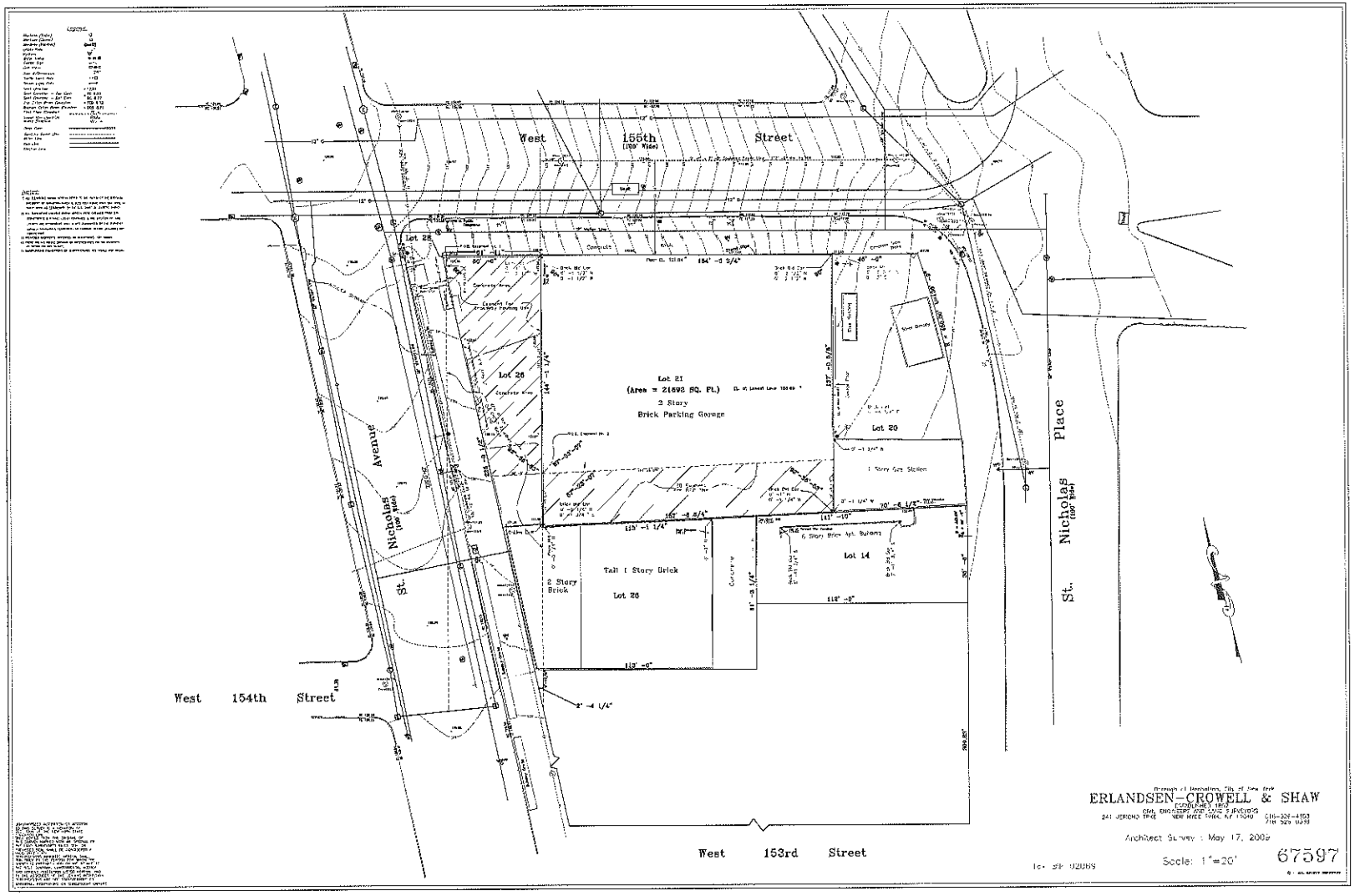
Tagging Authority Approval:		
	Signature	Date

Holder List:

PTW No.	Signed Onto LOTO Name	Date / Time	Signed Off LOTO Name	Date / Time

APPENDIX 5

PROPOSED CONSTRUCTION DRAWINGS



PROJECT
SUGAR HILL PROJECT
400 WEST 155TH STREET, NEW YORK, NY

DEVELOPER / OWNER
BROADWAY HOUSING DEVELOPMENT COMPANY INC.
563 FRIDERICI DRIVE #1
NEW YORK, NY 10031
TEL: (212) 546-2300
FAX: (212) 926-4474

ARCHITECT:
SLCE ARCHITECTS
841 BROADWAY
NEW YORK, NY 10003
TEL: (212) 979-8400
FAX: (212) 979-8401

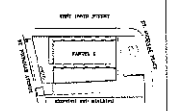
FOUND CONSULTANTS
ADJAYE ASSOCIATES
415 BROADWAY
NEW YORK, NY 10013
TEL: (212) 966-6600

STRUCTURAL ENGINEER
YSRAEL A. SEINUK, P.C.
224 EAST 45TH STREET, 2ND FLOOR
NEW YORK, NY 10017
TEL: (212) 867-0222
FAX: (646) 473-0255

MEP ENGINEER
RODKIN CARDINALE, P.C.
214 WEST 29TH STREET
NEW YORK, NY 10001
TEL: (212) 239-0997
FAX: (212) 239-0972

No.	Date	Description
1	11/15/2010	PRICING SET
2	01/14/2011	421-G CONTROLS
3	02/21/2011	PRICING SET
4	03/14/2011	PERMIT SET
5	04/01/2011	421-G REMAINING CHG.'S

KEY PLAN:

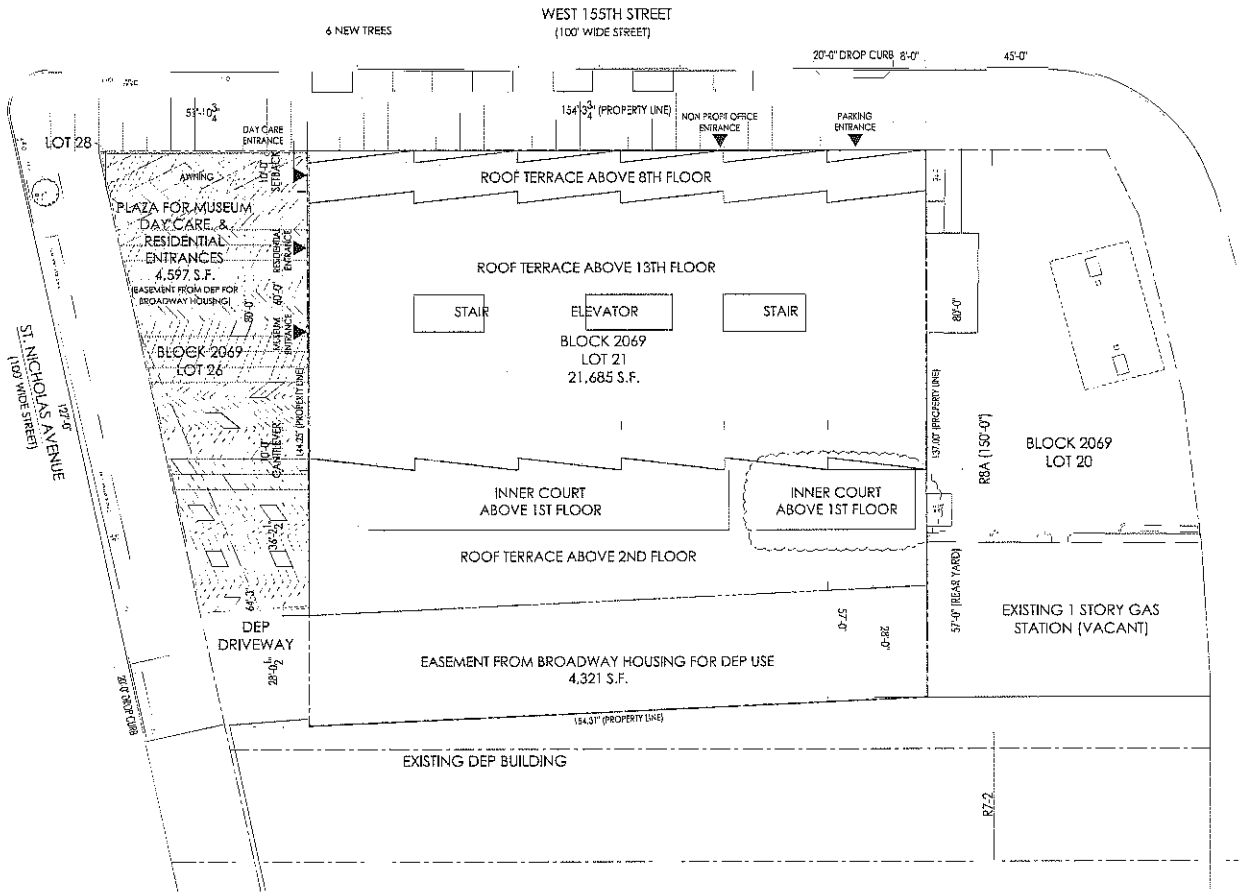


PROJECT:
SUGAR HILL PROJECT
400 WEST 155TH STREET, NEW YORK, NY

DRAWING TITLE:
SITE SURVEY

SEAL & SIGNATURE:

DATE: 04/01/11
PROJECT NO: 2006-03
DRAWN BY:
CHECKED BY:
DRAWING NO.
A-005.00
CADD FILE:



PROJECT
SUGAR HILL PROJECT
433 WEST 155TH STREET, NEW YORK, NY

DEVELOPER / OWNER
BROADWAY HOUSING DEVELOPMENT COMPANY INC.
500 WEST 155TH STREET, NEW YORK, NY 10032
TEL. (212) 926-5600
FAX (212) 926-5656

ARCHITECT
SLCE ARCHITECTS
64 BROADWAY
NEW YORK, NY 10003
TEL. (212) 777-4400
FAX. (212) 777-4401

GENERAL CONTRACTOR
ADJAYE ASSOCIATES
40 BROADWAY
NEW YORK, NY 10013
TEL. (212) 966-5400

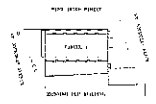
STRUCTURAL ENGINEERS
YSRAEL A. SEINUK, P.C.
225 EAST 59TH STREET, 2ND FLOOR
NEW YORK, NY 10017
TEL. (212) 207-1270
FAX. (646) 437-5510

MEP ENGINEERS
RODKIN CARDINALE, P.C.
[illegible] EAST 59TH STREET
NEW YORK, NY 10017
TEL. (212) 674-1890
FAX. (212) 674-1892

No.	Date	Revision
	11-14-2008	PRELIMINARY
	01-14-2009	FOR DISCUSSION
	02-25-2010	PROPOSED HP
	03-17-2010	FOR HP
	03-30-2010	FOR DEVELOPMENT

Scale: 0 1 2 3 4 5

KEY PLAN:

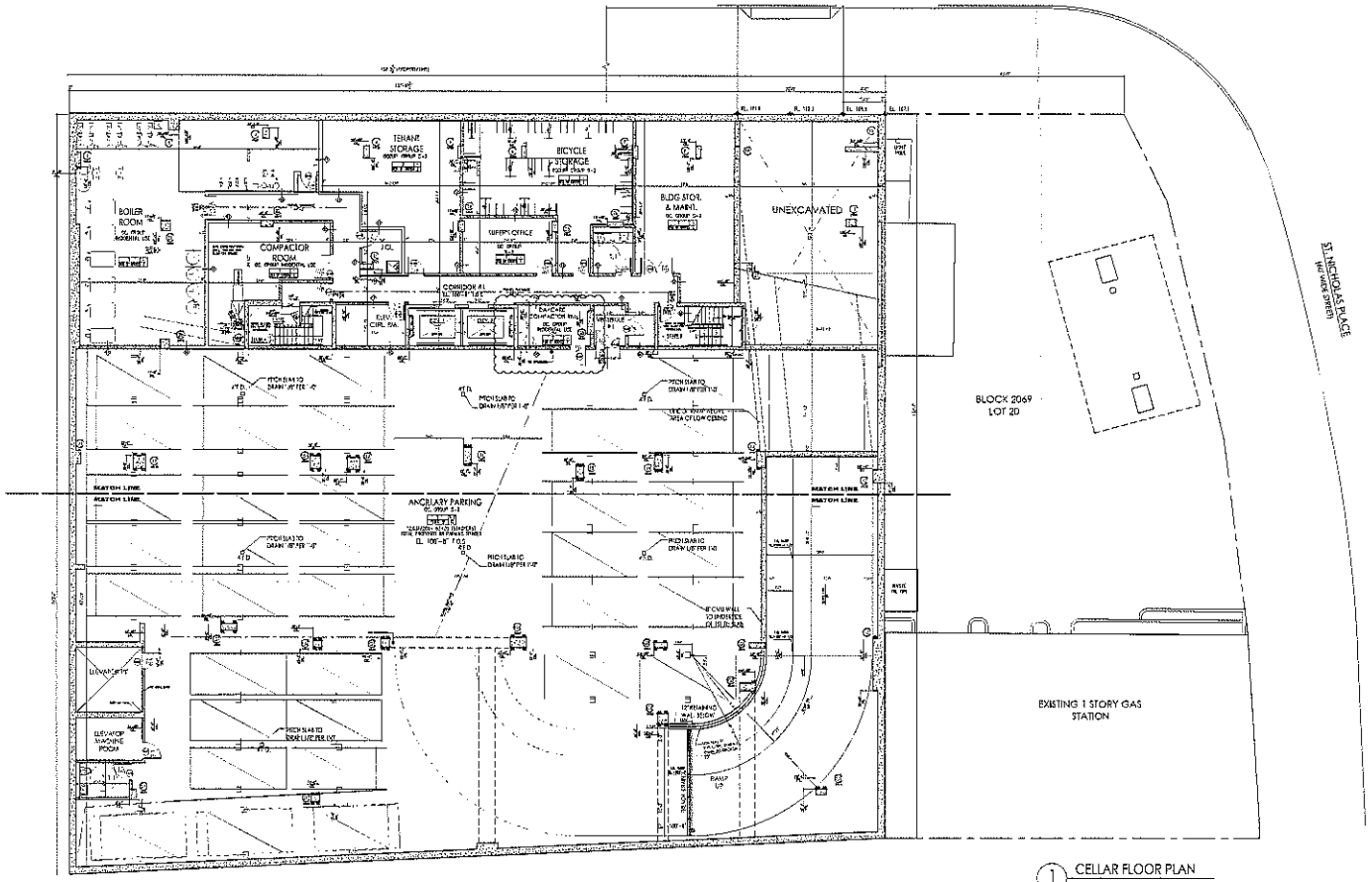


PROJECT:
SUGAR HILL PROJECT
433 WEST 155TH STREET, NEW YORK, NY

DRAWING TITLE:
SITE PLAN

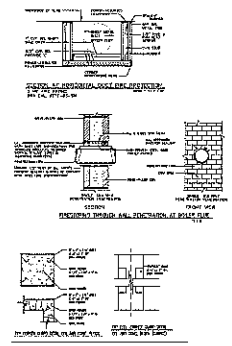
SEAL & SIGNATURE:

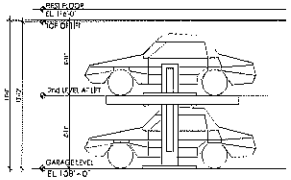
DATE: 03/27/2010
DESIGNED: JOANNE
DRAWN: [illegible]
CHECKED: [illegible]
DRAWING No.: A-006.00
SHEET No.: 01



1 CELLAR FLOOR PLAN

SCALE: 1'-0" = 1/8"





PARKING STACKERS DETAIL

PROJECT:

SUGAR HILL PROJECT

400 WEST 155th STREET, NEW YORK, NY

OWNER/DEVELOPER:

BROADWAY HOUSING DEVELOPMENT COMPANY INC.

ARCHITECT:

SLCE ARCHITECTS

DESIGN CONSULTANTS:

ADJAYE ASSOCIATES

STRUCTURAL ENGINEER:

YSRAEL A. SEINUK, P.C.

MECHANICAL:

RODKIN CARDINALE, P.C.

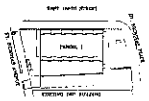
Date	Description
11-15-2018	PRICING SET
09-14-2018	ISSUE FOR DOB
08-14-2018	PRICING SET
06-14-2018	PRICING SET
03-14-2018	ISSUE FOR DRAWING CHECK

No. Date Revision

NORTH/GRID

Scale

KEY PLAN:



PROJECT:

SUGAR HILL PROJECT

400 WEST 155th STREET, NEW YORK, NY

DRAWING TITLE:

CELLAR PLAN

SEAL & SIGNATURE:

Date: 03-14-18

Project No.

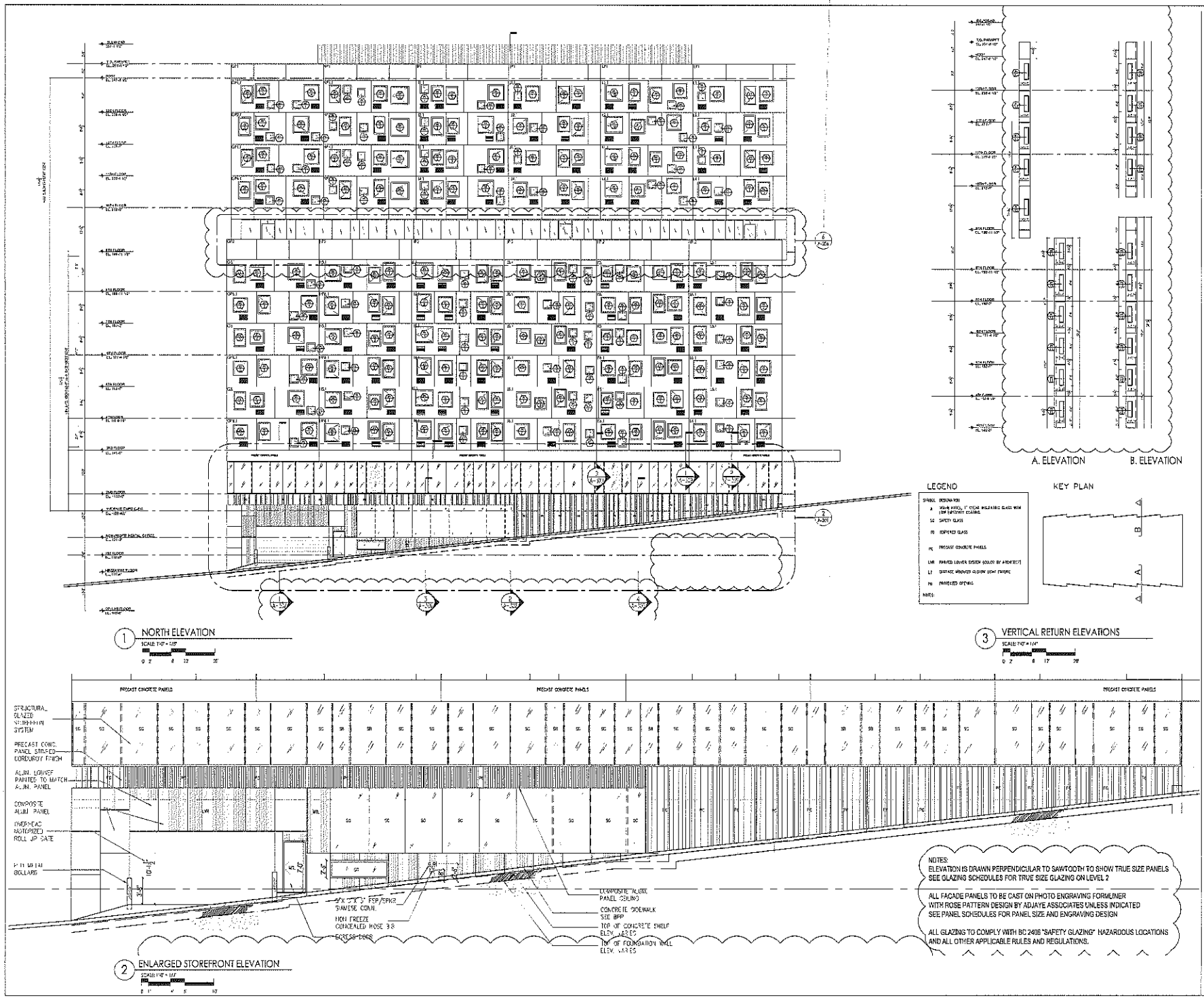
Drawn By:

Checked By:

Reviewed By:

A-100.00

Date/Sheet No. of



NOTES:
ELEVATION IS DRAWN PERPENDICULAR TO SAWTOOTH TO SHOW TRUE SIZE PANELS
SEE GLAZING SCHEDULES FOR TRUE SIZE GLAZING ON LEVEL 2

ALL FACADE PANELS TO BE CAST ON PHOTO ENGRAVING FORMLINER WITH ROSE PATTERN DESIGN BY ADJAYE ASSOCIATES UNLESS INDICATED SEE PANEL SCHEDULES FOR PANEL SIZE AND ENGRAVING DESIGN

ALL GLAZING TO COMPLY WITH BC 2406 "SAFETY GLAZING" HAZARDOUS LOCATIONS AND ALL OTHER APPLICABLE RULES AND REGULATIONS.

PROJECT:
SUGAR HILL PROJECT
400 WEST 155TH STREET, NEW YORK, NY

OWNER:
BROADWAY HOUSING DEVELOPMENT COMPANY INC.

ARCHITECT:
SLCE ARCHITECTS

DESIGN CONSULTANT:
ADJAYE ASSOCIATES

STRUCTURAL ENGINEER:
YSRAEL A. SEINUK, P.C.

MECHANICAL ENGINEER:
RODKIN CARDINALE, P.C.

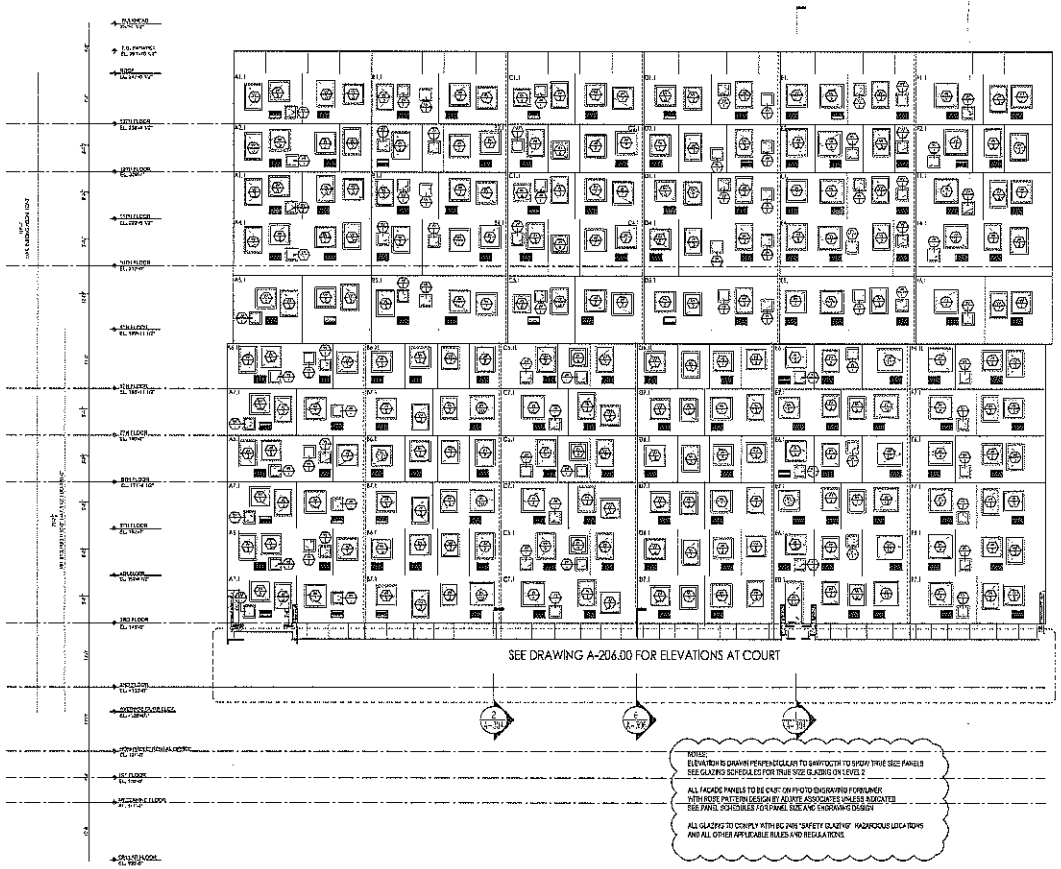
KEY PLAN:

PROJECT:
SUGAR HILL PROJECT
400 WEST 155TH STREET, NEW YORK, NY

DRAWING TITLE
NORTH ELEVATION

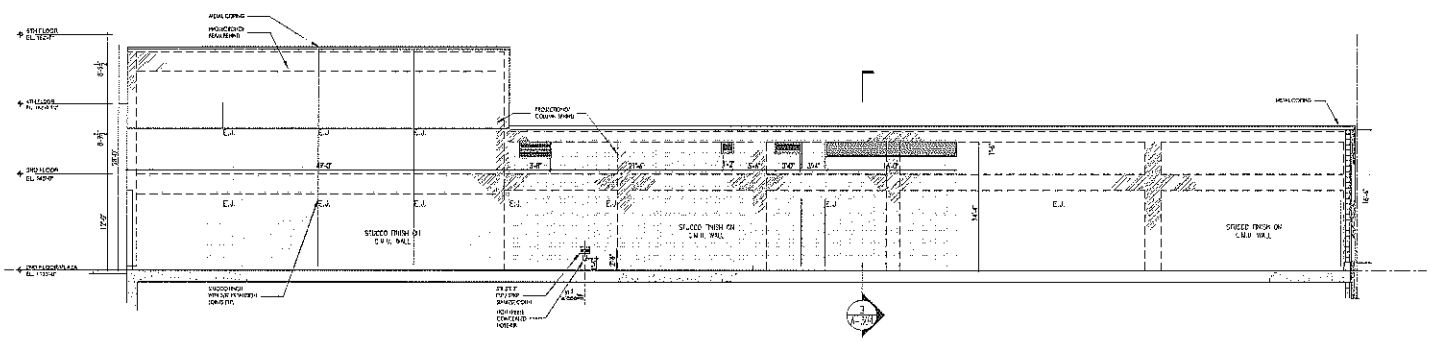
SEAL & SIGNATURE:

DATE:
PROJECT NO.
DRAWN BY
CHECKED BY
DRAWING NO.
A-201.00
SHEET NO.
OF



1 SOUTH ELEVATION

SCALE: 1/8" = 1'-0"



2 D.E.P. EASEMENT ELEVATION

SCALE: 1/8" = 1'-0"

PROJECT:
SUGAR HILL PROJECT
400 WEST 155TH STREET
NEW YORK, NY

OWNER/DEVELOPER:
BROADWAY HOUSING DEVELOPMENT COMPANY INC.
500 WEST 135TH STREET, 4F
NEW YORK, NY 10031
TEL.: (212) 926-2230
FAX.: (212) 926-2234

ARCHITECT:
SLCE ARCHITECTS
641 BROADWAY
NEW YORK, NY 10012
TEL: (212) 979-1400
FAX: (212) 979-1337

INTERIOR DESIGNER:
ADJAYE ASSOCIATES
475 BROADWAY
NEW YORK, NY 10013
TEL: (212) 925-5420

STRUCTURAL ENGINEER:
YSRAEL A. SEINUK, P.C.
330 EAST 38TH STREET, 3RD FLOOR
NEW YORK, NY 10017
TEL.: (212) 687-2313
FAX: (646) 486-2233

MEP ENGINEER:
RODKIN CARDINALE, P.C.
216 WEST 25TH STREET
NEW YORK, NY 10001
TEL.: (212) 279-1992
FAX: (212) 279-1993

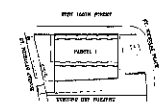
DATE	REVISIONS
11-15-2010	100% CD SET
09-14-2010	50% CD SET (HPD)
05-10-2010	90% CD SET (HPD)
03-19-2010	100% DD SET
02-19-2010	50% DD SET (HPD)
01-19-2010	50% DD SET (DRAWING ONLY)

No. Date Revision

NORTH ARROW

Scale:

KEY PLAN:



PROJECT:
SUGAR HILL PROJECT
400 WEST 155TH STREET, NEW YORK, NY

DRAWING TITLE:
SOUTH ELEVATION

SCALE: SEE ABOVE

DATE: 2009-10

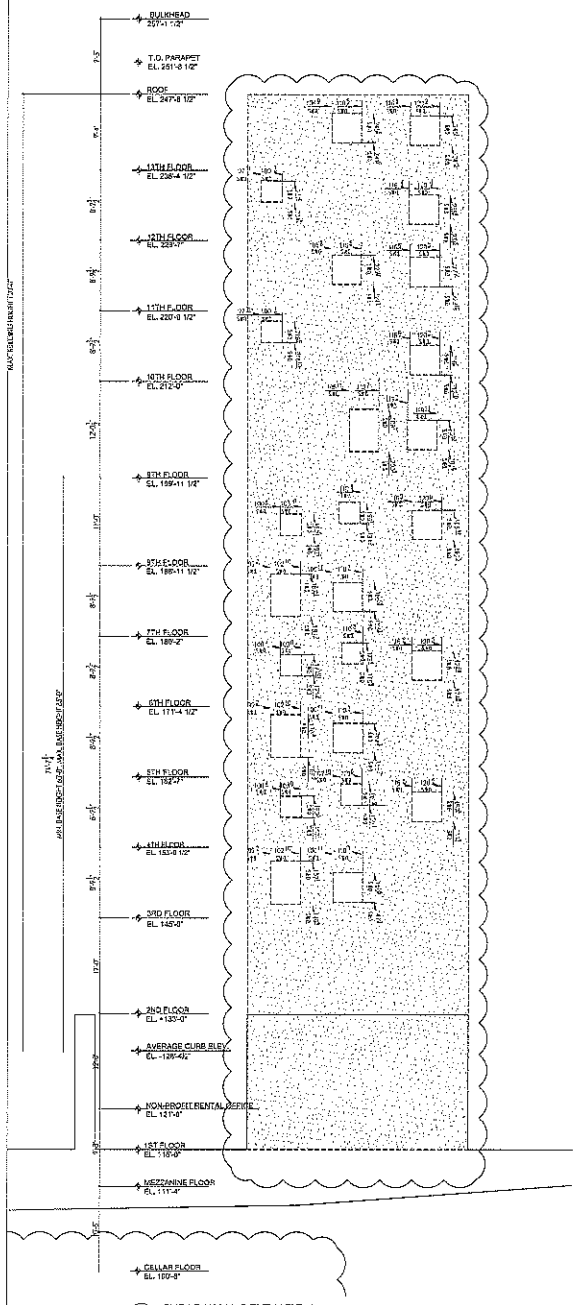
PROJECT NO.

DRAWN BY:

CHECKED BY:

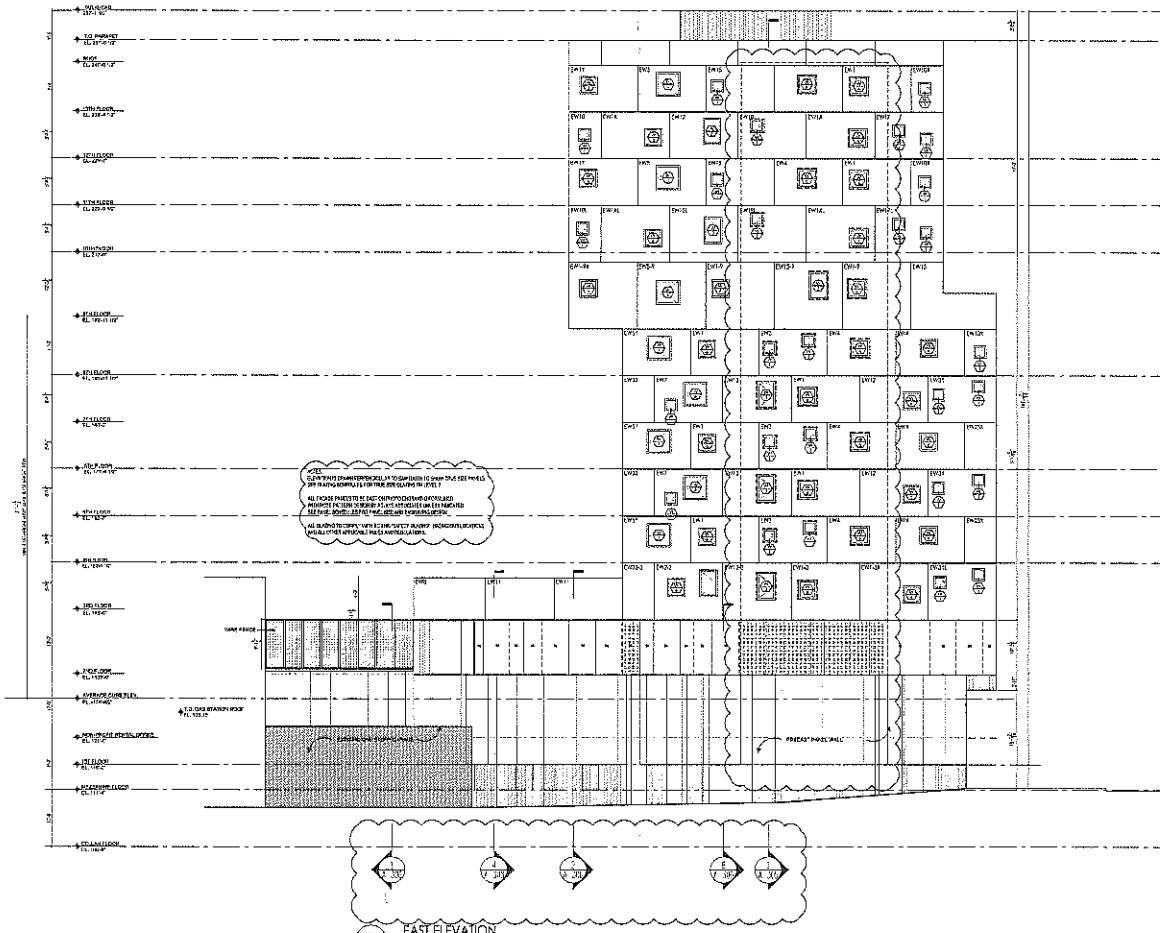
DRAWING NO.
A-202.00

SHEET NO. OF



2 SHEAR WALL 5 ELEVATION

SCALE: 1'-0" = 1/16"



1 EAST ELEVATION

SCALE: 1'-0" = 1/8"

0 2' 4' 8' 12' 20'

PROJECT:
SUGAR HILL PROJECT
400 WEST 155TH STREET, NEW YORK, NY

OWNER / DEVELOPER:
BROADWAY HOUSING DEVELOPMENT COMPANY INC.
553 RIVERSIDE DRIVE AT
NEW YORK, NY 10027
TEL: (212) 568-0700
FAX: (212) 678-4874

ARCHITECT:
SLCE ARCHITECTS
641 BROADWAY
NEW YORK, NY 10012
TEL: (212) 674-8300
FAX: (212) 674-8301

LANDSCAPE ARCHITECT:
ADJAYE ASSOCIATES
115 BROADWAY
NEW YORK, NY 10013
TEL: (212) 616-5879

STRUCTURAL ENGINEER:
YSRAEL A. SEINUK, P.C.
230 EAST 40TH STREET, 2ND FLOOR
NEW YORK, NY 10017
TEL: (212) 457-2221
FAX: (646) 457-9525

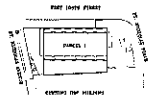
MEP ENGINEER:
ROGKIN CARDINALE, P.C.
214 WEST 29TH STREET
NEW YORK, NY 10001
TEL: (212) 334-1313
FAX: (212) 334-1317

No.	Date	Revision
	11-05-2010	PROJECT SET
	04-14-2011	ZONING SET
	05-27-2011	PROJECT SET
	06-17-2011	PROJECT SET
	07-07-2011	PROJECT SET

NORTH ANGLE

Scale: 1/16" = 1'-0"

KEY PLAN:



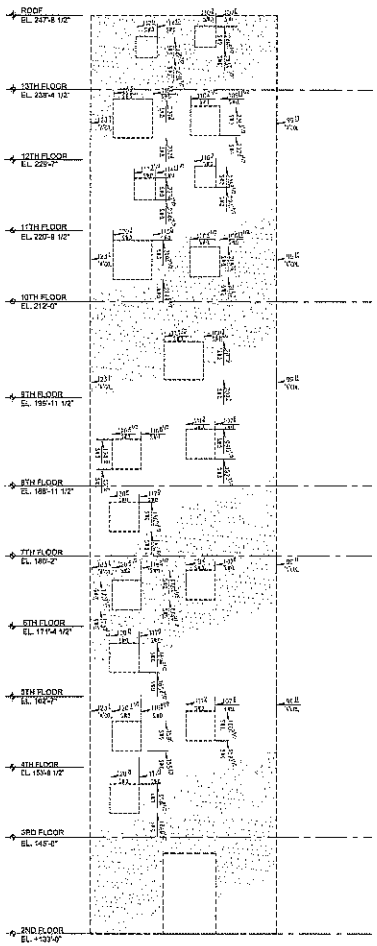
PROJECT:
SUGAR HILL PROJECT
400 WEST 155TH STREET, NEW YORK, NY

DRAWING TITLE:

EAST ELEVATION

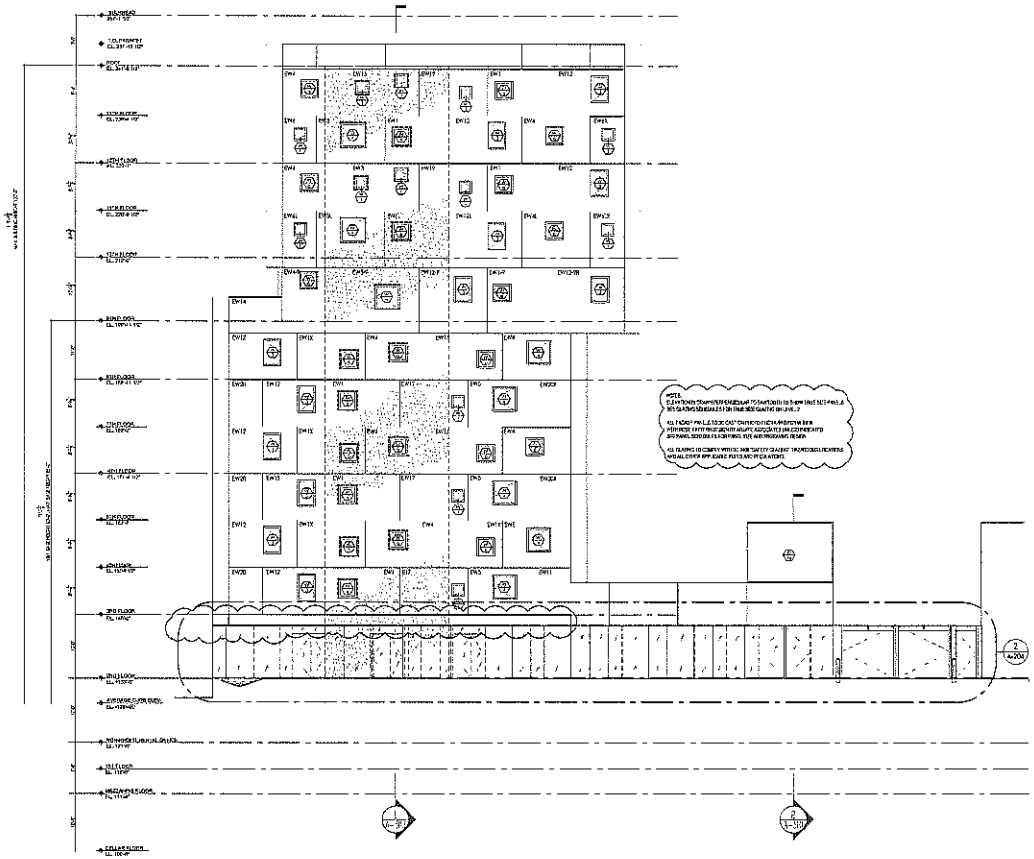
SEAL & SIGNATURES

DATE: 2009-01
PROJECT NO.
DRAWN BY:
CHECKED BY:
DRAWING NO.
A-203.00
CHECKED PC: CF



1 PARTIAL ELEVATION AT SHEAR WALL 1

SCALE: 1'-0" = 1/16"



2 WEST ELEVATION

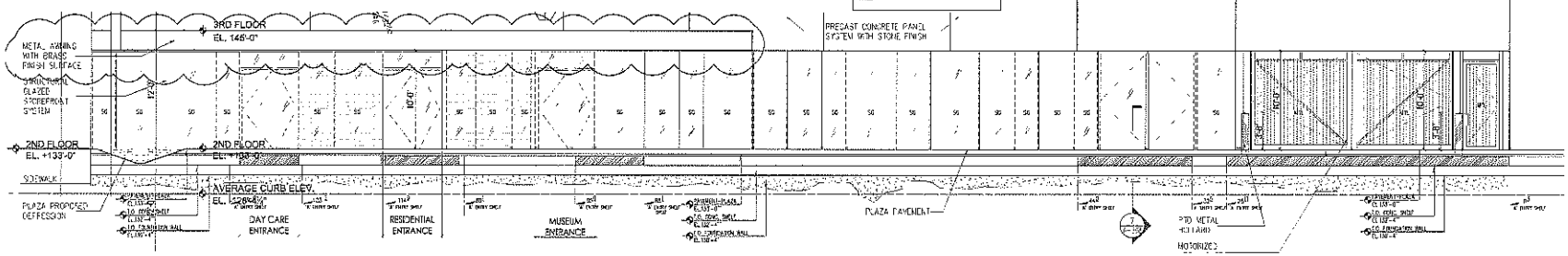
SCALE: 1'-0" = 1/8"

0 2 8' 12' 20'

LEGEND

SYMBOL	DESCRIPTION
A	VISION PANEL, 1" CLEAR INSULATING GLASS WITH LOW EMISSIVITY COATING
SG	SAFETY GLASS
TG	TEMPERED GLASS
PC	PRECAST CONCRETE PANELS
LMS	PAINTED (GRAY) FINISH (COLOR BY ARCHITECT)
LF	SURFACE MOUNTED BUILDING LIGHT FIXTURE
PO	PROTECTED OPENING

NOTES



3 ENLARGED SECOND FLOOR ELEVATION

SCALE: 1'-0" = 1/4"

0 1' 4' 6' 10'

PROJECT:

SUGAR HILL PROJECT

400 WEST 155TH STREET, NEW YORK, NY

SPONSOR / OWNER:

BROADWAY HOUSING DEVELOPMENT COMPANY INC.

545 WEST 145TH STREET
NEW YORK, NY 10031
TEL. (212) 926-2070
FAX. (212) 690-3974

ARCHITECT:

SLCE ARCHITECTS

241 BROADWAY
NEW YORK, NY 10007
TEL. (212) 674-4300
FAX. (212) 674-4302

LANDSCAPE ARCHITECT:

ADJAYE ASSOCIATES

110 BROADWAY
NEW YORK, NY 10011
TEL. (212) 924-2422

STRUCTURAL ENGINEERS:

YSRAEL A. SEINUK, P.C.

570 LEXINGTON AVENUE, 20TH FLOOR
NEW YORK, NY 10017
TEL. (212) 687-2223
FAX. (212) 687-2763

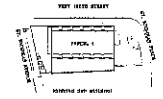
MEP ENGINEERS:

RODKIN CARDINALE, P.C.

214 WEST 29TH STREET
NEW YORK, NY 10001
TEL. (212) 239-0492
FAX. (212) 239-0492

No.	Date	Revision
1	11-12-2010	PRELIMINARY
2	04-14-2010	FOR PERMITTING
3	09-23-2010	PROGRESS SET
4	10-15-2010	SUBMITTAL
5	12-17-2010	FOR CONSTRUCTION

KEY PLAN:



PROJECT:

SUGAR HILL PROJECT

400 WEST 155TH STREET, NEW YORK, NY

DRAWING TITLE:

WEST ELEVATION

SEAL & SIGNATURE

DATE: 12/17/10

PROJECT NO.

DRAWN BY:

CHECKED BY:

DRAWING NO.

A-204.00

CONTRACT NO.

APPENDIX 6

PREVIOUS ENVIRONMENTAL INVESTIGATIONS AND REPORTS

FINAL
PHASE I ENVIRONMENTAL SITE ASSESSMENT
OF

414 WEST 155TH STREET
NEW YORK, NY 10032

ATC PROJECT NO. 015.26789.0002

MARCH 21, 2008

Prepared by:
ATC Associates Inc.
104 East 25th Street
New York, New York 10010
Phone: (212) 353-8280
Fax: (212) 979-8447

Prepared for:
Broadway Housing Communities
583 Riverside Drive, 7th Floor
New York, New York 10031
Attn: Mary Ann Villari

TABLE OF CONTENTS

1.0 EXECUTIVE SUMMARY

1.1 General Information

Project Information:

Site Information:
414 West 155th Street
New York, New York 10032
New York County

Consultant Information:
ATC Associates Inc.
104 East 25th Street
New York, New York 10010
Telephone: 212-353 8280
Fax: 212-979 8447
Reconnaissance Date: 11/13/2007
Site Assessor: Bedia Saray
Senior Reviewer: Matthew Mankovich
Environmental Professional: Matthew Mankovich

Site Access Contact:
Ms. Mary Ann Villari
Broadway Housing Communities

Client Information:
Broadway Housing Communities
Ms. Mary Ann Villari
583 Riverside Drive, 7th Floor
New York, NY 10031
Ph. (212) 568-2030
Fax (212) 690-4874

Environmental Professional Statement:

I declare that, to the best of my professional knowledge and belief, I meet the definition of *Environmental Professional* as defined in § 312.10 part of 40 CFR 312. We have the specific qualifications based on education, training and experience to assess a property of the nature, history and setting of the subject property. We have developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.

Project Manager

Matthew Mankovich
Senior Project Manager/Environmental Professional

1.2 Findings and Conclusions Summary

ATC Associates Inc. (ATC) has performed this Phase I Environmental Site Assessment (ESA) in conformance with the scope and limitations of ASTM Standard Practice E 1527-05 of the property located at 414 West 155th Street, New York, New York (hereinafter referred to as the "Site"). Any exceptions to, or deletions from, this practice are described in Section 2.0 of this report. This assessment has revealed evidence of *recognized environmental conditions* (RECs) and/or areas of environmental concern in connection with the Site.

FINDINGS AND CONCLUSIONS SUMMARY							
Report Section		**Further Action?**	**De Minimis Condition**	**Recognized Environmental Condition (REC)**	**Historical REC**	**ASTM Non-Scope Condition**	**Description**
4.0	**User Provided Information**	No					
5.1.1	**Federal Database Findings**	No					
5.1.2	**State and Tribal Database Findings**	Yes		X			Refer to note (1) below
5.1.3	**Local Environmental Record Sources**	No					
5.3	**Historical Records Sources**	Yes		X			Refer to note (1) below
6.2	**Hazardous Substance Use, Storage and Disposal**	Yes					Refer to note (2) below
6.3	**Underground Storage Tanks**	Yes		X			Refer to note (3) below
6.4	**Aboveground Storage Tanks**	Yes					Refer to note (4) below
6.5	**Other Petroleum Products**	No					
6.6	**Polychlorinated Biphenyls (PCBs)**	No					
6.7	**Unidentified Substance Containers**	No					
6.8	**Non-hazardous Solid Waste**	No					
6.9	**Wastewater**	No					
6.10	**Waste Pits, Ponds and Lagoons**	No					
6.11	**Sumps**	No					
6.12	**Septic Systems**	No					
6.13	**Stormwater Management System**	No					
6.14	**Wells**	No					

FINDINGS AND CONCLUSIONS SUMMARY							
Report Section		**Further Action?**	**De Minimis Condition**	**Recognized Environmental Condition (REC)**	**Historical REC**	**ASTM Non-Scope Condition**	**Description**
7.0	**Interviews**	No					
8.1	**Asbestos-Containing Material (ACM)**	Yes				X	Refer to note (5) below
8.2	**Radon**	No					
8.3	**Lead in Drinking Water**	No					
8.4	**Lead-Based Paint (LBP)**	Yes				X	Refer to note (6) below
8.5	**Mold Screening**	No					
8.6	**Additional User Requested Conditions**	No					

(1) The current and historical use of the Site for auto related operations, use of the eastern adjacent property as a gasoline filling station and auto repair shop and the southwestern adjacent property as a garage represent a *recognized environmental condition* for the Site. Please refer to the sections 5.1.2 and 5.3.2 of this report for more information.

(2) ATC observed suspect petroleum staining on the floor (approximately 12'x18') in the east-northeastern portion of the cellar along the eastern wall by the door. ATC reviewed a drawing of proposed modification of the building prepared by the U.S. Post Office Department dated June 25, 1969. This drawing indicated the presence of two (2) 275-gallon lube oil tank location in the east-northeastern portion of the cellar, where suspect petroleum staining was observed. Based on the observed conditions, ATC concludes that this condition represents an environmental concern for the Site.

(3) ATC did not observe evidence of underground storage tanks (USTs) on the Site. However, the historical Sanborn maps revealed the presence of four (4) 550-gallon gasoline USTs at the Site from at least 1939 through 1996. The Site was not identified as a LTANKS facility, New York PBS tank facility, or New York Spill site. Furthermore, the U. S. Post Office Department drawing dated June 25, 1969 indicated the presence a fill port in the vicinity of the ramp in the cellar that might be associated with potential USTs. Based on the potential presence of these USTs at the Site and the lack of current information regarding these USTs, ATC concludes that they represent a *recognized environmental condition.*

(4) At the time of the Site reconnaissance, ATC observed the presence of an out-of service approximately 550-gallon aboveground storage tank (AST) located underneath the second floor ramp on the eastern side of the first floor. ATC observed an inactive fuel oil fill port on the second floor right above the tank and an inactive vent pipe associated with this tank. ATC also observed the presence of an inactive small AST located underneath the staircase in the south-southwestern portion of the cellar. No evidence of spills or leaks was observed in the vicinity of the ASTs at the time of the Site reconnaissance. Furthermore, the U. S. Post Office Department drawing indicated the presence of a waste oil tank location and an associated fill port in the vicinity of the ramp on the first floor. The drawing also indicated the presence of two (2) 275-gallon lube oil tank location in

the east-northeastern portion of the cellar, where suspect petroleum staining on the floor (approximately 12'x18') was observed by ATC during the Site reconnaissance. The Site was not identified as a LTANKS facility, New York PBS tank facility, or New York Spill site.

(5) ATC conducted a limited visual assessment within the accessible areas of the Site building for suspect asbestos containing materials (ACM). Based on the construction date (1929), it is likely that asbestos is present within the Site building materials. ATC observed suspect ACM, including floor tiles and mastic (in the northeast portion of second floor), plaster walls and roofing materials within the accessible areas of the Site building. These materials were generally observed in good condition with the exception of some damaged floor tiles in the northeastern portion of the second floor of the Site building. In the event that the suspect ACM is to be disturbed by future renovation or demolition work, a thorough inspection and proper asbestos abatement procedures should be implemented prior to the commencement of such work. ACM is outside of the Scope of ASTM Practice E 1527-05 and, therefore, the potential presence of ACM is not considered a *recognized environmental condition.*

(6) Based on the construction date (1929), LBP is presumed to be present at the Site. During the course of ATC's inspection, painted surfaces within accessible areas were generally observed in fair condition with the exception of peeling paint observed in the bathroom on the first floor. LBP is outside of the Scope of ASTM Practice E 1527-05 and, therefore, the potential presence of LBP is not considered a *recognized environmental condition.*

1.3 Significant Data Gap Summary

The following is a summary of *significant data gaps* identified in this report.

SIGNIFICANT DATA GAP SUMMARY		
Report Section		**Description**
3.5	**Current Uses of Adjoining Properties**	No *significant data gap* identified.
4.2	**Environmental Liens or Activity and Use Limitations (AULs)**	No *significant data gap* identified.
5.1	**Standard Environmental Records**	No *significant data gap* identified.
5.2	**Physical Setting Sources**	No *significant data gap* identified.
5.3	**Historical Records Sources**	No *significant data gap* identified.
6.1	**Methodology and Limiting Conditions**	No *significant data gap* identified.
7.0	**Interviews**	No *significant data gap* identified.

1.4 Recommendations

Based on information collected from the Phase I ESA, ATC offers the following recommendations for further action:

- ATC recommends that a Phase II Environmental Site Investigation (ESI) be performed to determine whether current and historical use of the Site for auto related operations, use of the eastern adjacent property as a gasoline filling station and auto repair shop and historical use of the southwestern adjacent property as a garage have adversely impacted subsurface conditions beneath the Site. The Phase II ESI would also cover the area of concern identified in the east-northeastern portion of the cellar of the Site building. The Phase II ESI may consist of soil and groundwater collection and analyses.

- ATC recommends the performance of ground penetration radar (GPR) survey as part of the phase II ESI in order to determine if historical 550-gallon gasoline tanks identified on the Sanborn maps are present beneath the Site.

- ATC recommends that if the ASTs are not going to remain in use that they be decommissioned in accordance with all New York State and local laws by a licensed contractor.

- Prior to initiating any renovation or demolition activities at the Site, ATC recommends conducting a pre-demolition survey for the presence of suspect asbestos containing materials (ACMs) in accordance with applicable federal, state, and local regulations.

- ATC recommends conducting all appropriate and required investigations for lead-based paint prior to initiating any renovation or demolition activities at the Site.

2.0 INTRODUCTION

2.1 Purpose

The purpose of this Phase I ESA was to identify *recognized environmental conditions* and certain potential environmental conditions outside the scope of ASTM Standard Practice E 1527-05 in connection with the property at the time of the site reconnaissance. This report documents the findings, opinions and conclusions of the Phase I ESA.

2.2 Scope

This Phase I ESA was conducted in general accordance with the ASTM Standard Practice E 1527-05, consistent with a level of care and skill ordinarily practiced by the environmental consulting profession currently providing similar services under similar circumstances. Significant additions, deletions or exceptions to ASTM Standard Practice E 1527-05 are noted below or in the corresponding sections of this report. The scope of this assessment included an evaluation of the following:

- Physical setting characteristics of the Site through a review of referenced sources such as topographic maps and geologic, soils and hydrologic reports.

- Usage of the Site, adjoining properties and surrounding area through a review of referenced historical sources such as land title records, fire insurance maps, city directories, aerial photographs, prior reports and interviews.

- Observations and interviews regarding current Site usage and conditions including: the use, treatment, storage, disposal or generation of hazardous substances, petroleum products, hazardous wastes, non-hazardous solid wastes and wastewater.

- Usage of adjoining and surrounding area properties and the likely impact of known or suspected releases of hazardous substances or petroleum products from those properties on the Site.

- Information in referenced environmental agency databases and local environmental records, within the specified approximate minimum search distance from the Site.

The scope of the assessment also included consideration of the following environmental issues or conditions that are beyond the scope of ASTM Standard Practice E 1527-05:

- Mold Screening to report the findings of a baseline survey of readily observable mold and conditions conducive to mold on the Site identified by limited interview, document review and physical observation and to provide an opinion on whether an identified condition warrants further action. The scope of work for the Mold Screening was intended to be consistent with ASTM Standard Practice E 2418-06: S*tandard Guide for Readily Observable Mold and Conditions Conducive to Mold in Commercial Buildings: Baseline Survey Process*. The scope of work, including potential deviations from the Standard Guide, is described as follows. The interview was limited to one knowledgeable person from Site management or engineering staff. The document review was limited to only those relevant documents made readily available to ATC in a timely manner. The physical observations were limited to certain Heating, Ventilation and Air Conditioning (HVAC) system areas and other readily accessible building areas likely to become subject to water damage, plumbing leaks, and flooding. Unless noted otherwise herein,

ATC observed the HVAC equipment room(s) and readily accessible mechanical rooms and, in buildings with package units in the ceiling, at least one unit per floor. Also, unless noted otherwise, ATC observed readily accessible areas of the basement (or lowest level), the top floor, the roof (including any penthouse areas) and at least one mid-level floor (if applicable). For multi-story buildings, the total number of floors observed (inclusive of those already mentioned) was intended to be up to 10% of the total number of floors (if readily accessible). For hotel and multi-family buildings, ATC targeted the lowest and highest levels and roof as described above and up to 10% of units, including one per floor if readily accessible. The Mold Screening did not include destructive methods of observation. No sampling or laboratory analyses were conducted. The Mold Screening service as described herein was limited in scope and by the time and cost considerations typically associated with performing a Phase I ESA. No method can guarantee that a hazard will be discovered if evidence of the hazard is not encountered within the performance of the Mold Screening as authorized and that opinions and conclusions must, out of necessity, be extrapolated from limited information and discrete, non-continuous data points. Unidentified mold or other microbial conditions may exist on the Site.

- Visual observation of suspect ACM, consisting of providing an opinion on the condition of suspect ACM on the Site based upon visual observation during the Site reconnaissance.

- Radon document review, consisting of the review of published radon data with regard to the potential for elevated levels of radon gas in the surrounding area of the Site.

- Lead in drinking water data review, consisting of contacting the water supplier for information regarding whether or not the potable water provided to the Site meets or exceeds drinking water standards for lead.

- Visual observation of Lead-based paint (LBP), consisting of providing an opinion on the potential for LBP based on the construction date of the Site building and visual observation of the condition of suspect LBP.

- Wetlands document review, consisting of a review of a current National Wetlands Inventory map of the surrounding area to note if the Site is identified as having a wetland.

- Flood plain document review, consisting of a review of a reasonably ascertainable flood plain map of the surrounding area to note if the Site is identified as being located within a flood plain

2.3 Significant Assumption

Any assumptions in this report were not considered as having significant impact on the determination of *recognized environmental conditions* associated with the Site.

2.4 Limitations and Exceptions

ATC has prepared this Phase I ESA report using reasonable efforts to identify *recognized environmental conditions* associated with hazardous substances or petroleum products at the property. Findings contained within this report are based on information collected from observations made on the day(s) of the site reconnaissance and from reasonably ascertainable information obtained from certain public agencies and other referenced sources.

The ASTM Standard Practice E 1527-05 recognizes inherent limitations for Phase I ESAs, including, but not limited to:

- *Uncertainty Not Eliminated* – A Phase I ESA cannot completely eliminate uncertainty regarding the potential for *recognized environmental conditions* in connection with any property.

- *Not Exhaustive* – A Phase I ESA is not an exhaustive investigation of the property and environmental conditions on such property.

- *Past Uses of the Property* – Phase I requirements only require review of standard historical sources at five year intervals. Therefore, past uses of property at less than five year intervals may not be discovered.

Users of this report may refer to ASTM Standard Practice E 1527-05 for further information regarding these and other limitations. This report is not definitive and should not be assumed to be a complete and/or specific definition of all conditions above or below grade. Current subsurface conditions may differ from the conditions determined by surface observations, interviews and reviews of historical sources. The most reliable method of evaluating subsurface conditions is through intrusive techniques, which are beyond the scope of this report. Information in this report is not intended to be used as a construction document and should not be used for demolition, renovation, or other property construction purposes. Any use of this report by any party, beyond the scope and intent of the original parties, shall be at the sole risk and expense of such user.

ATC makes no representation or warranty that the past or current operations at the property are, or have been, in compliance with all applicable federal, state and local laws, regulations and codes. This report does not warrant against future operations or conditions, nor does it warrant against operations or conditions present of a type or at a location not investigated. Regardless of the findings stated in this report, ATC is not responsible for consequences or conditions arising from facts not fully disclosed to ATC during the assessment.

An independent data research company provided the government agency database referenced in this report. Information on surrounding area properties was requested for approximate minimum search distances and is assumed to be correct and complete unless obviously contradicted by ATC's observations or other credible referenced sources reviewed during the assessment. ATC shall not be liable for any such database firm's failure to make relevant files or documents properly available, to properly index files, or otherwise to fail to maintain or produce accurate or complete records.

ATC used reasonable efforts to identify evidence of aboveground and underground storage tanks and ancillary equipment on the property during the assessment. "Reasonable efforts" were limited to observation of accessible areas, review of referenced public records and interviews. These reasonable

efforts may not identify subsurface equipment or evidence hidden from view by things including, but not limited to, snow cover, paving, construction activities, stored materials and landscaping.

Any estimates of costs or quantities in this report are approximations for commercial real estate transaction due diligence purposes and are based on the findings, opinions and conclusions of this assessment, which are limited by the scope of the assessment, schedule demands, cost constraints, accessibility limitations and other factors associated with performing the Phase I ESA. Subsequent determinations of costs or quantities may vary from the estimates in this report. The estimated costs or quantities in this report are not intended to be used for financial disclosure related to the Financial Accounting Standards Board (FASB) Statement No. 143, FASB Interpretation No. 47, Sarbanes/Oxley Act or any United States Securities and Exchange Commission reporting obligations, and may not be used for such purposes in any form without the express written permission of ATC.

ATC is not a professional title insurance or land surveyor firm and makes no guarantee, express or implied, that any land title records acquired or reviewed in this report, or any physical descriptions or depictions of the property in this report, represent a comprehensive definition or precise delineation of property ownership or boundaries.

The Environmental Professional Statement in Section 1.1 of this report does not "certify" the findings contained in this report and is not a legal opinion of such *Environmental Professional*. The *Environmental Professional* Statement is intended to document ATC's opinion that an individual meeting the qualifications of an Environmental Professional was involved in the performance of the assessment and that the activities performed by, or under the supervision of, the *Environmental Professional* were performed in conformance with the standards and practices set forth in 40 CFR Part 312 per the methodology in ASTM Standard Practice E 1527-05 and the scope of work for this assessment.

Per ASTM Standard Practice E 1527-05, Section 6, User Responsibilities, the User of this assessment has specific obligations for performing tasks during this assessment that will help identify the possibility of *recognized environmental conditions* in connection with the property. Failure by the User to fully comply with the requirements may impact their ability to use this report to help qualify for *Landowner Liability Protections* (LLPs) under Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). ATC makes no representations or warranties regarding a User's qualification for protection under any federal, state or local laws, rules or regulations.

In accordance with the ASTM Standard Practice E 1527-05, this report is presumed to be valid for a six month period. If the report is older than six months, the following information must be updated in order for the report to be valid: (1) regulatory review, (2) site visit, (3) interviews, (4) specialized knowledge and (5) environmental liens search. Reports older than one year may not meet the ASTM Standard Practice 1527-05 and therefore, the entire report must be updated to reflect current conditions and property-specific information.

Other limitations and exceptions that are specific to the scope of this report may be found in corresponding sections.

2.5 Special Terms and Conditions (User Reliance)

This report is for the use and benefit of, and may be relied upon by Broadway Housing Communities, the lender(s) in connection with financing for the Site and their respective successors and assigns and other third parties authorized in writing by Broadway Housing Communities, and ATC. Any third party agrees by accepting this report that any use or reliance on this report shall be limited by the exceptions and limitations in this report, and with the acknowledgment that actual Property conditions may change with time, and that hidden conditions may exist at the Property that were not discovered within the authorized scope of the assessment.

ATC makes no other representation to any third party except that it has used the degree of care and skill ordinarily exercised by environmental consultants in the preparation of the report and in the assembling of data and information related thereto. No other warranties are made to any third party, either expressed or implied. Unless otherwise agreed upon in writing by ATC and a third party, ATC's liability to any third party authorized to use or rely on this report with respect to any acts or omissions shall be limited to a maximum of $100,000.

3.0 SITE DESCRIPTION

3.1 Location and Legal Description

The Site is located at 414 West 155th Street in New York, New York County, New York. Alternative address is 400-414 West 155th Street. The Site is located on the south side of West 155th Street between St. Nicholas Avenue and St. Nicholas Place. According to information obtained from the New York City Department of Buildings website, the Site is identified as Block 2069, Lot 21. According to the New York City Department of City Planning Zoning Map 3B, the Site is currently zoned as "C8-3", which designates commercial use. The current owner is identified as "Garage Estates Company." A Site Vicinity Map is provided in Appendix A and a Site Plan is provided in Appendix B.

3.2 Surrounding Area General Characteristics

The Site is located within an urban area that is primarily characterized by residential, commercial, retail, and institutional buildings, recreational properties, and a gasoline station with an auto repair shop.

3.3 Current Use of the Site

The Site is developed with a two-story building with a cellar that is utilized as a parking garage. The Site consists of an approximately 21,685 square feet lot. The Site building encompasses approximately 65,070 square feet, and based on our review of historical research, the Site building was constructed in 1929.

3.4 Description of Site Improvements

The following table provides general descriptions of the Site improvements.

SITE IMPROVEMENTS	
Size of Site (approximate)	21,685 square feet
General Topography of Site	General topography of the Site slopes downward to the east
Adjoining and/or Access/Egress Roads	Access to the Site is available through West 155th Street
Paved or Concrete Areas (including parking)	City sidewalks are paved with concrete
Unimproved Areas	None
Landscaped Areas	None
Surface Water	None
Potable Water Source	City of New York
Sanitary Sewer Utility	City of New York
Storm Sewer Utility	City of New York
Electrical Utility	Consolidated Edison (Con Ed)
Natural Gas Utility	Con Ed
Current Occupancy Status	100%
Unoccupied Buildings/Spaces/Structures	None
Number of Occupied Buildings	1
General Building Description	Two-story building with a cellar used as a parking garage
Number of Floors	3
Total Square Feet of Space (approximate)	65,070 square feet
Construction Completion Date (year)	1929

SITE IMPROVEMENTS	
Construction Type	Stone foundation and steel frame
Interior Finishes Description	Concrete and ceramic and vinyl floor tiles, concrete ceiling and walls
Exterior Finishes Description	Brick and concrete
Cooling System Type	None
Heating System Type	None
Emergency Power	None

3.5 Current Uses of Adjoining Properties

Current uses of the adjoining properties were observed to be as follows:

Direction from Site	Address	Occupant(s) Name	Current Use	Potential Environmental Conditions
North	1921 Amsterdam Avenue, 900 St. Nicholas Avenue, 483 Edgecombe Avenue and Parks	3-story public school, 2-story store, vacant lot and parks followed by West 155th Street	Educational facility, retail, undeveloped and recreational	None
South	882-888 St Nicholas Ave and 87 St Nicholas Place	2-story bldg occupied by Department of Environmental Protection and 6-story residential	Utility and residential	Please see section 5.1.2
East	89-97 St Nicholas Place and 425 Edgecombe Avenue	1-story gasoline station and 2-story store followed by St. Nicholas Place	Commercial and retail	Please see section 5.1.2
West	416 West 155th Street	2-story bldg occupied by Department of Environmental Protection. Further to the west is St. Nicholas Avenue followed by low-rise residential buildings	Utility and residential	Please see section 5.1.2

Several listings for the surrounding properties were identified on the federal and state regulatory databases (See Section 5.1).

4.0 USER PROVIDED INFORMATION

The following section summarizes information provided by Broadway Housing Communities with regard to the Phase I ESA. Documentation may be found in Appendix D or where referenced in this report.

4.1 Title Records

Broadway Housing Communities provided no title records information.

4.2 Environmental Liens or Activity and Use Limitations (AULs)

Broadway Housing Communities provided no information regarding site environmental liens or activity and use limitations. Broadway Housing Communities requested that ATC conduct an environmental lien and AULs search. ATC ordered an Environmental Lien search through Ameristar.

According to the Environmental Lien Search Report, included in Appendix L, no records of environmental liens against the Site were found. The Environmental Lien Search Report further states that no records of AULs in place at the Site were found.

4.3 Specialized Knowledge

Broadway Housing Communities provided no specialized knowledge regarding *recognized environmental conditions* associated with the Site.

4.4 Significant Valuation Reduction for Environmental Issues

Broadway Housing Communities provided no information regarding a significant valuation reduction for environmental issues associated with the Site.

4.5 Owner, Site Manager and Occupant Information

Broadway Housing Communities indicated that the Site is developed with a two-story building utilized as a parking garage.

4.6 Reason for Performing Phase I ESA

Broadway Housing Communities has indicated that the reason for performing this Phase I ESA is related to a financial transaction.

4.7 Other User Provided Documents

No other user provided documentation was obtained for review.

5.0 RECORDS REVIEW

5.1 Standard Environmental Records

The regulatory agency database report discussed in this section, provided by EDR of Milford, Connecticut, was reviewed for information regarding reported releases of hazardous substances and petroleum products on or near the property. ATC also reviewed the "unmappable" (also referred to as "orphan") listings within the database report, cross-referencing available address information and facility names. Unmappable sites are listings that could not be plotted with confidence, but are potentially in the general area of the property based on the partial street address, city, or zip code. Any unmappable site that was identified by ATC as a being within the approximate minimum search distance from the property based on the site reconnaissance and/or cross-referencing to mapped listings, is included in the discussion within this section. Due to the dense urban nature of the property area and in accordance with ASTM, the search radius for LTANKS has been reduced from ½ mile to ¼ mile. The complete regulatory agency database report may be found in Appendix E.

The following is a summary of the findings of the database review.

SUMMARY OF FEDERAL, STATE AND TRIBAL DATABASE FINDINGS			
Regulatory Database	**Approx. Minimum Search Distance**	**Site Listed?**	**# Properties Listed**
Federal National Priority (NPL)	1 mile	No	0
Federal Delisted NPL	½ mile	No	0
Federal Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) list	½ mile	No	0
Federal CERCLIS No Further Remedial Action Planned (NFRAP)	½ mile	No	0
Federal Resource Conservation and Recovery Act (RCRA), Corrective Action facilities (CORRACTS)	1 mile	No	0
Federal RCRIS non- CORRACTS Treatment, Storage, and Disposal Facilities (TSD)	½ mile	No	0
Federal RCRA Generators	Site & Adjoining	No	1
Federal Institutional Control/Engineering Control Registry	Site	No	0
Federal Emergency Response Notification System (ERNS) list	Site	No	0
State and Tribal NPL	1 mile	No	0
State and Tribal CERCLIS	½ mile	No	0
State and Tribal Landfill or Solid Waste Disposal Sites	½ mile	No	0
State and Tribal Leaking Underground Storage Tanks (LTANKS)	¼ mile	No	23
State and Tribal Petroleum Bulk Storage (PBS) (UST/AST)	Site & Adjoining	No	2
New York State Spills (NY Spills) Site	Site & Adjoining	No	0
State and Tribal Institutional Control/Engineering Control Registry	Site	No	0
State and Tribal Voluntary Cleanup Site	½ mile	No	0
State and Tribal Brownfield Sites	½ mile	No	0

5.1.1 Federal Agency Database Findings

The Site was not identified on any federal agency databases reviewed within the prescribed search radius. The following is a summary of information regarding the listings identified in the federal agency databases reviewed within the search distance.

Federal RCRA Small Quantity Generators (SQGs)

Getty Petroleum Corp
89-91 St Nicholas Place
New York, NY
Databases: RCRA-SQG
Approximate Distance from the Site: Adjacent to the east
Assumed Groundwater Gradient: Downgradient
Discussion: According to the regulatory database report, 165 gallons and 90 gallons of waste identified as "D001-non-listed ignitable waste" was removed from this facility in 1995 and 2001 respectively. There are no reported violations for this facility in the database report. Based on the lack of reported violations, this RCRA-SQG listing is not considered to represent a *recognized environmental condition* to the Site.

Based on distance, topography, assumed groundwater gradient, current regulatory status, and/or the absence of reported releases, none of the other listings in the Federal agency databases are considered to represent a likely past, present or material threat of release on the Site.

5.1.2 State and Tribal Database Findings

The Site was not identified on any state agency databases reviewed within the prescribed search radius. The following is a summary of information regarding the listings identified in the state agency databases reviewed within the search distance.

New York State Registered Petroleum Bulk Storage (PBS) Underground and Aboveground Storage Tanks (USTs/ASTs)

Getty Petroleum Corp
89-91 St Nicholas Place
New York, NY
Databases: UST, AST and LTANKS
Approximate Distance from the Site: Adjacent to the east
Assumed Groundwater Gradient: Downgradient
Discussion: According to the regulatory database report, this adjoining property is listed on the UST database (PBS #: 2-291935) with twelve (12) inactive 550-gallon gasoline USTs (closed – removed in 1995), one (1) inactive 550-gallon waste oil/used oil UST (closed – removed in 2004), one (1) inactive 4,000-gallon gasoline UST (closed – removed in 1995), one (1) inactive 550-gallon empty UST (closed in place in 2001), and four (4) active 4,000-gallon double-walled fiberglass reinforced plastic gasoline USTs (installed in 1995 and tested in 2004). This gasoline station facility is also listed on the AST database with one (1) inactive 240-gallon #2 fuel oil AST (closed – removed in 1996), one (1) inactive 180-gallon #2 fuel oil AST (closed – removed in 2004), one (1) inactive 180-gallon waste oil/used oil AST (closed – removed in 1996), one (1)

active 280-gallon lube oil AST (installed in 1995), one (1) active 240-gallon #2 fuel oil AST (installed in 2004), and one (1) active 240-gallon waste oil/used oil AST (installed in 2004).

This facility is also identified on the LTANKS database with one (1) closed and one (1) open listings. The first listing (LTANKS ID: 8805013) was reported at this gasoline station facility on September 8, 1988 due to tank test failure. According to the database report, a 4,000-gallon on-site tank failed petro-tite testing. This spill case received a "Case Closed" status with the NYSDEC on July 16, 1992 indicating the completion of satisfactory remediation and requiring no further investigation. No further information was available regarding this listing in the database report.

The other LTANKS listing (LTANKS ID: 9503535) was reported at this gasoline station facility on June 22, 1995. This spill incident was initially entered into the database under a wrong address (87 St Nicholas) and was changed to Getty, 89-91 St Nicholas Pl on April 30, 2004. According to the database report, a tank closure report performed by Tyree indicated that twelve (12) 550-gallon and one (1) 4,000-gallon gasoline USTs were removed as part of rebuilding the gasoline station in 1995. Tank upgrade included the installation of four (4) 4,000-gallon gasoline USTs in existing excavation. Visual evidence and petroleum odors were detected during excavation and 1,040 tons of soil was removed from the site. The NYSDEC required five (5) geoprobe borings be performed resulting in collection of six soil samples and two groundwater samples. Soil sample analytical results reportedly showed high concentrations of trimethylbenzene, xylene, naphthalene, benzene, toluene and groundwater sample analytical results reportedly showed high concentrations of benzene and Methyl Tertiary Butyl Ether (MTBE). During installation of monitoring wells in March 2001, two (2) 550-gallon gasoline USTs were identified at the site. These tanks were removed from the site in 2001. External corrosion and a small hole were identified in one of the tanks.

Three monitoring wells were installed at the site and quarterly monitoring was conducted from August 2002 through March 2003. Groundwater flow direction was identified to flow to the east at a depth of 14'-16'. Groundwater analytical results reportedly showed high concentration of benzene, toluene MTBE, xylene, and free product and soil analytical results showed high benzene, toluene, and naphthalene. In May 2004, the NYSDEC required "Stipulation Agreement" with delineation of soil and groundwater. As per the Stipulation Agreement, four monitoring wells (two onsite wells and two offsite wells) were installed. Soil analytical results reportedly showed high concentrations of benzene and minor PAH exceedences. Groundwater analytical results showed high benzene, toluene, ethylbenzene, xylene, and MTBE. Groundwater monitoring was conducted from July 2004 through March 2005 from seven monitoring wells.

In February 2005, Tyree proposed a remedial action plan of the use of in-situ passive bailers to collect product from wells W-1 and W-3. Bailers will be utilized until a permanent remedial alternative is in place. In June 2005, two (2) saturated zone piezometer wells (P1 and P2), three (3) vadose zone piezometer wells, and one (1) extraction well were installed on the southeast of the site. High acetone was detected in P1, P2 and EW1.

In October 2005, Dual Phase Extraction System design that requires installation of four (4) extraction wells was approved to cover the area of concern. The Dual Phase System was installed in September 2006. Seven (7) monitoring wells and four (4) Dual Phase extraction wells are at the site as of April 2007 and groundwater sample analytical results showed 60,260 ppb BTEX and 1,050 ppb in W-1, 274 ppb BTEX and 243 ppb MTBE in W-3, 148 ppb BTEX in W-4, 601

ppb BTEX and 786 ppb MTBE in W-6. This LTANKS listing remains open with the NYSDEC. Based on the reported soil and groundwater contamination and proximity to the Site, ATC concludes that this open listing at the eastern adjacent property could have the potential to impact soil and groundwater beneath the Site and represents a *recognized environmental condition* for the Site.

North Manhattan Shop
886 St Nicholas Avenue
New York, NY
Databases: UST and LTANKS
Approximate Distance from the Site: Adjacent to the southwest
Assumed Groundwater Gradient: Upgradient/crossgradient
Discussion: According to the regulatory database report, this adjoining property is listed on the UST database (PBS #: 2-456357) with one (1) inactive 5,000-gallon gasoline UST (closed – removed in 1996) and one (1) inactive 5,000-gallon #2 fuel oil UST (closed – removed in 1996). This property is also identified on the LTANKS database with one (1) closed and one (1) open listings. The first listing (LTANKS ID: 9710796) was reported as a result of tank failure on December 23, 1997. Reportedly, tank closure boring soil samples showed semi-volatile organic compounds (SVOCs) at this site. An additional investigation indicated that residual contamination is not likely to impact groundwater. Soil contamination is in an enclosed area surrounded on three sides by concrete walls, underlain by concrete over bedrock and covered by concrete patio. Local water table is assumed to be well below concrete/bedrock interface. It is stated that the soil contains levels of carcinogenic SVOCs that could pose a threat to human health if ingested or inhaled. In the event of any construction or demolition work that would involve contact with soil, appropriate precautions should be taken to prevent ingestion/inhalation of soil particles by workers. This listing has received a "Case Closed" status with the NYSDEC on April 20, 2001 indicating the completion of satisfactory remediation and requiring no further investigation.

The other listing (LTANKS ID: 9504500) involving an unidentified amount of #2 fuel oil release caused by tank failure was reported at this property on July 14, 1995. According to the database report, a tank was found on the abandoned lot, which is the northern portion of the property along West 155th Street and St Nicholas Avenue. The tank was covered with soil. Reportedly, this site was to be excavated in a few months at that time. No further information was available regarding this listing. However, the first listing described above indicates that the two on-site USTs were removed from this property in 1996. This listing remains open with the NYSDEC. Based on the reported soil contamination mentioned earlier on this property, assumed upgradient/crossgradient hydraulic position and proximity to the Site, ATC concludes that these listings represent a *recognized environmental condition* for the Site.

New York State Leaking Storage Tank Incident Reports (LTANKS)

According to the regulatory database report, twenty-three (23) LTANKS were identified within a one-quarter mile radius of the Site. Of the twenty-three (23) listings, twenty (20) have received a "Case Closed" status with the NYSDEC indicating the completion of satisfactory remediation and requiring no further investigation and therefore not considered to represent an environmental concern to the Site. The three (3) remaining LTANKS listings remain open with the NYSDEC. One of these listings (49 St Nicholas Place) is located at least 550 feet away from the Site at an assumed downgradient hydraulic

position relative to the Site and therefore does not appear to represent a *recognized environmental condition* to the Site.

The second listing (886 St Nicholas Avenue) is located adjacent to the southwest of the Site at an assumed upgradient/crossgradient hydraulic position relative to the Site. The last listing is located adjacent to the east of the Site (89-91St Nicholas Place) at an assumed downgradient hydraulic position relative to the Site. Please refer to the PBS UST section above for more details regarding these two last listings.

5.1.3 Local Environmental Records Sources

New York City Department of Health and Mental Hygiene (NYCDOHMH)

The NYCDOHMH maintains files of health-related environmental incidents in the City of New York. These incidents may include spills of hazardous chemicals, citizen complaints regarding asbestos issues, lead-based paint violations, or reports of chemical odors or fumes. NYCDOHMH information concerning the Site was requested in a Freedom of Information letter (FOIL). As of the writing of this report, ATC had not yet received a response from the NYCDOHMH. Should a response change the conclusions of this report, ATC will notify the Client.

New York City Department of Environmental Protection (NYCDEP)

NYCDEP information concerning the property was requested in a FOIL request. NYCDEP information may include spill records, remediation, hazardous materials, sewer discharge violations, water, and sewer records. As of the writing of this report, ATC had not yet received a response from the NYCDEP. Should a response change the conclusions of this report, ATC will notify the Client.

New York City Fire Department (FDNY)

The FDNY, Bureau of Fire Prevention maintains information pertaining to gasoline and petroleum bulk storage tanks. FDNY information concerning the property was requested in a Record Search Request Application. As of the writing of this report, ATC had not yet received a response from the FDNY. Should a response change the conclusions of this report, ATC will notify the Client.

New York State Department of Environmental Conservation (NYSDEC)

The NYSDEC maintains files of incidents involving environmentally regulated materials. The records maintained by the NYSDEC include reports of spills of hazardous chemicals and citizen's complaints on environmental issues. NYSDEC information concerning the Site and the adjoining properties was requested in a FOIL. As of the writing of this report, ATC had not yet received a response from the NYSDEC. Should a response change the conclusions of this report, ATC will notify the Client.

New York City Department of City Planning (NYCDCP)

ATC reviewed the NYCDCP Zoning Map from the NYCDCP website (http://www.nyc.gov/html/dcp/home.html), which indicated that the Site is located in an area that is currently zoned as C8-3 – "Commercial". The Site was not identified as having a City Environmental Quality Review (CEQR) Declaration (also known as a Little "E" designation). A Little "E" designation is assigned to certain blocks or lots by a New York City agency (i.e., New York City Department of

Environmental Protection, New York City Department of City Planning) as a result of an environmental assessment performed in conjunction with a zoning map amendment.

New York City Department of Buildings (NYCDOB)

ATC reviewed available building department information, provided by the NYCDOB via the on-line Building Information System website (http://a810-bisweb.nyc.gov/bisweb/bsqpm01.jsp). The Site is designated as Block 2069, Lot 21. One (1) open Department of Building (DOB) and one (1) open Environmental Control Board (ECB) violations were identified at the Site. The open violations are associated with construction related issues and do not appear to relate to environmental issues. Based on the nature of these violations, ATC concludes that they do not represent an environmental concern for the Site.

New York City Department of Finance

ATC reviewed available tax files at the New York City Department of Finance website (http://www.nyc.gov/html/dof/html/home/home.shtml) for information on the Site. The current owner was identified as "Garage Estates Company." The review of tax files did not identify conditions indicating *recognized environmental conditions* at the Site or surrounding area.

Water Utility

Within the City of New York, potable water is supplied to Manhattan primarily from upstate New York reservoirs. ATC reviewed New York City's most recent Drinking Water Supply and Quality Report made available through the NYCDEP website (http://www.nyc.gov/html/dep/home.html) for the year 2006. Review of the analytical data provided in the report confirmed that the municipally supplied water meets all drinking water standards established by the United States Environmental Protection Agency Safe Water Drinking Act, including those for lead. No drinking water supply wells appear to exist at the Site.

Sewer Utility

The NYCDEP is responsible for the municipal combined sanitary and stormwater sewer system. This system is operational in all five boroughs of New York City, with the exception of certain remote areas of the City, namely Queens and Staten Island, which have separate operating systems for sewage and stormwater. The New York City sewer infrastructure consists of a 6,000-mile grid of sewers beneath the streets, from which a daily 1.3-billion gallon wastewater effluent travels to 14 separate water pollution control plants (WPCPs) throughout the City to be processed. This system enables the City's sewage and stormwater, pursuant to various municipal, state and federal regulations, to be treated to near drinking water-quality standards.

Electrical and Natural Gas Utility Companies

The local utility, Consolidated Edison, provides electric service to the Site.

Other Local Environmental Records Sources

No additional local environmental records sources were reviewed.

5.2 Physical Setting Sources

5.2.1 Topography

ATC reviewed the United States Geological Survey (USGS) 7.5 Minute Series *Central Park, NY* Quadrangle produced in 1995 as provided in the EDR regulatory database report. According to the topographic map, the elevation of the Site is approximately 110 feet above mean sea level. The area surrounding the Site slopes to the east. No water bodies are evident on the Site. A copy of the topographic map is included in Appendix A.

5.2.2 Geology

According to the New York Department of Environmental Conservation, Water Power and Control Commission report titled *Ground Water in Bronx, New York, and Richmond Counties, with Summary Data on Kings and Queens Counties, New York City, New York*, the Project Area is located in a southern extension of an upland area that covers a large part of New England. Manhattan has been extensively eroded by pre-glacial stream action, modified by later glacial erosion and deposition. A layer of unconsolidated glacial and glaciofluvial deposits is present beneath the section of Manhattan in which the site is located. The sediments are underlain by high-grade metamorphic schists.

5.2.3 Soils

According to EDR, soils beneath the Site are classified as Urban Land, with variable soil textures. Urban Land refers to soils that have been altered by urban development such as buildings and streets, where at least 85 percent of the surface is covered with asphalt, concrete or other impervious building material. Typically, these soils have been mixed with other materials, such as brick and concrete, and characteristics can only be determined by on-site investigation.

5.2.4 Hydrology

For the purposes of this report, the Site's proximity to the Harlem River and the surface topography has been used to estimate groundwater flow direction. Generally, groundwater contour lines mimic the surface topography and groundwater flow direction is perpendicular to these contour lines flowing from higher to lower elevation. In addition, groundwater will also tend flow towards nearby bodies of water. Based on this information, groundwater at the Site is expected to flow in an easterly direction towards the Harlem River, which is located approximately one-half mile away from the Site. According to information reviewed in the database report, groundwater flows easterly and was encountered 13'-24' feet and at the property located to the east. ATC observed no indicators of active or inactive water supply wells at the Site.

Estimated groundwater levels and/or flow directions may vary due to seasonal fluctuations in precipitation, local usage demands, geology, underground structures, or dewatering operations.

5.2.5 Other Physical Setting Sources

Flood Plain Map

ATC reviewed a Flood Insurance Rate Map (FIRM) depicted in the EDR Radius Map regulatory agency database report. According to FIRM map – Community Panel # 3604970015B, the Site is not located

within either a 100- and 500-year floodplain zone. A copy of the flood plain map is available for review in the EDR Radius Map report included in Appendix E.

Wetlands Map

According to the U.S. Department of the Interior, Fish & Wildlife Service's National Wetland Inventory (NWI) Map for *Central Park, NY*, designated wetlands are not illustrated on or adjacent to the Site. A copy of the wetlands map is included in Appendix E.

5.3 Historical Records Sources

The following table summarizes the findings of the research presented below pertaining to historical Site and surrounding area uses.

HISTORICAL USE SUMMARY				
Period	**Identified Historical Uses**		**Source(s)**	**Intervals/Comments**
	Site	**Surrounding Area**		
Prior to 1940	Vacant lots, a small garage with a dwelling and the existing Site building built in 1929 occupied by a garage with four (4) 550-gallon USTs	Low-rise dwellings, vacant lots, a gasoline station with twelve (12) 550-gallon USTs and auto repair shop, commercial properties, and park	Topographic Map, Sanborn Maps and City Directories	First Sanborn Map dated 1909; First City Directory dated 1920. Data gaps exist between 1909 and 1920, 1920 and 1927, 1939 and 1950. *Recognized environmental conditions* identified. Based on the historic use of the Site for auto-related operations and use of the eastern adjoining property as a gasoline station, ATC recommends further investigation of the subsurface of the Site that may have been impacted.

HISTORICAL USE SUMMARY				
Period	**Identified Historical Uses**		**Source(s)**	**Intervals/Comments**
	Site	**Surrounding Area**		
1940-1960	Existing Site building built in 1929 occupied by a garage with four (4) 550-gallon USTs. Additionally, an auto repair was identified at the Site	Relatively unchanged from the previous period	Topographic Map, Sanborn Maps and City Directories	Data gaps exist between 1939 and 1950, 1956 and 1968. *Recognized environmental conditions* identified. Based on the historic use of the Site for auto-related operations and use of the eastern adjoining property as a gasoline station, ATC recommends further investigation of the subsurface of the Site that may have been impacted.
1961-1980	Relatively unchanged from the previous period	Relatively unchanged from the previous period with the exception of a garage depicted to the southwest of the Site	Topographic Maps, Sanborn Maps and City Directories	No significant data gaps. *Recognized environmental conditions* identified. Based on the historic use of the Site for auto-related operations and use of the eastern adjoining property as a gasoline station and the southwestern adjacent property as a garage, ATC recommends further investigation of the subsurface of the Site that may have been impacted.

HISTORICAL USE SUMMARY				
Period	**Identified Historical Uses**		**Source(s)**	**Intervals/Comments**
	Site	**Surrounding Area**		
1981 to present	Relatively unchanged from the previous period	Relatively unchanged from the previous period	Topographic Map, Sanborn Maps, City Directories, Interviews, and Municipal Research	No significant data gaps. *Recognized environmental conditions* identified. Based on the historic use of the Site for auto-related operations and use of the eastern adjoining property as a gasoline station and the southwestern adjacent property as a garage, ATC recommends further investigation of the subsurface of the Site that may have been impacted.

In accordance with ASTM standards, ATC attempted to review the historical uses of the Site back to obvious first development, or back to 1940, whichever is earlier. Despite the data gaps noted in the Historical Use Summary table, the Site usage appeared unchanged over the period in which the gaps were identified. Historical information sources researched in this assessment allowed uses of the Site to be traced from the present back to 1909. This does not predate the Site's obvious first developed use, per ASTM Standard Practice E 1527-05 § 8.3.2., and therefore constitutes historical data failure. Despite the data gaps noted in the Historical Use Summary table, the property usage appeared unchanged over the period in which the gaps were identified. These data gaps do not significantly impact the findings of this report. As such, the requirements of ASTM Standard Practice E 1527-05 §8.3.2.1 §8.3.2.2 have been satisfied and, as stated in ASTM Standard Practice E 1527-05 §8.3.2.3, the historical research is considered complete.

5.3.1 Aerial Photographs

ATC did not review aerial photographs as part of this assessment. Based on ATC's experience, little useful information was expected from a review of aerial photographs due to the urban density and long-term development of the Site and surrounding area.

5.3.2 Fire Insurance Maps

ATC reviewed available historical Sanborn fire insurance maps of the Site and surrounding areas in order to identify historical land use that may have involved hazardous substances and petroleum products. Historical fire insurance maps from the years 1909 through 1996 were reviewed to determine historical uses of the Site. The following are descriptions and interpretations from the fire insurance map reviews:

FIRE INSURANCE MAP SUMMARY	
Year	**Comments**
1909	**Site**: The Site is depicted with a garage with a dwelling on the second story and vacant lots. **Surrounding Area**: The adjacent properties in all directions are depicted with low-rise dwellings and vacant lots.
1939	**Site**: The Site is depicted with the existing building built in 1929 and labeled as a garage with four (4) 550-gallon gasoline USTs. **Surrounding Area**: The adjoining property to the east is depicted with a gasoline filling station with twelve (12) 550-gallon gasoline USTs, an auto service station, and an office. Adjacent properties to the south are depicted with dwellings and vacant lots. Surrounding properties to the north are identified with a park, commercial retail, and dwellings. Surrounding properties to the west are depicted with a vacant lot followed by St Nicholas Avenue. Further to the west is depicted with commercial retail and low-rise dwellings.
1950	**Site:** The Site appears relatively unchanged from the 1939 Sanborn map. **Surrounding Area:** Surrounding properties remain relatively unchanged from the 1939 Sanborn map. However, further to the west across St Nicholas Avenue is depicted with a parking lot and a used car sale.
1968-1986	**Site**: The Site appears relatively unchanged from the 1950 Sanborn map, with the exception of auto repair now being identified on-Site. **Surrounding Area**: Adjacent properties to the southwest are depicted with a garage, storage, and a building labeled as "Department of Water Supply Gas & Electricity." Adjoining properties to the north and east are relatively unchanged from the 1950 Sanborn map, with the exception of a school to the north. Surrounding properties to the west are relatively unchanged from the 1950 Sanborn map, with the exception of the auto sales lot no longer present.
1991-1996	**Site**: The Site remains relatively unchanged from the previous maps. **Surrounding Area**: The surrounding properties remain relatively unchanged from the previous maps. However, the parking lot formerly occupying a western adjacent property is now labeled as "Prince Hall."

ATC's review of historical Sanborn maps identified the Site as being developed with the existing Site building built in 1929, which was occupied by a garage with four (4) 550-gallon USTs from at least 1939 to 1996. Additionally, auto repair was identified at the Site from at least 1968 to 1996. Prior to the construction of the current Site building, the Site was developed with a smaller garage with a dwelling on the second story and vacant lots. The adjoining property to the east has been developed with a gasoline filling station with twelve (12) 550-gallon gasoline USTs, an auto service station, and an office from at least 1939 to 1996. Of note, this adjoining property is currently occupied by Getty gasoline station with an auto repair shop. A garage is depicted to the southwest of the Site from at least 1968 through 1996. This property is currently occupied by a utility. Surrounding properties in all other directions have been developed mainly with commercial retail and dwellings since at least 1909. ATC concludes that the historical use of the Site for auto related operations and use of the eastern adjoining property as a gasoline station and the southwestern adjacent property as a garage represent a *recognized environmental condition* for the Site.

Copies of the fire insurance maps are provided in Appendix G.

5.3.3 Site Tax Files

ATC reviewed available tax information from the New York City Department of Finance website for ownership information on the Site. According to these records, the Site is currently owned by Garage

Estates Company. The review of tax files did not identify past uses indicating *recognized environmental conditions* at the Site.

5.3.4 Recorded Land Title Records

The acquisition of recorded land title records was not required by the scope of work for the Phase I ESA.

5.3.5 Historical USGS Topographic Quadrangles

Historical topographical maps were not reviewed for the Site and surrounding properties based on their limited usefulness in densely developed urban areas and given the adequate coverage by other historical resources (e.g., Sanborn fire insurance maps, city directories, etc.).

5.3.6 City Directories

Research regarding the availability of historical city directories was conducted by EDR for the Site. City directories were available from 1920 through 2000. According to this review, the Site was listed with numerous auto related commercial listings from 1920 through at least 1956. The Site was identified with an auto repair shop listing for 1956. Surrounding properties were generally listed with residential, commercial and retail listings from 1920 through 1958. ATC concludes that the historical use of the Site as auto related operations represents a *recognized environmental condition* for the Site. Documentation is included in Appendix G.

5.3.7 Building Department Records

ATC reviewed available building department information provided by the NYCDOB via the on-line Building Information System website (http://a810-bisweb.nyc.gov/bisweb/bsqpm01.jsp). The Site is designated as Block 2069, Lot 21. One (1) open Department of Building (DOB) and one (1) open Environmental Control Board (ECB) violations were identified at the Site. The open violations are associated with construction related issues and do not appear to relate to environmental issues. Based on the nature of these violations, ATC concludes that they do not represent an environmental concern for the Site.

5.3.8 Zoning/Land Use Records

ATC reviewed the NYCDCP Zoning Map from the NYCDCP website, which indicated that the Site is located in an area that is currently zoned as C8-3 – "Commercial". The Site was not identified as having a City Environmental Quality Review (CEQR) Declaration (also known as a Little "E" designation). A Little "E" designation is assigned to certain blocks or lots by a New York City agency (i.e., New York City Department of Environmental Protection, New York City Department of City Planning) as a result of an environmental assessment performed in conjunction with a zoning map amendment.

5.3.9 Prior Reports

ATC was not provided with any prior environmental reports.

5.3.10 Other Historical Sources

No other historical sources were reviewed.

6.0 SITE RECONNAISSANCE

The following is a summary of visual and/or physical observations of the Site on the day of the Site visit. Photographs can be found in Appendix C.

6.1 Methodology and Limiting Conditions

The Site visit and area reconnaissance were conducted by Ms. Bedia Saray, ATC Project Manager, on November 13, 2007. The Site reconnaissance consisted of visual and/or physical observations of: the property and improvements; adjoining properties as viewed from the Site; and, the surrounding area based on visual observations made during the trip to and from the Site. Unimproved portions of the Site were observed along the perimeter and in a general grid pattern in safely accessible areas. Building exteriors were observed along the perimeter from the ground, unless described otherwise. Building interiors were observed as they were made safely accessible, unless described otherwise.

6.2 Hazardous Substance Use, Storage, and Disposal

ATC did not observe the use, storage or disposal of hazardous substances, including hazardous wastes, on the Site.

ATC observed suspect petroleum staining on the floor (approximately 12'x18') in the east-northeastern portion of the cellar along the eastern wall by the door. ATC reviewed a drawing of proposed modification of the building prepared by the U.S. Post Office Department dated June 25, 1969. This drawing indicated the presence of two (2) 275-gallon lube oil tank location in the east-northeastern portion of the cellar, where suspect petroleum staining was observed. Based on the observed conditions, ATC concludes that this condition represents an environmental concern for the Site.

6.3 Underground Storage Tanks (USTs)

ATC did not observe evidence of USTs on the Site. However, the historical Sanborn maps revealed the presence of four (4) 550-gallon gasoline USTs at the Site from at least 1939 through 1996. The Site was not identified as a LTANKS facility, New York PBS tank facility, or New York Spill site. Based on the potential presence of these USTs at the Site and the lack of current information regarding these USTs, ATC concludes that they represent a *recognized environmental condition.*

The U. S. Post Office Department drawing dated June 25, 1969 indicated the presence a fill port in the vicinity of the ramp in the cellar that might be associated with potential USTs.

6.4 Aboveground Storage Tanks (ASTs)

At the time of the Site reconnaissance, ATC observed the presence of an out-of service approximately 550-gallon AST located underneath the second floor ramp on the eastern side of the first floor. ATC observed an inactive fuel oil fill port on the second floor right above the tank and an inactive vent pipe associated with this tank. ATC also observed the presence of an inactive small AST located underneath the staircase in the south-southwestern portion of the cellar. No evidence of spills or leaks was observed in the vicinity of the ASTs at the time of the Site reconnaissance. The Site was not identified as a LTANKS facility, New York PBS tank facility, or New York Spill site.

The U. S. Post Office Department drawing indicated the presence of a waste oil tank location and an associated fill port in the vicinity of the ramp on the first floor. The drawing also indicated the presence

of two (2) 275-gallon lube oil tank location in the east-northeastern portion of the cellar, where suspect petroleum staining on the floor (approximately 12'x18') was observed by ATC during the Site reconnaissance.

6.5 Other Petroleum Products

ATC did not observe the use, storage or disposal of other petroleum products on the Site.

6.6 Polychlorinated Biphenyls (PCBs)

Polychlorinated Biphenyls (PCBs) are a toxic chemical component of dielectric fluids, coolants or lubricating oils used in many electrical transformers, light ballasts, capacitors or other similar equipment manufactured prior to 1979.

Fluorescent lighting was observed throughout the Site building. The scope of work for this assessment did not include a survey of light ballasts. Fluorescent light ballasts at the Site may contain PCBs since the site building was constructed prior to 1979; however, no evidence of leakage associated with observed light ballasts was apparent as viewed from ground level. Units labeled as PCB-containing (or unlabeled units) should be handled and/or discarded in accordance with applicable federal and local regulations.

No other suspect PCB-containing equipment (i.e., hydraulic lifts, hydraulic elevators, hydraulic compactors, and hydraulic bailers) was observed during the Site reconnaissance.

6.7 Unidentified Substance Containers

ATC did not observe the presence of unidentified substance containers on the Site.

6.8 Non-hazardous Solid Waste

Non-hazardous solid waste is collected on a routine basis by the City of New York Department of Sanitation. No indicators of waste mismanagement or disposal of hazardous materials was observed in the vicinity of the trash disposal areas.

6.9 Wastewater

ATC did not observe indicators of wastewater generated, treated or discharged (including sanitary sewage and storm water) at the Site or to adjoining properties.

6.10 Waste Pits, Ponds and Lagoons

ATC did not observe indicators of waste pits, ponds or lagoons at the Site.

6.11 Sumps

ATC did not observe sumps at the Site.

6.12 Septic Systems

ATC did not observe indicators of a septic system on the Site.

6.13 Stormwater Management System

Stormwater runoff at the Site drains to catch basins located along West 155th Street that discharge to the municipal combined sanitary and stormwater sewer system.

6.14 Wells

ATC did not observe indicators of wells on the Site.

7.0 INTERVIEWS

The following persons were interviewed to obtain information regarding *recognized environmental conditions* in connection with the Site:

INTERVIEW SUMMARY				
Role	**Name**	**Title/Company**	**Years Assoc. With Property**	**Interview Type**
Site Contact	Ms. Mary Ann Villari	Broadway Housing Communities	Unknown	In person
George Polo	Manager at the Site	Manager at the Site	15 years	In person
Local Govt. Official	Representative	New York City Fire Department	N/A	FOI letter
Local Govt. Official	Representative	New York City Department of Environmental Protection	N/A	FOI letter
Local Govt. Official	Ms. Rena Bryant	New York City Department of Health and Mental Hygiene	N/A	FOI letter
State Gov't Official	Representative	New York State Department of Environmental Conservation	N/A	FOI letter

Pertinent information from the interviews is discussed in applicable sections of this report with details (including failed attempts to interview) documented on Record of Communication forms in Appendix J.

8.0 OTHER ENVIRONMENTAL CONDITIONS

8.1 Asbestos-Containing Material (ACM)

ATC conducted a limited visual assessment within the accessible areas of the Site building for suspect asbestos containing materials (ACM). The use of asbestos in many building products was banned by the U.S. Environmental Protection Agency (USEPA) by the late 1970s. In 1989, the USEPA issued a ruling prohibiting the manufacturing, importation, processing, and distribution of most asbestos containing products. This rule, known as the Ban and Phase-Out Rule, would have effectively banned the use of nearly 95% of all asbestos products used in the United States. However, the U.S. 5th Circuit Court of Appeals vacated and remanded most of the Ban and Phase-Out Rule in October 1991. Due to this court decision, many asbestos containing product categories not previously banned (prior to 1989) may still be in use today. Among these common material types found in buildings are floor tiles and roofing materials.

Based on the construction date (1929), it is likely that asbestos is present within the Site building materials. ATC observed suspect ACM, including floor tiles and mastic (in the northeast portion of second floor), plaster walls and roofing materials within the accessible areas of the Site building. These materials were generally observed in good condition with the exception of some damaged floor tiles in the northeastern portion of the second floor of the Site building. In the event that the suspect ACM is to be disturbed by future renovation or demolition work, a thorough inspection and proper asbestos abatement procedures should be implemented prior to the commencement of such work. ACM is outside of the Scope of ASTM Practice E 1527-05 and, therefore, the potential presence of ACM is not considered a *recognized environmental condition.*

8.2 Radon

Radon is a naturally occurring colorless, odorless gas that is a by-product of the decay of radioactive materials potentially present in bedrock and soil. The EPA guidance action level for annual residential exposure to radon is 4.0 picoCuries per liter of air (pCi/L). The guidance action level is not a regulatory requirement for private owners of commercial real estate, but is commonly used for comparison purposes to suggest whether further action at a building may be prudent.

ATC reviewed the New York State Department of Health (NYSDOH) Radon Program results dated August 2007, which provides information pertaining to screening tests performed in homes throughout New York State. The Radon Program screening results for New York County indicates that the Site is located in an area of low propensity with regard to the potential for elevated levels of radon gas. The results indicate that the average radon level was 2.15 pCi/l, which is below the USEPA recommended action level of 4.0 pCi/l. Based on this information, ATC concludes that radon is not a concern for the Site. Radon is outside of the Scope of ASTM Practice E 1527-05 and, therefore, radon is not considered a *recognized environmental condition.*

8.3 Lead in Drinking Water

Within the City of New York, potable water is supplied to Manhattan primarily from upstate New York reservoirs. ATC reviewed New York City's most recent Drinking Water Supply and Quality Report made available through the NYCDEP website (http://www.ci.nyc.ny.us/html/dep/home.html) for the year 2006. Review of the analytical data provided in the report confirmed that the municipally supplied water meets all drinking water standards established by the United States Environmental Protection Agency

Safe Water Drinking Act, including those for lead. No drinking water supply wells exist at the Site.

8.4 Lead-Based Paint (LBP)

Based on the construction date (1929), LBP is presumed to be present at the Site. During the course of ATC's inspection, painted surfaces within accessible areas were generally observed in fair condition with the exception of peeling paint observed in the bathroom on the first floor. LBP is outside of the Scope of ASTM Practice E 1527-05 and, therefore, the potential presence of LBP is not considered a *recognized environmental condition.*

8.5 Mold Screening Survey

ATC conducted a visual screening survey for mold conditions at the Site. The screening consisted of brief interviews and physical observations. Based on the results of the interview and physical observation, ATC found no evidence of potential mold growth at the Site within areas observed at the time of the Site reconnaissance. Mold conditions are outside the scope of ASTM Practice E 1527-05 and, therefore, the presence of mold or conditions favorable for mold growth are not *recognized environmental conditions*.

8.6 Additional User Requested Conditions

No additional User Requested Conditions were evaluated for this Phase I ESA.

9.0 REFERENCES

ASTM International. *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process*, ASTM Designation E 1527-05. November 2005.

ASTM International. *Standard Guide for Readily Observable Mold and Conditions Conducive to Mold in Commercial Buildings: Baseline Survey Process*, ASTM Designation E 2418-06. March 2006.

ASTM International. *Standard Guide for Limited Asbestos Screens of Buildings*, ASTM Designation E 2308-05. August 2005.

Environmental Data Resources, Inc. (EDR) *EDR Radius Map with Geocheck*, Report Inquiry Number 2077001.2s, dated November 13, 2007.

Environmental Data Resources, Inc. (EDR) *EDR City Directory Abstract* Inquiry Number 2077001.4, dated November 13, 2007.

Environmental Data Resources, Inc. (EDR) *EDR Sanborn Map Report* Inquiry Number 2077001.3s, dated November 14, 2007.

New York Department of Environmental Conservation (NYDEC) Environmental Navigator website, http://www.dec.state.ny.us/website/imsmaps/navigator/

New York City Department of Building Website http://a810-bisweb.nyc.gov/bisweb/

New York City Department of Finance Website (http://www.nyc.gov/html/dof/html/home/home.shtml

New York City Department of Environmental Protection (NYCDEP) website, http://www.nyc.gov/html/dep/home.html

United States Environmental Protection Agency (USEPA) website, http://www.epa.gov/

New York State Department of Health website, http://www.nyhealth.gov/

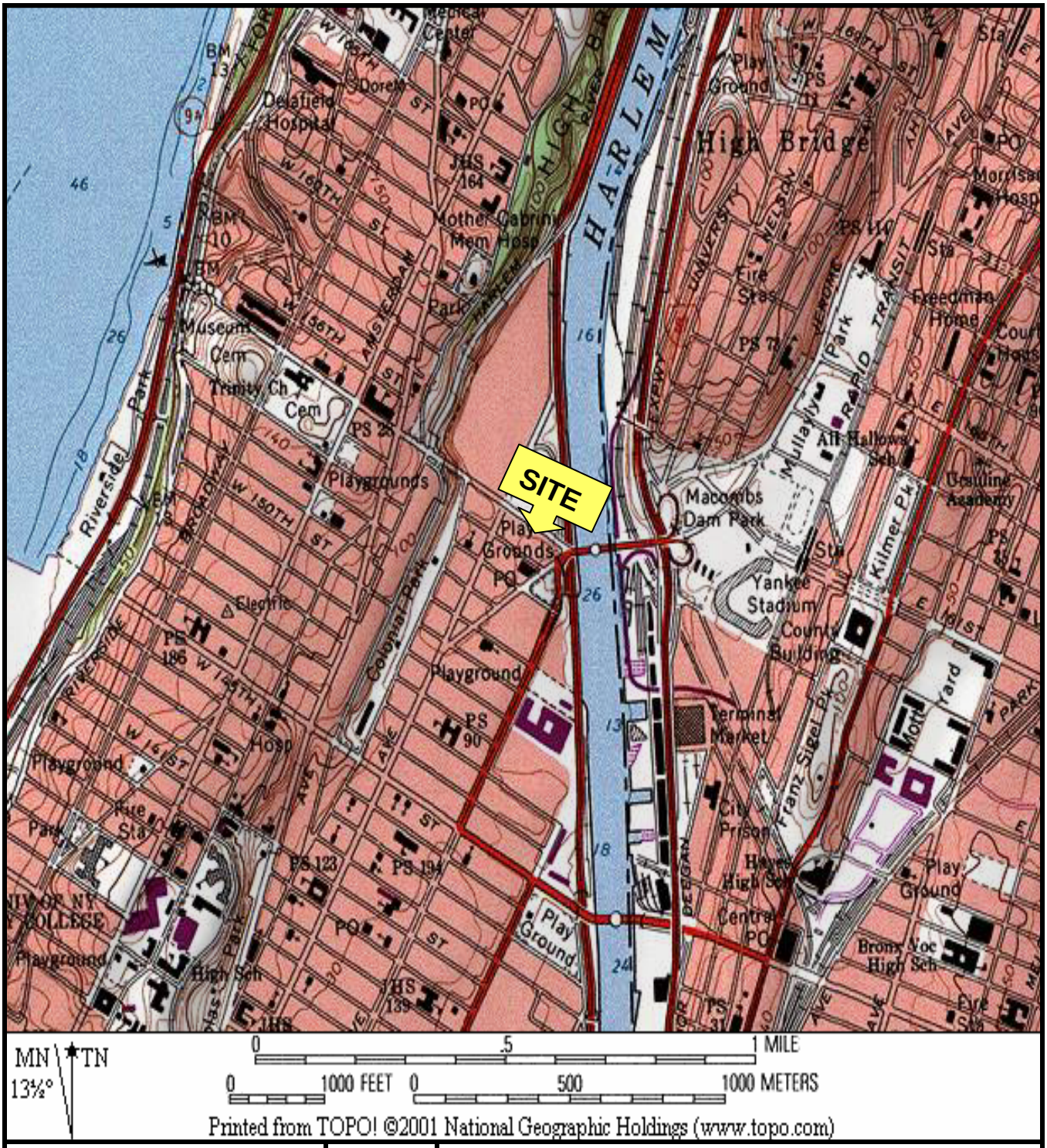
Propertyshark website www.propertyshark.com

10.0 APPENDICES

Appendix A - Site Vicinity Map
Appendix B - Site Plan
Appendix C - Site Photographs
Appendix D - User Provided Documentation
Appendix E - Regulatory Database Report
Appendix F - Aerial Photographs (Not Used)
Appendix G - Historical Research Documentation
Appendix H - Prior Reports (None Provided)
Appendix I - Resumes
Appendix J - Records of Communication
Appendix K - Laboratory Reports (Not Used)
Appendix L - Other Supporting Documentation
Appendix M - Terminology

APPENDIX A

SITE VICINITY MAP



ATC ASSOCIATES INC.
104 East 25th Street, 8th Floor
New York, NY 10010-2917
Phone (212) 353-8280 * Fax (212) 979-8447

N

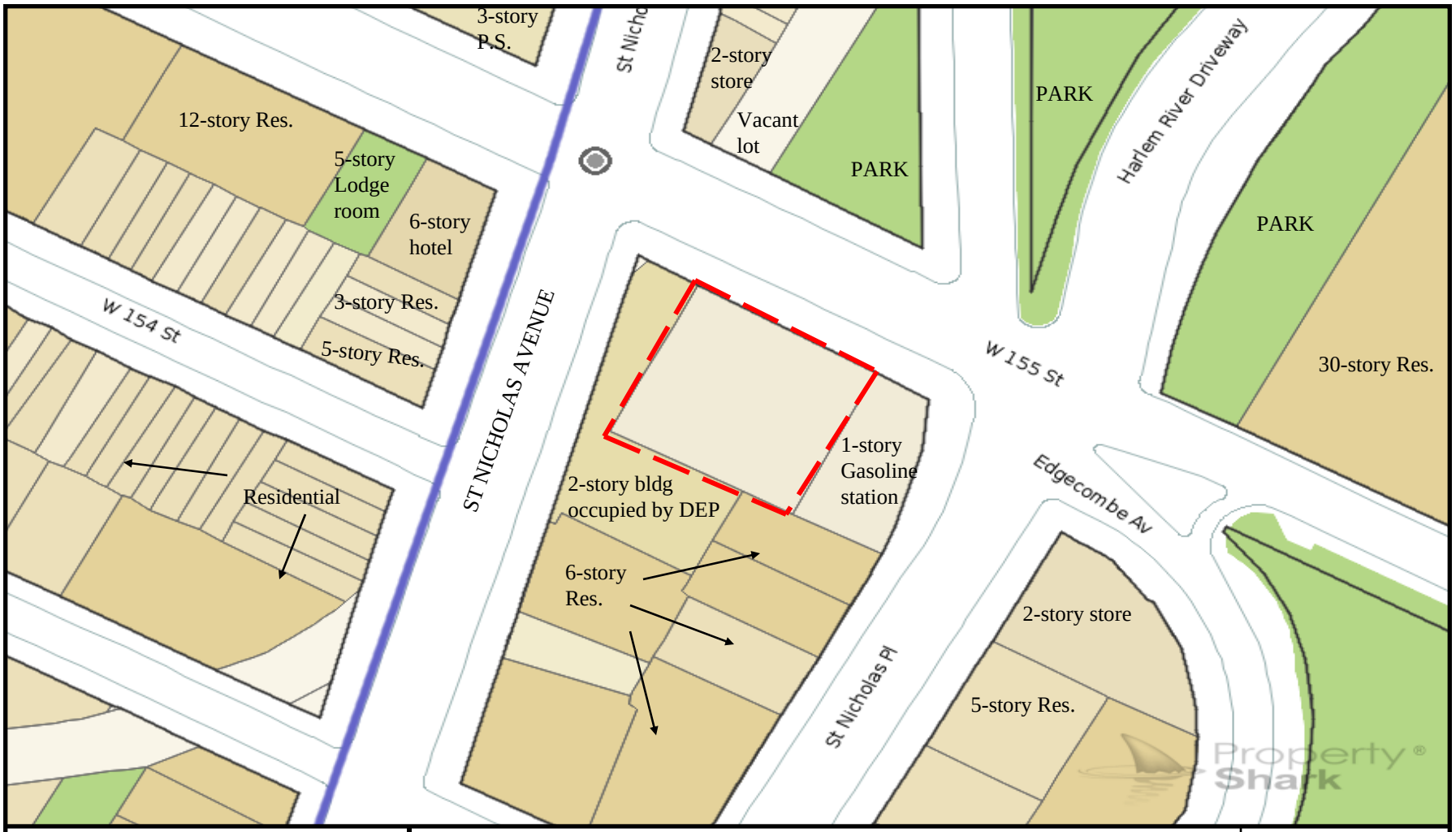
USGS 7.5 Quad Index
2440074-G8 Central Park, NY/ NJ

APPENDIX A - SITE LOCATION MAP

Client: Broadway Housing Communities
Site Address: 414 West 155th Street
New York, NY 10032
ATC Project No. 015.26789.0002
Scale: See Figure

APPENDIX B

SITE PLAN



ATC ASSOCIATES INC.
104 East 25th Street, 10th Floor
New York, NY 10010-2917
(212) 353-8280 Fax (212) 979-8447

APPENDIX B - SITE PLAN

SITE: **414 West 155th Street**
New York, NY

CLIENT: Broadway Housing Communities

ATC PROJECT #: 015.26789.0002

SCALE: Not to scale

LEGEND:

Site Boundary

N

APPENDIX C

SITE PHOTOGRAPHS

Photo 1: View of Site along St Nicholas Place.

Photo 2: View of gasoline station adjacent to south-southwest of the Site.

Photo 3: View of typical ceiling.

Photo 4: View of staining.

Photo 5: View of the manager office on the first floor.

Photo 6: View of roof.

Photo 7: View of oil fill port located on the second floor associated with 550-gallon AST on the first floor.

Photo 8: View of 550-gallon AST on the first floor on the east side of the building.

Photo 9: View of small AST located in the basement underneath the staircase in the south-southwestern portion of the building.

Photo 10: View of excessive peeling paint in the bathroom next to the office on the first floor.

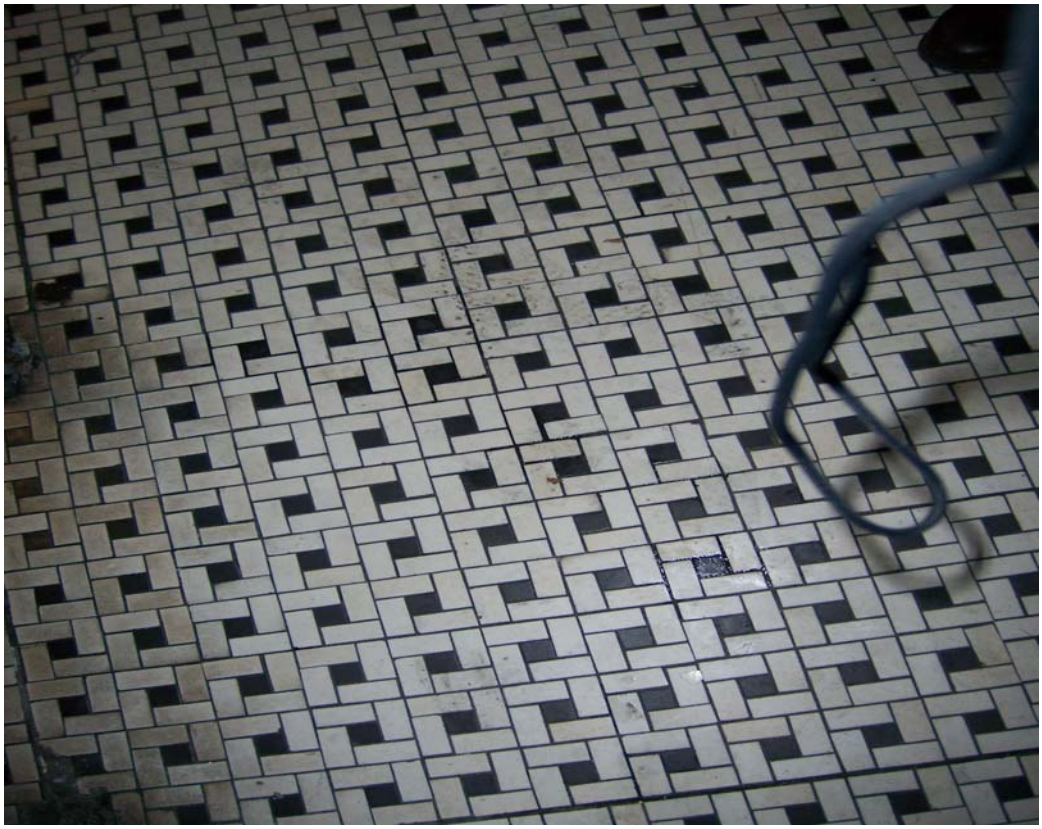


Photo 11: View of bathroom floor on the first floor.

Photo 12: View of garbage container next to main entrance on the first floor.

Photo 13: View to the northwest across West 155th Street and St Nicholas Avenue.

Photo 14: View to the east St Nicholas Place.

Photo 15: View to the northeast across West 155th Street and Harlem River Driveway.

Photo 16: View to the north across West 15th Street.

Photo 17: View to the north-northwest across West 15th Street.

Photo 18: View to the west.

APPENDIX D

USER PROVIDED DOCUMENTATION

ATTACHMENT D
CLIENT QUESTIONNAIRE

Per ASTM Standard Practice E 1527-05, Section 6, User Responsibilities, the User of an ESA has specific obligations for performing tasks during the ESA that will help identify the possibility of *recognized environmental conditions* in connection with the Site. Failure by the User to fully comply with the requirements may result in a *data gap* being identified in the report and may impact their ability to use the report to help qualify for *Landowner Liability Protections* (LLPs) under Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). If this questionnaire is not returned to ATC prior to issuance of the draft report, then ATC assumes that the User does not have any information or actual knowledge pursuant to ASTM Standard Practice E 1527-05, Section 6, User Responsibilities. ATC makes no representations or warranties regarding a User's qualification for protection under any federal, state or local laws, rules or regulations.

Please complete the following and return immediately via email or fax to the attention of:
Matthew Mankovich at matt.mankovich@atcassociates.com or (212) 979-8447 (fax#)
If other parties are intending to be the Users of the ESA report, then please forward a copy of this questionnaire for them to complete and return to ATC.

Site Name: **Broadway Housing Communities Phase I ESA**

Site Address: **414 West 155th Street, New York, NY 10032**

ATC Project Number: _____

Please provide the following information (if available) per the requirements of ASTM E 1527-05.

1. Environmental cleanup liens that are filed or recorded against the Site (40 CFR 312.25)

Are you aware of any environmental cleanup liens against the Site that are filed or recorded under federal, tribal, state or local law? Yes ☐ or No ☐

If yes, please provide a description of the lien(s).

_____

_____

_____

2. Activity and land use limitations (AULs) that are in place on the Site or that have been filed or recorded in a registry (40 CFR 312.26)

Are you aware of any AULs, such as engineering controls, land use restrictions or institutional controls that are in place at the Site and/or have been filed or recorded in a registry under federal, tribal, state or local law? Yes ☐ or No ☐ If yes, please provide.

_____

_____

_____

3. Specialized knowledge or experience of the person seeking to qualify for the Landowner Liability Protections (40 CFR 312.28)

As the user of this ESA do you have any specialized knowledge or experience related to the Site or nearby properties? For example, are you involved in the same line of business as the current or former occupants of the Site or an adjoining property so that you would have specialized knowledge of the chemicals and processes used by this type of business?
Yes ☐ or No ☐ If yes, please explain.

_____

_____

_____

_____

_____

4. Relationship of the purchase price to the fair market value of the Site if it were not contaminated (40 CFR 312.29)

a. Does the purchase price being paid for this Site reasonably reflect the fair market value of the Site? Yes ☐ or No ☐

_____

_____

_____

b. If you conclude that there is a difference, have you considered whether the lower purchase price is because contamination is known or believed to be present at the Site?
Yes ☐ or No ☐ If yes, please explain.

_____

_____

_____

5. Commonly known or reasonably ascertainable information about the Site (40 CFR 312.30)

Are you aware of commonly known or reasonably ascertainable information about the Site that would help the environmental professional to identify conditions indicative of releases or threatened releases? For example, as user,

a. Do you know the past uses of the site? Yes ☐ or No ☐ If yes, please state.

_____

_____

b. Do you know of specific chemicals that are present or once were present at the Site?
Yes ☐ or No ☐ If yes, please state.

_____

_____

_____

c. Do you know of spills or other chemical releases that have taken place at the Site?
Yes ☐ or No ☐ If yes, please state.

_____

_____

_____

6. Do you know of any environmental cleanups that have taken place at the Site?
Yes ☐ or No ☐ If yes, please state.

_____

_____

_____

7. The degree of obviousness of the presence or likely presence of contamination at the Site, and the ability to detect the contamination by appropriate investigation (40 CFR 312.31)

As the user of this ESA, based on your knowledge and experience related to the Site are there any obvious indicators that point to the presence or likely presence of contamination at the Site?
Yes ☐ or No ☐ If yes, please explain.

_____

_____

_____

This questionnaire was completed by:

Name _____

Title _____

Signature _____

Company of User _____

Address of User _____

_____

Date _____

APPENDIX E

REGULATORY DATABASE REPORT

The EDR Radius Map
with GeoCheck®

414 West 155th Street
414 West 155th Street
New York, NY 10032

Inquiry Number: 2077001.2s

November 13, 2007

EDR® Environmental Data Resources Inc

The Standard in Environmental Risk Information

440 Wheelers Farms Road
Milford, Connecticut 06461

Nationwide Customer Service

Telephone: 1-800-352-0050
Fax: 1-800-231-6802
Internet: www.edrnet.com

TABLE OF CONTENTS

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-05) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

414 WEST 155TH STREET
NEW YORK, NY 10032

COORDINATES

Latitude (North):	40.830640 - 40˚ 49' 50.3''
Longitude (West):	73.940810 - 73˚ 56' 26.9''
Universal Tranverse Mercator:	Zone 18
UTM X (Meters):	589310.2
UTM Y (Meters):	4520285.0
Elevation:	111 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map:	40073-G8 CENTRAL PARK, NY
Most Recent Revision:	1995

TARGET PROPERTY SEARCH RESULTS

The target property was not listed in any of the databases searched by EDR.

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the search radius around the target property for the following databases:

FEDERAL RECORDS

NPL ..... National Priority List
Proposed NPL ..... Proposed National Priority List Sites
Delisted NPL ..... National Priority List Deletions
NPL LIENS ..... Federal Superfund Liens
CERCLIS ..... Comprehensive Environmental Response, Compensation, and Liability Information System
CERC-NFRAP ..... CERCLIS No Further Remedial Action Planned
CORRACTS ..... Corrective Action Report
RCRA-TSDF ..... Resource Conservation and Recovery Act Information
RCRA-LQG ..... Resource Conservation and Recovery Act Information
ERNS ..... Emergency Response Notification System

EXECUTIVE SUMMARY

HMIRS ..... Hazardous Materials Information Reporting System
US ENG CONTROLS ..... Engineering Controls Sites List
US INST CONTROL ..... Sites with Institutional Controls
DOD ..... Department of Defense Sites
FUDS ..... Formerly Used Defense Sites
US BROWNFIELDS ..... A Listing of Brownfields Sites
CONSENT ..... Superfund (CERCLA) Consent Decrees
ROD ..... Records Of Decision
UMTRA ..... Uranium Mill Tailings Sites
ODI ..... Open Dump Inventory
TRIS ..... Toxic Chemical Release Inventory System
TSCA ..... Toxic Substances Control Act
FTTS ..... FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
SSTS ..... Section 7 Tracking Systems
LIENS 2 ..... CERCLA Lien Information
RADINFO ..... Radiation Information Database
US CDL ..... Clandestine Drug Labs
HIST FTTS ..... FIFRA/TSCA Tracking System Administrative Case Listing
DEBRIS REGION 9 ..... Torres Martinez Reservation Illegal Dump Site Locations
ICIS ..... Integrated Compliance Information System
LUCIS ..... Land Use Control Information System
DOT OPS ..... Incident and Accident Data
PADS ..... PCB Activity Database System
MLTS ..... Material Licensing Tracking System
MINES ..... Mines Master Index File
FINDS ..... Facility Index System/Facility Registry System
RAATS ..... RCRA Administrative Action Tracking System

STATE AND LOCAL RECORDS

HSWDS ..... Hazardous Substance Waste Disposal Site Inventory
DEL SHWS ..... Delisted Registry Sites
SWF/LF ..... Facility Register
SWRCY ..... Registered Recycling Facility List
SWTIRE ..... Registered Waste Tire Storage & Facility List
CBS UST ..... Chemical Bulk Storage Database
MOSF UST ..... Major Oil Storage Facilities Database
CBS AST ..... Chemical Bulk Storage Database
HIST AST ..... Historical Petroleum Bulk Storage Database
MOSF AST ..... Major Oil Storage Facilities Database
ENG CONTROLS ..... Registry of Engineering Controls
INST CONTROL ..... Registry of Institutional Controls
VCP ..... Voluntary Cleanup Agreements
BROWNFIELDS ..... Brownfields Site List
SPDES ..... State Pollutant Discharge Elimination System
AIRS ..... Air Emissions Data
CBS ..... Chemical Bulk Storage Site Listing
E DESIGNATION ..... E DESIGNATION SITE LISTING
RES DECL ..... Restrictive Declarations Listing
MOSF ..... Major Oil Storage Facility Site Listing

TRIBAL RECORDS

INDIAN RESERV ..... Indian Reservations

EXECUTIVE SUMMARY

INDIAN LUST Leaking Underground Storage Tanks on Indian Land
INDIAN UST Underground Storage Tanks on Indian Land

EDR PROPRIETARY RECORDS

Manufactured Gas Plants EDR Proprietary Manufactured Gas Plants
EDR Historical Auto Stations EDR Proprietary Historic Gas Stations
EDR Historical Cleaners EDR Proprietary Historic Dry Cleaners

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified in the following databases.

Elevations have been determined from the USGS Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property.
Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

FEDERAL RECORDS

RCRAInfo: RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. RCRAInfo replaces the data recording and reporting abilities of the Resource Conservation and Recovery Information System(RCRIS). The database includes selective information on sites which generate, transport, store , treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month. Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month Large quantity generators generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month. Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

A review of the RCRA-SQG list, as provided by EDR, and dated 06/13/2006 has revealed that there are 10 RCRA-SQG sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
NYC BD OF ED - PUBLIC SCHOOL 2	***475 W 155TH ST***	***0 - 1/8 WNW***	***H23***	***82***
ABAX INC	***444 W 153RD ST APT 51***	***0 - 1/8 WSW***	***43***	***131***
NYCHA - AUDUBON HOUSES	***1909 AMSTERDAM AVE***	***1/8 - 1/4 WNW***	***M52***	***147***
K&B CLEANERS	***1946 AMSTERDAM AVE***	***1/8 - 1/4 NNW***	***P65***	***197***
A & R CLEANERS	***1988 AMSTERDAM AVE***	***1/8 - 1/4 N***	***AF145***	***398***
FOUR SEASONS CLEANERS	***1838 AMSTERDAM AVE***	***1/8 - 1/4 WSW***	***AO172***	***471***
PINE TREE FRENCH CLEANERS	1838 AMSTERDAM AVE	1/8 - 1/4 WSW	AO174	490

Lower Elevation	Address	Dist / Dir	Map ID	Page
GETTY PETROLEUM CORP	***89-91 ST NICHOLAS PL***	***0 - 1/8 ESE***	***B15***	***61***
NYCTA - 155TH ST SUBSTATION	***155TH ST & BRADHURST AV***	***1/8 - 1/4 ESE***	***51***	***147***
BLOCKERS CLEANERS	***840 ST NICHOLAS AVE***	***1/8 - 1/4 SSW***	***K61***	***170***

EXECUTIVE SUMMARY

STATE AND LOCAL RECORDS

SHWS: The State Hazardous Waste Sites records are the states' equivalent to CERCLIS. These sites may or may not already be listed on the federal CERCLIS list. Priority sites planned for cleanup using state funds (state equivalent of Superfund) are identified along with sites where cleanup will be paid for by potentially responsible parties. The data come from the Department of Environmental Conservation's Inactive Hazardous waste Disposal Sites in New York State.

A review of the SHWS list, as provided by EDR, and dated 08/15/2007 has revealed that there is 1 SHWS site within approximately 1 mile of the target property.

Lower Elevation	Address	Dist / Dir	Map ID	Page
2350 FIFTH AVENUE CORP	***2350 5TH AVE***	***1/2 - 1 SSE***	***241***	***697***
Class Code: Significant threat to the public health or environment - action required.				

LTANKS: Leaking Storage Tank Incident Reports. These records contain an inventory of reported leaking storage tank incidents reported from 4/1/86 through the most recent update. They can be either leaking underground storage tanks or leaking aboveground storage tanks. The causes of the incidents are tank test failures, tank failures or tank overfills

A review of the LTANKS list, as provided by EDR, and dated 07/11/2007 has revealed that there are 72 LTANKS sites within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
PRINCE HALL MASONIC TEMPL Date Closed: 10/07/04	454 WEST 155TH STREET	0 - 1/8 WNW	A6	17
NORTH MANHATTAN SHOP Date Closed: 04/20/01	***886 SOUTH ST. NICHOLAS***	***0 - 1/8 WSW***	***C8***	***21***
886 ST. NICHOLAS AVENUE Date Closed: / /	***886 ST NICHOLAS AVENUE***	***0 - 1/8 WSW***	***C9***	***27***
RESIDENCE Date Closed: 10/09/98	***943 ST NICHOLAS AVE***	***1/8 - 1/4 N***	***J47***	***138***
AUDUBON HOUSES Date Closed: 01/07/93 Date Closed: 05/01/95	***1909 AMSTERDAM AVENUE***	***1/8 - 1/4 WNW***	***M53***	***148***
BETHUNE HOUSES Date Closed: 09/09/94	***1945 AMSTERDAM AVENUE***	***1/8 - 1/4 NNW***	***P69***	***223***
514-516 W 156TH ST Date Closed: 11/18/94	***514-516 W 156TH ST***	***1/8 - 1/4 NW***	***P84***	***255***
ST CATHERINE OF GENOA Date Closed: 01/19/06	***506 WEST 153 RD ST***	***1/8 - 1/4 W***	***S94***	***278***
Not reported Date Closed: 12/04/01	***513-515 157TH ST***	***1/8 - 1/4 NNW***	***AB104***	***298***
30TH PRECINCT NYPD Date Closed: 09/26/06	***451 W 151ST ST***	***1/8 - 1/4 SW***	***AG127***	***361***
APARTMENT BUILDING Date Closed: 03/03/06	523 WEST 157TH ST	1/8 - 1/4 NNW	AJ142	395
556 WEST 156TH ST-APT A Date Closed: 02/24/03	***556 WEST 156TH ST-APT A***	***1/8 - 1/4 NW***	***AM160***	***445***
555 EDGECOMBE AVE Date Closed: 05/29/92	***555 EDGECOMBE AVE***	***1/8 - 1/4 NNE***	***AN162***	***450***

EXECUTIVE SUMMARY

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
498 W 159TH ST Date Closed: 03/10/03	***498 W 159TH ST***	***1/8 - 1/4 N***	***AP175***	***491***
518 WEST 151ST STREET Date Closed: 10/29/92	***518 WEST 151ST STREET***	***1/4 - 1/2 WSW***	***192***	***536***
APT BLDG Date Closed: 06/13/05	***425 W 160TH ST***	***1/4 - 1/2 NNE***	***193***	***540***
RESIDENCE Date Closed: 02/05/04	***555 WEST 152ND ST***	***1/4 - 1/2 W***	***195***	***548***
Not reported Date Closed: 07/29/04	1003 SAINT NICHOLAS AVE	1/4 - 1/2 N	196	550
501 W 150 ST. Date Closed: 03/29/92	***501 W 150 ST.***	***1/4 - 1/2 WSW***	***198***	***564***
MOBIL S/S Date Closed: 09/21/94	***3740 BROADWAY***	***1/4 - 1/2 WNW***	***AT203***	***599***
MOBIL S/S Date Closed: / /	***3740 BROADWAY***	***1/4 - 1/2 WNW***	***AT204***	***601***
MOBIL S/S Date Closed: 09/21/94	***3740 BROADWAY***	***1/4 - 1/2 WNW***	***AT205***	***607***
CHURCH Date Closed: 11/14/05	444 EAST 149TH STREET	1/4 - 1/2 SW	AU206	609
Not reported Date Closed: 02/06/02	***435 CONVENT AVE***	***1/4 - 1/2 SW***	***AU207***	***610***
MULTI DWELLING Date Closed: 12/28/05	***542 WEST 150TH ST***	***1/4 - 1/2 WSW***	***208***	***613***
575 W 159TH ST Date Closed: / /	575 W 159TH ST	1/4 - 1/2 NNW	209	616
APARTMENT BLDG AT Date Closed: 11/30/98	***428 CONVENT AVE***	***1/4 - 1/2 SW***	***210***	***617***
APRT BUILDING Date Closed: 07/12/06	555 W. 160TH ST	1/4 - 1/2 NNW	213	625
APT COMPLEX Date Closed: 08/07/03	***610 WEST 152ND ST***	***1/4 - 1/2 W***	***214***	***627***
APARTMENT Date Closed: 10/08/04	596 EDGECOMBE AVE	1/4 - 1/2 NNE	AW215	629
596 EDGECOMBE AVE Date Closed: 10/18/04	596 EDGECOMBE AVE	1/4 - 1/2 NNE	AW216	631
APARMENT COMPLEX Date Closed: 06/07/06	***505 W 148TH ST***	***1/4 - 1/2 SW***	***217***	***633***
Not reported Date Closed: 09/11/98	***580 WEST 161ST ST***	***1/4 - 1/2 NNW***	***AX220***	***639***
580 WEST 161 ST/MANH Date Closed: 07/28/95	***580 WEST 161ST STREET***	***1/4 - 1/2 NNW***	***AX221***	***642***
580 161ST ST/MANH Date Closed: 11/26/90	***580 161ST STREET***	***1/4 - 1/2 NNW***	***AX222***	***644***
540 WEST 148TH ST Date Closed: 01/26/96	***540 WEST 148TH S***	***1/4 - 1/2 WSW***	***223***	***647***

EXECUTIVE SUMMARY

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
Not reported Date Closed: 02/10/04	***601 W 149TH ST***	***1/4 - 1/2 WSW***	***AY226***	***653***
DRY CLEANERS BUSINESS Date Closed: 12/24/03	***601 W 149TH ST***	***1/4 - 1/2 WSW***	***AY227***	***658***
APARTMENT BUIDLING Date Closed: 05/05/06	2090-92 AMSTERDAMN AVE	1/4 - 1/2 NNE	228	661
APARTMENT Date Closed: / /	3609 BROADWAY	1/4 - 1/2 WSW	229	662
COLUMBIA PRESBYTERIAN HOSPITAL Date Closed: / /	***630 W 160TH ST***	***1/4 - 1/2 NNW***	***233***	***672***
1070 ST. NICHOLAS AVENUE Date Closed: / /	1070 ST. NICOLAS AVE	1/4 - 1/2 N	AZ235	682
1071 ST NICHOLAS AVE Date Closed: / /	***1071 ST NICHOLAS AVE***	***1/4 - 1/2 N***	***AZ236***	***683***

Lower Elevation	Address	Dist / Dir	Map ID	Page
GETTY GAS STA Date Closed: 07/16/92	***89 ST NICHOLAS PL***	***0 - 1/8 S***	***E17***	***66***
87 ST NICHOLAS Date Closed: / /	***87 ST NICHOLAS***	***0 - 1/8 S***	***E18***	***69***
APARTMENT Date Closed: / /	401-405 EDGECOMBE AVE	0 - 1/8 SE	33	105
49 SAINT NICHOLAS PLACE Date Closed: 11/01/95	***49 SAINT NICHOLAS PLACE***	***1/8 - 1/4 SSW***	***N57***	***162***
364 EAST 155TH STREET/ BR Date Closed: 10/07/92	***364 EAST 155TH STREET***	***1/8 - 1/4 ESE***	***78***	***243***
18-20 ST NICHOLAS PL. Date Closed: 02/02/94	***18-20 ST NICHOLAS PL***	***1/8 - 1/4 SSW***	***Z110***	***310***
RANGEL Date Closed: 07/23/97	***159-38 HARLEM RIVER DR***	***1/8 - 1/4 NE***	***150***	***423***
307 W. 153RD ST Date Closed: 11/25/94	***301 153RD ST***	***1/8 - 1/4 SE***	***168***	***463***
AMOCO GASOLINE #60030 Date Closed: 03/03/03	***800 ST. NICHOLAS AVE***	***1/8 - 1/4 SSW***	***AR187***	***525***
EDGECOMB BUILDINGS Date Closed: 02/09/99	***345 EDGECOMB AVE***	***1/4 - 1/2 S***	***194***	***542***
HARLEM RIVER II HOUSES (HARLEM Date Closed: 04/26/95 Date Closed: 10/24/05	***2850 8TH AVENUE***	***1/4 - 1/2 SSE***	***197***	***553***
POLO GROUNDS Date Closed: 12/21/05	***2994 8TH AVENUE***	***1/4 - 1/2 ENE***	***AS199***	***566***
APT HOUSE Date Closed: / /	***2999 8TH AVE***	***1/4 - 1/2 ENE***	***AS200***	***569***
POLO GROUNDS HOUSING Date Closed: / /	***2999 8TH AVENUE***	***1/4 - 1/2 ENE***	***AS201***	***571***
POLO GROUNDS (POLO GROUNDS TOW Date Closed: 02/05/90 Date Closed: 04/26/95	***2999 EIGHTH AVENUE***	***1/4 - 1/2 ENE***	***AS202***	***574***

EXECUTIVE SUMMARY

Lower Elevation	Address	Dist / Dir	Map ID	Page
99 MACOMBS PL/MANH/USPS Date Closed: 10/07/92	***99 MACOMBS PLACE***	***1/4 - 1/2 SE***	***AV211***	***620***
99 MACCOMBS PL/MANH/USPS Date Closed: 10/07/92	***99 MACCOMBS PLACE***	***1/4 - 1/2 SE***	***AV212***	***622***
625 W 152ND STREET Date Closed: 07/21/94	***625 W. 152ND STREET***	***1/4 - 1/2 W***	***218***	***635***
PRIVATE RESIDENCE Date Closed: 07/22/05	428 W 147TH ST	1/4 - 1/2 SSW	219	638
SANDERS HOME Date Closed: 02/28/07	406 WEST 147TH STREET	1/4 - 1/2 SSW	224	649
POLICE SERVICE AREA #6 Date Closed: 06/14/07	***2786 8TH AVE***	***1/4 - 1/2 S***	***225***	***651***
225 EAST 149TH ST/BX Date Closed: 05/25/95	***225 EAST 149TH STREET***	***1/4 - 1/2 SSE***	***230***	***665***
JACKIE ROBINSON POOL Date Closed: / /	***88 BRADHURST AV***	***1/4 - 1/2 S***	***231***	***667***
838 RIVERSIDE DR Date Closed: 03/06/92	***838 RIVERSIDE DR***	***1/4 - 1/2 NW***	***232***	***670***
APARTMENTS Date Closed: 11/26/04	***779 RIVERSIDE DR***	***1/4 - 1/2 NW***	***234***	***679***
950 UNIVERSITY AVE Date Closed: 04/02/98	***950 UNIVERSITY AVE***	***1/4 - 1/2 E***	***237***	***686***
APARTMENT BLDG. Date Closed: 06/02/04	853 RIVERSIDE DR	1/4 - 1/2 NW	238	693
RESIDENTS Date Closed: 01/23/03	416 W.145TH ST	1/4 - 1/2 SSW	BA239	694
Not reported Date Closed: 01/23/03	416 W 145TH ST	1/4 - 1/2 SSW	BA240	695

HIST LTANKS: A listing of leaking underground and aboveground storage tanks. The causes of the incidents are tank test failures, tank failures or tank overfills. In 2002, the Department of Environmental Conservation stopped providing updates to its original Spills Information Database. This database includes fields that are no longer available from the NYDEC as of January 1, 2002. Current information may be found in the NY LTANKS database.

A review of the HIST LTANKS list, as provided by EDR, and dated 01/01/2002 has revealed that there are 53 HIST LTANKS sites within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
NORTH MANHATTAN SHOP	***886 SOUTH ST. NICHOLAS***	***0 - 1/8 WSW***	***C8***	***21***
886 ST. NICHOLAS AVENUE	***886 ST NICHOLAS AVENUE***	***0 - 1/8 WSW***	***C9***	***27***
RESIDENCE	***943 ST NICHOLAS AVE***	***1/8 - 1/4 N***	***J47***	***138***
AUDUBON HOUSES	***1909 AMSTERDAM AVENUE***	***1/8 - 1/4 WNW***	***M53***	***148***
BETHUNE HOUSES	***1945 AMSTERDAM AVENUE***	***1/8 - 1/4 NNW***	***P69***	***223***
514-516 W 156TH ST	***514-516 W 156TH ST***	***1/8 - 1/4 NW***	***P84***	***255***
ST CATHERINE OF GENOA	***506 WEST 153 RD ST***	***1/8 - 1/4 W***	***S94***	***278***
Not reported	***513-515 157TH ST***	***1/8 - 1/4 NNW***	***AB104***	***298***
30TH PRECINCT NYPD	***451 W 151ST ST***	***1/8 - 1/4 SW***	***AG127***	***361***

EXECUTIVE SUMMARY

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
556 WEST 156TH ST-APT A	556 WEST 156TH ST-APT A	1/8 - 1/4 NW	AM160	445
555 EDGECOMBE AVE	555 EDGECOMBE AVE	1/8 - 1/4 NNE	AN162	450
498 W 159TH ST	498 W 159TH ST	1/8 - 1/4 N	AP175	491
518 WEST 151ST STREET	518 WEST 151ST STREET	1/4 - 1/2 WSW	192	536
APT BLDG	425 W 160TH ST	1/4 - 1/2 NNE	193	540
RESIDENCE	555 WEST 152ND ST	1/4 - 1/2 W	195	548
501 W 150 ST.	501 W 150 ST.	1/4 - 1/2 WSW	198	564
MOBIL S/S	3740 BROADWAY	1/4 - 1/2 WNW	AT203	599
MOBIL S/S	3740 BROADWAY	1/4 - 1/2 WNW	AT204	601
Not reported	435 CONVENT AVE	1/4 - 1/2 SW	AU207	610
APARTMENT BLDG AT	428 CONVENT AVE	1/4 - 1/2 SW	210	617
APT COMPLEX	610 WEST 152ND ST	1/4 - 1/2 W	214	627
APARMENT COMPLEX	505 W 148TH ST	1/4 - 1/2 SW	217	633
Not reported	580 WEST 161ST ST	1/4 - 1/2 NNW	AX220	639
580 WEST 161 ST/MANH	580 WEST 161ST STREET	1/4 - 1/2 NNW	AX221	642
580 161ST ST/MANH	580 161ST STREET	1/4 - 1/2 NNW	AX222	644
540 WEST 148TH ST	540 WEST 148TH S	1/4 - 1/2 WSW	223	647
Not reported	601 W 149TH ST	1/4 - 1/2 WSW	AY226	653
DRY CLEANERS BUSINESS	601 W 149TH ST	1/4 - 1/2 WSW	AY227	658
COLUMBIA PRESBYTERIAN HOSPITAL	630 W 160TH ST	1/4 - 1/2 NNW	233	672
1071 ST NICHOLAS AVE	1071 ST NICHOLAS AVE	1/4 - 1/2 N	AZ236	683

Lower Elevation	Address	Dist / Dir	Map ID	Page
GETTY GAS STA	89 ST NICHOLAS PL	0 - 1/8 S	E17	66
87 ST NICHOLAS	87 ST NICHOLAS	0 - 1/8 S	E18	69
49 SAINT NICHOLAS PLACE	49 SAINT NICHOLAS PLACE	1/8 - 1/4 SSW	N57	162
364 EAST 155TH STREET/ BR	364 EAST 155TH STREET	1/8 - 1/4 ESE	78	243
18-20 ST NICHOLAS PL.	18-20 ST NICHOLAS PL	1/8 - 1/4 SSW	Z110	310
RANGEL	159-38 HARLEM RIVER DR	1/8 - 1/4 NE	150	423
307 W. 153RD ST	301 153RD ST	1/8 - 1/4 SE	168	463
AMOCO GASOLINE #60030	800 ST. NICHOLAS AVE	1/8 - 1/4 SSW	AR187	525
EDGECOMB BUILDINGS	345 EDGECOMB AVE	1/4 - 1/2 S	194	542
HARLEM RIVER II HOUSES (HARLEM	2850 8TH AVENUE	1/4 - 1/2 SSE	197	553
POLO GROUNDS	2994 8TH AVENUE	1/4 - 1/2 ENE	AS199	566
APT HOUSE	2999 8TH AVE	1/4 - 1/2 ENE	AS200	569
POLO GROUNDS HOUSING	2999 8TH AVENUE	1/4 - 1/2 ENE	AS201	571
POLO GROUNDS (POLO GROUNDS TOW	2999 EIGHTH AVENUE	1/4 - 1/2 ENE	AS202	574
99 MACOMBS PL/MANH/USPS	99 MACOMBS PLACE	1/4 - 1/2 SE	AV211	620
99 MACCOMBS PL/MANH/USPS	99 MACCOMBS PLACE	1/4 - 1/2 SE	AV212	622
625 W 152ND STREET	625 W. 152ND STREET	1/4 - 1/2 W	218	635
POLICE SERVICE AREA #6	2786 8TH AVE	1/4 - 1/2 S	225	651
225 EAST 149TH ST/BX	225 EAST 149TH STREET	1/4 - 1/2 SSE	230	665
JACKIE ROBINSON POOL	88 BRADHURST AV	1/4 - 1/2 S	231	667
838 RIVERSIDE DR	838 RIVERSIDE DR	1/4 - 1/2 NW	232	670
APARTMENTS	779 RIVERSIDE DR	1/4 - 1/2 NW	234	679
950 UNIVERSITY AVE	950 UNIVERSITY AVE	1/4 - 1/2 E	237	686

EXECUTIVE SUMMARY

UST: The Underground Storage Tank database contains registered USTs. USTs are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA). The data come from the Department of Environmental Conservation's Petroleum Bulk Storage (PBS) Database

A review of the UST list, as provided by EDR, and dated 07/11/2007 has revealed that there are 22 UST sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
MOST WORSHIPFUL PRINCE HALL GR	454 W. 155TH STREET	0 - 1/8 WNW	A5	15
NORTH MANHATTAN SHOP	***886 SOUTH ST. NICHOLAS***	***0 - 1/8 WSW***	***C8***	***21***
940 ST. NICHOLAS, LLC	***940 ST. NICHOLAS AVENUE***	***0 - 1/8 N***	***J41***	***127***
1920 AMSTERDAM AVE.	1920 AMSTERDAM AVENUE	1/8 - 1/4 WNW	L49	143
AUDUBON HOUSES	***1909 AMSTERDAM AVENUE***	***1/8 - 1/4 WNW***	***M53***	***148***
501 W 156TH ST HOUSING DEV	***501 W 156TH ST***	***1/8 - 1/4 NW***	***P59***	***167***
BETHUNE (AUDUBON HOUSES)	***1945 AMSTERDAM AVENUE***	***1/8 - 1/4 NNW***	***P68***	***219***
1885 AMSTERDAM AVE	***1885 AMSTERDAM AVE***	***1/8 - 1/4 W***	***S76***	***237***
ST.CATHERINE OF GENOA CHURCH	506 WEST 153RD STREET	1/8 - 1/4 W	S92	272
P. S. 93M	501-503 WEST 152ND ST.	1/8 - 1/4 WSW	AE112	317
507 W 158 ST	***507 WEST 158TH STREET***	***1/8 - 1/4 NNW***	***AF124***	***347***
30TH POLICE PRECINCT	***451 WEST 151ST STREET***	***1/8 - 1/4 SW***	***AG126***	***351***
528 WEST 152ND STREET	528 WEST 152ND STREET	1/8 - 1/4 W	AK165	458

Lower Elevation	Address	Dist / Dir	Map ID	Page
GETTY #340	89 SAINT NICHOLAS PLACE	0 - 1/8 SSE	D10	30
849 ST NICHOLAS AVENUE	***849 ST. NICHOLAS AVENUE***	***1/8 - 1/4 SSW***	***K50***	***144***
EDGECOMBE ASSOC	***48 SAINT NICHOLAS PL***	***1/8 - 1/4 SSW***	***N54***	***157***
JGS PARKING GARAGE, INC.	250 BRADHURST AVENUE	1/8 - 1/4 SE	Q63	192
824 ST NICHOLAS AVE	***824 SAINT NICHOLAS AVEN***	***1/8 - 1/4 SSW***	***AA102***	***293***
CONVENT GARDEN FOR WOMEN	***821 ST. NICHOLAS AVE***	***1/8 - 1/4 SSW***	***AA113***	***318***
303 WEST 154TH ST	303 W 154TH ST	1/8 - 1/4 SE	AH135	380
GLASGALL ROOFING SHEET METAL	415 WEST 150TH ST	1/8 - 1/4 SSW	AR181	505
ST. NICHOLAS AMANA, INC.	***800 ST NICHOLAS AVE***	***1/8 - 1/4 SSW***	***AR186***	***513***

HIST UST: The Underground Storage Tank database contains registered USTs. USTs are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA). The data come from the Department of Environmental Conservation's Petroleum Bulk Storage (PBS) Database

A review of the HIST UST list, as provided by EDR, and dated 01/01/2002 has revealed that there are 20 HIST UST sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
NORTH MANHATTAN SHOP	***886 SOUTH ST. NICHOLAS***	***0 - 1/8 WSW***	***C8***	***21***
940 ST. NICHOLAS, LLC	***940 ST. NICHOLAS AVENUE***	***0 - 1/8 N***	***J41***	***127***
AUDUBON HOUSES	***1909 AMSTERDAM AVENUE***	***1/8 - 1/4 WNW***	***M53***	***148***
501 W 156TH ST HOUSING DEV	***501 W 156TH ST***	***1/8 - 1/4 NW***	***P59***	***167***
BETHUNE (AUDUBON HOUSES)	***1945 AMSTERDAM AVENUE***	***1/8 - 1/4 NNW***	***P68***	***219***
1885 AMSTERDAM AVE	***1885 AMSTERDAM AVE***	***1/8 - 1/4 W***	***S76***	***237***
ST.CATHERINE OF GENOA CHURCH	***506 WEST 153RD STREET***	***1/8 - 1/4 W***	***S93***	***274***
513 WEST 157 STREET	513 WEST 157TH STREET	1/8 - 1/4 NNW	AB106	302
507 W 158 ST	***507 WEST 158TH STREET***	***1/8 - 1/4 NNW***	***AF124***	***347***
30TH POLICE PRECINCT	***451 WEST 151ST STREET***	***1/8 - 1/4 SW***	***AG126***	***351***
555 EDGELANDS AVE	***555 EDGECOMBE AVE***	***1/8 - 1/4 NNE***	***AN161***	***447***
528 WEST 152ND STREET	528 WEST 152ND STREET	1/8 - 1/4 W	AK166	459

Lower Elevation	Address	Dist / Dir	Map ID	Page
GETTY #340	***89 SAINT NICHOLAS PLACE***	***0 - 1/8 SSE***	***D11***	***42***

EXECUTIVE SUMMARY

Lower Elevation	Address	Dist / Dir	Map ID	Page
849 ST NICHOLAS AVENUE	***849 ST. NICHOLAS AVENUE***	***1/8 - 1/4 SSW***	***K50***	***144***
EDGECOMBE ASSOC	***48 SAINT NICHOLAS PL***	***1/8 - 1/4 SSW***	***N54***	***157***
824 ST NICHOLAS AVE	***824 SAINT NICHOLAS AVEN***	***1/8 - 1/4 SSW***	***AA102***	***293***
CONVENT GARDEN FOR WOMEN	***821 ST. NICHOLAS AVE***	***1/8 - 1/4 SSW***	***AA113***	***318***
303 WEST 154TH ST	303 W 154TH ST	1/8 - 1/4 SE	AH136	381
GLASGALL ROOFING SHEET METAL	415 WEST 150TH ST	1/8 - 1/4 SSW	AR182	507
ST. NICHOLAS AMANA, INC.	***800 ST NICHOLAS AVE***	***1/8 - 1/4 SSW***	***AR186***	***513***

AST: The Aboveground Storage Tank database contains registered ASTs. The data come from the Department of Environmental Conservation's Petroleum Bulk Storage (PBS) Database.

A review of the AST list, as provided by EDR, and dated 07/11/2007 has revealed that there are 115 AST sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
880 ST NICHOLAS AVE ASSOC	***880 ST NICHOLAS AVE***	***0 - 1/8 SW***	***C13***	***57***
429 HOLDING CORP	***429 WEST 154TH ST***	***0 - 1/8 WSW***	***F20***	***76***
P.S. 28	***475 WEST 155TH STREET***	***0 - 1/8 WNW***	***H26***	***89***
873 ST NICHOLAS AVE	873 SAINT NICHOLAS AVEN	0 - 1/8 SW	I29	97
870 ST. NICHOLAS AVENUE CORPOR	***870 ST. NICHOLAS AVENUE***	***0 - 1/8 SW***	***I31***	***101***
402 W. 153 STREET COOP CORP	402 W. 153 ST.	0 - 1/8 SW	I32	104
153 STREET APTS.LLLC	445 W 153 ST	0 - 1/8 SW	I36	112
935 NICK C/0 BEACH LANE MANAGE	***935 SAINT NICHOLAS AVEN***	***0 - 1/8 N***	***J37***	***113***
449 WEST 153RD ST	***449 WEST 153RD ST***	***0 - 1/8 SW***	***39***	***122***
938 ST. NICHOLAS AVE.	938 ST. NICHOLAS AVENUE	0 - 1/8 N	J42	130
465 WEST 157 STREET	465 WEST 157TH STREET	0 - 1/8 N	J45	134
853 ST. NICHOLAS REALTY CORP.	***853 ST. NICHOLAS AVE***	***0 - 1/8 SSW***	***K46***	***136***
PRANA NINE PROPERTIES	945 ST. NICHOLAS AVENUE	1/8 - 1/4 N	55	159
515 EDGECOMBE AVENUE	***515 EDGECOMBE AVENUE***	***1/8 - 1/4 NNE***	***62***	***189***
1946 AMSTERDAM AVE.	1946 AMSTERDAM AVENUE	1/8 - 1/4 NNW	P64	195
509-517 WEST 155TH STREET	509-517 WEST 155TH STRE	1/8 - 1/4 WNW	L67	217
450-454 WEST 152ND STREET HDFC	450 WEST 152ND STREET	1/8 - 1/4 SW	R71	226
453 W 152ND ST. LLC	453 WEST 152ND STREET	1/8 - 1/4 SW	R72	228
464 WEST 152ND ST	***464 W 152ND ST***	***1/8 - 1/4 SW***	***T77***	***240***
SMH REALTY CORP.	***512 WEST 156TH STREET***	***1/8 - 1/4 NW***	***P79***	***245***
465 W 152ND ST.	465 WEST 152ND STREET	1/8 - 1/4 SW	T80	248
DANCE THEATRE OF HARLEM	***466 WEST 152ND ST***	***1/8 - 1/4 SW***	***T81***	***249***
J & TE REALTH CORP	***515-519 WEST 156 ST***	***1/8 - 1/4 NW***	***P85***	***257***
ROGER MORRIS APT. CORP.	***474-8 WEST 158TH STREET***	***1/8 - 1/4 N***	***W86***	***260***
473 WEST 158TH ST	***473 W 158TH ST***	***1/8 - 1/4 N***	***W87***	***262***
PRANA NINE PROPERTIES, LLC	516 WEST 156TH STREET	1/8 - 1/4 NW	X88	265
961 ST. NICHOLAS AVENUE	961 SAINT NICHOLAS AVE	1/8 - 1/4 N	W89	266
NORTH PRESBYTERIAN CHURCH	525 WEST 155TH STREET	1/8 - 1/4 WNW	Y90	268
ST.CATHERINE OF GENOA CHURCH	***506 WEST 153RD STREET***	***1/8 - 1/4 W***	***S93***	***274***
523 WEST 156TH STREET	523 WEST 156 STREET	1/8 - 1/4 NW	X95	281
484 CONVENT AVENUE	484 CONVENT AVENUE	1/8 - 1/4 SW	R96	282
525 WEST 156TH STREET	***525 W 156TH ST***	***1/8 - 1/4 NW***	***X97***	***284***
535 WEST 155TH STREET	535 WEST 155TH STREET	1/8 - 1/4 WNW	Y100	290
531 WEST 156 STREET	531 WEST 156TH STREET	1/8 - 1/4 NW	X101	292
513-515 WEST 157 ST	513-515 WEST 157TH STRE	1/8 - 1/4 NNW	AB105	301
539 WEST 155TH STREET	***539 W 155TH ST***	***1/8 - 1/4 WNW***	***Y108***	***305***
535 WEST 156TH STREET	***535 WEST 156TH STREET***	***1/8 - 1/4 NW***	***AD109***	***308***
515 WEST 157TH STREET	515 WEST 157TH STREET	1/8 - 1/4 NNW	AB111	316
417 E 151 ST	417 EAST 151ST STREET	1/8 - 1/4 SSW	116	336

EXECUTIVE SUMMARY

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
502 WEST 152 LLC	502 WEST 152ND STREET	1/8 - 1/4 WSW	AE117	337
539156 LLC	539-541 WEST 156TH STRE	1/8 - 1/4 NW	AD118	339
AP AMSTERDAM - 1973 AMSTERDAM	498 W. 158TH STREET	1/8 - 1/4 NNW	AF119	340
SALVATION ARMY CITADEL CORPS	425 EAST 159TH STREET	1/8 - 1/4 NNE	121	343
519 WEST 157 STREET	519 WEST 157TH STREET	1/8 - 1/4 NNW	AB123	346
544 WEST 156TH H.D.F.C.	***544 WEST 156TH STREET***	***1/8 - 1/4 NW***	***AD128***	***364***
WEST BRIDGE ASSOCIATES LP	510 WEST 152ND STREET	1/8 - 1/4 WSW	AE129	366
546 WEST 156TH STREET HDFC	***546 WEST 156TH STREET***	***1/8 - 1/4 NW***	***AD132***	***372***
WBD REALTY. LLC	***463 WEST 159TH ST***	***1/8 - 1/4 N***	***AI134***	***377***
BUILDING 512 W 158 ST	***512 W 158 ST***	***1/8 - 1/4 NNW***	***AF137***	***383***
537 REALTY ASSOCIATES, LLC	470 WEST 159TH STREET	1/8 - 1/4 N	AI139	388
WBD REALTY, LLC	***465 WEST 159TH ST***	***1/8 - 1/4 N***	***AI140***	***389***
WED REALTY, LLC	***467 WEST 159TH ST***	***1/8 - 1/4 N***	***AI141***	***392***
469-71 WEST 159TH STREET	469-71 WEST 159TH STREE	1/8 - 1/4 N	AI143	396
518-20 WEST 152ND STREET	518 WEST 152ND STREET	1/8 - 1/4 WSW	AK146	417
WEST BRIDGE ASSOCIATES, L.P.	519 WEST 152ND STREET	1/8 - 1/4 WSW	AK147	418
520 WEST 158 STREET HDFC	520 WEST 158 STREET	1/8 - 1/4 NNW	AL148	420
470 CONVENT AVENUE	470 CONVENT AVENUE	1/8 - 1/4 SW	149	421
527 REALTY NY LLC	527 WEST 157TH STREET	1/8 - 1/4 NW	AJ152	428
522 WEST 158 STREET	522 WEST 158TH STREET	1/8 - 1/4 NNW	AL153	430
555 W 156 ST	***555 W 156 ST***	***1/8 - 1/4 NW***	***AM154***	***431***
524 W. 152 ST. HDFC	524 WEST 152ND STREET	1/8 - 1/4 WSW	AK155	434
CITY OF NY DEPARTMENT OF H.P.D	***522 W 152 ST***	***1/8 - 1/4 WSW***	***AK156***	***435***
523-525 WEST 152ND STREET H.D.	***523-525 WEST 152ND STRE***	***1/8 - 1/4 WSW***	***AK157***	***438***
525 WEST 158TH REALTY LLC	525 WEST 158TH STREET	1/8 - 1/4 NNW	AL158	440
556 W 156 ST	***556 W 156 ST***	***1/8 - 1/4 NW***	***AM159***	***442***
555 EDGELANDS AVE	***555 EDGECOMBE AVE***	***1/8 - 1/4 NNE***	***AN161***	***447***
530 WEST 157TH STREET	***530 WEST 157TH STREET***	***1/8 - 1/4 NW***	***AJ163***	***452***
529 WEST 152ND STREET HDFC (T.	***529 WEST 152ND STREET***	***1/8 - 1/4 W***	***AK164***	***455***
559 WEST 156TH ST NEW YORK NY	***559 WEST 156TH ST***	***1/8 - 1/4 NW***	***AM167***	***460***
529 WEST 158TH ST. INC.	529 WEST 158TH STREET	1/8 - 1/4 NNW	AL169	466
550 WEST 153RD STREET	***550 WEST 153RD STREET***	***1/8 - 1/4 W***	***170***	***467***
532 WEST 152 ST	532 WEST 152ND STREET	1/8 - 1/4 W	AK171	470
MARIPOSA PROPERTIES	***498 WEST 159TH STREET***	***1/8 - 1/4 N***	***AP176***	***493***
534-536 WEST 152ND STREET	***534-536 WEST 152ND STRE***	***1/8 - 1/4 W***	***177***	***496***
537 WEST 158TH ST.	537 WEST 158TH ST.	1/8 - 1/4 NNW	AQ179	501
507 W 159TH ST	***507 W 159TH ST***	***1/8 - 1/4 N***	***AP180***	***503***
WEST BRIDGE ASSOCIATES, L.P.	508 WEST 151ST STREET	1/8 - 1/4 WSW	AO183	508
509 WEST 159TH ST.	509 W 159 ST	1/8 - 1/4 N	AP184	509
504-517 WEST 159TH ST	504 W 159TH ST	1/8 - 1/4 N	AP185	511
CITY OF NY DEPARTMENT OF H.P.D	***510 W 151 ST***	***1/8 - 1/4 WSW***	***AO188***	***528***
512 WEST 151ST STREET	512 WEST 151ST STREET	1/8 - 1/4 WSW	AO190	532
W-158 ST HARLEM HOLDING CORP	***540 W 158 ST***	***1/8 - 1/4 NNW***	***AQ191***	***533***

Lower Elevation	Address	Dist / Dir	Map ID	Page
GETTY #340	***89 SAINT NICHOLAS PLACE***	***0 - 1/8 SSE***	***D11***	***42***
409 EDGECOMBE AVENUE, HDFC	***409 EDGECOMBE AVENUE***	***0 - 1/8 SE***	***G24***	***85***
SIMMONS REALTY CORP	***76 ST NICHOLAS PL***	***0 - 1/8 S***	***E27***	***92***
75 EQUITY HOLDING, LLC	***75 ST. NICHOLAS PLACE***	***0 - 1/8 S***	***E28***	***94***
405 EDGECOMBE AVE	***405 EDGECOMBE AVE***	***0 - 1/8 SE***	***G30***	***98***
CHAMA HOLDING CORP	***393 EDGECOMBE AVE***	***0 - 1/8 SSE***	***44***	***132***
ST. NICHOLAS PLACE LLC	52-54 ST. NICHOLAS PLAC	1/8 - 1/4 S	N56	161
CHAMA HOLDING CORP	***385 EDGECOMBE AVE***	***1/8 - 1/4 SSE***	***O58***	***165***
242-246 BRADHURST HOLDING LLC	242-246 BRADHURST AVENU	1/8 - 1/4 SE	Q66	216
MELROSE HOUSING ESTATES LP	408 EAST 152ND STREET	1/8 - 1/4 SSW	70	225

EXECUTIVE SUMMARY

Lower Elevation	Address	Dist / Dir	Map ID	Page
CITY OF NY DEPARTMENT OF H.P.D	***400 W 152 ST***	***1/8 - 1/4 SSW***	***N73***	***229***
401 WEST 152 ST HDFC	***401 WEST 152 ST***	***1/8 - 1/4 SSW***	***N74***	***232***
CHAMA HOLDING CORP	***379-81 EDGECOMBE AVE***	***1/8 - 1/4 S***	***O75***	***235***
234 BRADHURST AVENUE	234 BRADHURST AVENUE	1/8 - 1/4 SE	U82	252
377 EDGECOMBE AVE	377 EDGECOMBE AVE	1/8 - 1/4 S	V83	253
230 BRADHURST AVE.	***230 BRADHURST AVE.***	***1/8 - 1/4 SSE***	***U91***	***269***
371 EDGECOMBE AVENUE, HDFC	***371 EDGECOMBE AVENUE***	***1/8 - 1/4 S***	***V98***	***286***
40 ST. NICHOLAS LLC	40 ST. NICHOLAS PLACE	1/8 - 1/4 SSW	Z99	289
N.K.P. REALTY CORP.	***26 ST NICHOLAS PL***	***1/8 - 1/4 SSW***	***Z103***	***296***
367 EDGECOMBE AVE. CORP.	367 EDGECOMBE AVENUE	1/8 - 1/4 S	AC107	304
18-20 ST NICHOLAS PL.	***18-20 ST NICHOLAS PL***	***1/8 - 1/4 SSW***	***Z110***	***310***
400 WEST 151ST STREET	***400 WEST 151ST STREET***	***1/8 - 1/4 SSW***	***AA114***	***332***
MELROSE HOUSING ESTATES LP	389 EAST 151ST STREET	1/8 - 1/4 SSW	AA115	335
VARAE ROYAL REALTY	216 BRADHURST AVENUE	1/8 - 1/4 SSE	120	341
363 EDGECOMBE AVE CORP.	363 EDGECOMBE AVENUE	1/8 - 1/4 S	AC122	344
MANDE COMPLETE AUTO REPAIR	304 WEST 155TH STREET	1/8 - 1/4 ESE	125	350
2918 8TH AVENUE ASSOCIATES	***2918 8TH AVE***	***1/8 - 1/4 SE***	***AH130***	***368***
MADAM C J WALKER HOUSES	2919 8 AVE	1/8 - 1/4 SE	AH131	370
2915 8TH AVE -OR-	***2915 FREDERICK DOUGLASS***	***1/8 - 1/4 SE***	***AH133***	***375***
M-D	***813 ST NICHOLAS AVE***	***1/8 - 1/4 SSW***	***138***	***385***
357 EDGECOMBE AVE	***357 EDGECOMBE AVENUE***	***1/8 - 1/4 S***	***151***	***426***
192/196/200 BRADHURST AVE	***196 BRADHURST AVE***	***1/8 - 1/4 S***	***178***	***499***
408 W 150 ST	408 WEST 150TH STREET	1/8 - 1/4 SSW	AR189	531

MANIFEST: Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

A review of the NY MANIFEST list, as provided by EDR, and dated 08/27/2007 has revealed that there are 8 NY MANIFEST sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
CONSOLIDATED EDISON	460 W 155TH ST	0 - 1/8 WNW	A12	56
NYC BD OF ED - PUBLIC SCHOOL 2	***475 W 155TH ST***	***0 - 1/8 WNW***	***H23***	***82***
CONSOLIDATED EDISON	W 155TH ST / AMSTERDA	1/8 - 1/4 WNW	L48	141
K&B CLEANERS	***1946 AMSTERDAM AVE***	***1/8 - 1/4 NNW***	***P65***	***197***
A & R CLEANERS	***1988 AMSTERDAM AVE***	***1/8 - 1/4 N***	***AF145***	***398***
FOUR SEASONS CLEANERS	***1838 AMSTERDAM AVE***	***1/8 - 1/4 WSW***	***AO172***	***471***

Lower Elevation	Address	Dist / Dir	Map ID	Page
GETTY PETROLEUM CORP	***89-91 ST NICHOLAS PL***	***0 - 1/8 ESE***	***B15***	***61***
BLOCKERS CLEANERS	***840 ST NICHOLAS AVE***	***1/8 - 1/4 SSW***	***K61***	***170***

SPILLS: Data collected on spills reported to NYSDEC. is required by one or more of the following: Article 12 of the Navigation Law, 6 NYCRR Section 613.8 (from PBS regs), or 6 NYCRR Section 595.2 (from CBS regs). It includes spills active as of April 1, 1986, as well as spills occurring since this date.

A review of the NY Spills list, as provided by EDR, and dated 07/11/2007 has revealed that there are 15 NY Spills sites within approximately 0.125 miles of the target property.

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
MAN HOLE #61738	***W 155TH ST / ST.NICHO***	***0 - 1/8 WNW***	***A1***	***6***
Date Closed: 02/06/04				

EXECUTIVE SUMMARY

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
Not reported Date Closed: 11/14/03	***W 155TH ST/ST NICHOLAS***	***0 - 1/8 WNW***	***A2***	***8***
MANHOLE #61738 Date Closed: 05/11/04	***155TH ST / ST.NICHOLA***	***0 - 1/8 WNW***	***A3***	***11***
MANHOLE 61738 Date Closed: 04/08/04	***WEST 155TH ST/ST NICHOL***	***0 - 1/8 WNW***	***A4***	***13***
Not reported Date Closed: 07/09/02	403 WEST 154TH ST	0 - 1/8 SW	C14	60
APARTMENT Date Closed: / /	935 ST NICHOLOS AVE	0 - 1/8 NNW	19	75
IFO Date Closed: 02/07/00	***429 W 154TH ST***	***0 - 1/8 WSW***	***F21***	***79***
410 EAST 153RD ST/BX Date Closed: 05/25/95	***410 EAST 153RD STREET***	***0 - 1/8 SW***	***I34***	***107***
445 WEST 153RD ST Date Closed: / /	***445 WEST 153RD ST***	***0 - 1/8 SW***	***I35***	***109***
Not reported Date Closed: 08/28/01	***938 ST NICHOLAS AV***	***0 - 1/8 N***	***J40***	***125***

Lower Elevation	Address	Dist / Dir	Map ID	Page
HARLEM RIVER DR & W 155TH Date Closed: 04/27/98	***HARLEM RIVER DR / W 1***	***0 - 1/8 ESE***	***B7***	***18***
385 EDGECOMB AVENUE Date Closed: 03/21/95	***385 EDGECOMB AVENUE***	***0 - 1/8 SE***	***B16***	***64***
WASTE DEBRIS Date Closed: 01/24/05	409 EDGECOMBE AVENUE	0 - 1/8 SE	G22	81
Not reported Date Closed: 12/02/02	409 EDGECOMBE AV	0 - 1/8 SE	G25	88
385 EDGECOMB AVE Date Closed: 02/01/93 Date Closed: 06/13/94	***385 EDGECOMB AVE***	***0 - 1/8 S***	***38***	***116***

HIST SPILLS: This database contains records of chemical and petroleum spill incidents. Under State law, petroleum and hazardous chemical spills that can impact the waters of the state must be reported by the spiller (and, in some cases, by anyone who has knowledge of the spills). In 2002, the Department of Environmental Conservation stopped providing updates to its original Spills Information Database. This database includes fields that are no longer available from the NYDEC as of January 1, 2002. Current information may be found in the NY SPILLS database.

A review of the NY Hist Spills list, as provided by EDR, and dated 01/01/2002 has revealed that there are 11 NY Hist Spills sites within approximately 0.125 miles of the target property.

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
MAN HOLE #61738	***W 155TH ST / ST.NICHO***	***0 - 1/8 WNW***	***A1***	***6***
Not reported	***W 155TH ST/ST NICHOLAS***	***0 - 1/8 WNW***	***A2***	***8***
MANHOLE #61738	***155TH ST / ST.NICHOLA***	***0 - 1/8 WNW***	***A3***	***11***
MANHOLE 61738	***WEST 155TH ST/ST NICHOL***	***0 - 1/8 WNW***	***A4***	***13***

EXECUTIVE SUMMARY

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
IFO	*429 W 154TH ST*	*0 - 1/8 WSW*	*F21*	*79*
410 EAST 153RD ST/BX	*410 EAST 153RD STREET*	*0 - 1/8 SW*	*I34*	*107*
445 WEST 153RD ST	*445 WEST 153RD ST*	*0 - 1/8 SW*	*I35*	*109*
Not reported	*938 ST NICHOLAS AV*	*0 - 1/8 N*	*J40*	*125*

Lower Elevation	Address	Dist / Dir	Map ID	Page
HARLEM RIVER DR & W 155TH	*HARLEM RIVER DR / W 1*	*0 - 1/8 ESE*	*B7*	*18*
385 EDGECOMB AVENUE	*385 EDGECOMB AVENUE*	*0 - 1/8 SE*	*B16*	*64*
385 EDGECOMB AVE	*385 EDGECOMB AVE*	*0 - 1/8 S*	*38*	*116*

DRYCLEANERS: A listing of all registered drycleaning facilities.

A review of the DRYCLEANERS list, as provided by EDR, and dated 06/15/2004 has revealed that there are 3 DRYCLEANERS sites within approximately 0.25 miles of the target property.

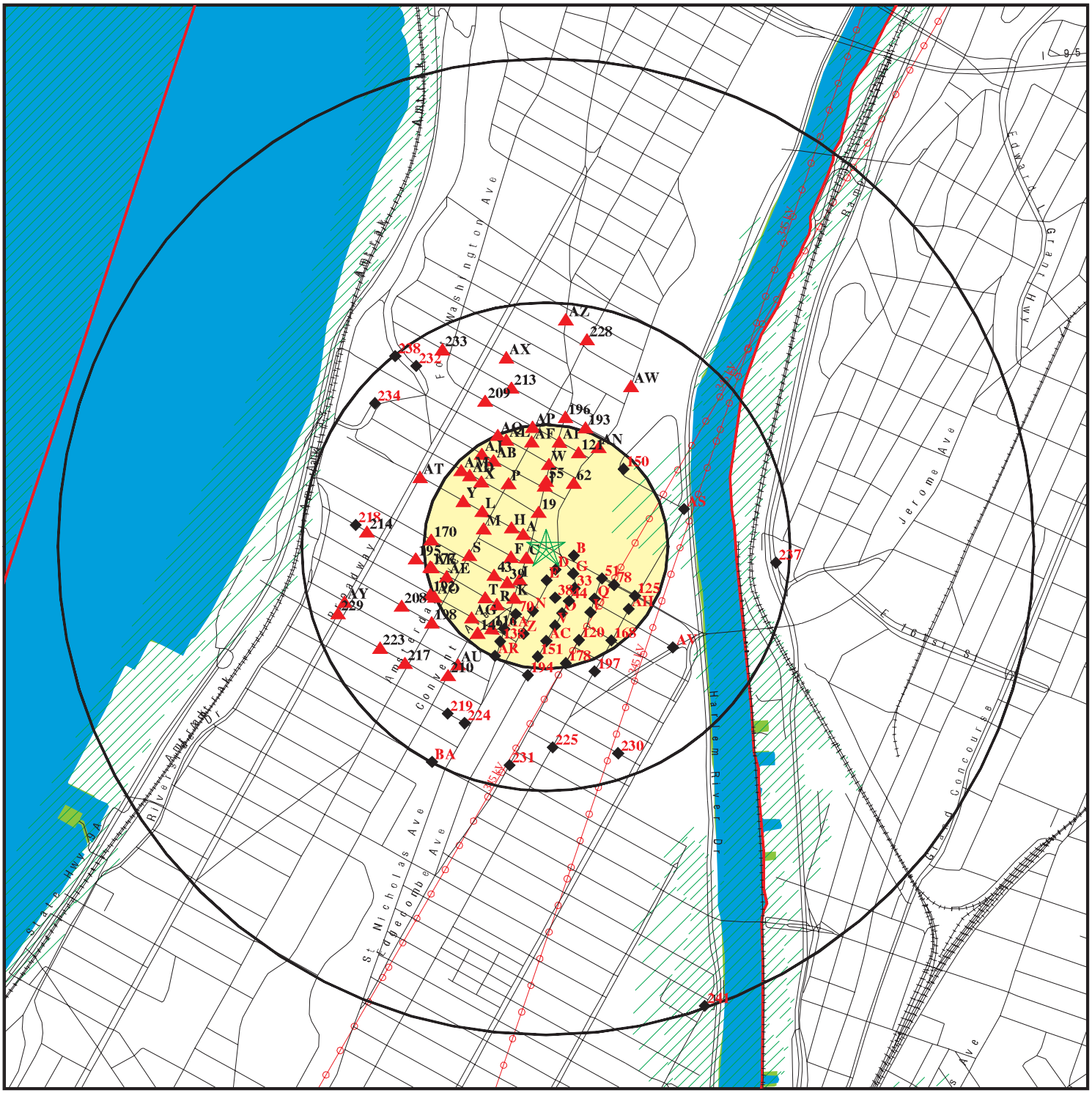
Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
OTHA/K & B CLEANERS	1940 AMSTERDAM AVENUE	1/8 - 1/4 NW	P60	170
ANDRES CLEANERS	1988 AMSTERDAM AVE.	1/8 - 1/4 N	AF144	398
FOUR SEASONS/PINETREE FRNCH CL	1838 AMSTERDAM AVENUE	1/8 - 1/4 WSW	AO173	490

EXECUTIVE SUMMARY

Due to poor or inadequate address information, the following sites were not mapped:

Site Name	Database(s)
CONSOLIDATED EDISON	NY MANIFEST
NEW YORK CITY DEPT OF TRANSPORTATI	FINDS, RCRA-LQG, NY MANIFEST
CONED	NY MANIFEST
CONSOLIDATED EDISON	NY MANIFEST
NYSDOT BRIDGE BIN 1077050	RCRA-LQG, NY MANIFEST
CONSOLIDATED EDISON	NY MANIFEST
V5274	RCRA-SQG, NY MANIFEST
V8233	RCRA-SQG, NY MANIFEST
TM2097	RCRA-SQG, NY MANIFEST
W 157TH STREET AND BROADWAY	RCRA-SQG, NY MANIFEST
564 WEST 160TH STREET	LTANKS
CITY COLLEGE OF NEW YORK	UST
GRACE INDUSTRIES INC	UST
1608-10 AMSTERDAM AVENUE H.D.F.C.	AST
HIGHBRIDGE PARK PARTNERS LLC	AST
CITY COLLEGE OF NEW YORK	AST
CITY COLLEGE OF NY	AST, HIST AST
NYCDEP - SHAFT 9B	RCRA-SQG, FINDS
133 STREET AT	NY Spills, NY Hist Spills
MANHOLE 58594	NY Spills
405 EDGECOMBE AVE	NY Spills
146TH STREET/ROCKAWAY BLV	NY Spills, NY Hist Spills
CITY COLLEGE OF NEW YORK - CUNY	HIST UST

OVERVIEW MAP - 2077001.2s



☆ Target Property

▲ Sites at elevations higher than or equal to the target property

◆ Sites at elevations lower than the target property

♟ Manufactured Gas Plants

▨ National Priority List Sites

▨ Dept. Defense Sites

▨ Indian Reservations BIA

╱ County Boundary

╱ Power transmission lines

╱ Oil & Gas pipelines

▨ 100-year flood zone

▨ 500-year flood zone

🟩 National Wetland Inventory

🟩 State Wetlands

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME:	414 West 155th Street	CLIENT:	ATC Associates Inc.
ADDRESS:	414 West 155th Street New York NY 10032	CONTACT:	Bedia Saray
		INQUIRY #:	2077001.2s
LAT/LONG:	40.8306 / 73.9408	DATE:	November 13, 2007 7:31 pm

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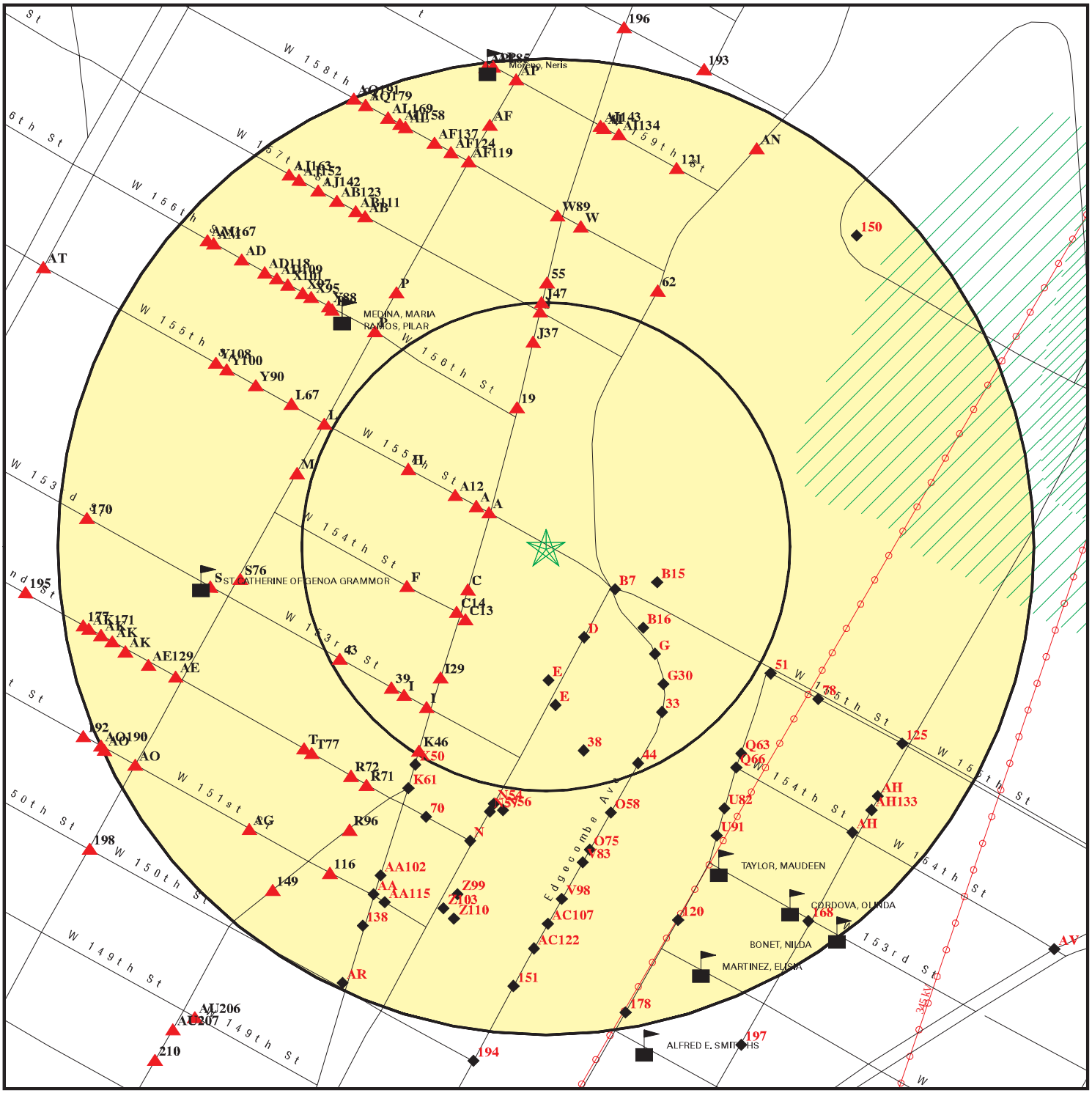
DETAIL MAP - 2077001.2s



Target Property

Sites at elevations higher than or equal to the target property

Sites at elevations lower than the target property

Manufactured Gas Plants

Sensitive Receptors

National Priority List Sites

Dept. Defense Sites

Indian Reservations BIA

Power transmission lines

Oil & Gas pipelines

100-year flood zone

500-year flood zone

0 1/16 1/8 1/4 Miles

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: 414 West 155th Street	CLIENT: ATC Associates Inc.
ADDRESS: 414 West 155th Street New York NY 10032	CONTACT: Bedia Saray INQUIRY #: 2077001.2s
LAT/LONG: 40.8306 / 73.9408	DATE: November 13, 2007 7:31 pm

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MAP FINDINGS SUMMARY

Database	Target Property	Search Distance (Miles)	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
FEDERAL RECORDS								
NPL		1.000	0	0	0	0	NR	0
Proposed NPL		1.000	0	0	0	0	NR	0
Delisted NPL		1.000	0	0	0	0	NR	0
NPL LIENS		TP	NR	NR	NR	NR	NR	0
CERCLIS		0.500	0	0	0	NR	NR	0
CERC-NFRAP		0.500	0	0	0	NR	NR	0
CORRACTS		1.000	0	0	0	0	NR	0
RCRA TSD		0.500	0	0	0	NR	NR	0
RCRA Lg. Quan. Gen.		0.250	0	0	NR	NR	NR	0
RCRA Sm. Quan. Gen.		0.250	3	7	NR	NR	NR	10
ERNS		TP	NR	NR	NR	NR	NR	0
HMIRS		TP	NR	NR	NR	NR	NR	0
US ENG CONTROLS		0.500	0	0	0	NR	NR	0
US INST CONTROL		0.500	0	0	0	NR	NR	0
DOD		1.000	0	0	0	0	NR	0
FUDS		1.000	0	0	0	0	NR	0
US BROWNFIELDS		0.500	0	0	0	NR	NR	0
CONSENT		1.000	0	0	0	0	NR	0
ROD		1.000	0	0	0	0	NR	0
UMTRA		0.500	0	0	0	NR	NR	0
ODI		0.500	0	0	0	NR	NR	0
TRIS		TP	NR	NR	NR	NR	NR	0
TSCA		TP	NR	NR	NR	NR	NR	0
FTTS		TP	NR	NR	NR	NR	NR	0
SSTS		TP	NR	NR	NR	NR	NR	0
LIENS 2		TP	NR	NR	NR	NR	NR	0
RADINFO		TP	NR	NR	NR	NR	NR	0
CDL		TP	NR	NR	NR	NR	NR	0
HIST FTTS		TP	NR	NR	NR	NR	NR	0
DEBRIS REGION 9		0.500	0	0	0	NR	NR	0
ICIS		TP	NR	NR	NR	NR	NR	0
LUCIS		0.500	0	0	0	NR	NR	0
DOT OPS		TP	NR	NR	NR	NR	NR	0
PADS		TP	NR	NR	NR	NR	NR	0
MLTS		TP	NR	NR	NR	NR	NR	0
MINES		0.250	0	0	NR	NR	NR	0
FINDS		TP	NR	NR	NR	NR	NR	0
RAATS		TP	NR	NR	NR	NR	NR	0
STATE AND LOCAL RECORDS								
HSWDS		0.500	0	0	0	NR	NR	0
State Haz. Waste		1.000	0	0	0	1	NR	1
DEL SHWS		1.000	0	0	0	0	NR	0
State Landfill		0.500	0	0	0	NR	NR	0
SWRCY		0.500	0	0	0	NR	NR	0
SWTIRE		0.500	0	0	0	NR	NR	0
LTANKS		0.500	6	17	49	NR	NR	72

MAP FINDINGS SUMMARY

Database	Target Property	Search Distance (Miles)	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
HIST LTANKS		0.500	4	16	33	NR	NR	53
UST		0.250	4	18	NR	NR	NR	22
CBS UST		0.250	0	0	NR	NR	NR	0
MOSF UST		0.500	0	0	0	NR	NR	0
HIST UST		0.250	3	17	NR	NR	NR	20
AST		0.250	18	97	NR	NR	NR	115
CBS AST		0.250	0	0	NR	NR	NR	0
HIST AST		TP	NR	NR	NR	NR	NR	0
MOSF AST		0.500	0	0	0	NR	NR	0
MANIFEST		0.250	3	5	NR	NR	NR	8
NY Spills		0.125	15	NR	NR	NR	NR	15
NY Hist Spills		0.125	11	NR	NR	NR	NR	11
ENG CONTROLS		0.500	0	0	0	NR	NR	0
INST CONTROL		0.500	0	0	0	NR	NR	0
VCP		0.500	0	0	0	NR	NR	0
DRYCLEANERS		0.250	0	3	NR	NR	NR	3
BROWNFIELDS		0.500	0	0	0	NR	NR	0
SPDES		TP	NR	NR	NR	NR	NR	0
AIRS		TP	NR	NR	NR	NR	NR	0
CBS		0.250	0	0	NR	NR	NR	0
E DESIGNATION		TP	NR	NR	NR	NR	NR	0
RES DECL		0.180	0	0	NR	NR	NR	0
MOSF		0.500	0	0	0	NR	NR	0
TRIBAL RECORDS								
INDIAN RESERV		1.000	0	0	0	0	NR	0
INDIAN LUST		0.500	0	0	0	NR	NR	0
INDIAN UST		0.250	0	0	NR	NR	NR	0
EDR PROPRIETARY RECORDS								
Manufactured Gas Plants		1.000	0	0	0	0	NR	0
EDR Historical Auto Stations		0.250	0	0	NR	NR	NR	0
EDR Historical Cleaners		0.250	0	0	NR	NR	NR	0

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

Map ID / Direction / Distance / Distance (ft.) / Elevation	Site	Database(s)	EDR ID Number / EPA ID Number
A1	**MAN HOLE #61738**	**NY Spills**	**S104284143**
WNW	**W 155TH ST / ST.NICHOLAS**	**NY Hist Spills**	**N/A**
< 1/8	**MANHATTEN, NY**		
180 ft.			
	Site 1 of 7 in cluster A		
Relative: Higher	NY Spills:		
	Site ID: 168109		
Actual: 132 ft.	Facility Addr2: Not reported		
	Facility ID: 9910047		
	Spill Number: 9910047		
	Facility Type: ER		
	SWIS: 3101		
	Region of Spill: 2		
	Investigator: COMENALE		
	Referred To: Not reported		
	Spill Date: 11/18/99		
	Reported to Dept: 11/18/99		
	CID: 257		
	Spill Cause: Unknown		
	Water Affected: Not reported		
	Spill Source: Unknown		
	Spill Notifier: Affected Persons		
	Cleanup Ceased: / /		
	Cleanup Meets Std: False		
	Last Inspection: / /		
	Recommended Penalty: Penalty Not Recommended		
	UST Trust: False		
	Spill Class: Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.		
	Spill Closed Dt: 02/06/04		
	Remediation Phase: 0		
	Date Entered In Computer: 11/18/99		
	Spill Record Last Update: 02/06/04		
	Spiller Name: Not reported		
	Spiller Company: UNKNOWN		
	Spiller Address: Not reported		
	Spiller City,St,Zip: NY		
	Spiller Company: 999		
	Spiller Phone: Not reported		
	Contact Name: RICHARD ROACH		
	Contact Phone: (212) 580-6763		
	DEC Region: 2		
	Program Number: 9910047		
	DER Facility ID: 141628		
	Site ID: 168109		
	Operable Unit ID: 1088742		
	Operable Unit: 01		
	Material ID: 299110		
	Material Code: 0066A		
	Material Name: UNKNOWN PETROLEUM		
	Case No.: Not reported		
	Material FA: Petroleum		
	Quantity: 7.00		
	Units: Gallons		
	Recovered: 0.00		
	Resource Affected: Soil		
	Oxygenate: False		
	DEC Memo: Not reported		

MAN HOLE #61738 (Continued) **S104284143**

Remarks: Start CallerRemark - 9910047 on 3000 gals of water cleanup pending test results ref #129037 END CallerRemark - 9910047

NY Hist Spills:

Region of Spill:	2
Spill Number:	9910047
Investigator:	COMENALE
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Spill Date/Time:	11/18/1999 13:05
Reported to Dept Date/Time:	11/18/99 13:53
SWIS:	62
Spiller Name:	UNKNOWN
Spiller Contact:	Not reported
Spiller Phone:	( ) -
Spiller Contact:	RICHARD ROACH
Spiller Phone:	(212) 580-6763
Spiller Address:	Not reported
Spiller City,St,Zip:	Not reported
Spill Cause:	Unknown
Reported to Dept:	On Land
Water Affected:	Not reported
Spill Source:	12
Spill Notifier:	Affected Persons
PBS Number:	Not reported
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Dt:	/ /
Enforcement Date:	/ /
Invstgn Complete:	/ /
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	/ /
Corrective Action Plan Submitted:	/ /
Date Region Sent Summary to Central Office:	/ /
Date Spill Entered In Computer Data File:	11/18/99
Date Spill Entered In Computer Data File:	Not reported
Update Date:	11/19/99
Is Updated:	False
PBS Number:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate Failed Tank:	Not reported
Gross Leak Rate:	Not reported
Material Class Type:	Petroleum
Quantity Spilled:	7
Unkonwn Quantity Spilled:	False
Units:	Gallons
Quantity Recovered:	0

MAN HOLE #61738 (Continued) **S104284143**

Unkonwn Quantity Recovered: False
Material: UNKNOWN PETROLEUM
Class Type: UNKNOWN PETROLEUM
Times Material Entry In File: 16414
CAS Number: Not reported
Last Date: 19940929
DEC Remarks: Not reported
Remark: on 3000 gals of water cleanup pending test results ref 129037

A2
WNW
< 1/8
180 ft.

Relative:
Higher

Actual:
132 ft.

W 155TH ST/ST NICHOLAS AV
MANHATTAN, NY

NY Spills **S104648033**
NY Hist Spills **N/A**

Site 2 of 7 in cluster A

NY Spills:
Site ID: 144225
Facility Addr2: Not reported
Facility ID: 9809008
Spill Number: 9809008
Facility Type: ER
SWIS: 3101
Region of Spill: 2
Investigator: CAENGELH
Referred To: Not reported
Spill Date: 10/19/98
Reported to Dept: 10/20/98
CID: 207
Spill Cause: Equipment Failure
Water Affected: Not reported
Spill Source: Commercial/Industrial
Spill Notifier: Responsible Party
Cleanup Ceased: / /
Cleanup Meets Std: False
Last Inspection: / /
Recommended Penalty: Penalty Not Recommended
UST Trust: False
Spill Class: Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: 11/14/03
Remediation Phase: 0
Date Entered In Computer: 10/20/98
Spill Record Last Update: 10/20/04
Spiller Name: RICHARD ROACH
Spiller Company: CON EDISON
Spiller Address: 4 IRVING PLACE
Spiller City,St,Zip: MANHATTAN, NY 10003
Spiller Company: 001
Spiller Phone: (212) 580-6764
Contact Name: RICHARD ROACH
Contact Phone: (212) 580-6764
DEC Region: 2
Program Number: 9809008
DER Facility ID: 122944
Site ID: 144225
Operable Unit ID: 1070195
Operable Unit: 01
Material ID: 316477

(Continued) **S104648033**

Material Code: 0541A
Material Name: DIELECTRIC FLUID
Case No.: Not reported
Material FA: Petroleum
Quantity: 50.00
Units: Gallons
Recovered: 50.00
Resource Affected: Soil
Oxygenate: False
DEC Memo: Start DECRemark - 9809008 Prior to Sept, 2004 data translation this spill Lead DEC Field was "ENGELHARDT" 10/20/98, 10:43 hrs - Gerry Matterazzo, UT: manhole cleaned, drainage into drum - no clamp. Will break out manhole wall to make repairs. Pumped down and washed by Clean Harbors. Sampled 3 ppm PCB. (CAE) On location at 12:28 hrs. John Molahan, Trans Ops, on scene. Leak from feeder near wall of manhole. Feeder still under full pressure. Excavating outside manhole to break out wall. Notexposed yet. No visible contaminated soil - excavation is about 4 - 5 feet deep. Feeders look as if they are just below this level judging by their position in manhole. Clean Harbors removed 3000 gallons oil/water last night (4 - 5 inches of oil inmanhole). (CAE)
E2MIS 120636 10/20/98 00:24 CARRILLO #03309 REPORTS: IN M-61738 W155 ST 120' W/O ST. NICHOLAS ST. FOUND APPROX. 50 GLS. OF DIELECTRIC FLUID ON APPROX. 1000 GLS OF WATER.. OIL WAS CONTAINED TO M/H. TOOK SAMPLE 3PPM PCB LAB SEQ. 98-11259 OIL & WATER HAVE BEEN REMOVED AND M/H CLEANED UP COMPLETE BY CLEAN HARBORS OIL NEVER ENTERED ANY WATERWAYS OR SEWER SYSTEMS. OIL WAS FROM 10" 345KV PIPE TYPE CABLE. NYSDEC #98-09008. This leak was originally enteredon 120616 as part of the leak search on Fdr M52 and was reported earlier. At the request of CIG this incident was entered to seperate this incident from the one at 79th St and West End Ave. At 17:00 fluid was found in manhole 61738 by Con Ed crews looking for leak on M52. Samples were delivered to Chem Lab Clean Harbors was called and manhole was pumped out. At 19:55 manhole was pumped down and slight weep seen between reducer and wall @ E wall. Temp EPA ID # NYP004019683 for CTW removal from manhole. ATC notified at 21:35 for air monitoring at manhole. Chem Lab reports 98-11259 3ppm PCB's. Manhole cleaning was completed at approx 12 midnite. ATC on location for CTW removal. CTW removal completed between reducer and wall. Leak found inside manhole sleeve. Packing removed and fluid allowed to run into manhole into containment vessel. Manhole wall to be broken out for repairs. Excavation started on 10/20/98 at 08:00. Excavtion completed and temp clamp installed at 18:30 10/19/98. No fluid visible outside of manhole. Chem Lab reports 98-11260 70 ppb benzene. Clean Harbors removed 1 cubic yard of debris and 3000 gallons of oil/water from manhole. Permanent repairs started at 07:00 10/23/98. 48" long barrel through wall installed and tested. Repair completed 20:10 10/23/98. END DECRemark - 9809008
Remarks: Start CallerRemark - 9809008 spill cleaned up ref # 120636 END CallerRemark - 9809008

NY Hist Spills:
Region of Spill: 2
Spill Number: 9809008
Investigator: ENGELHARDT
Caller Name: Not reported
Caller Agency: Not reported
Caller Phone: Not reported
Notifier Name: Not reported
Notifier Agency: Not reported
Notifier Phone: Not reported
Spill Date/Time: 10/19/1998 18:00

(Continued) **S104648033**

Reported to Dept Date/Time:	10/20/98 02:03
SWIS:	62
Spiller Name:	CON ED
Spiller Contact:	RICHARD ROACH
Spiller Phone:	(212) 580-6764
Spiller Contact:	RICHARD ROACH
Spiller Phone:	(212) 580-6764
Spiller Address:	4 IRVING PL
Spiller City,St,Zip:	NEW YORK, NY 10003-
Spill Cause:	Equipment Failure
Reported to Dept:	On Land
Water Affected:	Not reported
Spill Source:	01
Spill Notifier:	Responsible Party
PBS Number:	Not reported
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Dt:	/ /
Enforcement Date:	/ /
Invstgn Complete:	/ /
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	/ /
Corrective Action Plan Submitted:	/ /
Date Region Sent Summary to Central Office:	/ /
Date Spill Entered In Computer Data File:	10/20/98
Date Spill Entered In Computer Data File:	Not reported
Update Date:	10/22/98
Is Updated:	False
PBS Number:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate Failed Tank:	Not reported
Gross Leak Rate:	Not reported
Material Class Type:	Petroleum
Quantity Spilled:	50
Unkonwn Quantity Spilled:	False
Units:	Gallons
Quantity Recovered:	50
Unkonwn Quantity Recovered:	False
Material:	DIELECTRIC FLUID
Class Type:	DIELECTRIC FLUID
Times Material Entry In File:	41
CAS Number:	Not reported
Last Date:	Not reported
DEC Remarks:	Not reported
Remark:	spill cleaned up ref 120636

A3 WNW < 1/8 180 ft.

Relative: Higher

Actual: 132 ft.

MANHOLE #61738
155TH ST / ST.NICHOLAS AV
MANHATTAN, NY

NY Spills **S104787656**
NY Hist Spills **N/A**

Site 3 of 7 in cluster A

NY Spills:

Site ID:	170096
Facility Addr2:	Not reported
Facility ID:	0004974
Spill Number:	0004974
Facility Type:	ER
SWIS:	3101
Region of Spill:	2
Investigator:	JHOCONNE
Referred To:	Not reported
Spill Date:	07/26/00
Reported to Dept:	07/26/00
CID:	257
Spill Cause:	Unknown
Water Affected:	Not reported
Spill Source:	Unknown
Spill Notifier:	Affected Persons
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Trust:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	05/11/04
Remediation Phase:	0
Date Entered In Computer:	07/26/00
Spill Record Last Update:	05/11/04
Spiller Name:	Not reported
Spiller Company:	UNKNOWN
Spiller Address:	Not reported
Spiller City,St,Zip:	ZZ -
Spiller Company:	001
Spiller Phone:	Not reported
Contact Name:	BRIAN JOYCE
Contact Phone:	(212) 580-6763
DEC Region:	2
Program Number:	0004974
DER Facility ID:	143124
Site ID:	170096
Operable Unit ID:	827410
Operable Unit:	01
Material ID:	549710
Material Code:	0066A
Material Name:	UNKNOWN PETROLEUM
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	4.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
DEC Memo:	Start DECRemark - 0004974 Prior to Sept, 2004 data translation this spill Lead

MANHOLE #61738 (Continued) **S104787656**

DEC Field was "O'CONNELL" e2mis no. 132568: Transmission Operations reported approx. 4 gallons of unknown oil and 30 gallons of water in manhole 61738, feeder 51/52. Cleanup pending test results. LSN 00-07204 PCB <1 ppm LSN 00-07207 Benzene < 0.00020 ppm The manhole was cleaned out on 10/5/00. END DECRemark - 0004974

Remarks: Start CallerRemark - 0004974 4 gals on 30 glas of water - cleanup pending test results ref#132568 END CallerRemark - 0004974

NY Hist Spills:

Region of Spill:	2
Spill Number:	0004974
Investigator:	O'CONNELL
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Spill Date/Time:	07/26/2000 10:30
Reported to Dept Date/Time:	07/26/00 11:12
SWIS:	62
Spiller Name:	UNKNOWN
Spiller Contact:	Not reported
Spiller Phone:	( ) -
Spiller Contact:	BRIAN JOYCE
Spiller Phone:	(212) 580-6763
Spiller Address:	Not reported
Spiller City,St,Zip:	-
Spill Cause:	Unknown
Reported to Dept:	On Land
Water Affected:	Not reported
Spill Source:	12
Spill Notifier:	Affected Persons
PBS Number:	Not reported
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Dt:	/ /
Enforcement Date:	/ /
Invstgn Complete:	/ /
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	/ /
Corrective Action Plan Submitted:	/ /
Date Region Sent Summary to Central Office:	/ /
Date Spill Entered In Computer Data File:	07/26/00
Date Spill Entered In Computer Data File:	Not reported
Update Date:	07/28/00
Is Updated:	False
PBS Number:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate Failed Tank:	Not reported
Gross Leak Rate:	Not reported

MANHOLE #61738 (Continued) **S104787656**

Material Class Type: Petroleum
Quantity Spilled: 4
Unkonwn Quantity Spilled: False
Units: Gallons
Quantity Recovered: 0
Unkonwn Quantity Recovered: False
Material: UNKNOWN PETROLEUM
Class Type: UNKNOWN PETROLEUM
Times Material Entry In File: 16414
CAS Number: Not reported
Last Date: 19940929
DEC Remarks: Not reported
Remark: 4 gals on 30 glas of water - cleanup pending test results ref 132568

A4
WNW
< 1/8
180 ft.

Relative:
Higher

Actual:
132 ft.

MANHOLE 61738 **NY Spills** **S104654011**
WEST 155TH ST/ST NICHOLAS **NY Hist Spills** **N/A**
MANHOLE, NY

Site 4 of 7 in cluster A

NY Spills:
Site ID: 302081
Facility Addr2: Not reported
Facility ID: 0003693
Spill Number: 0003693
Facility Type: ER
SWIS: 3101
Region of Spill: 2
Investigator: JHOCONNE
Referred To: Not reported
Spill Date: 06/26/00
Reported to Dept: 06/26/00
CID: 382
Spill Cause: Unknown
Water Affected: Not reported
Spill Source: Unknown
Spill Notifier: Other
Cleanup Ceased: / /
Cleanup Meets Std: False
Last Inspection: / /
Recommended Penalty: Penalty Not Recommended
UST Trust: False
Spill Class: Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: 04/08/04
Remediation Phase: 0
Date Entered In Computer: 06/26/00
Spill Record Last Update: 04/08/04
Spiller Name: Not reported
Spiller Company: UNKNOWN
Spiller Address: Not reported
Spiller City,St,Zip: ZZ -
Spiller Company: 001
Spiller Phone: Not reported
Contact Name: BILL MURPHY
Contact Phone: (212) 580-6763
DEC Region: 2
Program Number: 0003693

MANHOLE 61738 (Continued) **S104654011**

DER Facility ID:	244085
Site ID:	302081
Operable Unit ID:	825031
Operable Unit:	01
Material ID:	548446
Material Code:	0066A
Material Name:	UNKNOWN PETROLEUM
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	8.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
DEC Memo:	Start DECRemark - 0003693 Prior to Sept, 2004 data translation this spill Lead DEC Field was "O'CONNELL" e2mis no. 132022: 8 gallons of unknown oil on top of 675 gallons water inside mh 61738. Chem lab reports 00-06178 <1.00ppm PCB. On 6/29/00 Con Ed tanker pumped out manhole. The liquid is being returned to Astoria oil/water seperator. Cleanup complete. END DECRemark - 0003693
Remarks:	Start CallerRemark - 0003693 OIL ON 675 GALS OF WATER CONRAINED IN MANHOLE. CLEAN UP PENDING. CON ED 132-022 END CallerRemark - 0003693

NY Hist Spills:

Region of Spill:	2
Spill Number:	0003693
Investigator:	O'CONNELL
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Spill Date/Time:	06/26/2000 11:55
Reported to Dept Date/Time:	06/26/00 12:45
SWIS:	62
Spiller Name:	UNKNOWN
Spiller Contact:	Not reported
Spiller Phone:	( ) -
Spiller Contact:	BILL MURPHY
Spiller Phone:	(212) 580-6763
Spiller Address:	Not reported
Spiller City,St,Zip:	-
Spill Cause:	Unknown
Reported to Dept:	On Land
Water Affected:	Not reported
Spill Source:	12
Spill Notifier:	Other
PBS Number:	Not reported
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Dt:	/ /
Enforcement Date:	/ /
Invstgn Complete:	/ /
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response.

MANHOLE 61738 (Continued) **S104654011**

Willing Responsible Party. Corrective action taken.
Spill Closed Dt: / /
Corrective Action Plan Submitted: / /
Date Region Sent Summary to Central Office: / /
Date Spill Entered In Computer Data File: 06/26/00
Date Spill Entered In Computer Data File: Not reported
Update Date: 06/26/00
Is Updated: False
PBS Number: Not reported
Tank Number: Not reported
Tank Size: Not reported
Test Method: Not reported
Leak Rate Failed Tank: Not reported
Gross Leak Rate: Not reported
Material Class Type: Petroleum
Quantity Spilled: 8
Unkonwn Quantity Spilled: False
Units: Gallons
Quantity Recovered: 0
Unkonwn Quantity Recovered: False
Material: UNKNOWN PETROLEUM
Class Type: UNKNOWN PETROLEUM
Times Material Entry In File: 16414
CAS Number: Not reported
Last Date: 19940929
DEC Remarks: Not reported
Remark: OIL ON 675 GALS OF WATER CONRAINED IN MANHOLE. CLEAN UP PENDING. CON ED 132-022

A5 **MOST WORSHIPFUL PRINCE HALL GRAND LODGE** **UST** **U004047646**
WNW **454 W. 155TH STREET** **N/A**
< 1/8 **NEW YORK, NY 10032**
218 ft.

Site 5 of 7 in cluster A

Relative: Higher

UST:

Actual: 133 ft.

UST:
Facility Id: 2-609724
Expiration Date: 10/06/09
Renewal Date: / /
Total Capacity: 2000
Facility Type: Not reported
Mailing Company: MOST WORSHIPFUL PRINCE HALL GRAND LODGE
Mailing Title: TRUSTEE CHAIR MAN
Mailing Contact: ANDRE F. BAKER
Mailing Address: 454 W. 155TH STREET
Mailing Address 2: Not reported
Mailing City: NEW YORK
Mailing State: NY
Mailing Zip Code: 10032
Mailing Phone No: (212) 281-2211
Mailing Email: Not reported
Owner Title: TRUSTEE CHAIR MAN
Owner Name: ANDRE F. BAKER
Owner Address: 454 W. 155TH STREET
Owner Address 2: Not reported
Owner State: NY
Owner Zip Code: 10032

MOST WORSHIPFUL PRINCE HALL GRAND LODGE (Continued) **U004047646**

Owner Phone:	(212) 281-2211
Owner Company:	MOST WORSHIPFUL PRINCE HALL GRAND LODGE
Emergency Contact:	JULIUS MARSHALL
Emergency Phone:	(212) 283-3175
Operator:	ANDRE F. BAKER
Operator Phone:	(212) 368-9050
Owner City:	NEW YORK
Owner Sub Type:	Corporate or Commercial
UTM X:	589241.81295
UTM Y:	4520526.93059
Site Type Name:	Other
Site Type Status:	Active
Comments:	Not reported
Program Type:	PBS
Tank Number:	001
Tank Location Name:	Underground
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	/ /
Capacity Gallons:	2000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	Not reported
Tank Internal Protection 1:	Not reported
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Aboveground/Underground Combination
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	Not reported
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Not reported
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	Not reported
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Vent Whistle
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Not reported
Spill Prevention:	None
Tightness Test Method:	Horner EZY3/EZY3 Locator Plus
Date Tested:	09/28/04
Next Test Date:	09/28/09
Date Tank Closed:	/ /

A6
WNW
< 1/8
218 ft.

Relative:
Higher

Actual:
133 ft.

PRINCE HALL MASONIC TEMPL
454 WEST 155TH STREET
NEW YORK, NY

LTANKS **S106702663**
N/A

Site 6 of 7 in cluster A

LTANKS:

Site ID:	246984
Spill Date:	08/31/04
Facility Addr2:	Not reported
Facility ID:	0405972
Program Number:	0405972
SWIS:	3101
Region of Spill:	2
Investigator:	CESAWYER
Referred To:	Not reported
Reported to Dept:	08/31/04
CID:	15
Spill Cause:	Tank Failure
Water Affected:	Not reported
Spill Source:	Unknown
Spill Notifier:	Responsible Party
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	10/07/04
Remediation Phase:	0
Date Entered In Computer:	08/31/04
Spill Record Last Update:	10/07/04
Spille Namer:	ANDRE BAKER
Spiller Company:	CHURCH
Spiller Phone:	(914) 525-3479
Spiller Extention:	Not reported
Spiller Address:	454 WEST 155TH STREET
Spiller City,St,Zip:	NEW YORK, NY
Spiller County:	001
Spiller Contact:	ANDRE BAKER-CHAIR OF BRD
Spiller Phone:	(914) 525-3479
Spiller Extention:	Not reported
DEC Region:	2
Program Number:	0405972
DER Facility ID:	202789
Site ID:	246984
Operable Unit ID:	888661
Operable Unit:	01
Material ID:	486895
Material Code:	0001
Material Name:	#2 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	0.00
Units:	Pounds
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False

PRINCE HALL MASONIC TEMPL (Continued) **S106702663**

Site ID:	246984
Operable Unit ID:	888661
Operable Unit:	01
Material ID:	486894
Material Code:	0001
Material Name:	#2 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	0.00
Units:	Not reported
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
Site ID:	Not reported
Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported
DEC Memo:	Start DECRemark - 0405972 Prior to Sept, 2004 data translation this spill Lead DEC Field was "SAWYER" 8/31/2004 Sangesland spoke to Issac about this site. Eastmond was called to this property. Apparently the tank has been leaking for quite a while whenever it is more than half filled. 2000 gal tank wrapped in concrete. - No PBS registration Contacts for site: Andre Baker - Chairman of Board 914-525-3479 Richard - 718-469-5345 - home // 917-319-2519 - cell 9/1/2004 Sangesland spoke to Andre Baker about his tank. Discussed the various options (repair, reline, replace). Mr. Baker said they were getting bids on repairing the tank and said he would be working on this over the next couple of weeks. Mr.Baker was specifically told the tank MUST BE TAKEN OUT OF SERVICE TODAY and a temp tank installed. Sangesland told him that his oil company or any of the tank companies bidding on his repair job could probably set up a temp tank. Do Work letter was sent today. 10/07/04 - Sawyer - Received passed tank test for syatem at above address. Mr. Leon Gladman 718 590 0777 or 646 302 5940 the lodge treasurer was very positive that no spill had occurred there. No further action. Closed. ENDDECRemark - 0405972
Remarks:	Start CallerRemark - 0405972 TANK RUPTURED ON CONCRETE. TANK NEEDS TO BE CLEANED. END CallerRemark - 0405972

B7 **HARLEM RIVER DR & W 155TH** **NY Spills** **S103273331**
ESE **HARLEM RIVER DR / W 155TH** **NY Hist Spills** **N/A**
< 1/8 **MANHATTAN, NY**
220 ft.

Site 1 of 3 in cluster B

Relative:
Lower

Actual:
103 ft.

NY Spills:

Site ID:	81519
Facility Addr2:	Not reported
Facility ID:	9800207
Spill Number:	9800207
Facility Type:	ER
SWIS:	3101
Region of Spill:	2
Investigator:	O'DOWD

HARLEM RIVER DR & W 155TH (Continued) **S103273331**

Referred To:	Not reported
Spill Date:	04/06/98
Reported to Dept:	04/06/98
CID:	266
Spill Cause:	Traffic Accident
Water Affected:	Not reported
Spill Source:	Commercial Vehicle
Spill Notifier:	Fire Department
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Trust:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	04/27/98
Remediation Phase:	0
Date Entered In Computer:	04/06/98
Spill Record Last Update:	04/27/98
Spiller Name:	Not reported
Spiller Company:	PATCO TRANSPORTATION, INC
Spiller Address:	Not reported
Spiller City,St,Zip:	ZZ
Spiller Company:	001
Spiller Phone:	(860) 677-2497
Contact Name:	Not reported
Contact Phone:	Not reported
DEC Region:	2
Program Number:	9800207
DER Facility ID:	75415
Site ID:	81519
Operable Unit ID:	1060712
Operable Unit:	01
Material ID:	325751
Material Code:	0008
Material Name:	Diesel
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	150.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Surface Water
Oxygenate:	False
DEC Memo:	Not reported
Remarks:	Start CallerRemark - 9800207 DRIVER HAD A HEART ATTACK. HIT DIVIDER AND RUPTURER SADDLE TANKS. SOME ONTO ROADWAY AND UNKNOWN AMOUNT INTO STORM SEWER. REGISTRATION ON TRACTOR ZH7714 (ON). ABSORBANT APPLIED TO ROADWAY. ATTEMPTING TO RECOVER FROMSTORM DRAIN. END CallerRemark - 9800207

NY Hist Spills:

Region of Spill:	2
Spill Number:	9800207
Investigator:	O'DOWD
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Notifier Name:	Not reported

HARLEM RIVER DR & W 155TH (Continued) **S103273331**

Notifier Agency:	Not reported
Notifier Phone:	Not reported
Spill Date/Time:	04/06/1998 11:19
Reported to Dept Date/Time:	04/06/98 12:10
SWIS:	62
Spiller Name:	PATCO TRANSPORTATION, INC
Spiller Contact:	Not reported
Spiller Phone:	(860) 677-2497
Spiller Address:	Not reported
Spiller City,St,Zip:	Not reported
Spill Cause:	Traffic Accident
Reported to Dept:	Surface Water
Water Affected:	Not reported
Spill Source:	07
Spill Notifier:	Fire Department
PBS Number:	Not reported
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Dt:	/ /
Enforcement Date:	/ /
Invstgn Complete:	/ /
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	04/27/98
Corrective Action Plan Submitted:	/ /
Date Region Sent Summary to Central Office:	/ /
Date Spill Entered In Computer Data File:	04/06/98
Date Spill Entered In Computer Data File:	Not reported
Update Date:	04/27/98
Is Updated:	False
PBS Number:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate Failed Tank:	Not reported
Gross Leak Rate:	Not reported
Material Class Type:	Petroleum
Quantity Spilled:	150
Unkonwn Quantity Spilled:	False
Units:	Gallons
Quantity Recovered:	0
Unkonwn Quantity Recovered:	True
Material:	DIESEL
Class Type:	DIESEL
Times Material Entry In File:	10625
CAS Number:	Not reported
Last Date:	19940728

DEC Remarks: FAX TO ECS.4/6/98 4:30 PM SPOKE TO RONALD/DEP. HE WAS AT THE SCENE. THEY SANDED THE AREA. SMALL AMOUNT OF OIL GOT INTO STORM DRAIN WHICH DRAINS TO THE LOWER LEVEL. HIGHWAY WAS TO SAND THAT AREA ALSO.) NOTHING GOT INTO WATER AS FAR AS HE KNEW.

Remark: DRIVER HAD A HEART ATTACK. HIT DIVIDER AND RUPTURER SADDLE TANKS. SOME ONTO ROADWAY AND UNKNOWN AMOUNT INTO STORM SEWER. REGISTRATION ON TRACTOR ZH7714 ON). ABSORBANT APPLIED TO ROADWAY. ATTEMPTING TO RECOVER FROM STORM DRAIN.

C8 WSW < 1/8 240 ft. | **NORTH MANHATTAN SHOP**
886 SOUTH ST. NICHOLAS AVENUE
NEW YORK, NY 10032 | **UST LTANKS HIST UST HIST LTANKS** | **U003153154 N/A**

Site 1 of 4 in cluster C

Relative: Higher

Actual: 131 ft.

UST:

UST:

Facility Id:	2-456357
Expiration Date:	12/06/98
Renewal Date:	/ /
Total Capacity:	0
Facility Type:	Not reported
Mailing Company:	DEPT OF GENERAL SERVICES
Mailing Title:	Not reported
Mailing Contact:	RICHARD ROBILOTTA
Mailing Address:	ONE CENTER STREET
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip Code:	10007
Mailing Phone No:	(212) 669-4328
Mailing Email:	Not reported
Owner Title:	Not reported
Owner Name:	Not reported
Owner Address:	ONE CENTER STREET
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	10007
Owner Phone:	(212) 669-4328
Owner Company:	DEPT OF GENERAL SERVICES
Emergency Contact:	L. LARRAGIOTI
Emergency Phone:	(212) 862-1366
Operator:	L. LARRAGIOTI
Operator Phone:	(212) 862-1366
Owner City:	NEW YORK
Owner Sub Type:	Local Government
UTM X:	589238.94891
UTM Y:	4520488.25923
Site Type Name:	Other
Site Type Status:	Unregulated
Comments:	Not reported
Program Type:	PBS
Tank Number:	001
Tank Location Name:	Underground
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	06/01/96
Capacity Gallons:	5000
Material Name:	Gasoline
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	Original Sacrificial Anode
Tank Internal Protection 2:	Not reported

NORTH MANHATTAN SHOP (Continued) **U003153154**

Pipe Location Name:	Underground/On-ground
Pipe Type Name:	No Piping
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	In-Tank System (ATG)
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	None
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	06/01/96

Tank Number:	002
Tank Location Name:	Underground
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	06/01/96
Capacity Gallons:	5000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Underground/On-ground
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	None
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Not reported
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	06/01/96

LTANKS:

Site ID:	143507

NORTH MANHATTAN SHOP (Continued) **U003153154**

Spill Date:	12/23/97
Facility Addr2:	Not reported
Facility ID:	9710796
Program Number:	9710796
SWIS:	3101
Region of Spill:	2
Investigator:	JAKOLLEE
Referred To:	Not reported
Reported to Dept:	12/23/97
CID:	15
Spill Cause:	Tank Failure
Water Affected:	Not reported
Spill Source:	Commercial/Industrial
Spill Notifier:	Other
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	True
Spill Class:	Known release that creates potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	04/20/01
Remediation Phase:	0
Date Entered In Computer:	12/23/97
Spill Record Last Update:	04/19/01
Spille Namer:	TONY MARINO
Spiller Company:	NORTH MANHATTEN SHOP
Spiller Phone:	(718) 391-1062
Spiller Extention:	Not reported
Spiller Address:	886 SOUTH ST NICHOLAS AV
Spiller City,St,Zip:	MANHATTEN, NY -
Spiller County:	001
Spiller Contact:	TONY MARINO
Spiller Phone:	(718) 391-1062
Spiller Extention:	Not reported
DEC Region:	2
Program Number:	9710796
DER Facility ID:	122392
Site ID:	143507
Operable Unit ID:	1057171
Operable Unit:	01
Material ID:	329077
Material Code:	0008
Material Name:	Diesel
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	0.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
Site ID:	Not reported
Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported

NORTH MANHATTAN SHOP (Continued) **U003153154**

Gross Fail: Not reported
Modified By: Not reported
Last Modified: Not reported
Test Method: Not reported
DEC Memo: Start DECRemark - 9710796 Prior to Sept, 2004 data translation this spill Lead DEC Field was "KOLLEENY" TANK WAS ABANDONED IN PLACE, NOT REMOVED. CLOSURE BORING SOIL SAMPLES SHOWED SEMI-VOCS. TCLP ANALYSIS OF SOIL SAMPLES TAKEN IN ADDITIONAL INVESTIGATION INDICATED THAT RESIDUAL CONTAMINATION IS NOT LIKELY TO IMPACT GROUNDWATER. SOIL CONTAMINATION IS IN AN ENCLOSED AREA, SURROUNDED ON 3 SIDES BY CONCRETE WALLS, UNDERLAIN BY CONCRETE OVER BEDROCK, AND COVERED BY CONCRETE PATIO. SITE IS AT110 FEET ABOVE SEA LEVEL, SO LOCAL WATER TABLE IS LIKELY TO BE WELL BELOW CONCRETE/BEDROCK INTERFACE. HOWEVER, SOIL DOES CONTAIN LEVELS OF CARCINOGENIC SVOCS THAT COULD POSE A THREAT TO HUMAN HEALTH IF INGESTED OR INHALED. IN EVENT OF ANY CONSTRUCTION OR DEMOLITION WORK THAT WOULD INVOLVE CONTACT WITH THIS SOIL, APPROPRIATE PRECAUTIONS SHOULD BE TAKEN TO PREVENT INGESTION/INHALATION OF SOIL PARTICLES BY WORKERS. END DECRemark - 9710796
Remarks: Start CallerRemark - 9710796 RESULTS FROM SOIL SAMPLES SHOW CONTAMINATION AT A TANK REMOVAL SITE END CallerRemark - 9710796

HIST UST:
PBS Number: 2-456357
SPDES Number: Not reported
Emergency Contact: L. LARRAGIOTI
Emergency Telephone: (212) 862-1366
Operator: L. LARRAGIOTI
Operator Telephone: (212) 862-1366
Owner Name: DEPT OF GENERAL SERVICES
Owner Address: ONE CENTER STREET
Owner City,St,Zip: NEW YORK, NY 10007
Owner Telephone: (212) 669-4328
Owner Type: Local Government
Owner Subtype: The City of New York
Mailing Name: DEPT OF GENERAL SERVICES
Mailing Address: ONE CENTER STREET
Mailing Address 2: Not reported
Mailing City,St,Zip: NEW YORK, NY 10007
Mailing Contact: RICHARD ROBILOTTA
Mailing Telephone: (212) 669-4328
Owner Mark: First Owner
Facility Status: 2 - Unregulated by PBS (the total capacity is less than 1,101 gallons) and Subpart 360-14.
Facility Addr2: Not reported
SWIS ID: 6201
Old PBS Number: Not reported
Facility Type: OTHER
Inspected Date: Not reported
Inspector: Not reported
Inspection Result: Not reported
Federal ID: Not reported
Certification Flag: False
Certification Date: 01/18/1995
Expiration Date: 12/06/1998
Renew Flag: False
Renewal Date: Not reported
Total Capacity: 0
FAMT: True

NORTH MANHATTAN SHOP (Continued) **U003153154**

Facility Screen:	No Missing Data
Owner Screen:	Minor Data Missing
Tank Screen:	0
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	62
Town or City:	01
Region:	2

Tank Id:	001
Tank Location:	UNDERGROUND
Tank Status:	Closed-Removed
Install Date:	19960601
Capacity (gals):	5000
Product Stored:	UNLEADED GASOLINE
Tank Type:	Steel/carbon steel
Tank Internal:	None
Tank External:	Sacrificial Anode
Pipe Location:	Underground
Pipe Type:	NONE
Pipe Internal:	None
Pipe External:	None
Second Containment:	None
Leak Detection:	In-tank System
Overfill Prot:	None
Dispenser:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	No Missing Data
Date Closed:	06/01/1996
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	002
Tank Location:	UNDERGROUND
Tank Status:	Closed-Removed
Install Date:	19960601
Capacity (gals):	5000
Product Stored:	NOS 1,2, OR 4 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	None
Tank External:	None
Pipe Location:	Underground
Pipe Type:	STEEL/IRON
Pipe Internal:	None
Pipe External:	None
Second Containment:	None
Leak Detection:	None
Overfill Prot:	None
Dispenser:	0
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	No Missing Data

NORTH MANHATTAN SHOP (Continued) **U003153154**

Date Closed: 06/01/1996
Test Method: Not reported
Deleted: False
Updated: True
Lat/long: Not reported

HIST LTANKS:
Region of Spill: 2
Spill Number: 9710796
Investigator: KOLLEENY
Caller Name: Not reported
Caller Agency: Not reported
Caller Phone: Not reported
Caller Extension: Not reported
Notifier Name: Not reported
Notifier Agency: Not reported
Notifier Phone: Not reported
Notifier Extension: Not reported
Spill Date: 12/23/1997
Spill Time: 08:00
Reported to Department Date: 12/23/97
Reported to Department Time: 08:44
SWIS: 62
Spiller Contact: TONY MARINO
Spiller Phone: (718) 391-1062
Spiller Extention: Not reported
Spiller Name: NORTH MANHATTEN SHOP
Spiller Address: 886 SOUTH ST NICHOLAS AV
Spiller City,St,Zip: MANHATTEN, NY -
Facility Contact: TONY MARINO
Facility Phone: (718) 391-1062
Facility Extention: Not reported
Spill Cause: Tank Failure
Resource Affectd: On Land
Water Affected: Not reported
Spill Source: Other Commercial/Industrial
Spill Notifier: Other
PBS Number: Not reported
Cleanup Ceased: / /
Cleanup Meets Standard: False
Last Inspection: / /
Recommended Penalty: Penalty Not Recommended
Spiller Cleanup Date: / /
Enforcement Date: / /
Investigation Complete: / /
UST Involvement: True
Spill Class: Known release that creates potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: 04/20/01
Date Region Sent Summary to Central Office: / /
Corrective Action Plan Submitted: / /
Date Spill Entered In Computer Data File: 12/23/97
Time Spill Entered In Computer Data File: Not reported
Spill Record Last Update: 04/19/01
Is Updated: False
PBS Number: Not reported
Tank Number: Not reported

NORTH MANHATTAN SHOP (Continued) **U003153154**

Tank Size:	Not reported
Test Method:	Not reported
Leak Rate Failed Tank:	Not reported
Gross Leak Rate:	Not reported
Material Class Type:	Petroleum
Quantity Spilled:	0
Unkonwn Quantity Spilled:	True
Units:	Gallons
Quantity Recovered:	0
Unkonwn Quantity Recovered:	False
Material:	DIESEL
Class Type:	DIESEL
Times Material Entry In File:	10625
CAS Number:	Not reported
Last Date:	19940728
DEC Remarks:	TANK WAS ABANDONED IN PLACE, NOT REMOVED. CLOSURE BORING SOIL SAMPLES SHOWED SEMI-VOCS. TCLP ANALYSIS OF SOIL SAMPLES TAKEN IN ADDITIONAL INVESTIGATION INDICATED THAT RESIDUAL CONTAMINATION IS NOT LIKELY TO IMPACT GROUNDWATER. SOIL CONTAMINATION IS IN AN ENCLOSED AREA, SURROUNDED ON 3 SIDES BY CONCRETE WALLS, UNDERLAIN BY CONCRETE OVER BEDROCK, AND COVERED BY CONCRETE PATIO. SITE IS AT 110 FEET ABOVE SEA LEVEL, SO LOCAL WATER TABLE IS LIKELY TO BE WELL BELOW CONCRETE/BEDROCK INTERFACE. HOWEVER, SOIL DOES CONTAIN LEVELS OF CARCINOGENIC SVOCS THAT COULD POSE A THREAT TO HUMAN HEALTH IF INGESTED OR INHALED. IN EVENT OF ANY CONSTRUCTION OR DEMOLITION WORK THAT WOULD INVOLVE CONTACT WITH THIS SOIL, APPROPRIATE PRECAUTIONS SHOULD BE TAKEN TO PREVENT INGESTION/INHALATION OF SOIL PARTICLES BY WORKERS.
Spill Cause:	RESULTS FROM SOIL SAMPLES SHOW CONTAMINATION AT A TANK REMOVAL SITE

C9 **886 ST. NICHOLAS AVENUE** **LTANKS** **S102660667**
WSW **886 ST NICHOLAS AVENUE** **HIST LTANKS** **N/A**
< 1/8 **MANHATTAN, NY**
240 ft.

Site 2 of 4 in cluster C

Relative: Higher

Actual: 131 ft.

LTANKS:

Site ID:	72419
Spill Date:	07/14/95
Facility Addr2:	Not reported
Facility ID:	9504500
Program Number:	9504500
SWIS:	3101
Region of Spill:	2
Investigator:	SXLASDIN
Referred To:	Not reported
Reported to Dept:	07/14/95
CID:	15
Spill Cause:	Tank Failure
Water Affected:	Not reported
Spill Source:	Unknown
Spill Notifier:	Affected Persons
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	/ /

886 ST. NICHOLAS AVENUE (Continued) **S102660667**

Remediation Phase:	1
Date Entered In Computer:	08/07/95
Spill Record Last Update:	06/22/07
Spille Namer:	Not reported
Spiller Company:	NYC HAZMAT UNIT
Spiller Phone:	(212) 442-4782
Spiller Extention:	Not reported
Spiller Address:	280 BROADWAY - ROOM 403
Spiller City,St,Zip:	NEW YORK, NY
Spiller County:	001
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
DEC Region:	2
Program Number:	9504500
DER Facility ID:	68362
Site ID:	72419
Operable Unit ID:	1019251
Operable Unit:	01
Material ID:	567003
Material Code:	0001
Material Name:	#2 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	-1.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
Site ID:	Not reported
Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported
DEC Memo:	Start DECRemark - 9504500 6/7/07-Matthew Klaas (Albany DER) -Attemted to speak with Alexander Kostic of Hill International at 212-292-3562, this number is no longer in service, and has no message on how to reach Hill International. -Attempted to contact NYC Hazmat Unit (Potential Spiller) at 212-422-4782 this number is incorrect for the Hazmat Unit and there was no way to obtain a current listing for the unit. -I was able to locate a current telephone number for Hill International, 212-244-3700, where I was put in contact with Sylvie Chan. After speaking with her at length on the telephone, she requested I forward her some basic information about the file so she would be able to check anything on file concerning this and get back tome. She told me she would find what she could and then return any findings. 6/11/07-Matthew Klaas (Albany DER) -Drafted a letter to Hill International requesting additional information regarding this spill form. END DECRemark - 9504500
Remarks:	Start CallerRemark - 9504500 CALLER FOUND TANK ON ABANDONED LOT - ALEXANDER KOSTIC TANK COVERED W/SOIL - OWNER THINKS THEIR TANK IS THERE. PLAN TO EXCAVATE IN A FEW MONTHS - WILL CALL BACK PRIOR TO REMOVAL & TO REGISTER TANK. END CallerRemark - 9504500

886 ST. NICHOLAS AVENUE (Continued) **S102660667**

HIST LTANKS:

Region of Spill:	2
Spill Number:	9504500
Investigator:	SIGONA
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Caller Extension:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Notifier Extension:	Not reported
Spill Date:	07/14/1995
Spill Time:	14:00
Reported to Department Date:	07/14/95
Reported to Department Time:	14:17
SWIS:	62
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
Spiller Name:	NYC HAZMAT UNIT
Spiller Address:	280 BROADWAY - ROOM 403
Spiller City,St,Zip:	NEW YORK, NEW YORK
Facility Contact:	Not reported
Facility Phone:	(212) 442-4782
Facility Extention:	Not reported
Spill Cause:	Tank Failure
Resource Affectd:	On Land
Water Affected:	Not reported
Spill Source:	Unknown
Spill Notifier:	Affected Persons
PBS Number:	Not reported
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Date:	/ /
Enforcement Date:	/ /
Investigation Complete:	/ /
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	/ /
Date Region Sent Summary to Central Office:	/ /
Corrective Action Plan Submitted:	/ /
Date Spill Entered In Computer Data File:	08/07/95
Time Spill Entered In Computer Data File:	Not reported
Spill Record Last Update:	/ /
Is Updated:	False
PBS Number:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate Failed Tank:	Not reported
Gross Leak Rate:	Not reported
Material Class Type:	Petroleum
Quantity Spilled:	-1

886 ST. NICHOLAS AVENUE (Continued) **S102660667**

Unkonwn Quantity Spilled: False
Units: Gallons
Quantity Recovered: 0
Unkonwn Quantity Recovered: False
Material: #2 FUEL OIL
Class Type: #2 FUEL OIL
Times Material Entry In File: 24464
CAS Number: Not reported
Last Date: 19941207
DEC Remarks: Not reported
Spill Cause: CALLER FOUND TANK ON ABANDONED LOT - ALEXANDER KOSTIC TANK COVERED W/SOIL - OWNER THINKS THEIR TANK IS THERE. PLAN TO EXCAVATE IN A FEW MONTHS - WILL CALL BACK PRIOR TO REMOVAL TO REGISTER TANK.

D10 **GETTY #340** **UST** **U004062863**
SSE **89 SAINT NICHOLAS PLACE** **N/A**
< 1/8 **NEW YORK, NY 10032**
266 ft.

Site 1 of 2 in cluster D

Relative: Lower

UST:

Actual: 106 ft.

UST:

Facility Id: 2-291935
Expiration Date: 05/24/09
Renewal Date: / /
Total Capacity: 16760
Facility Type: Not reported
Mailing Company: GETTY PETROLEUM MAKETING INC.
Mailing Title: ENV. COMP. MGR
Mailing Contact: SCOTT J. HANLEY
Mailing Address: 1500 HEMPSTEAD TURNPIKE
Mailing Address 2: Not reported
Mailing City: EAST MEADOW
Mailing State: NY
Mailing Zip Code: 11554
Mailing Phone No: (516) 542-4900
Mailing Email: Not reported
Owner Title: Not reported
Owner Name: Not reported
Owner Address: 1500 HEMPSTEAD TURNPIKE
Owner Address 2: Not reported
Owner State: NY
Owner Zip Code: 11554
Owner Phone: (516) 542-4900
Owner Company: GETTY PETROLEUM MAKETING INC.
Emergency Contact: SCOTT HANLEY
Emergency Phone: (718) 324-5110
Operator: 89-91 ST NICHLAS S/S INC.
Operator Phone: (212) 694-0240
Owner City: EAST MEADOW
Owner Sub Type: Corporate or Commercial
UTM X: 589376.39399
UTM Y: 4520445.33776
Site Type Name: Retail Gasoline Sales
Site Type Status: Active
Comments: Not reported

GETTY #340 (Continued) **U004062863**

Program Type:	PBS
Tank Number:	001
Tank Location Name:	Underground
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	08/01/72
Capacity Gallons:	4000
Material Name:	Gasoline
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping
Pipe Type Name:	Galvanized Steel
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Vault (w/o access)
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	None
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	VacuTest
Date Tested:	11/01/94
Next Test Date:	/ /
Date Tank Closed:	05/01/95
Tank Number:	002
Tank Location Name:	Underground
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	06/01/60
Capacity Gallons:	550
Material Name:	Gasoline
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping
Pipe Type Name:	Galvanized Steel
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Vault (w/o access)
Tank Secondary Containment 2:	Not reported

GETTY #340 (Continued) **U004062863**

Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	None
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	VacuTest
Date Tested:	11/01/94
Next Test Date:	/ /
Date Tank Closed:	05/01/95

Tank Number:	003
Tank Location Name:	Underground
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	06/01/60
Capacity Gallons:	550
Material Name:	Gasoline
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping
Pipe Type Name:	Galvanized Steel
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Vault (w/o access)
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	None
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	VacuTest
Date Tested:	11/01/94
Next Test Date:	/ /
Date Tank Closed:	05/01/95

Tank Number:	004
Tank Location Name:	Underground
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	06/01/60

GETTY #340 (Continued) **U004062863**

Capacity Gallons:	550
Material Name:	Gasoline
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping
Pipe Type Name:	Galvanized Steel
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Vault (w/o access)
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	None
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	VacuTest
Date Tested:	11/01/94
Next Test Date:	/ /
Date Tank Closed:	05/01/95

Tank Number:	005
Tank Location Name:	Underground
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	06/01/60
Capacity Gallons:	550
Material Name:	Gasoline
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping
Pipe Type Name:	Galvanized Steel
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Vault (w/o access)
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	None
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported

GETTY #340 (Continued) **U004062863**

Tightness Test Method:	VacuTest
Date Tested:	11/01/94
Next Test Date:	/ /
Date Tank Closed:	05/01/95

Tank Number:	006
Tank Location Name:	Underground
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	06/01/60
Capacity Gallons:	550
Material Name:	Gasoline
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping
Pipe Type Name:	Galvanized Steel
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Vault (w/o access)
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	None
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	VacuTest
Date Tested:	11/01/94
Next Test Date:	/ /
Date Tank Closed:	05/01/95

Tank Number:	007
Tank Location Name:	Underground
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	06/01/60
Capacity Gallons:	550
Material Name:	Gasoline
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping
Pipe Type Name:	Galvanized Steel

GETTY #340 (Continued) **U004062863**

Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Vault (w/o access)
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	None
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	VacuTest
Date Tested:	11/01/94
Next Test Date:	/ /
Date Tank Closed:	05/01/95

Tank Number:	008
Tank Location Name:	Underground
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	06/01/60
Capacity Gallons:	550
Material Name:	Gasoline
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping
Pipe Type Name:	Galvanized Steel
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Vault (w/o access)
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	None
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	VacuTest
Date Tested:	11/01/94
Next Test Date:	/ /
Date Tank Closed:	05/01/95

Tank Number:	009
Tank Location Name:	Underground
Tank Status:	Closed - Removed

GETTY #340 (Continued) **U004062863**

Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	06/01/60
Capacity Gallons:	550
Material Name:	Gasoline
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping
Pipe Type Name:	Galvanized Steel
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Vault (w/o access)
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	None
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	VacuTest
Date Tested:	11/01/94
Next Test Date:	/ /
Date Tank Closed:	05/01/95

Tank Number:	010
Tank Location Name:	Underground
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	06/01/60
Capacity Gallons:	550
Material Name:	Gasoline
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping
Pipe Type Name:	Galvanized Steel
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Vault (w/o access)
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported

GETTY #340 (Continued) **U004062863**

Type Of Overfill Prevention 1:	None
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	VacuTest
Date Tested:	11/01/94
Next Test Date:	/ /
Date Tank Closed:	05/01/95

Tank Number:	011
Tank Location Name:	Underground
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	06/01/60
Capacity Gallons:	550
Material Name:	Gasoline
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping
Pipe Type Name:	Galvanized Steel
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Vault (w/o access)
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	None
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	VacuTest
Date Tested:	11/01/94
Next Test Date:	/ /
Date Tank Closed:	05/01/95

Tank Number:	012
Tank Location Name:	Underground
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	06/01/60
Capacity Gallons:	550
Material Name:	Gasoline
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None

GETTY #340 (Continued) **U004062863**

Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping
Pipe Type Name:	Galvanized Steel
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Vault (w/o access)
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	None
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	VacuTest
Date Tested:	11/01/94
Next Test Date:	/ /
Date Tank Closed:	05/01/95

Tank Number:	013
Tank Location Name:	Underground
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	06/01/60
Capacity Gallons:	550
Material Name:	Gasoline
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping
Pipe Type Name:	Galvanized Steel
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Vault (w/o access)
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	None
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	VacuTest
Date Tested:	11/01/94
Next Test Date:	/ /
Date Tank Closed:	05/01/95

GETTY #340 (Continued) **U004062863**

Tank Number:	020
Tank Location Name:	Underground
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	10/01/95
Capacity Gallons:	4000
Material Name:	Gasoline
Percentage:	100.00
Tank Type Name:	Fiberglass Reinforced Plastic (FRP)
Tank Internal Protection:	None
Tank Internal Protection 1:	Fiberglass
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Underground/On-ground
Pipe Type Name:	Fiberglass Reinforced Plastic (FRP)
Pipe External Protection 1:	Fiberglass
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Double-Walled (Underground)
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Double-Walled (Underground)
Tank Leak Detection 1:	Interstitial - Electronic Monitoring
Tank Leak Detection 2:	Other
Pipe Leak Detection 1:	Pressurized Piping Leak Detector
Pipe Leak Detection 2:	Tank Top Sump
Type Of Overfill Prevention 1:	Float Vent Valve
Type Of Overfill Prevention 2:	High Level Alarm
Dispenser Method:	Submersible
Spill Prevention:	Catch Basin
Tightness Test Method:	Horner EZY3/EZY3 Locator Plus
Date Tested:	11/03/04
Next Test Date:	/ /
Date Tank Closed:	/ /

Tank Number:	021
Tank Location Name:	Underground
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	10/01/95
Capacity Gallons:	4000
Material Name:	Gasoline
Percentage:	100.00
Tank Type Name:	Fiberglass Reinforced Plastic (FRP)
Tank Internal Protection:	None
Tank Internal Protection 1:	Fiberglass
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Underground/On-ground
Pipe Type Name:	Fiberglass Reinforced Plastic (FRP)
Pipe External Protection 1:	Fiberglass
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Double-Walled (Underground)
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Double-Walled (Underground)
Tank Leak Detection 1:	Interstitial - Electronic Monitoring

GETTY #340 (Continued) **U004062863**

Tank Leak Detection 2:	Other
Pipe Leak Detection 1:	Pressurized Piping Leak Detector
Pipe Leak Detection 2:	Tank Top Sump
Type Of Overfill Prevention 1:	Float Vent Valve
Type Of Overfill Prevention 2:	High Level Alarm
Dispenser Method:	Submersible
Spill Prevention:	Catch Basin
Tightness Test Method:	Horner EZY3/EZY3 Locator Plus
Date Tested:	11/03/04
Next Test Date:	/ /
Date Tank Closed:	/ /

Tank Number:	022
Tank Location Name:	Underground
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	10/01/95
Capacity Gallons:	4000
Material Name:	Gasoline
Percentage:	100.00
Tank Type Name:	Fiberglass Reinforced Plastic (FRP)
Tank Internal Protection:	None
Tank Internal Protection 1:	Fiberglass
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Underground/On-ground
Pipe Type Name:	Fiberglass Reinforced Plastic (FRP)
Pipe External Protection 1:	Fiberglass
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Double-Walled (Underground)
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Double-Walled (Underground)
Tank Leak Detection 1:	Interstitial - Electronic Monitoring
Tank Leak Detection 2:	Other
Pipe Leak Detection 1:	Pressurized Piping Leak Detector
Pipe Leak Detection 2:	Tank Top Sump
Type Of Overfill Prevention 1:	Float Vent Valve
Type Of Overfill Prevention 2:	High Level Alarm
Dispenser Method:	Submersible
Spill Prevention:	Catch Basin
Tightness Test Method:	Horner EZY3/EZY3 Locator Plus
Date Tested:	11/03/04
Next Test Date:	/ /
Date Tank Closed:	/ /

Tank Number:	025
Tank Location Name:	Underground
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	10/01/95
Capacity Gallons:	4000
Material Name:	Gasoline

GETTY #340 (Continued) **U004062863**

Percentage:	100.00
Tank Type Name:	Fiberglass Reinforced Plastic (FRP)
Tank Internal Protection:	None
Tank Internal Protection 1:	Fiberglass
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Underground/On-ground
Pipe Type Name:	Fiberglass Reinforced Plastic (FRP)
Pipe External Protection 1:	Fiberglass
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Double-Walled (Underground)
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Double-Walled (Underground)
Tank Leak Detection 1:	Interstitial - Electronic Monitoring
Tank Leak Detection 2:	Other
Pipe Leak Detection 1:	Pressurized Piping Leak Detector
Pipe Leak Detection 2:	Tank Top Sump
Type Of Overfill Prevention 1:	Float Vent Valve
Type Of Overfill Prevention 2:	High Level Alarm
Dispenser Method:	Submersible
Spill Prevention:	Catch Basin
Tightness Test Method:	Horner EZY3/EZY3 Locator Plus
Date Tested:	11/03/04
Next Test Date:	/ /
Date Tank Closed:	/ /

Tank Number:	026
Tank Location Name:	Underground, vaulted, with access
Tank Status:	Closed - In Place
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	/ /
Capacity Gallons:	550
Material Name:	Empty
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Underground/On-ground
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	None
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Not reported
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /

GETTY #340 (Continued) **U004062863**

Next Test Date: / /
Date Tank Closed: 11/01/01

Tank Number: 028
Tank Location Name: Underground
Tank Status: Closed - Removed
Tank Model: Not reported
Pipe Model: Not reported
Active Status: Inactive
Install Date: 10/01/96
Capacity Gallons: 550
Material Name: Waste Oil/Used Oil
Percentage: 100.00
Tank Type Name: Steel/Carbon Steel/Iron
Tank Internal Protection: None
Tank Internal Protection 1: Painted/Asphalt Coating
Tank Internal Protection 2: Not reported
Pipe Location Name: No Piping
Pipe Type Name: No Piping
Pipe External Protection 1: None
Pipe External Protection 2: Not reported
Tank Secondary Containment 1: Vault (w/o access)
Tank Secondary Containment 2: Not reported
Pipe Secondary Containment: Not reported
Tank Leak Detection 1: Other
Tank Leak Detection 2: Not reported
Pipe Leak Detection 1: Not reported
Pipe Leak Detection 2: Not reported
Type Of Overfill Prevention 1: Product Level Gauge (A/G)
Type Of Overfill Prevention 2: Not reported
Dispenser Method: None
Spill Prevention: None
Tightness Test Method: Testing Not Required
Date Tested: / /
Next Test Date: / /
Date Tank Closed: 04/01/04

D11 **GETTY #340** **AST** **U003074487**
SSE **89 SAINT NICHOLAS PLACE** **HIST UST** **N/A**
< 1/8 **NEW YORK, NY 10032**
266 ft.

Site 2 of 2 in cluster D

Relative:
Lower

AST:

Actual:
106 ft.

AST:
Region: STATE
Facility Id: 2-291935
UTM X: 589376.39399
UTM Y: 4520445.33776
Expiration Date: 05/24/09
Renewal Date: / /
Total Capacity: 16760
Facility Type: Not reported
Site Type Name: Retail Gasoline Sales
Site Type Status: Active
Mailing Company: GETTY PETROLEUM MAKETING INC.

GETTY #340 (Continued) **U003074487**

Mailing Title:	ENV. COMP. MGR
Mailing Contact:	SCOTT J. HANLEY
Mailing Address:	1500 HEMPSTEAD TURNPIKE
Mailing Address 2:	Not reported
Mailing City:	EAST MEADOW
Mailing State:	NY
Mailing Zip Code:	11554
Mailing Phone No:	(516) 542-4900
Mailing Email:	Not reported
Owner Title:	Not reported
Owner Name:	Not reported
Owner Address:	1500 HEMPSTEAD TURNPIKE
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	11554
Owner Phone:	(516) 542-4900
Owner Company:	GETTY PETROLEUM MAKETING INC.
Emergency Contact:	SCOTT HANLEY
Emergency Phone:	(718) 324-5110
Operator:	89-91 ST NICHLAS S/S INC.
Operator Phone:	(212) 694-0240
Owner City:	EAST MEADOW
Owner Sub Type:	Corporate or Commercial
Program Type:	PBS
Tank Number:	023
Tank Location Name:	Aboveground on crib, rack, or cradle
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	06/01/96
Capacity Gallons:	240
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	Painted/Asphalt Coating
Tank Internal Protection 2:	Jacketed
Pipe Location Name:	Aboveground
Pipe Type Name:	Copper
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Double-Walled (Underground)
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	In-Tank System (ATG)
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Float Vent Valve
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Catch Basin
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /

GETTY #340 (Continued) **U003074487**

Date Tank Closed: 06/01/96

Tank Number: 024
Tank Location Name: Aboveground on crib, rack, or cradle
Tank Status: Closed - Removed
Tank Model: Not reported
Pipe Model: Not reported
Active Status: Inactive
Install Date: 05/01/95
Capacity Gallons: 180
Material Name: #2 Fuel Oil
Percentage: 100.00
Tank Type Name: Steel/Carbon Steel/Iron
Tank Internal Protection: None
Tank Internal Protection 1: Painted/Asphalt Coating
Tank Internal Protection 2: Not reported
Pipe Location Name: Aboveground
Pipe Type Name: Copper
Pipe External Protection 1: None
Pipe External Protection 2: Not reported
Tank Secondary Containment 1: Vault (w/o access)
Tank Secondary Containment 2: Not reported
Pipe Secondary Containment: Not reported
Tank Leak Detection 1: Interstitial - Electronic Monitoring
Tank Leak Detection 2: Other
Pipe Leak Detection 1: Exempt Suction Piping
Pipe Leak Detection 2: Not reported
Type Of Overfill Prevention 1: Product Level Gauge (A/G)
Type Of Overfill Prevention 2: Vent Whistle
Dispenser Method: Suction
Spill Prevention: Not reported
Tightness Test Method: Testing Not Required
Date Tested: / /
Next Test Date: / /
Date Tank Closed: 04/01/04

Tank Number: 024-A
Tank Location Name: Aboveground on crib, rack, or cradle
Tank Status: Closed - Removed
Tank Model: Not reported
Pipe Model: Not reported
Active Status: Inactive
Install Date: 06/01/96
Capacity Gallons: 180
Material Name: Waste Oil/Used Oil
Percentage: 100.00
Tank Type Name: Steel/Carbon Steel/Iron
Tank Internal Protection: None
Tank Internal Protection 1: Painted/Asphalt Coating
Tank Internal Protection 2: Jacketed
Pipe Location Name: No Piping
Pipe Type Name: No Piping
Pipe External Protection 1: None
Pipe External Protection 2: Not reported
Tank Secondary Containment 1: Double-Walled (Underground)

GETTY #340 (Continued) **U003074487**

Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	In-Tank System (ATG)
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Float Vent Valve
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Gravity
Spill Prevention:	Catch Basin
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	06/01/96

Tank Number:	027
Tank Location Name:	Aboveground - in contact with impervious barrier
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	10/01/95
Capacity Gallons:	280
Material Name:	Lube Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	Painted/Asphalt Coating
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping
Pipe Type Name:	No Piping
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Modified Double-Walled (Aboveground)
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	None
Tank Leak Detection 1:	Interstitial - Manual Monitoring
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	None
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Product Level Gauge (A/G)
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	None
Spill Prevention:	Catch Basin
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

Tank Number:	029
Tank Location Name:	Aboveground - in contact with impervious barrier
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active

GETTY #340 (Continued) **U003074487**

Install Date:	04/01/04
Capacity Gallons:	240
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	Painted/Asphalt Coating
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Aboveground
Pipe Type Name:	Copper
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Modified Double-Walled (Aboveground)
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	None
Tank Leak Detection 1:	Interstitial - Manual Monitoring
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	None
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Product Level Gauge (A/G)
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Catch Basin
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

Tank Number:	030
Tank Location Name:	Aboveground - in contact with impervious barrier
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	04/01/04
Capacity Gallons:	240
Material Name:	Waste Oil/Used Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	Painted/Asphalt Coating
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping
Pipe Type Name:	No Piping
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Impervious Underlayment
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	None
Tank Leak Detection 1:	Impervious Barrier/Concrete Pad (A/G)
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	None
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Product Level Gauge (A/G)
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	None

GETTY #340 (Continued) **U003074487**

Spill Prevention:	Catch Basin
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

HIST UST:

PBS Number:	2-291935
SPDES Number:	Not reported
Emergency Contact:	SCOTT HANLEY
Emergency Telephone:	(718) 324-5110
Operator:	MIGUEL ROSA
Operator Telephone:	(212) 694-0240
Owner Name:	GETTY PETROLEUM MARKETING, INC.
Owner Address:	125 JERICHO TURNPIKE
Owner City,St,Zip:	JERICHO, NY 11753
Owner Telephone:	(516) 338-1276
Owner Type:	Corporate/Commercial
Owner Subtype:	Not reported
Mailing Name:	DELTA ENVIRONMENTAL CONSULTANTS
Mailing Address:	% GETTY PROPERTIES CORP.
Mailing Address 2:	125 JERICHO TURNPIKE, STE 202
Mailing City,St,Zip:	JERICHO, NY 11753
Mailing Contact:	RICHARD SWEDBORG
Mailing Telephone:	(516) 478-5436
Owner Mark:	Second Owner
Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Facility Addr2:	Not reported
SWIS ID:	6201
Old PBS Number:	Not reported
Facility Type:	RETAIL GASOLINE SALES
Inspected Date:	Not reported
Inspector:	Not reported
Inspection Result:	Not reported
Federal ID:	Not reported
Certification Flag:	False
Certification Date:	11/24/2000
Expiration Date:	03/23/2004
Renew Flag:	False
Renewal Date:	Not reported
Total Capacity:	16000
FAMT:	True
Facility Screen:	No Missing Data
Owner Screen:	No Missing Data
Tank Screen:	No Missing Data
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	62
Town or City:	01
Region:	2

Tank Id:	001
Tank Location:	UNDERGROUND
Tank Status:	Closed-Removed

GETTY #340 (Continued) **U003074487**

Install Date:	19720801
Capacity (gals):	4000
Product Stored:	UNLEADED GASOLINE
Tank Type:	Steel/carbon steel
Tank Internal:	None
Tank External:	None
Pipe Location:	None
Pipe Type:	GALVANIZED STEEL
Pipe Internal:	None
Pipe External:	None
Second Containment:	Diking
Leak Detection:	None
Overfill Prot:	None
Dispenser:	Suction
Date Tested:	11/01/1994
Next Test Date:	Not reported
Missing Data for Tank:	No Missing Data
Date Closed:	05/01/1995
Test Method:	Tankology [Vacutect]
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	002
Tank Location:	UNDERGROUND
Tank Status:	Closed-Removed
Install Date:	19600601
Capacity (gals):	550
Product Stored:	UNLEADED GASOLINE
Tank Type:	Steel/carbon steel
Tank Internal:	None
Tank External:	None
Pipe Location:	None
Pipe Type:	GALVANIZED STEEL
Pipe Internal:	None
Pipe External:	None
Second Containment:	Diking
Leak Detection:	None
Overfill Prot:	None
Dispenser:	Suction
Date Tested:	11/01/1994
Next Test Date:	Not reported
Missing Data for Tank:	No Missing Data
Date Closed:	05/01/1995
Test Method:	Tankology [Vacutect]
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	003
Tank Location:	UNDERGROUND
Tank Status:	Closed-Removed
Install Date:	19600601
Capacity (gals):	550
Product Stored:	UNLEADED GASOLINE

GETTY #340 (Continued) **U003074487**

Tank Type:	Steel/carbon steel
Tank Internal:	None
Tank External:	None
Pipe Location:	None
Pipe Type:	GALVANIZED STEEL
Pipe Internal:	None
Pipe External:	None
Second Containment:	Diking
Leak Detection:	None
Overfill Prot:	None
Dispenser:	Suction
Date Tested:	11/01/1994
Next Test Date:	Not reported
Missing Data for Tank:	No Missing Data
Date Closed:	05/01/1995
Test Method:	Tankology [Vacutect]
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	004
Tank Location:	UNDERGROUND
Tank Status:	Closed-Removed
Install Date:	19600601
Capacity (gals):	550
Product Stored:	UNLEADED GASOLINE
Tank Type:	Steel/carbon steel
Tank Internal:	None
Tank External:	None
Pipe Location:	None
Pipe Type:	GALVANIZED STEEL
Pipe Internal:	None
Pipe External:	None
Second Containment:	Diking
Leak Detection:	None
Overfill Prot:	None
Dispenser:	Suction
Date Tested:	11/01/1994
Next Test Date:	Not reported
Missing Data for Tank:	No Missing Data
Date Closed:	05/01/1995
Test Method:	Tankology [Vacutect]
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	005
Tank Location:	UNDERGROUND
Tank Status:	Closed-Removed
Install Date:	19600601
Capacity (gals):	550
Product Stored:	UNLEADED GASOLINE
Tank Type:	Steel/carbon steel
Tank Internal:	None
Tank External:	None

GETTY #340 (Continued) **U003074487**

Pipe Location:	None
Pipe Type:	GALVANIZED STEEL
Pipe Internal:	None
Pipe External:	None
Second Containment:	Diking
Leak Detection:	None
Overfill Prot:	None
Dispenser:	Suction
Date Tested:	11/01/1994
Next Test Date:	Not reported
Missing Data for Tank:	No Missing Data
Date Closed:	05/01/1995
Test Method:	Tankology [Vacutect]
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	006
Tank Location:	UNDERGROUND
Tank Status:	Closed-Removed
Install Date:	19600601
Capacity (gals):	550
Product Stored:	UNLEADED GASOLINE
Tank Type:	Steel/carbon steel
Tank Internal:	None
Tank External:	None
Pipe Location:	None
Pipe Type:	GALVANIZED STEEL
Pipe Internal:	None
Pipe External:	None
Second Containment:	Diking
Leak Detection:	None
Overfill Prot:	None
Dispenser:	Suction
Date Tested:	11/01/1994
Next Test Date:	Not reported
Missing Data for Tank:	No Missing Data
Date Closed:	05/01/1995
Test Method:	Tankology [Vacutect]
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	007
Tank Location:	UNDERGROUND
Tank Status:	Closed-Removed
Install Date:	19600601
Capacity (gals):	550
Product Stored:	UNLEADED GASOLINE
Tank Type:	Steel/carbon steel
Tank Internal:	None
Tank External:	None
Pipe Location:	None
Pipe Type:	GALVANIZED STEEL
Pipe Internal:	None

GETTY #340 (Continued) **U003074487**

Pipe External:	None
Second Containment:	Diking
Leak Detection:	None
Overfill Prot:	None
Dispenser:	Suction
Date Tested:	11/01/1994
Next Test Date:	Not reported
Missing Data for Tank:	No Missing Data
Date Closed:	05/01/1995
Test Method:	Tankology [Vacutect]
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	008
Tank Location:	UNDERGROUND
Tank Status:	Closed-Removed
Install Date:	19600601
Capacity (gals):	550
Product Stored:	UNLEADED GASOLINE
Tank Type:	Steel/carbon steel
Tank Internal:	None
Tank External:	None
Pipe Location:	None
Pipe Type:	GALVANIZED STEEL
Pipe Internal:	None
Pipe External:	None
Second Containment:	Diking
Leak Detection:	None
Overfill Prot:	None
Dispenser:	Suction
Date Tested:	11/01/1994
Next Test Date:	Not reported
Missing Data for Tank:	No Missing Data
Date Closed:	05/01/1995
Test Method:	Tankology [Vacutect]
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	009
Tank Location:	UNDERGROUND
Tank Status:	Closed-Removed
Install Date:	19600601
Capacity (gals):	550
Product Stored:	UNLEADED GASOLINE
Tank Type:	Steel/carbon steel
Tank Internal:	None
Tank External:	None
Pipe Location:	None
Pipe Type:	GALVANIZED STEEL
Pipe Internal:	None
Pipe External:	None
Second Containment:	Diking
Leak Detection:	None

GETTY #340 (Continued) **U003074487**

Overfill Prot:	None
Dispenser:	Suction
Date Tested:	11/01/1994
Next Test Date:	Not reported
Missing Data for Tank:	No Missing Data
Date Closed:	05/01/1995
Test Method:	Tankology [Vacutect]
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	010
Tank Location:	UNDERGROUND
Tank Status:	Closed-Removed
Install Date:	19600601
Capacity (gals):	550
Product Stored:	UNLEADED GASOLINE
Tank Type:	Steel/carbon steel
Tank Internal:	None
Tank External:	None
Pipe Location:	None
Pipe Type:	GALVANIZED STEEL
Pipe Internal:	None
Pipe External:	None
Second Containment:	Diking
Leak Detection:	None
Overfill Prot:	None
Dispenser:	Suction
Date Tested:	11/01/1994
Next Test Date:	Not reported
Missing Data for Tank:	No Missing Data
Date Closed:	05/01/1995
Test Method:	Tankology [Vacutect]
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	011
Tank Location:	UNDERGROUND
Tank Status:	Closed-Removed
Install Date:	19600601
Capacity (gals):	550
Product Stored:	UNLEADED GASOLINE
Tank Type:	Steel/carbon steel
Tank Internal:	None
Tank External:	None
Pipe Location:	None
Pipe Type:	GALVANIZED STEEL
Pipe Internal:	None
Pipe External:	None
Second Containment:	Diking
Leak Detection:	None
Overfill Prot:	None
Dispenser:	Suction
Date Tested:	11/01/1994

GETTY #340 (Continued) **U003074487**

Next Test Date:	Not reported
Missing Data for Tank:	No Missing Data
Date Closed:	05/01/1995
Test Method:	Tankology [Vacutect]
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	012
Tank Location:	UNDERGROUND
Tank Status:	Closed-Removed
Install Date:	19600601
Capacity (gals):	550
Product Stored:	UNLEADED GASOLINE
Tank Type:	Steel/carbon steel
Tank Internal:	None
Tank External:	None
Pipe Location:	None
Pipe Type:	GALVANIZED STEEL
Pipe Internal:	None
Pipe External:	None
Second Containment:	Diking
Leak Detection:	None
Overfill Prot:	None
Dispenser:	Suction
Date Tested:	11/01/1994
Next Test Date:	Not reported
Missing Data for Tank:	No Missing Data
Date Closed:	05/01/1995
Test Method:	Tankology [Vacutect]
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	013
Tank Location:	UNDERGROUND
Tank Status:	Closed-Removed
Install Date:	19600601
Capacity (gals):	550
Product Stored:	UNLEADED GASOLINE
Tank Type:	Steel/carbon steel
Tank Internal:	None
Tank External:	None
Pipe Location:	None
Pipe Type:	GALVANIZED STEEL
Pipe Internal:	None
Pipe External:	None
Second Containment:	Diking
Leak Detection:	None
Overfill Prot:	None
Dispenser:	Suction
Date Tested:	11/01/1994
Next Test Date:	Not reported
Missing Data for Tank:	No Missing Data
Date Closed:	05/01/1995

GETTY #340 (Continued) **U003074487**

Test Method:	Tankology [Vacutect]
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	020
Tank Location:	UNDERGROUND
Tank Status:	In Service
Install Date:	19960601
Capacity (gals):	4000
Product Stored:	UNLEADED GASOLINE
Tank Type:	Fiberglass reinforced plastic [FRP]
Tank Internal:	Fiberglass Liner (FRP)
Tank External:	45
Pipe Location:	Underground
Pipe Type:	STAINLESS STEEL ALLOY
Pipe Internal:	Fiberglass Liner (FRP)
Pipe External:	45
Second Containment:	Vault (w/access)
Leak Detection:	14
Overfill Prot:	High Level Alarm, Catch Basin
Dispenser:	Submersible
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	No Missing Data
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	021
Tank Location:	UNDERGROUND
Tank Status:	In Service
Install Date:	19960601
Capacity (gals):	4000
Product Stored:	UNLEADED GASOLINE
Tank Type:	Fiberglass reinforced plastic [FRP]
Tank Internal:	Fiberglass Liner (FRP)
Tank External:	45
Pipe Location:	Underground
Pipe Type:	STAINLESS STEEL ALLOY
Pipe Internal:	Fiberglass Liner (FRP)
Pipe External:	45
Second Containment:	Vault (w/access)
Leak Detection:	14
Overfill Prot:	High Level Alarm, Catch Basin
Dispenser:	Submersible
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	No Missing Data
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	True

GETTY #340 (Continued) **U003074487**

Lat/long: Not reported

Tank Id: 022
Tank Location: UNDERGROUND
Tank Status: In Service
Install Date: 19960601
Capacity (gals): 4000
Product Stored: UNLEADED GASOLINE
Tank Type: Fiberglass reinforced plastic [FRP]
Tank Internal: Fiberglass Liner (FRP)
Tank External: 45
Pipe Location: Underground
Pipe Type: STAINLESS STEEL ALLOY
Pipe Internal: Fiberglass Liner (FRP)
Pipe External: 45
Second Containment: Vault (w/access)
Leak Detection: 14
Overfill Prot: High Level Alarm, Catch Basin
Dispenser: Submersible
Date Tested: Not reported
Next Test Date: Not reported
Missing Data for Tank: No Missing Data
Date Closed: Not reported
Test Method: Not reported
Deleted: False
Updated: True
Lat/long: Not reported

Tank Id: 025
Tank Location: UNDERGROUND
Tank Status: In Service
Install Date: 19960601
Capacity (gals): 4000
Product Stored: UNLEADED GASOLINE
Tank Type: Fiberglass reinforced plastic [FRP]
Tank Internal: Fiberglass Liner (FRP)
Tank External: 45
Pipe Location: Underground
Pipe Type: STAINLESS STEEL ALLOY
Pipe Internal: Fiberglass Liner (FRP)
Pipe External: 45
Second Containment: Vault (w/access)
Leak Detection: 14
Overfill Prot: High Level Alarm, Catch Basin
Dispenser: Submersible
Date Tested: Not reported
Next Test Date: Not reported
Missing Data for Tank: No Missing Data
Date Closed: Not reported
Test Method: Not reported
Deleted: False
Updated: True
Lat/long: Not reported

GETTY #340 (Continued) **U003074487**

Tank Id:	026
Tank Location:	UNDERGROUND, VAULTED, WITH ACCESS
Tank Status:	Closed-In Place
Install Date:	Not reported
Capacity (gals):	550
Product Stored:	EMPTY
Tank Type:	Steel/carbon steel
Tank Internal:	None
Tank External:	None
Pipe Location:	Underground
Pipe Type:	STEEL/IRON
Pipe Internal:	None
Pipe External:	None
Second Containment:	None
Leak Detection:	None
Overfill Prot:	None
Dispenser:	0
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	No Missing Data
Date Closed:	11/01/2001
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	Not reported

A12 **CONSOLIDATED EDISON** **NY MANIFEST** **1009244081**
WNW **460 W 155TH ST** **N/A**
< 1/8 **MANHATTAN, NY**
282 ft.

Site 7 of 7 in cluster A

Relative:
Higher

Actual:
136 ft.

NY MANIFEST:

Document ID:	NYE1606383
Manifest Status:	Not reported
Trans1 State ID:	NYD006982359
Trans2 State ID:	Not reported
Generator Ship Date:	11/29/2005
Trans1 Recv Date:	11/29/2005
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	12/01/2005
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYP004138087
Trans1 EPA ID:	12446JT
Trans2 EPA ID:	Not reported
TSDF ID:	NYD077444263
Waste Code:	B007 - OTHER MISCELLANEOUS PCB WASTES
Quantity:	00066
Units:	K - Kilograms (2.2 pounds)
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	L Landfill.
Specific Gravity:	01.00
Year:	Not reported
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported

CONSOLIDATED EDISON (Continued) **1009244081**

Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYP004138087
Facility Name:	CONSOLIDATED EDISON
Facility Address:	460 W 155TH ST
Facility City:	MANHATTAN
Facility Address 2:	Not reported
Country:	USA
County:	NE
Mailing Name:	CONSOLIDATED EDISON
Mailing Contact:	FRANKLYN MURRAY
Mailing Address:	4 IRVING PL RM 828
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-460-2808

C13 **880 ST NICHOLAS AVE ASSOC** **AST** **U003391131**
SW **880 ST NICHOLAS AVE** **HIST AST** **N/A**
< 1/8 **NY, NY 10032**
293 ft.

Site 3 of 4 in cluster C

Relative: Higher

AST:

Actual: 130 ft.

AST:

Region:	STATE
Facility Id:	2-334081
UTM X:	589276.55025
UTM Y:	4520458.67441
Expiration Date:	12/15/08
Renewal Date:	06/04/02
Total Capacity:	5000
Facility Type:	Not reported
Site Type Name:	Apartment Building/Office Building
Site Type Status:	Active
Mailing Company:	MAGAW MANAGEMENT LLC
Mailing Title:	Not reported
Mailing Contact:	ONIX A. SOSA
Mailing Address:	PO BOX 187
Mailing Address 2:	Not reported
Mailing City:	BOGOTA
Mailing State:	NJ
Mailing Zip Code:	07603-0187
Mailing Phone No:	(347) 983-5000
Mailing Email:	MAGAWMGT.COM
Owner Title:	GENERAL MANAGER
Owner Name:	ONIX A. SOSA

880 ST NICHOLAS AVE ASSOC (Continued) **U003391131**

Owner Address:	PO BOX 187
Owner Address 2:	Not reported
Owner State:	NJ
Owner Zip Code:	07603-0187
Owner Phone:	(347) 983-5000
Owner Company:	NORTHWST FRONTIERS PROPERTY LLC
Emergency Contact:	ONIX A. SOSA
Emergency Phone:	(718) 360-5382
Operator:	DIEGO SANTANA
Operator Phone:	(646) 667-3151
Owner City:	BOGOTA
Owner Sub Type:	Corporate or Commercial
Program Type:	PBS

Tank Number:	001
Tank Location Name:	Aboveground on crib, rack, or cradle
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	01/01/20
Capacity Gallons:	5000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Aboveground
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Vault (w/o access)
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Exempt Suction Piping
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Product Level Gauge (A/G)
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

HIST AST:

PBS Number:	2-334081
SWIS Code:	6201
Operator:	DOMINGO TORRES
Facility Phone:	(212) 283-7914
Facility Addr2:	880 ST NICHOLAS AVE
Facility Type:	APARTMENT BUILDING
Emergency:	MILTON MANNING
Emergency Tel:	(212) 283-7913

880 ST NICHOLAS AVE ASSOC (Continued) **U003391131**

Old PBSNO:	Not reported
Date Inspected:	Not reported
Inspector:	Not reported
Result of Inspection:	Not reported
Owner Name:	880 ST NICHOLAS CORPORATION
Owner Address:	880 ST NICHOLAS AVENUE SUITE 21
Owner City,St,Zip:	NY, NY 10012
Federal ID:	Not reported
Owner Tel:	(212) 283-7914
Owner Type:	Corporate/Commercial
Owner Subtype:	Not reported
Mailing Contact:	MILTON MANNINA
Mailing Name:	880 ST NICHOLAS CORPORATION
Mailing Address:	880 ST NICHOLAS AVENUE SUITE 21
Mailing Address 2:	Not reported
Mailing City,St,Zip:	NY, NY 10032
Mailing Telephone:	(212) 283-7914
Owner Mark:	First Owner
Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Certification Flag:	False
Certification Date:	01/16/1998
Expiration:	10/02/2002
Renew Flag:	False
Renew Date:	Not reported
Total Capacity:	5000
FAMT:	True
Facility Screen:	No Missing Data
Owner Screen:	No Missing Data
Tank Screen:	Minor Data Missing
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	62
Town or City Code:	01
Region:	2

Tank ID:	001
Tank Location:	ABOVEGROUND ON SADDLES LEGS, STILTS, RACK, OR CRADLE
Tank Status:	In Service
Install Date:	Not reported
Capacity (Gal):	5000
Product Stored:	NOS 1,2, OR 4 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Aboveground
Pipe Type:	STEEL/IRON
Pipe Internal:	Not reported
Pipe External:	Not reported
Tank Containment:	Diking
Leak Detection:	0
Overfill Protection:	4
Dispenser Method:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported

880 ST NICHOLAS AVE ASSOC (Continued) **U003391131**

Missing Data for Tank:	Minor Data Missing
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	True
SPDES Number:	Not reported
Lat/Long:	Not reported

C14 **NY Spills** **S106005426**
SW **403 WEST 154TH ST** **N/A**
< 1/8 **MANHATTAN, NY**
298 ft.

Site 4 of 4 in cluster C

Relative:
Higher

Actual:
131 ft.

NY Spills:

Site ID:	262130
Facility Addr2:	Not reported
Facility ID:	0203720
Spill Number:	0203720
Facility Type:	ER
SWIS:	3101
Region of Spill:	2
Investigator:	JBVOUGHT
Referred To:	Not reported
Spill Date:	07/09/02
Reported to Dept:	07/09/02
CID:	15
Spill Cause:	Equipment Failure
Water Affected:	Not reported
Spill Source:	Private Dwelling
Spill Notifier:	Affected Persons
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Trust:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	07/09/02
Remediation Phase:	0
Date Entered In Computer:	07/09/02
Spill Record Last Update:	12/26/02
Spiller Name:	SAME
Spiller Company:	CRYSTAL TRANSPORTATION
Spiller Address:	2010 WHITE PLAINS ROAD
Spiller City,St,Zip:	BRONX, NY 10462-
Spiller Company:	001
Spiller Phone:	Not reported
Contact Name:	CALLER
Contact Phone:	Not reported
DEC Region:	2
Program Number:	0203720
DER Facility ID:	214068
Site ID:	262130
Operable Unit ID:	854730
Operable Unit:	01
Material ID:	563020
Material Code:	0001

(Continued) **S106005426**

Material Name: #2 Fuel Oil
Case No.: Not reported
Material FA: Petroleum
Quantity: 3.00
Units: Gallons
Recovered: 3.00
Resource Affected: Soil
Oxygenate: False
DEC Memo: Start DECRemark - 0203720 Prior to Sept, 2004 data translation this spill Lead DEC Field was "VOUGHT" 7/9/2002-VOUGHT-Spoke with Joe Mansueto who stated that broken fill box was stripped threads which caused hose to disconnect spilling oil onto sidewalk. Spill cleaned using Speedy Dry. No sewers or drains affected. Castle Oil company 718-579-3414 will have owner repair fill port. Spill closed by Vought. END DECRemark - 0203720
Remarks: Start CallerRemark - 0203720 broken fill line to building. all cleaned up END CallerRemark - 0203720

B15 **GETTY PETROLEUM CORP** **RCRA-SQG** **1001028932**
ESE **89-91 ST NICHOLAS PL** **FINDS** **NYR000011643**
< 1/8 **NEW YORK, NY 10032** **NY MANIFEST**
316 ft.

Site 2 of 3 in cluster B

Relative:
Lower

Actual:
84 ft.

RCRAInfo:
Owner: GETTY PETROLEUM CORP
(516) 286-2600
EPA ID: NYR000011643

Contact: Not reported

Classification: Small Quantity Generator
TSDF Activities: Not reported

Violation Status: No violations found

FINDS:
Other Pertinent Environmental Activity Identified at Site

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

NY MANIFEST:
Document ID: MAG2629280
Manifest Status: Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID: 2142ACT
Trans2 State ID: ME654380
Generator Ship Date: 950818
Trans1 Recv Date: 950818
Trans2 Recv Date: 950821
TSD Site Recv Date: 950822
Part A Recv Date: 950913
Part B Recv Date: 950914
Generator EPA ID: NYR000011643

GETTY PETROLEUM CORP (Continued) **1001028932**

Trans1 EPA ID:	MAD039322250
Trans2 EPA ID:	MAD039322250
TSDF ID:	MAD053452637
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	00165
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	003
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	95
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYR000011643
Facility Name:	GETTY PETROLEUM CORP
Facility Address:	89-91 ST NICHOLAS PL
Facility City:	NEW YORK
Facility Address 2:	Not reported
Country:	USA
County:	NE
Mailing Name:	GETTY PETROLEUM CORP
Mailing Contact:	STEVE GORDON
Mailing Address:	89-91 ST NICHOLAS PL
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	8004
Mailing Country:	USA
Mailing Phone:	800-645-8265
Document ID:	NYG3195549
Manifest Status:	Not reported
Trans1 State ID:	NYD077444263
Trans2 State ID:	Not reported
Generator Ship Date:	12/28/2001
Trans1 Recv Date:	12/28/2001
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	01/02/2002
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYR000011643
Trans1 EPA ID:	NYD077444263
Trans2 EPA ID:	Not reported
TSDF ID:	Not reported
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	00090

GETTY PETROLEUM CORP (Continued) **1001028932**

Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	002
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	01.00
Year:	01
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYR000011643
Facility Name:	GETTY PETROLEUM CORP
Facility Address:	89-91 ST NICHOLAS PL
Facility City:	NEW YORK
Facility Address 2:	Not reported
Country:	USA
County:	NE
Mailing Name:	GETTY PETROLEUM CORP
Mailing Contact:	STEVE GORDON
Mailing Address:	89-91 ST NICHOLAS PL
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	8004
Mailing Country:	USA
Mailing Phone:	800-645-8265
Document ID:	06
Manifest Status:	000078423JJK
Trans1 State ID:	NYR000011643
Trans2 State ID:	Not reported
Generator Ship Date:	CDX480000000
Trans1 Recv Date:	Not reported
Trans2 Recv Date:	NYD049178296
TSD Site Recv Date:	Not reported
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	N
Trans1 EPA ID:	N
Trans2 EPA ID:	N
TSDF ID:	N
Waste Code:	N
Quantity:	Not reported
Units:	4
Number of Containers:	DF
Container Type:	1200
Handling Method:	P
Specific Gravity:	1

GETTY PETROLEUM CORP (Continued) **1001028932**

Waste Code:	B
Quantity:	Not reported
Units:	Not reported
Number of Containers:	Not reported
Container Type:	Not reported
Handling Method:	Not reported
Specific Gravity:	Not reported
Year:	Not reported
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYR000011643
Facility Name:	GETTY PETROLEUM CORP
Facility Address:	89-91 ST NICHOLAS PL
Facility City:	NEW YORK
Facility Address 2:	Not reported
Country:	USA
County:	NE
Mailing Name:	GETTY PETROLEUM CORP
Mailing Contact:	STEVE GORDON
Mailing Address:	89-91 ST NICHOLAS PL
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	8004
Mailing Country:	USA
Mailing Phone:	800-645-8265

B16 **385 EDGECOMB AVENUE** **NY Spills** **S104495992**
SE **385 EDGECOMB AVENUE** **NY Hist Spills** **N/A**
< 1/8 **MANHATTAN, NY**
342 ft.

Site 3 of 3 in cluster B

Relative:
Lower

Actual:
101 ft.

NY Spills:

Site ID:	108390
Facility Addr2:	Not reported
Facility ID:	9416465
Spill Number:	9416465
Facility Type:	ER
SWIS:	3101
Region of Spill:	2
Investigator:	SMMARTIN
Referred To:	Not reported
Spill Date:	03/21/95
Reported to Dept:	03/21/95
CID:	15
Spill Cause:	Equipment Failure

385 EDGECOMB AVENUE (Continued) **S104495992**

Water Affected:	Not reported
Spill Source:	Private Dwelling
Spill Notifier:	Responsible Party
Cleanup Ceased:	03/21/95
Cleanup Meets Std:	True
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Trust:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	03/21/95
Remediation Phase:	0
Date Entered In Computer:	04/25/95
Spill Record Last Update:	09/30/04
Spiller Name:	Not reported
Spiller Company:	UNKNOWN
Spiller Address:	Not reported
Spiller City,St,Zip:	NY
Spiller Company:	999
Spiller Phone:	Not reported
Contact Name:	Not reported
Contact Phone:	Not reported
DEC Region:	2
Program Number:	9416465
DER Facility ID:	95260
Site ID:	108390
Operable Unit ID:	1010202
Operable Unit:	01
Material ID:	371620
Material Code:	0002
Material Name:	#4 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	15.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
DEC Memo:	Start DECRemark - 9416465 Prior to Sept, 2004 data translation this spill Lead DEC Field was "MARTINKAT" END DECRemark - 9416465
Remarks:	Start CallerRemark - 9416465 DEFECTIVE GAUGE END CallerRemark - 9416465

NY Hist Spills:

Region of Spill:	2
Spill Number:	9416465
Investigator:	MARTINKAT
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Spill Date/Time:	03/21/1995 09:39
Reported to Dept Date/Time:	03/21/95 09:47
SWIS:	62
Spiller Name:	UNKNOWN
Spiller Contact:	Not reported

385 EDGECOMB AVENUE (Continued) **S104495992**

Spiller Phone:	Not reported
Spiller Address:	Not reported
Spiller City,St,Zip:	Not reported
Spill Cause:	Equipment Failure
Reported to Dept:	On Land
Water Affected:	Not reported
Spill Source:	09
Spill Notifier:	Responsible Party
PBS Number:	Not reported
Cleanup Ceased:	03/21/95
Cleanup Meets Std:	True
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Dt:	/ /
Enforcement Date:	/ /
Invstgn Complete:	/ /
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	03/21/95
Corrective Action Plan Submitted:	/ /
Date Region Sent Summary to Central Office:	/ /
Date Spill Entered In Computer Data File:	04/25/95
Date Spill Entered In Computer Data File:	Not reported
Update Date:	/ /
Is Updated:	False
PBS Number:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate Failed Tank:	Not reported
Gross Leak Rate:	Not reported
Material Class Type:	Petroleum
Quantity Spilled:	15
Unkonwn Quantity Spilled:	False
Units:	Gallons
Quantity Recovered:	0
Unkonwn Quantity Recovered:	False
Material:	#4 FUEL OIL
Class Type:	#4 FUEL OIL
Times Material Entry In File:	1751
CAS Number:	Not reported
Last Date:	19941205
DEC Remarks:	Not reported
Remark:	DEFECTIVE GAUGE

E17 **GETTY GAS STA** **LTANKS** **S100964971**
South **89 ST NICHOLAS PL** **HIST LTANKS** **N/A**
< 1/8 **NYC, NY**
361 ft.

Site 1 of 4 in cluster E

Relative:
Lower

LTANKS:

Site ID:	136562
Spill Date:	09/08/88
Facility Addr2:	Not reported
Facility ID:	8805013
Program Number:	8805013

Actual:
107 ft.

GETTY GAS STA (Continued) **S100964971**

SWIS:	3101
Region of Spill:	2
Investigator:	SULLIVAN
Referred To:	Not reported
Reported to Dept:	09/09/88
CID:	15
Spill Cause:	Tank Test Failure
Water Affected:	Not reported
Spill Source:	Gasoline Station
Spill Notifier:	Tank Tester
Cleanup Ceased:	07/16/92
Cleanup Meets Standard:	True
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	True
Spill Class:	Known release that creates potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	07/16/92
Remediation Phase:	0
Date Entered In Computer:	09/20/88
Spill Record Last Update:	04/30/04
Spille Namer:	Not reported
Spiller Company:	GETTY-LEEMILTS PETRO, INC
Spiller Phone:	(516) 576-9500
Spiller Extention:	Not reported
Spiller Address:	175 SUNNYSIDE BLVD
Spiller City,St,Zip:	PLAINVIEW, NY 11803
Spiller County:	001
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
DEC Region:	2
Program Number:	8805013
DER Facility ID:	116854
Site ID:	136562
Operable Unit ID:	922174
Operable Unit:	01
Material ID:	456933
Material Code:	0009
Material Name:	Gasoline
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	-1.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Groundwater
Oxygenate:	False
Site ID:	136562
Spill Tank Test:	1534586
Tank Number:	Not reported
Tank Size:	0
Test Method:	00
Leak Rate:	0.00
Gross Fail:	Not reported
Modified By:	Spills
Last Modified:	10/01/04
Test Method:	Unknown

GETTY GAS STA (Continued) **S100964971**

DEC Memo: Not reported
Remarks: Start CallerRemark - 8805013 4K TK FAILED PETRO-TITE @ UNREADABLE RATE. END CallerRemark - 8805013

HIST LTANKS:

Region of Spill:	2
Spill Number:	8805013
Investigator:	SULLIVAN
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Caller Extension:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Notifier Extension:	Not reported
Spill Date:	09/08/1988
Spill Time:	16:00
Reported to Department Date:	09/09/88
Reported to Department Time:	13:51
SWIS:	62
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
Spiller Name:	GETTY-LEEMILTS PETRO, INC
Spiller Address:	175 SUNNYSIDE BLVD
Spiller City,St,Zip:	PLAINVIEW, 11803
Facility Contact:	Not reported
Facility Phone:	(516) 576-9500
Facility Extention:	Not reported
Spill Cause:	Tank Test Failure
Resource Affectd:	Groundwater
Water Affected:	Not reported
Spill Source:	Gas Station
Spill Notifier:	Tank Tester
PBS Number:	2-291935
Cleanup Ceased:	07/16/92
Cleanup Meets Standard:	True
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Date:	/ /
Enforcement Date:	/ /
Investigation Complete:	/ /
UST Involvement:	True
Spill Class:	Known release that creates potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	07/16/92
Date Region Sent Summary to Central Office:	/ /
Corrective Action Plan Submitted:	/ /
Date Spill Entered In Computer Data File:	09/20/88
Time Spill Entered In Computer Data File:	Not reported
Spill Record Last Update:	07/28/92
Is Updated:	False
PBS Number:	Not reported
Tank Number:	Not reported
Tank Size:	0
Test Method:	Not reported

GETTY GAS STA (Continued) **S100964971**

Leak Rate Failed Tank:	0.00
Gross Leak Rate:	Not reported
Material Class Type:	Petroleum
Quantity Spilled:	-1
Unkonwn Quantity Spilled:	False
Units:	Gallons
Quantity Recovered:	0
Unkonwn Quantity Recovered:	False
Material:	GASOLINE
Class Type:	GASOLINE
Times Material Entry In File:	21329
CAS Number:	Not reported
Last Date:	19940929
DEC Remarks:	Not reported
Spill Cause:	4K TK FAILED PETRO-TITE @ UNREADABLE RATE.

E18 **87 ST NICHOLAS** **LTANKS** **S101658370**
South **87 ST NICHOLAS** **HIST LTANKS** **N/A**
< 1/8 **MANHATTAN, NY**
361 ft.

Site 2 of 4 in cluster E

Relative:
Lower

Actual:
107 ft.

LTANKS:

Site ID:	83151
Spill Date:	06/22/95
Facility Addr2:	Not reported
Facility ID:	9503535
Program Number:	9503535
SWIS:	3101
Region of Spill:	2
Investigator:	rjfeng
Referred To:	DPES STARTUP 4/1/2007
Reported to Dept:	06/22/95
CID:	15
Spill Cause:	Tank Failure
Water Affected:	Not reported
Spill Source:	Gasoline Station
Spill Notifier:	Responsible Party
Cleanup Ceased:	06/02/04
Cleanup Meets Standard:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	True
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	/ /
Remediation Phase:	3
Date Entered In Computer:	07/18/95
Spill Record Last Update:	06/27/07
Spille Namer:	Not reported
Spiller Company:	GETTY
Spiller Phone:	Not reported
Spiller Extention:	Not reported
Spiller Address:	Not reported
Spiller City,St,Zip:	NY
Spiller County:	001
Spiller Contact:	Not reported
Spiller Phone:	Not reported

87 ST NICHOLAS (Continued) **S101658370**

Spiller Extention:	Not reported
DEC Region:	2
Program Number:	9503535
DER Facility ID:	301696
Site ID:	83151
Operable Unit ID:	1018004
Operable Unit:	01
Material ID:	365036
Material Code:	0009
Material Name:	Gasoline
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	-1.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
Site ID:	Not reported
Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported
DEC Memo:	Start DECRemark - 9503535 Prior to Sept, 2004 data translation this spill Lead DEC Field was "VOUGHT" 3/13/03 REASSIGNED FROM ROMMEL TO VOUGHT. 4/30/04-Vought-Changed spill address from 87 St. Nicholas to 89 St. Nicholas due to correct addressand address on all Tyree correspondence. Site may also be known as 89-91 St. Nicholas Ave due to use previously on Tyree reports. Also changed name of spiller to Getty. File review by Vought: Closure Report (Tyree Org Dan Ruffini 631-249-3150)-January 1996. Tanks removed as part of station rebuild. Removal of twelve (550-gallon) gasoline USTs and one (4000-gallon) tank. Tanks removed in June 1995. Tank upgrade included the installation of four (4000-gallon) gasoline USTs. New tanksplaced in existing tank excavation. Visual evidence and petroleum odors detected during excavation. Depth of excavation was ten feet and 1040 tons of soil removed. Soil analyticals show 1460ppb benzene (North), 12000ppb toluene(North), 6720ppb toluene(South), 3240ppb xylene(South), 5230ppb toluene(West), 3040ppb xylene(west), 4010ppb toluene(west), 3330ppb xylene(west), 11500ppb toluene(bottom), and 2560ppb xylene(bottom). Subsurface Investigation Report (Tyree Org Paul Hatcher)-Dec 2000. Investigation result of DEC requirements. Five Geoprobe borings performed resulting in collection of six soil samples and two groundwater samples. Groundwater at depth of 26-27'. Soil analyticals show up to 104000ppb 1,2,4-trimethylbenzene(SB310-15'), 18500ppb xylene(SB3 10-15'), 13200ppb napthalene(SB3 10-15'), 819ppb benzene(SB4 10-15'), 5260ppb toluene(SB4 10-15'), 10900ppb 1,2,4-trimethylbenzene(SB4 10-15'), 323ppb benzene(SB4 20-25'), 1960ppb toluene(SB4 10-15'). Groundwater analyticals show up to 184ppb benzene(SB4), 4470ppb MTBE(SB-4), 5ppb benzene(SB5) and 33ppb MTBE(SB5). Tank Removal Report (Tyree Org Phillip De Blasi)-December 2001. Reason for tank removal was tanks were identified while attempting to install monitoring wells in March 2001. Apartment building to the south, commercial buildings to the east and a garage to the west. Tanks removed were two (550-gallon) gasoline tanks. "External corrosion and small hole in tank #2". Five endpoint soil samples taken show no TAGM 4046 Required Soil Cleanup

87 ST NICHOLAS (Continued) **S101658370**

Objective exceedences. Quarterly Monitoring Reports (Tyree Org) August 2002 thru March 2003. Three monitoring wells onsite. Quarterly sampling and gauging. Free product in well W1 (.08'). Groundwaterflow to the east at a depth of 14-16'. Soil analyticals show up to 9700ppb benzene(W1 10-15'), 122000ppb toluene(W1 10-15'), 41100ppb napthalene(W1 10-15') and 291pp benzene(W3 15-20'). Groundwater analyticals show up to 7490ppb benzene(W1), 3680ppb toluene(W1), 590ppb napthalene(W1), 92100ppb MTBE(W1), 200ppb benzene(W2), 318ppb MTBE(W2), 875ppb benzene(W3), 124ppb napthalene(W3) and 867ppb MTBE(W3). Letter from DEC(Vought)-4/29/03. Letter requesting expediting of sidewalk wells for wells in side walk on St. Nicholas Avenue. Well Proposal from Tyree-6/12/0. Letter proposing installation of two wells (in the northeast corner of the property and the other in the sidewalk along St. Nicholas Avenue). Letter from DEC(Vought)-6/25/03. Letter sent approving 6/12/03 proposal. Quarterly Monitoring Reports (Tyree Org) April 2003 thru Dec 2003. Three monitoring wells onsite. Quarterly sampling and weekly gauging. Free product in well W1 (.28'), W3 (.03'). Weekly bailing of wells recovering 1.25 gallons of free product. Groundwater flow to the east at a depth of 14-16'. Groundwater analyticals show up to 17400ppb benzene(W1), 14300ppb toluene(W1), 8580ppb MTBE(W1), 9ppb xylene(W2) and free product in W3. Subsurface Investigation Report (Tyree Org Gabriela Dory)-December 2003. Reason for investigation is DEC requirement. Two Geoprobe borings performed. Groundwater at 15'. Soil analyticals show 36700ppb benzene(TB-1 12-16'), 325000ppb toluene(TB1 12-16'), 66500ppb napthalene(TB1 12-16'), 60ppb benzene(TB2 12-16'), and 1752ppb xylene(TB2 12-16'). Groundwater analyticals show 14500ppb benzene(TB1), 1340ppb napthalene(TB1), 142ppb benzene(TB2), 1221ppb xylene(TB2) and 344ppb napthalene(TB2). 5/4/04-Vought-After file review DEC requires STIPULATION AGREEMENT WITH: 1)delineation of soil and groundwater north of former tank pad, east of W1, east of W3 and at former boring location TB-2. Vought handed over Stipulation during 5/5/04 Getty meeting withDEC with a due date to DEC by 6/4/04. 6/2/04-Vought-Received signed Stipulation from Shea and submitted to DEC Kunkel for implementation. Stipulation implemented by DEC Kunkel on 6/2/04. 10/7/04-Vought-New file review by Vought: Email from Tyree (Lapeitra) to DEC Vought dated 6/23/04. "on June 24 and 25 four (4) monitoring wells will be installed as per the Stipulation Agreement". "A subsurface investigation will follow shortly afterward". Subsuface Investigation Report (Tyree) received on 7/20/04. Commercial properties to the east, south, and west, park to the north. Installation of two onsite wells and two offsite wells. Groundwater 14-22' below grade and flow to the north. Soil analyticals show 494ppb benzene(B6 15-17') and minor PAH exceedences(B4 10-12'). Groundwater analyticals show 1220ppb benzene(MW4), 1340ppb toluene(MW4), 1700ppb ethylbenzene(MW4), 4490ppb xylene(MW4), 11ppb MTBE(MW4), 1ppb benzene(MW5), 8ppb xylene(MW5), 14ppb benzene(MW6), 13ppb xylene(MW6) and 670ppb MTBE(MW6). Groundwater Monitoring Report (Tyree)- July thru Sept 2004. Seven monitoring wells onsite. Groundwater analyticals show 20600ppb benzene(W1), 42100ppb toluene(W1), 2820ppb ethylbenzene(W1), 15400ppb xylene(W1), 7190ppb MTBE(W1), 1ppb benzene(W2), 4720ppb benzene(W3), 41ppb toluene(W3), 429ppb ethylbenzene(W3), 403ppb xylene(W3), 5190ppb MTBE(W3), 633ppb benzene(W4), 16ppb toluene(W4), 4410ppb ethylbenzene(W4), 12700ppb xylene(W4), 982ppb benzene(W6), 21ppb toluene(W6), 78ppb ethylbenzene(W6), 84ppb xylene(W6) and 962ppb MTBE(W6). 10/7/04-Vought-Sent letter approving of Subsurface Investigation and requiring remedial Action Plan as per CAP. 5/12/05-Vought-New file review by Vought: GroundwaterMonitoring Report (Tyree)-October 2004 thru March 2005. Seven monitoring wells onsite. Groundwater flow to the east and at depths of 13-24' below grade. Groundwater analyticals show 16700ppb benzene(W1), 13100ppb toluene(W1), 2710ppb ethylbenzene(W1), 14100ppb xylene(W1), 8070ppn MTBE(W1), 5ppb toluene(W2), 30ppb xylene(W2), 3450ppb benzene)W3), 22ppb toluene(W3), 128ppb

87 ST NICHOLAS (Continued) **S101658370**

ethylbenzene(W3), 176ppb xylene(W3), 4330ppb MTBE(W3), 217pppb benzene(W4), 93ppb toluene(W4), 2320ppb ethylbenzene(W4), 6600ppb xylene(W4), 28ppb xylene(W5), 224ppb benzene(W6), 9ppb ethylbenzene(W6), 32ppb xylene(W6), 1290ppb MTBE(W6), 8ppb xylene(W7). Site Status and Proposed Remedial Action Plan(Tyree Brothers)-February 2005. "TBES is proposing the use of in-situ passive bailers to collect product from wells W-1 and W-3". Bailers will be utilized until "a permanent remedial alternative is in place". Proposal for a dual phase pilot extraction test. Extraction well will be located between wells with highest contamination(W1 and W3). Results of pilot test will be provided in a Pilot Test Report. Vought sent letter approving of Pilot Test. 08/31/2005 - Feng - Project transferred from Vought to Feng. 10/5/2005 - Feng - Quarterly MonitoringReport from Tyree (4/2005 - 6/2005). 7 monitoring wells onsite and offsite. NO LNAPL detected. Groundwater flow easterly (perched above bedrock) at a depth of 13.44' to 24.91' below grade. Analyticals for W-1: 46,280ppb BTEX, 6,130ppb MTBE. W-2:3ppb BTEX, non-detected MTBE. W-3: 4,554ppb BTEX, 4,640ppb MTBE. W-4: 14,058ppb BTEX, non-detected MTBE. W-5: 11ppb BTEX, non-detected MTBE. W-6: 475ppb BTEX, 1,140ppb MTBE. W-7: non-detected for both BTEX and MTBE. Noted that the DPE Pilot Testwill commence during the next quarter. 10/5/2005 - Feng - Subsurface Investigation Report, dated 6/27/2005. On 6/8/2005 to 6/10/2005, two (2) saturated zone piezometer wells (P1 and P2), three (3) vadose zone piezometer wells (A1, A2, A3), and one (1) extration well were installed on the southeast side of the site. VOCs test shows that P1(9'-11') has 271ppb Acetone, P2 (7'-9') has 364ppb Acetone, EW1(11'-13') has 200ppb acetone. The other concentrations are blow Guidance value. 10/7/2005 - Feng - Sent letter of approving Dual Phase Extraction system design, dated July 2005 (letter reviewed by Sun) to Getty, Tyree and Delta. In the system design, four (4) extraction wells onsite will be installed to cover the area of concern. Namely, there are four (4) extraction wells for vadose zone with Radius of Influence (ROI) of 28 feet. Among these four (4) wells, there is one (1) extraction well (EW-2) serves for both vadose and saturated zone purposes with ROI of 50 feet. DEC approved with some notes below: 1) Adjust the Location of Saturated Zone Extraction Well (EW-2) to cover the W-3 area and further W-4 area. 2) Revise the Proposed DPE System Flow Diagram. 3) Submit the System Design Specification. 4) tabulate and describe OMMP. 5) measurement and analysis of groundwater. 11/2/2005 - Feng - Quarterly Monitoring Report from Tyree (4/2005 - 6/2005). 7 monitoring wells onsite and offsite. NO LNAPL detected. Groundwater flow easterly (perched above bedrock) at adepth of 15.30' to 24.53' below grade. Analyticals for W-1: 41,690ppb BTEX, 6,300ppb MTBE. W-2: low, dry this quarter. W-3: 2,053ppb BTEX, 1,990ppb MTBE. W-4: 7,938ppb BTEX, non-detected MTBE. W-5: 48ppb BTEX, non-detected MTBE. W-6: 74ppb BTEX, 1,360ppb MTBE. W-7: 38 BTEX and 1 MTBE. 1/17/2006 - Feng - Quarterly Monitoring Report, 10/2005 - 12/2005. That is an active gasoline /service station. Groundwater flows to east (perched above bedrock) at depth of 13.47' to 25.03' bg. 7 monitoring wells on and off site. W-1, 48,010 ppb BTEX, 3,860 ppb MTBE. W-2, 4 ppb BTEX, MTBE MDL. W-3, 2,956 ppb BTEX, 2,480 ppb MTBE. W-4, 13,485 ppb BTEX, MTBE MDL. W-5, 1 ppb BTEX, MTBE MDL. W-6, 415 ppb BTEX, 909 ppb MTBE. W-7, 10 ppb BTEX,MTBE MDL. (RJF) 1/18/2006 - Feng - Emailed Nick Marrone inquired the status of DPES installation. (RJF) 1/19/2006 - Feng - Reply from Nick Marrone "Things were moving slowly in the beginning of the month because of the holidays, but we are scheduling field crew to start installing the system piping in the next few weeks. Our vendor who we purchase our systems from is reviewing our data and will be assembling it soon." 4/10/2006 - Feng - Emailed Nick Marrone and requesting the statusof the system installation and asking for a approximate date of completing installation and start running the system. (RJF) 4/10/2006 - Feng - Reply from Paul Hatcher, "The system is being designed right now. There

87 ST NICHOLAS (Continued) **S101658370**

are space considerations to be considered given the small site. Also, there was some problems connecting the wells (i.e. subsurface conditions) that delayed the trenching operations a bit, but that's all done now. We've started getting the electrician to make the connections"and "It's probably going to be a month or two until we get the system delivered and hooked up." (RJF) 5/3/2006 - Feng - Quarterly Monitoring Report, 1/2006 - 3/2006. Active gasoline/service station. Groundwater flows to east (perched above bedrock) at depth of 13.54' to 25.22' bg. There are 7 monitoring wells on and off site and 4 Dual Phase Extraction. Sampling as of 3/21/2006. W-1, decreased and 39,920 ppb BTEX (12,900 ppb Benzene, 10,900 ppb Toluene, 2,520 ppb Ethylbenzene, 13,600ppb Total Xylenes), 3,710 ppb MTBE. W-2, MDL. W-3, 3,044 ppb BTEX (2,300 ppb Benzene, 29 ppb Toluene, 222 ppb Ethylbenzene, 493 ppb Total Xylenes), 3,760 ppb MTBE. W-4, 11,441 ppb BTEX (224 ppb B, 87 ppb T, 2,680 ppb E, 8,450 ppb X), MTBE MDL. W-5, MDL. W-6, 281 ppb BTEX (225 ppb B), 1,120 ppb MTBE. W-7, MDL. Noted that 3 more dual phase extraction wells were installed during this last quarter. Also trenching and system piping were installed (map attached). The Dual Phase System is/will be assembled and sent this next quarter. Electrical service will be obtained shortly. (RJF) 11/9/2006 - Feng - Quarterly Monitoring Report, 7/2006 - 9/2006, 9/28/2006, by Tyree. The site is active gasoline/service station. Sampled and gauged on 9/28/2006. DTW 12.88 to 23.50' bg. Flows easterly (perched above bedrock). No LNAPL. BTEX range ND to 78,880 ppb. MTBE range ND to 2,430 ppb. Noted that the Dual Phase System was delivered in 9/2006. Electrical service will be obtainedshortly. (RJF) 1/18/2007 - Feng - Getty Properties portfolio meeting with Tyree and Delta. Passive skimmer in W-1 and W-3. DPES installed onsite, all DPE wells trenched. System electric to be hooked up in 2/2007. DPES will start 4/1/2007. (RJF) 2/20/2007 - Feng - Quarterly Monitoring Report, 10/2006 - 12/2006, 1/8/2007, by Tyree. Active gasoline/service station. Groundwater sampled and gauged 12/27/2006. 7 monitoring and 4 Dual Phase Extraction wells. DTW 12.91' to 24.66' bg.Flows easterly (perched above bedrock). No LNAPL. W-1, 60,170 ppb BTEX, 2,080 ppb MTBE. W-2, NA. W-3, 2,272 ppb BTEX, 3,270 ppb MTBE. W-4, 69 ppb BTEX, MTBE MDL. W-5, MDL. W-5, 787 ppb BTEX, 720 ppb MTBE. W-7, MDL. (RJF) 3/30/2007 - Feng- Email updates from R.S. (Tyree). Con Ed is in the process of running the electric from the street to the sidewalk. (RJF) 6/27/2007 - Feng - Quarterly Monitoring Report, 1/2007 - 3/2007, 4/2007. Groundwater smapled 4/2/2007. 7 monitoring wells and 4 dual phase extraction wells. DTW 12.34' to 24.42' bg. No LNAPL. Flows to east. W-1, 60,260 ppb BTEX, 1,050 ppb MTBE. W-2, MDL. W-3, 274 ppb BTEX, 243 ppb MTBE. W-4, 148 ppb BTEX, MTBE MDL. W-5, MDL. W-6, 601 ppb BTEX, 786 ppb MTBE.W-7, MDL. Spoke to Rob S. (Tyree), the dual phase system has been delivered and all the piping are set last year. The problem now Tyree has is the eletrical power supply from Con Edison. Rob will follow with Con Edison for the electrical power and may need DEC's assistance. (RJF) END DECRemark - 9503535

Remarks: Start CallerRemark - 9503535 CONTAMINATED SOIL ORIGINAL SPILL ASSIGNED TO O'DOWD. END CallerRemark - 9503535

HIST LTANKS:

Region of Spill:	2
Spill Number:	9503535
Investigator:	ROMMEL
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Caller Extension:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported

87 ST NICHOLAS (Continued) **S101658370**

Notifier Extension:	Not reported
Spill Date:	06/22/1995
Spill Time:	12:00
Reported to Department Date:	06/22/95
Reported to Department Time:	12:45
SWIS:	62
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
Spiller Name:	GETTY
Spiller Address:	Not reported
Spiller City,St,Zip:	Not reported
Facility Contact:	Not reported
Facility Phone:	Not reported
Facility Extention:	Not reported
Spill Cause:	Tank Failure
Resource Affectd:	On Land
Water Affected:	Not reported
Spill Source:	Gas Station
Spill Notifier:	Responsible Party
PBS Number:	Not reported
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Date:	/ /
Enforcement Date:	/ /
Investigation Complete:	/ /
UST Involvement:	True
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	/ /
Date Region Sent Summary to Central Office:	/ /
Corrective Action Plan Submitted:	/ /
Date Spill Entered In Computer Data File:	07/18/95
Time Spill Entered In Computer Data File:	Not reported
Spill Record Last Update:	01/03/00
Is Updated:	False
PBS Number:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate Failed Tank:	Not reported
Gross Leak Rate:	Not reported
Material Class Type:	Petroleum
Quantity Spilled:	-1
Unkonwn Quantity Spilled:	False
Units:	Gallons
Quantity Recovered:	0
Unkonwn Quantity Recovered:	False
Material:	GASOLINE
Class Type:	GASOLINE
Times Material Entry In File:	21329
CAS Number:	Not reported
Last Date:	19940929
DEC Remarks:	Not reported
Spill Cause:	CONTAMINATED SOIL ORIGINAL SPILL ASSIGNED TO O DOWD.

19 NNW < 1/8 386 ft. | **APARTMENT 935 ST NICHOLOS AVE NEW YORK, NY** | **NY Spills** | **S106469794 N/A**

Relative: Higher

Actual: 142 ft.

NY Spills:

Site ID:	202354
Facility Addr2:	Not reported
Facility ID:	0402510
Spill Number:	0402510
Facility Type:	ER
SWIS:	3101
Region of Spill:	2
Investigator:	rmpiper
Referred To:	Not reported
Spill Date:	06/08/04
Reported to Dept:	06/08/04
CID:	15
Spill Cause:	Equipment Failure
Water Affected:	Not reported
Spill Source:	Private Dwelling
Spill Notifier:	Other
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Trust:	False
Spill Class:	Possible release with minimal potential for fire or hazard or Known release with no damage. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	/ /
Remediation Phase:	1
Date Entered In Computer:	06/08/04
Spill Record Last Update:	03/24/06
Spiller Name:	MARK ROSEN
Spiller Company:	APARTMENT
Spiller Address:	935 ST NICHOLOS AVE
Spiller City,St,Zip:	NEW YORK, NY
Spiller Company:	001
Spiller Phone:	(201) 446-0447
Contact Name:	MARK ROSEN
Contact Phone:	(201) 446-0447
DEC Region:	2
Program Number:	0402510
DER Facility ID:	168324
Site ID:	202354
Operable Unit ID:	886244
Operable Unit:	01
Material ID:	490126
Material Code:	0002
Material Name:	#4 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	20.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
DEC Memo:	Start DECRemark - 0402510 Prior to Sept, 2004 data translation this spill Lead

APARTMENT (Continued) **S106469794**

DEC Field was "TIPPLE" 6/8/04 Tipple responded////cleanup not completed, informed cleanup person of the deficiencies, he unloaded his cleaning supplies and continued with the cleanup. 6/8/2004 Sangesland visited the site later in the day. Spill had been adequately cleaned up. DEC tried to look at the tank in the building basemnt. There was no door to the tank room. It was clear where the tank was, but therewas no access. Sangesland spoke to the Super and the property manager and asked them to install a door so an inspection could be made. 6/22/2004 Sangesland followed up with a telephone call to the property manager to ask if the doorway was installed yet. Answer was NO, but they are working on it. Contact: Clara Mendoza 914-997-2435 x 117 8/2/2004 Sangesland left a message on Clara's voice mail asking if the door has been installed and if the tank is ready for an inspection.
********** *****HOLD THIS SPILL OPEN UNTIL THE TANK CAN BE INSPECTED****
********** 8/3/2004
Sangesland called Clara again, after a pause the secretery said she couldn't make it to the phone right now. 1/13/06- DEC Piper left message w/ clara requesting call back. 3/13/06- DEC Piper left message w/ clara requesting call back. 3/24/06- DEC Piper tracked down ownership Beach Lane Management 280 No. Central Park Avenue, Suite 210 Hartsdale, NY 10530 NEED to set up inspection w/ PBS and DLE. Piper left message for Clara requesting call back to set up environmental compliance inspection of facility. END DECRemark - 0402510

Remarks: Start CallerRemark - 0402510 FAULTY GAUGE ON TANK, BEING CLEANED UP AT THIS TIME: ALLL ON CONCRETE END CallerRemark - 0402510

F20 **429 HOLDING CORP** **AST** **U003386998**
WSW **429 WEST 154TH ST** **HIST AST** **N/A**
< 1/8 **NEW YORK, NY 10032**
390 ft.

Site 1 of 2 in cluster F

Relative: Higher

AST:

Actual: 140 ft.

AST:

Region:	STATE
Facility Id:	2-235431
UTM X:	589224.72431
UTM Y:	4520483.36152
Expiration Date:	07/07/97
Renewal Date:	/ /
Total Capacity:	2000
Facility Type:	Not reported
Site Type Name:	Apartment Building/Office Building
Site Type Status:	Active
Mailing Company:	429 HOLDING CORP C/O L MORRISON
Mailing Title:	Not reported
Mailing Contact:	Not reported
Mailing Address:	1739 AMSTERDAM AVE
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip Code:	10032
Mailing Phone No:	(212) 368-0600
Mailing Email:	Not reported
Owner Title:	Not reported
Owner Name:	Not reported
Owner Address:	1739 AMSTERDAM AVE

429 HOLDING CORP (Continued) **U003386998**

Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	10032
Owner Phone:	(212) 368-0600
Owner Company:	429 HOLDING CORP C/O L MORRISON
Emergency Contact:	LEROY W MORRISON
Emergency Phone:	(212) 368-0600
Operator:	BYRON BROCKETT
Operator Phone:	(212) 368-0600
Owner City:	NEW YORK
Owner Sub Type:	Corporate or Commercial
Program Type:	PBS

Tank Number:	001
Tank Location Name:	Aboveground - in contact with soil
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	/ /
Capacity Gallons:	2000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Product Level Gauge (A/G)
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Not reported
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

HIST AST:

PBS Number:	2-235431
SWIS Code:	6201
Operator:	BYRON BROCKETT
Facility Phone:	(212) 368-0600
Facility Addr2:	429 WEST 154TH ST
Facility Type:	APARTMENT BUILDING
Emergency:	LEROY W MORRISON
Emergency Tel:	(212) 368-0600
Old PBSNO:	Not reported

429 HOLDING CORP (Continued) **U003386998**

Date Inspected:	Not reported
Inspector:	Not reported
Result of Inspection:	Not reported
Owner Name:	429 HOLDING CORP C/O L MORRISON
Owner Address:	1739 AMSTERDAM AVE
Owner City,St,Zip:	NEW YORK, NY 10032
Federal ID:	Not reported
Owner Tel:	(212) 368-0600
Owner Type:	Corporate/Commercial
Owner Subtype:	Not reported
Mailing Contact:	Not reported
Mailing Name:	429 HOLDING CORP C/O L MORRISON
Mailing Address:	1739 AMSTERDAM AVE
Mailing Address 2:	Not reported
Mailing City,St,Zip:	NEW YORK, NY 10032
Mailing Telephone:	(212) 368-0600
Owner Mark:	First Owner
Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Certification Flag:	False
Certification Date:	05/29/1992
Expiration:	07/07/1997
Renew Flag:	False
Renew Date:	Not reported
Total Capacity:	2000
FAMT:	True
Facility Screen:	No Missing Data
Owner Screen:	Minor Data Missing
Tank Screen:	Minor Data Missing
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	62
Town or City Code:	01
Region:	2
Tank ID:	001
Tank Location:	ABOVEGROUND
Tank Status:	In Service
Install Date:	Not reported
Capacity (Gal):	2000
Product Stored:	NOS 1,2, OR 4 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	STEEL/IRON
Pipe Internal:	Not reported
Pipe External:	Not reported
Tank Containment:	None
Leak Detection:	0
Overfill Protection:	4
Dispenser Method:	Gravity
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing

429 HOLDING CORP (Continued) **U003386998**

Date Closed: Not reported
Test Method: Not reported
Deleted: False
Updated: False
SPDES Number: Not reported
Lat/Long: Not reported

F21
WSW
< 1/8
390 ft.

Relative:
Higher

Actual:
140 ft.

IFO **NY Spills** **S104509153**
429 W 154TH ST **NY Hist Spills** **N/A**
NEW YORK, NY

Site 2 of 2 in cluster F

NY Spills:

Site ID:	209158
Facility Addr2:	Not reported
Facility ID:	9911969
Spill Number:	9911969
Facility Type:	ER
SWIS:	3101
Region of Spill:	2
Investigator:	SACCACIO
Referred To:	Not reported
Spill Date:	01/16/00
Reported to Dept:	01/16/00
CID:	15
Spill Cause:	Equipment Failure
Water Affected:	Not reported
Spill Source:	Commercial Vehicle
Spill Notifier:	Responsible Party
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Trust:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	02/07/00
Remediation Phase:	0
Date Entered In Computer:	01/16/00
Spill Record Last Update:	02/07/00
Spiller Name:	JOHN
Spiller Company:	MYSTIC BULK CARRIERS
Spiller Address:	19-02 STEINWAY ST
Spiller City,St,Zip:	ASTORIA, NY
Spiller Company:	001
Spiller Phone:	(718) 932-9075
Contact Name:	GEORGE SILVERIS
Contact Phone:	(800) 635-3835
DEC Region:	2
Program Number:	9911969
DER Facility ID:	173491
Site ID:	209158
Operable Unit ID:	1086494
Operable Unit:	01
Material ID:	553010
Material Code:	0001
Material Name:	#2 Fuel Oil

IFO (Continued) **S104509153**

Case No.: Not reported
Material FA: Petroleum
Quantity: 5.00
Units: Gallons
Recovered: 5.00
Resource Affected: Soil
Oxygenate: False
DEC Memo: Not reported
Remarks: Start CallerRemark - 9911969 SPILL WAS LESS THAN 5 GALLONS AND HAS BEEN CLEANED UP BY MYSTIC. END CallerRemark - 9911969

NY Hist Spills:
Region of Spill: 2
Spill Number: 9911969
Investigator: SACCACIO
Caller Name: Not reported
Caller Agency: Not reported
Caller Phone: Not reported
Notifier Name: Not reported
Notifier Agency: Not reported
Notifier Phone: Not reported
Spill Date/Time: 01/16/2000 15:00
Reported to Dept Date/Time: 01/16/00 15:37
SWIS: 62
Spiller Name: MYSTIC BULK CARRIERS
Spiller Contact: JOHN
Spiller Phone: (718) 932-9075
Spiller Contact: GEORGE SILVERIS
Spiller Phone: (800) 635-3835
Spiller Address: 19-02 STEINWAY ST
Spiller City,St,Zip: ASTORIA, NY
Spill Cause: Equipment Failure
Reported to Dept: On Land
Water Affected: Not reported
Spill Source: 07
Spill Notifier: Responsible Party
PBS Number: Not reported
Cleanup Ceased: / /
Cleanup Meets Std: False
Last Inspection: / /
Recommended Penalty: Penalty Not Recommended
Spiller Cleanup Dt: / /
Enforcement Date: / /
Invstgn Complete: / /
UST Involvement: False
Spill Class: Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: 02/07/00
Corrective Action Plan Submitted: / /
Date Region Sent Summary to Central Office: / /
Date Spill Entered In Computer Data File: 01/16/00
Date Spill Entered In Computer Data File: Not reported
Update Date: 02/07/00
Is Updated: False
PBS Number: Not reported
Tank Number: Not reported
Tank Size: Not reported

IFO (Continued) **S104509153**

Test Method:	Not reported
Leak Rate Failed Tank:	Not reported
Gross Leak Rate:	Not reported
Material Class Type:	Petroleum
Quantity Spilled:	5
Unkonwn Quantity Spilled:	False
Units:	Gallons
Quantity Recovered:	5
Unkonwn Quantity Recovered:	False
Material:	#2 FUEL OIL
Class Type:	#2 FUEL OIL
Times Material Entry In File:	24464
CAS Number:	Not reported
Last Date:	19941207
DEC Remarks:	2/7/00 - Saccacio - Left a message on Sal s VM to submit an all cleaned up letter.
Remark:	SPILL WAS LESS THAN 5 GALLONS AND HAS BEEN CLEANED UP BY MYSTIC.

G22 **WASTE DEBRIS** **NY Spills** **S106009423**
SE **409 EDGECOMBE AVENUE** **N/A**
< 1/8 **NEW YORK, NY**
413 ft.

Site 1 of 4 in cluster G

Relative:
Lower

Actual:
100 ft.

NY Spills:

Site ID:	59348
Facility Addr2:	Not reported
Facility ID:	0208638
Spill Number:	0208638
Facility Type:	ER
SWIS:	3101
Region of Spill:	2
Investigator:	CESAWYER
Referred To:	Not reported
Spill Date:	11/20/02
Reported to Dept:	11/20/02
CID:	15
Spill Cause:	Abandoned Drums
Water Affected:	Not reported
Spill Source:	Unknown
Spill Notifier:	Local Agency
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Trust:	False
Spill Class:	Known release that creates potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	01/24/05
Remediation Phase:	0
Date Entered In Computer:	11/20/02
Spill Record Last Update:	01/24/05
Spiller Name:	PAUL
Spiller Company:	401 EDGECOMB PARTNERS
Spiller Address:	21 WEST 86TH STREET
Spiller City,St,Zip:	NEW YORK, NY 10024-
Spiller Company:	001
Spiller Phone:	(212) 721-0424

WASTE DEBRIS (Continued) **S106009423**

Contact Name:	PAUL
Contact Phone:	(212) 721-0424
DEC Region:	2
Program Number:	0208638
DER Facility ID:	58107
Site ID:	59348
Operable Unit ID:	861620
Operable Unit:	01
Material ID:	515635
Material Code:	0022
Material Name:	Waste Oil/Used Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	0.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False

DEC Memo: Start DECRemark - 0208638 Prior to Sept, 2004 data translation this spill Lead DEC Field was "SAWYER" 11/20/02 - R. Austin, subbing as DDO - Spill referred to Jeff Vought, for removal - DEP (Diaz) contacted for further info - w.c.b. to Duty Desk with info on whether or not drums are on private property, whether or not they have been "haz catted" as waste oil, and whether or not they are leaking. Reply will dictate course of action needed from DEC
11/21/2002: WASTE OIL. SOME ABSORBANT,TIVEX SUITS, BAGS OF GARBAGE ON THE DRUMS. SUPER OF 409 EDGECOMB AVE COMPLAINED ABOUT 405 EDGECOMB AVE. SUPER. 9 DRUMS ON THE SIDEWALK. DO NOT SEND A TANKER TRUCK TO THE SITE. DRUMS HAVE MINIMUM OIL. 11/21/2002: called roberto diaz. busy signal.
11/29/2002: DEC SIGONA CALLED RP 401 Edgecomb Partners, LLC on 11/29/02, 10:10 A.M. and spoke to Mr. Hector Alers. According to Hector the drums are scheduled to be removed on 12/2/02, The facility has been transferred from prior PBSowner HSG Realty and 401 Edgecomb was faxed an application and instructions to file transfer of ownership as required by Part 612. AJS.
1/23/2004-Vought-Spill transferred from Vought to Austin. 1/27/04 - Sawyer - Spill transferred fromAustin to Sawyer. 1/18/05 - Sawyer - Spoke with Jerry Edleman of J&M Realty 917 952 5676 and he will try to find a manifest or trip ticket for the drums removed. 1/24/05 - Sawyer - Received documentation in the form of an invoice from Petroleum Tank Cleaners. The drums were removed on 12/3/2002 as listed on bill. This concludes course of action for this spill report. Closed. END DECRemark - 0208638

Remarks: Start CallerRemark - 0208638 9 abandoned 55 gal drums - none have spilled END CallerRemark - 0208638

H23 **NYC BD OF ED - PUBLIC SCHOOL 28 MAN** **RCRA-SQG** **1000912693**
WNW **475 W 155TH ST** **FINDS** **NY0000902437**
< 1/8 **NEW YORK, NY 10032** **NY MANIFEST**
420 ft.

Site 1 of 2 in cluster H

Relative:
Higher

Actual:
145 ft.

NYC BD OF ED - PUBLIC SCHOOL 28 MAN (Continued) **1000912693**

RCRAInfo:

Owner: NYC BOARD OF EDUCATION
(718) 349-5600
EPA ID: NY0000902437

Contact: VICTOR DEL MASTRO
(718) 349-5590

Classification: Small Quantity Generator
TSDF Activities: Not reported

Violation Status: No violations found

FINDS:

Other Pertinent Environmental Activity Identified at Site

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

NY MANIFEST:

Document ID:	NYB6717618
Manifest Status:	Not reported
Trans1 State ID:	NY0000148163
Trans2 State ID:	Not reported
Generator Ship Date:	08/28/1998
Trans1 Recv Date:	08/28/1998
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	12/10/1998
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NY0000902437
Trans1 EPA ID:	NYD049178296
Trans2 EPA ID:	Not reported
TSDF ID:	NY1A371
Waste Code:	D008 - LEAD 5.0 MG/L TCLP
Quantity:	00450
Units:	P - Pounds
Number of Containers:	002
Container Type:	DM - Metal drums, barrels
Handling Method:	L Landfill.
Specific Gravity:	01.00
Year:	98
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported

NYC BD OF ED - PUBLIC SCHOOL 28 MAN (Continued) **1000912693**

Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NY0000902437
Facility Name:	NYC BOARD OF EDUCATION
Facility Address:	PS-28
Facility City:	MANHATTAN
Facility Address 2:	Not reported
Country:	USA
County:	NE
Mailing Name:	NYC BOARD OF EDUCATION
Mailing Contact:	JACK BRUCCULERI
Mailing Address:	475-WEST 155TH ST
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	000-000-0000

Document ID:	NYB6891993
Manifest Status:	Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID:	2A029
Trans2 State ID:	Not reported
Generator Ship Date:	950109
Trans1 Recv Date:	950109
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	950109
Part A Recv Date:	Not reported
Part B Recv Date:	950208
Generator EPA ID:	NY0000902437
Trans1 EPA ID:	NYD077444263
Trans2 EPA ID:	Not reported
TSDF ID:	NYD077444263
Waste Code:	D008 - LEAD 5.0 MG/L TCLP
Quantity:	00300
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	L Landfill.
Specific Gravity:	100
Year:	95
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NY0000902437
Facility Name:	NYC BOARD OF EDUCATION
Facility Address:	PS-28

NYC BD OF ED - PUBLIC SCHOOL 28 MAN (Continued) **1000912693**

Facility City:	MANHATTAN
Facility Address 2:	Not reported
Country:	USA
County:	NE
Mailing Name:	NYC BOARD OF EDUCATION
Mailing Contact:	JACK BRUCCULERI
Mailing Address:	475-WEST 155TH ST
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	000-000-0000

G24 **409 EDGECOMBE AVENUE, HDFC** **AST** **U003394963**
SE **409 EDGECOMBE AVENUE** **HIST AST** **N/A**
< 1/8 **NEW YORK, NY 10030**
422 ft.

Site 2 of 4 in cluster G

Relative:
Lower

AST:

Actual:
99 ft.

AST:

Region:	STATE
Facility Id:	2-470171
UTM X:	589387.83110
UTM Y:	4520510.75790
Expiration Date:	03/28/09
Renewal Date:	/ /
Total Capacity:	7000
Facility Type:	Not reported
Site Type Name:	Apartment Building/Office Building
Site Type Status:	Active
Mailing Company:	WEBER-FARHAT REALTY
Mailing Title:	Not reported
Mailing Contact:	MOISES FARHAT
Mailing Address:	236 WEST 26TH ST
Mailing Address 2:	SUITE 805
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip Code:	10001
Mailing Phone No:	(212) 727-0022
Mailing Email:	Not reported
Owner Title:	AGENT
Owner Name:	MOISES FARHAT
Owner Address:	409 EDGECOMBE AVENUE
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	10032
Owner Phone:	(212) 727-0022
Owner Company:	409 EDGECOMBE AVENUE, HDFC
Emergency Contact:	MOISES FARHAT
Emergency Phone:	(212) 727-0022
Operator:	ARNALDO LEWIS
Operator Phone:	(212) 491-5920
Owner City:	NEW YORK
Owner Sub Type:	Corporate or Commercial

409 EDGECOMBE AVENUE, HDFC (Continued) **U003394963**

Program Type:	PBS
Tank Number:	001
Tank Location Name:	Aboveground on crib, rack, or cradle
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	/ /
Capacity Gallons:	7000
Material Name:	#6 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	Painted/Asphalt Coating
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Aboveground
Pipe Type Name:	No Piping
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Vault (w/o access)
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Exempt Suction Piping
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Product Level Gauge (A/G)
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

HIST AST:

PBS Number:	2-470171
SWIS Code:	6201
Operator:	ARNALDO LEWIS
Facility Phone:	(212) 491-5920
Facility Addr2:	409 EDGECOMBE AVENUE
Facility Type:	Not reported
Emergency:	BRADFORD WINSTON
Emergency Tel:	(212) 765-7900
Old PBSNO:	Not reported
Date Inspected:	Not reported
Inspector:	Not reported
Result of Inspection:	Not reported
Owner Name:	409 EDGECOMBE AVENUE, HDFC
Owner Address:	409 EDGECOMBE AVENUE
Owner City,St,Zip:	NEW YORK, NY 10032
Federal ID:	Not reported
Owner Tel:	(212) 765-7900
Owner Type:	Corporate/Commercial
Owner Subtype:	Not reported
Mailing Contact:	MR. BRADFORD WINSTON

409 EDGECOMBE AVENUE, HDFC (Continued) **U003394963**

Mailing Name:	T.U.C. MANAGEMENT COMPANY, INC.
Mailing Address:	119 WEST 57TH STREET, SUITE 1620
Mailing Address 2:	Not reported
Mailing City,St,Zip:	NEW YORK, NY 10019-2303
Mailing Telephone:	(212) 765-7900
Owner Mark:	First Owner
Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Certification Flag:	False
Certification Date:	03/01/1999
Expiration:	03/28/2004
Renew Flag:	False
Renew Date:	Not reported
Total Capacity:	7000
FAMT:	True
Facility Screen:	Minor Data Missing
Owner Screen:	Minor Data Missing
Tank Screen:	No Missing Data
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	62
Town or City Code:	01
Region:	2

Tank ID:	001
Tank Location:	ABOVEGROUND ON SADDLES LEGS, STILTS, RACK, OR CRADLE
Tank Status:	In Service
Install Date:	Not reported
Capacity (Gal):	7000
Product Stored:	NOS 5 OR 6 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	0
Tank External:	01
Pipe Location:	Aboveground
Pipe Type:	NONE
Pipe Internal:	None
Pipe External:	00
Tank Containment:	Diking
Leak Detection:	00
Overfill Protection:	4
Dispenser Method:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	No Missing Data
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	True
SPDES Number:	Not reported
Lat/Long:	Not reported

G25
SE
< 1/8
422 ft.

Relative:
Lower

Actual:
99 ft.

NY Spills **S106009705**
N/A

409 EDGECOMBE AV
MANHATTAN, NY

Site 3 of 4 in cluster G

NY Spills:

Site ID:	241556
Facility Addr2:	Not reported
Facility ID:	0208990
Spill Number:	0208990
Facility Type:	ER
SWIS:	3101
Region of Spill:	2
Investigator:	SMSANGES
Referred To:	Not reported
Spill Date:	11/27/02
Reported to Dept:	12/02/02
CID:	15
Spill Cause:	Unknown
Water Affected:	Not reported
Spill Source:	Unknown
Spill Notifier:	Affected Persons
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Trust:	False
Spill Class:	Possible release with minimal potential for fire or hazard or Known release with no damage. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	12/02/02
Remediation Phase:	0
Date Entered In Computer:	12/02/02
Spill Record Last Update:	02/06/03
Spiller Name:	Not reported
Spiller Company:	UNKNOWN
Spiller Address:	Not reported
Spiller City,St,Zip:	NY
Spiller Company:	999
Spiller Phone:	Not reported
Contact Name:	MITTIE WILLIAMS
Contact Phone:	(212) 491-5920
DEC Region:	2
Program Number:	0208990
DER Facility ID:	198573
Site ID:	241556
Operable Unit ID:	862172
Operable Unit:	01
Material ID:	515979
Material Code:	0064A
Material Name:	UNKNOWN MATERIAL
Case No.:	Not reported
Material FA:	Other
Quantity:	0.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False

(Continued) **S106009705**

DEC Memo: Start DECRemark - 0208990 Prior to Sept, 2004 data translation this spill Lead DEC Field was "SANGESLAND" 12/2/2002 - Sangesland spoke with Mittie Williams concerning this site. She now has a boiler contractor on site who says the problem is not related in any way to oil or a spill. The problem is rainwater which is leaking through a crack in the wall and building up in a lowspot on the basement floor. Spill Closed END DECRemark - 0208990

Remarks: Start CallerRemark - 0208990 caller contacted dep last wednesday and today they told her to contact dec... material is comming up from the ground. nfd. END CallerRemark - 0208990

H26 **P.S. 28** **AST** **U003394198**
WNW **475 WEST 155TH STREET** **HIST AST** **N/A**
< 1/8 **NEW YORK, NY 10032**
427 ft.

Site 2 of 2 in cluster H

Relative: Higher

Actual: 146 ft.

AST:

AST:

Region:	STATE
Facility Id:	2-354058
UTM X:	589231.39478
UTM Y:	4520573.48202
Expiration Date:	06/28/08
Renewal Date:	/ /
Total Capacity:	10000
Facility Type:	Not reported
Site Type Name:	School
Site Type Status:	Active
Mailing Company:	NEW YORK CITY DEPARTMENT OF EDUCATION
Mailing Title:	Not reported
Mailing Contact:	JAMES A. MERLO
Mailing Address:	FIELD OPERATIONS-FUEL DIVISION
Mailing Address 2:	44-36 VERNON BOULEVARD
Mailing City:	LONG ISLAND CITY
Mailing State:	NY
Mailing Zip Code:	11101
Mailing Phone No:	(718) 349-5738
Mailing Email:	Not reported
Owner Title:	Not reported
Owner Name:	Not reported
Owner Address:	44-36 VERNON BOULEVARD
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	11101
Owner Phone:	(718) 349-5738
Owner Company:	NEW YORK CITY DEPARTMENT OF EDUCATION
Emergency Contact:	SCHOOL SAFETY
Emergency Phone:	(718) 935-3300
Operator:	PLANT OPERATIONS
Operator Phone:	(718) 349-5400
Owner City:	LONG ISLAND CITY
Owner Sub Type:	Local Government
Program Type:	PBS
Tank Number:	001
Tank Location Name:	Aboveground on crib, rack, or cradle
Tank Status:	In Service

P.S. 28 (Continued) **U003394198**

Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	/ /
Capacity Gallons:	10000
Material Name:	#6 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Vault (w/o access)
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Exempt Suction Piping
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Product Level Gauge (A/G)
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

HIST AST:

PBS Number:	2-354058
SWIS Code:	6201
Operator:	PLANT OPERATION
Facility Phone:	(718) 391-6000
Facility Addr2:	475 WEST 155TH STREET
Facility Type:	SCHOOL
Emergency:	SCHOOL SAFETY
Emergency Tel:	(212) 979-3300
Old PBSNO:	Not reported
Date Inspected:	Not reported
Inspector:	Not reported
Result of Inspection:	Not reported
Owner Name:	CITY OF NEW YORK C/O BOARD OF EDUCATION
Owner Address:	28-11 QUEENS PLAZA NORTH
Owner City,St,Zip:	LONG ISLAND CITY, NY 11101
Federal ID:	Not reported
Owner Tel:	(718) 391-6832
Owner Type:	Local Government
Owner Subtype:	Not reported
Mailing Contact:	FRANK CARDELLO NTROL
Mailing Name:	BOARD OF EDUCATION
Mailing Address:	28-11 QUEENS PLAZA NORTH
Mailing Address 2:	5 FLOOR
Mailing City,St,Zip:	LONG ISLAND CITY, NY 11101
Mailing Telephone:	(718) 391-6832

P.S. 28 (Continued) **U003394198**

Owner Mark:	First Owner
Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Certification Flag:	False
Certification Date:	08/26/1998
Expiration:	06/28/2003
Renew Flag:	False
Renew Date:	Not reported
Total Capacity:	10000
FAMT:	True
Facility Screen:	No Missing Data
Owner Screen:	Minor Data Missing
Tank Screen:	Minor Data Missing
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	62
Town or City Code:	01
Region:	2

Tank ID:	001
Tank Location:	ABOVEGROUND ON SADDLES LEGS, STILTS, RACK, OR CRADLE
Tank Status:	In Service
Install Date:	Not reported
Capacity (Gal):	10000
Product Stored:	NOS 5 OR 6 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	STEEL/IRON
Pipe Internal:	Not reported
Pipe External:	Not reported
Tank Containment:	Diking
Leak Detection:	0
Overfill Protection:	4
Dispenser Method:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	True
SPDES Number:	Not reported
Lat/Long:	Not reported

E27 **SIMMONS REALTY CORP** **AST** **U003389350**
South **76 ST NICHOLAS PL** **HIST AST** **N/A**
< 1/8 **NEW YORK, NY 10032**
428 ft.

Site 3 of 4 in cluster E

Relative:
Lower

AST:

Actual:
104 ft.

AST:

Region:	STATE
Facility Id:	2-306428
UTM X:	589312.00000
UTM Y:	4520403.00000
Expiration Date:	10/18/10
Renewal Date:	/ /
Total Capacity:	5000
Facility Type:	Not reported
Site Type Name:	Apartment Building/Office Building
Site Type Status:	Active
Mailing Company:	PINNACLE HAMILTON LLC
Mailing Title:	Not reported
Mailing Contact:	MEIR BOUSKILA
Mailing Address:	P.O. BOX 1919
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip Code:	10119
Mailing Phone No:	(212) 564-2111
Mailing Email:	Not reported
Owner Title:	Not reported
Owner Name:	Not reported
Owner Address:	P.O. BOX 1919
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	10119
Owner Phone:	(212) 564-2111
Owner Company:	PINNACLE HAMILTON LLC
Emergency Contact:	ABIDIN RADONCIC
Emergency Phone:	(212) 222-7100
Operator:	AMADO RODRIGUEZ
Operator Phone:	(646) 529-4692
Owner City:	NEW YORK
Owner Sub Type:	Corporate or Commercial
Program Type:	PBS
Tank Number:	001
Tank Location Name:	Aboveground - in contact with soil
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	03/14/16
Capacity Gallons:	5000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	Painted/Asphalt Coating
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Aboveground

SIMMONS REALTY CORP (Continued) **U003389350**

Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	Painted/Asphalt Coating
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	None
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Exempt Suction Piping
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Vent Whistle
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	None
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

HIST AST:

PBS Number:	2-306428
SWIS Code:	6201
Operator:	JAMES SIMMONS
Facility Phone:	(212) 926-8140
Facility Addr2:	76 ST NICHOLAS PL
Facility Type:	Not reported
Emergency:	JAMES SIMMONS
Emergency Tel:	(914) 632-9392
Old PBSNO:	Not reported
Date Inspected:	Not reported
Inspector:	Not reported
Result of Inspection:	Not reported
Owner Name:	JAMES SIMMONS
Owner Address:	175 OVERLOOK CIR
Owner City,St,Zip:	NEW ROCHELLE, NY 10804
Federal ID:	Not reported
Owner Tel:	(914) 632-9392
Owner Type:	Not reported
Owner Subtype:	Not reported
Mailing Contact:	Not reported
Mailing Name:	JAMES SIMMONS
Mailing Address:	175 OVERLOOK CIR
Mailing Address 2:	Not reported
Mailing City,St,Zip:	NEW ROCHELLE, NY 10804
Mailing Telephone:	(914) 632-9392
Owner Mark:	First Owner
Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Certification Flag:	False
Certification Date:	07/14/1987
Expiration:	07/14/1992
Renew Flag:	False
Renew Date:	Not reported
Total Capacity:	4000
FAMT:	True
Facility Screen:	Minor Data Missing

SIMMONS REALTY CORP (Continued) **U003389350**

Owner Screen:	Minor Data Missing
Tank Screen:	Minor Data Missing
Dead Letter:	True
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	62
Town or City Code:	01
Region:	2

Tank ID:	001
Tank Location:	ABOVEGROUND
Tank Status:	In Service
Install Date:	Not reported
Capacity (Gal):	4000
Product Stored:	NOS 1,2, OR 4 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	STEEL/IRON
Pipe Internal:	Not reported
Pipe External:	Not reported
Tank Containment:	None
Leak Detection:	0
Overfill Protection:	4
Dispenser Method:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	False
SPDES Number:	Not reported
Lat/Long:	Not reported

E28
South
< 1/8
438 ft.

75 EQUITY HOLDING, LLC **AST** **U003397241**
75 ST. NICHOLAS PLACE **HIST AST** **N/A**
NEW YORK, NY 10032

Site 4 of 4 in cluster E

Relative:
Lower

Actual:
104 ft.

AST:

AST:

Region:	STATE
Facility Id:	2-603550
UTM X:	589346.59945
UTM Y:	4520391.57508
Expiration Date:	11/10/10
Renewal Date:	/ /
Total Capacity:	6000
Facility Type:	Not reported
Site Type Name:	Apartment Building/Office Building
Site Type Status:	Active
Mailing Company:	PINNACLE HAMILTON LLC
Mailing Title:	Not reported
Mailing Contact:	MEIR BOUSKILA

75 EQUITY HOLDING, LLC (Continued) **U003397241**

Mailing Address:	P.O. BOX 1920
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip Code:	10116
Mailing Phone No:	Not reported
Mailing Email:	Not reported
Owner Title:	Not reported
Owner Name:	Not reported
Owner Address:	P.O. BOX 1919
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	10119
Owner Phone:	(212) 564-2111
Owner Company:	PINNACLE HAMILTON LLC
Emergency Contact:	ABIDIN RADONCIC
Emergency Phone:	(212) 222-7100
Operator:	ANGEL
Operator Phone:	(646) 529-6213
Owner City:	NEW YORK
Owner Sub Type:	Corporate or Commercial
Program Type:	PBS

Tank Number:	100
Tank Location Name:	Aboveground on crib, rack, or cradle
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	01/01/26
Capacity Gallons:	6000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	Painted/Asphalt Coating
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Aboveground/Underground Combination
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	Painted/Asphalt Coating
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	None
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Exempt Suction Piping
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Vent Whistle
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	None
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

75 EQUITY HOLDING, LLC (Continued) **U003397241**

HIST AST:

PBS Number:	2-603550
SWIS Code:	6201
Operator:	LEE WEST
Facility Phone:	(212) 254-4374
Facility Addr2:	75 ST. NICHOLAS PLACE
Facility Type:	Not reported
Emergency:	LEE WEST
Emergency Tel:	(212) 254-4374
Old PBSNO:	Not reported
Date Inspected:	Not reported
Inspector:	Not reported
Result of Inspection:	Not reported
Owner Name:	BARUCH SINGER
Owner Address:	95 DELANCEY STREET
Owner City,St,Zip:	NEW YORK, NY 10002
Federal ID:	Not reported
Owner Tel:	(212) 254-4374
Owner Type:	Corporate/Commercial
Owner Subtype:	Not reported
Mailing Contact:	Not reported
Mailing Name:	BARUCH SINGER
Mailing Address:	95 DELANCEY STREET
Mailing Address 2:	95 DELANCEY STREET
Mailing City,St,Zip:	NEW YORK, NY 10002
Mailing Telephone:	(212) 254-4374
Owner Mark:	First Owner
Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Certification Flag:	False
Certification Date:	02/19/1999
Expiration:	07/02/2003
Renew Flag:	False
Renew Date:	Not reported
Total Capacity:	6000
FAMT:	True
Facility Screen:	Minor Data Missing
Owner Screen:	No Missing Data
Tank Screen:	Minor Data Missing
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	62
Town or City Code:	01
Region:	2

Tank ID:	1
Tank Location:	ABOVEGROUND
Tank Status:	In Service
Install Date:	Not reported
Capacity (Gal):	6000
Product Stored:	EMPTY
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported

75 EQUITY HOLDING, LLC (Continued) **U003397241**

Pipe Type:	Not reported
Pipe Internal:	Not reported
Pipe External:	Not reported
Tank Containment:	Not reported
Leak Detection:	Not reported
Overfill Protection:	Not reported
Dispenser Method:	Not reported
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	True
SPDES Number:	Not reported
Lat/Long:	Not reported

I29 **873 ST NICHOLAS AVE** **AST** **A100183458**
SW **873 SAINT NICHOLAS AVENUE** **N/A**
< 1/8 **NEW YORK, NY 10032**
453 ft.

Site 1 of 6 in cluster I

Relative:
Higher

AST:

Actual:
122 ft.

AST:

Region:	STATE
Facility Id:	2-606887
UTM X:	589220.28881
UTM Y:	4520402.87755
Expiration Date:	12/30/08
Renewal Date:	/ /
Total Capacity:	2000
Facility Type:	Not reported
Site Type Name:	Apartment Building/Office Building
Site Type Status:	Active
Mailing Company:	WEST NICHOLAS REALTY CORP.
Mailing Title:	Not reported
Mailing Contact:	CHRIS CALHOUN
Mailing Address:	611 WEST 148TH STREET
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip Code:	10031
Mailing Phone No:	Not reported
Mailing Email:	Not reported
Owner Title:	Not reported
Owner Name:	Not reported
Owner Address:	611 W 148 ST
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	10031
Owner Phone:	Not reported
Owner Company:	NEIGHBORHOOD PARTNERSHIP HDFC % W NICHOLAS REALTY
Emergency Contact:	CHRIS CALHOUN
Emergency Phone:	Not reported
Operator:	WEST NICHOLAS REALTY CORP
Operator Phone:	Not reported

873 ST NICHOLAS AVE (Continued) **A100183458**

Owner City:	NEW YORK
Owner Sub Type:	Private Resident
Program Type:	PBS
Tank Number:	01
Tank Location Name:	Aboveground - in contact with soil
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	/ /
Capacity Gallons:	2000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	Painted/Asphalt Coating
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Aboveground/Underground Combination
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Exempt Suction Piping
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Vent Whistle
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

G30 **405 EDGECOMBE AVE** **AST** **U003386928**
SE **405 EDGECOMBE AVE** **HIST AST** **N/A**
< 1/8 **NEW YORK, NY 10032**
488 ft.

Site 4 of 4 in cluster G

Relative:
Lower

AST:

Actual:
99 ft.

AST:

Region:	STATE
Facility Id:	2-195898
UTM X:	589388.22343
UTM Y:	4520506.21069
Expiration Date:	12/10/07
Renewal Date:	07/08/02
Total Capacity:	4000
Facility Type:	Not reported
Site Type Name:	Apartment Building/Office Building
Site Type Status:	Active
Mailing Company:	J&M REALTY CORP.

405 EDGECOMBE AVE (Continued) **U003386928**

Mailing Title:	Not reported
Mailing Contact:	PAUL JACCOM
Mailing Address:	21 WEST 86TH STREET
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip Code:	10024
Mailing Phone No:	(212) 721-0424
Mailing Email:	Not reported
Owner Title:	Not reported
Owner Name:	Not reported
Owner Address:	21 WEST 86 STREET
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	10024
Owner Phone:	(212) 721-0424
Owner Company:	401 EDGECOMBE PARTNERS LLC
Emergency Contact:	PAUL JACCOM
Emergency Phone:	(212) 721-0424
Operator:	JULIO APONTE
Operator Phone:	(212) 721-0424
Owner City:	NEW YORK
Owner Sub Type:	Corporate or Commercial
Program Type:	PBS

Tank Number:	001
Tank Location Name:	Aboveground - in contact with soil
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	/ /
Capacity Gallons:	4000
Material Name:	#6 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Aboveground/Underground Combination
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	Painted/Asphalt Coating
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Other
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	Other
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Exempt Suction Piping
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Product Level Gauge (A/G)
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /

405 EDGECOMBE AVE (Continued) **U003386928**

Date Tank Closed: / /

HIST AST:

PBS Number:	2-195898
SWIS Code:	6201
Operator:	STAHL ASSOCIATES,LTD
Facility Phone:	(212) 568-6600
Facility Addr2:	405 EDGECOMBE AVE
Facility Type:	APARTMENT BUILDING
Emergency:	GROVER AUSTIN
Emergency Tel:	(212) 690-3905
Old PBSNO:	Not reported
Date Inspected:	Not reported
Inspector:	Not reported
Result of Inspection:	Not reported
Owner Name:	HSG REALTY CORP
Owner Address:	714 WEST 181 ST C/O STAHL ASSOCIATES,LTD
Owner City,St,Zip:	NEW YORK, NY 10033
Federal ID:	Not reported
Owner Tel:	(212) 568-6600
Owner Type:	Corporate/Commercial
Owner Subtype:	Not reported
Mailing Contact:	MICHAEL STAHL
Mailing Name:	HSG REALTY CORP
Mailing Address:	C/O STAHL ASSOCIATES,LTD
Mailing Address 2:	714 WEST 181ST STREET
Mailing City,St,Zip:	NEW YORK, NY 10033
Mailing Telephone:	(212) 568-6600
Owner Mark:	First Owner
Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Certification Flag:	False
Certification Date:	09/25/1997
Expiration:	11/16/2002
Renew Flag:	False
Renew Date:	Not reported
Total Capacity:	4000
FAMT:	True
Facility Screen:	No Missing Data
Owner Screen:	No Missing Data
Tank Screen:	No Missing Data
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	62
Town or City Code:	01
Region:	2

Tank ID:	001
Tank Location:	ABOVEGROUND
Tank Status:	In Service
Install Date:	Not reported
Capacity (Gal):	4000
Product Stored:	NOS 5 OR 6 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	0

405 EDGECOMBE AVE (Continued) **U003386928**

Tank External:	0
Pipe Location:	Aboveground/Underground Combination
Pipe Type:	STEEL/IRON
Pipe Internal:	None
Pipe External:	1
Tank Containment:	Other
Leak Detection:	9
Overfill Protection:	4
Dispenser Method:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	No Missing Data
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	True
SPDES Number:	Not reported
Lat/Long:	Not reported

I31 **870 ST. NICHOLAS AVENUE CORPORATION** **AST** **U003397228**
SW **870 ST. NICHOLAS AVENUE** **HIST AST** **N/A**
< 1/8 **NEW YORK, NY 10032**
538 ft.

Site 2 of 6 in cluster I

Relative:
Higher

AST:

Actual:
115 ft.

AST:

Region:	STATE
Facility Id:	2-603533
UTM X:	589264.40635
UTM Y:	4520409.78840
Expiration Date:	06/17/09
Renewal Date:	/ /
Total Capacity:	7500
Facility Type:	Not reported
Site Type Name:	Apartment Building/Office Building
Site Type Status:	Active
Mailing Company:	870 ST. NICHOLAS AVENUE LLC.
Mailing Title:	Not reported
Mailing Contact:	ANNA RAPOPORT
Mailing Address:	P.O. BOX 245240
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip Code:	11224
Mailing Phone No:	(718) 266-2803
Mailing Email:	Not reported
Owner Title:	OWNER
Owner Name:	ANNA RAPOPORT
Owner Address:	P.O. BOX 245240
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	11224
Owner Phone:	(718) 266-2803
Owner Company:	870 ST. NICHOLAS AVE, LLC
Emergency Contact:	ANNA RAPOPORT
Emergency Phone:	(718) 266-2803

870 ST. NICHOLAS AVENUE CORPORATION (Continued) **U003397228**

Operator:	ARMANDO RODRIQUEZ
Operator Phone:	(917) 365-3238
Owner City:	BROOKLYN
Owner Sub Type:	Corporate or Commercial
Program Type:	PBS

Tank Number:	001
Tank Location Name:	Aboveground on crib, rack, or cradle
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	/ /
Capacity Gallons:	7500
Material Name:	#4 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	Painted/Asphalt Coating
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Aboveground
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	Painted/Asphalt Coating
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Vault (w/o access)
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	None
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Exempt Suction Piping
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Product Level Gauge (A/G)
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	None
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

HIST AST:

PBS Number:	2-603533
SWIS Code:	6201
Operator:	MEDANIO IRIZARRY
Facility Phone:	(212) 690-9147
Facility Addr2:	870 ST. NICHOLAS AVENUE
Facility Type:	Not reported
Emergency:	ANNA RAPOPORT
Emergency Tel:	(718) 714-6509
Old PBSNO:	Not reported
Date Inspected:	Not reported
Inspector:	Not reported
Result of Inspection:	Not reported
Owner Name:	870 ST. NICHOLAS AVENUE CORPORATION
Owner Address:	P.O. BOX 245240
Owner City,St,Zip:	BROOKLYN, NY 11224
Federal ID:	Not reported

870 ST. NICHOLAS AVENUE CORPORATION (Continued) **U003397228**

Owner Tel:	(718) 714-6509
Owner Type:	Corporate/Commercial
Owner Subtype:	Not reported
Mailing Contact:	ANNA RAPOPORT
Mailing Name:	870 ST. NICHOLAS AVENUE CORPORATION
Mailing Address:	P.O. BOX 245240
Mailing Address 2:	Not reported
Mailing City,St,Zip:	BROOKLYN, NY 11224
Mailing Telephone:	(718) 714-6509
Owner Mark:	First Owner
Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Certification Flag:	False
Certification Date:	06/29/1998
Expiration:	06/24/2003
Renew Flag:	False
Renew Date:	Not reported
Total Capacity:	8000
FAMT:	True
Facility Screen:	Minor Data Missing
Owner Screen:	No Missing Data
Tank Screen:	No Missing Data
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	62
Town or City Code:	01
Region:	2

Tank ID:	001
Tank Location:	ABOVEGROUND ON SADDLES LEGS, STILTS, RACK, OR CRADLE
Tank Status:	In Service
Install Date:	Not reported
Capacity (Gal):	8000
Product Stored:	NOS 1,2, OR 4 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	0
Tank External:	00
Pipe Location:	Aboveground
Pipe Type:	STEEL/IRON
Pipe Internal:	None
Pipe External:	00
Tank Containment:	None
Leak Detection:	00
Overfill Protection:	6
Dispenser Method:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	No Missing Data
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	True
SPDES Number:	Not reported
Lat/Long:	Not reported

I32 **402 W. 153 STREET COOP CORP** **AST** **A100178270**
SW **402 W. 153 ST.** **N/A**
< 1/8 **NEW YORK, NY 10031**
540 ft.

Site 3 of 6 in cluster I

Relative:
Higher

AST:

Actual:
115 ft.

AST:

Region:	STATE
Facility Id:	2-606044
UTM X:	589274.73064
UTM Y:	4520322.15372
Expiration Date:	06/21/06
Renewal Date:	/ /
Total Capacity:	3000
Facility Type:	Not reported
Site Type Name:	Apartment Building/Office Building
Site Type Status:	Active
Mailing Company:	402 W. 153 ST COOP CORP
Mailing Title:	Not reported
Mailing Contact:	VIVIAN R. ALLEN
Mailing Address:	402 W. 153 STREET
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip Code:	10031
Mailing Phone No:	Not reported
Mailing Email:	Not reported
Owner Title:	Not reported
Owner Name:	Not reported
Owner Address:	402 W. 153 ST.
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	10031
Owner Phone:	Not reported
Owner Company:	402 W. 153 ST. COOP CORP
Emergency Contact:	VENICE LEWIS
Emergency Phone:	Not reported
Operator:	VIVIAN R. ALLEN
Operator Phone:	Not reported
Owner City:	NEW YORK
Owner Sub Type:	Private Resident
Program Type:	PBS
Tank Number:	001
Tank Location Name:	Aboveground - in contact with soil
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	/ /
Capacity Gallons:	3000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Concrete
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping

402 W. 153 STREET COOP CORP (Continued) **A100178270**

Pipe Type Name:	No Piping
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	None
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	None
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

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33 **APARTMENT** **LTANKS** **S106471583**
SE **401-405 EDGECOMBE AVE** **N/A**
< 1/8 **MANHATTAN, NY**
546 ft.

Relative:
Lower

Actual:
99 ft.

LTANKS:

Site ID:	276097
Spill Date:	05/06/04
Facility Addr2:	Not reported
Facility ID:	0401289
Program Number:	0401289
SWIS:	3101
Region of Spill:	2
Investigator:	qxabidi
Referred To:	Not reported
Reported to Dept:	05/06/04
CID:	15
Spill Cause:	Tank Failure
Water Affected:	Not reported
Spill Source:	Institutional, Educational, Gov., Other
Spill Notifier:	Other
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	/ /
Remediation Phase:	2
Date Entered In Computer:	05/06/04
Spill Record Last Update:	06/21/07
Spille Namer:	VICTOR
Spiller Company:	APARTMENT
Spiller Phone:	(917) 731-0891
Spiller Extention:	Not reported
Spiller Address:	401-405 EDGECOMB AVE
Spiller City,St,Zip:	MANHATTAN, NY
Spiller County:	001

APARTMENT (Continued) **S106471583**

Spiller Contact:	VICTOR
Spiller Phone:	(917) 731-0891
Spiller Extention:	Not reported
DEC Region:	2
Program Number:	0401289
DER Facility ID:	224471
Site ID:	276097
Operable Unit ID:	885348
Operable Unit:	01
Material ID:	492502
Material Code:	0003
Material Name:	#6 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	0.00
Units:	Pounds
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
Site ID:	Not reported
Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported
DEC Memo:	Start DECRemark - 0401289 Prior to Sept, 2004 data translation this spill Lead DEC Field was "KRIMGOLD" 5/6/2004 Sangesland spoke to Mark Salamack at PTC. He said there was a fuel delivery on 5/5 and today the super saw oil coming out onto the basement floor. The existing tank is wrapped in concrete and oil is coming out from under this wrap. PTC will set up temp tanks on 5/7. Then they will drain the existing tank, pull it out (along with all the lines) and reinstall a new tank/linessystem. During this process PTC will determine if any spill occured below the basement floor. If there is a contamination problem, they will clean it up and submit manifests and endpoint samples as required. 04/13/06- Case was transferred from Jake Krimgold to Koon Tang. 11/03/06: This spill is transferred from Mr. Koon Tang to Q.Abidi. Called Mr. Mark Salamack (PTC Company) at (718)624-4842 and talk to Ms. Dianna she said PTC Company only did Tank Cleaning for J & M Reality survices (212)721-0424. -QA 11/17/06: Called J & M Realty at (212)721-0424 and left message to call me back regarding information of the spill. -QA Called Mr. Mark Salamack (Petroleum Tank Cleaner) at (718)624-4842 and talked about the spill. He said that he did only Tank Test. He said tank test was failure. He will try to send me Tank Test failure report. Rest other work who did that PTC do not know. -QA 11/30/06: Called J & M Realty at (212)721-0424 and talked to Mr. Jerry he said. This spill is cleaned up. He is going to fax me closing confirmation letter to close the spill. -QA 12/13/06: Mr. Jerry Edelman, Agent (J & M Realty Services Corp.) sent a closing confirmation letter in which he has mentioned that cause of the spill isa small amount of oil was released in to the concrete alley when the driver of the truck flushed out the delivery line with air. According to Mr. Jerry spill was promptly cleaned up using and oil absorbing compound. According to Mr. Jerry spill is cleaned. -QA 01/02/07: Called Mr. Mark Salamack and talk about the spill. According to Mr. Mark Salamack (PTC), when he went to see the spill oil was out of the tank in

APARTMENT (Continued) **S106471583**

the basement. It could be the cause of overfilling, could be leaking of tank.Tank should be removed and soil should be checked soil underneath the tank. Called J & M Realty (212)721-0424 and talked to Mr. Jerry Edelman he said that he will send a letter mentioning the actual reason of the spill 02/05/07: Called Mr. Jerry Edelman at (212)721-0424 extension 13 and left message to call me back to discuss the spill. -QA 06/21/07: Called Mr. Jerry Edelman at (212)721-0424 extension 13 to discuss regarding spill. He was not there talked to Mr. Victor he said he willtalk to Mr. Jerry about it. He will find out about the "Tank Test Report" (tank must be tested every five years). After getting that he will call me back. -QA END DECRemark - 0401289

Remarks: Start CallerRemark - 0401289 tank is wrapped in concrete,doesnt know if it has holes in it,it is leaking out onto the ground END CallerRemark - 0401289

I34
SW
< 1/8
549 ft.

Relative:
Higher

Actual:
118 ft.

410 EAST 153RD ST/BX **NY Spills** **S104495273**
410 EAST 153RD STREET **NY Hist Spills** **N/A**
NEW YORK CITY, NY

Site 4 of 6 in cluster I

NY Spills:

Site ID:	216590
Facility Addr2:	Not reported
Facility ID:	9011233
Spill Number:	9011233
Facility Type:	ER
SWIS:	0301
Region of Spill:	2
Investigator:	WILSON
Referred To:	Not reported
Spill Date:	01/23/91
Reported to Dept:	01/23/91
CID:	15
Spill Cause:	Equipment Failure
Water Affected:	Not reported
Spill Source:	Tank Truck
Spill Notifier:	Responsible Party
Cleanup Ceased:	05/25/95
Cleanup Meets Std:	True
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Trust:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	05/25/95
Remediation Phase:	0
Date Entered In Computer:	02/01/91
Spill Record Last Update:	05/25/95
Spiller Name:	Not reported
Spiller Company:	CASTLE OIL
Spiller Address:	290 LOCUST AVENUE
Spiller City,St,Zip:	NEW YORK, NY 10454
Spiller Company:	001
Spiller Phone:	(212) 823-5800
Contact Name:	Not reported
Contact Phone:	Not reported
DEC Region:	2
Program Number:	9011233
DER Facility ID:	179327

410 EAST 153RD ST/BX (Continued) **S104495273**

Site ID: 216590
Operable Unit ID: 948246
Operable Unit: 01
Material ID: 427784
Material Code: 0003
Material Name: #6 Fuel Oil
Case No.: Not reported
Material FA: Petroleum
Quantity: 20.00
Units: Gallons
Recovered: 0.00
Resource Affected: Soil
Oxygenate: False
DEC Memo: Not reported
Remarks: Start CallerRemark - 9011233 DELIVERY HOSE BURST DURING DELIVERY,SUSPECT FROZEN/PLUG FILL PIPE,OIL SPILLED TO SIDEWALK,STREET & ONTO CAR,SORB-ALL WAS APPLIED, WILL PICK UP & DISPOSE. END CallerRemark - 9011233

NY Hist Spills:
Region of Spill: 2
Spill Number: 9011233
Investigator: WILSON
Caller Name: Not reported
Caller Agency: Not reported
Caller Phone: Not reported
Notifier Name: Not reported
Notifier Agency: Not reported
Notifier Phone: Not reported
Spill Date/Time: 01/23/1991 11:40
Reported to Dept Date/Time: 01/23/91 12:07
SWIS: 60
Spiller Name: CASTLE OIL
Spiller Contact: Not reported
Spiller Phone: (212) 823-5800
Spiller Address: 290 LOCUST AVENUE
Spiller City,St,Zip: NEW YORK, N.Y. 10454
Spill Cause: Equipment Failure
Reported to Dept: On Land
Water Affected: Not reported
Spill Source: 08
Spill Notifier: Responsible Party
PBS Number: Not reported
Cleanup Ceased: 05/25/95
Cleanup Meets Std: True
Last Inspection: / /
Recommended Penalty: Penalty Not Recommended
Spiller Cleanup Dt: / /
Enforcement Date: / /
Invstgn Complete: / /
UST Involvement: False
Spill Class: Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: 05/25/95
Corrective Action Plan Submitted: / /
Date Region Sent Summary to Central Office: / /
Date Spill Entered In Computer Data File: 02/01/91
Date Spill Entered In Computer Data File: Not reported

410 EAST 153RD ST/BX (Continued) **S104495273**

Update Date:	05/25/95
Is Updated:	False
PBS Number:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate Failed Tank:	Not reported
Gross Leak Rate:	Not reported
Material Class Type:	Petroleum
Quantity Spilled:	20
Unkonwn Quantity Spilled:	False
Units:	Gallons
Quantity Recovered:	0
Unkonwn Quantity Recovered:	False
Material:	#6 FUEL OIL
Class Type:	#6 FUEL OIL
Times Material Entry In File:	2190
CAS Number:	Not reported
Last Date:	19940728
DEC Remarks:	Not reported
Remark:	DELIVERY HOSE BURST DURING DELIVERY,SUSPECT FROZEN/PLUG FILL PIPE,OIL SPILLED TO SIDEWALK,STREET ONTO CAR,SORB-ALL WAS APPLIED, WILL PICK UP DISPOSE.

I35 **445 WEST 153RD ST** **NY Spills** **S104504193**
SW **445 WEST 153RD ST** **NY Hist Spills** **N/A**
< 1/8 **MANHATTEN, NY**
553 ft.

Site 5 of 6 in cluster I

Relative: Higher

Actual: 119 ft.

NY Spills:

Site ID:	275530
Facility Addr2:	Not reported
Facility ID:	9712280
Spill Number:	9712280
Facility Type:	ER
SWIS:	3101
Region of Spill:	2
Investigator:	KSTANG
Referred To:	Not reported
Spill Date:	02/03/98
Reported to Dept:	02/03/98
CID:	15
Spill Cause:	Equipment Failure
Water Affected:	Not reported
Spill Source:	Commercial/Industrial
Spill Notifier:	Responsible Party
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Trust:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	/ /
Remediation Phase:	1
Date Entered In Computer:	02/03/98
Spill Record Last Update:	06/16/06
Spiller Name:	Not reported

445 WEST 153RD ST (Continued) **S104504193**

Spiller Company:	LANGSAM PROPERTY SVCES
Spiller Address:	Not reported
Spiller City,St,Zip:	ZZ
Spiller Company:	001
Spiller Phone:	Not reported
Contact Name:	Not reported
Contact Phone:	Not reported
DEC Region:	2
Program Number:	9712280
DER Facility ID:	224020
Site ID:	275530
Operable Unit ID:	1058657
Operable Unit:	01
Material ID:	326899
Material Code:	0001
Material Name:	#2 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	0.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False

DEC Memo: Start DECRemark - 9712280 Prior to Sept, 2004 data translation this spill Lead DEC Field was "MULQUEEN" WORKING ON GAS LINE TOOK SAMPLE WILL REMOVE SOIL. 1/29/99 - LANGSAM PROPERTY TRYING TO SELL AND CONTACTED DAWN JOHNSON AT HESS REGARDING THESPILL REPORT. TOLD DAWN THAT THEY HAD ABANDONED FILL THAT NEEDED INVESTIGATION. con ed e2mis notes 114551 Gas construction crew excavating for a leaking gas service on the sidewalk found soil contaminated with fuel oil. The oil iscoming from an abandon fuel line on the sidewalk. The gas crew is in the process of removing the soil and placing it into 55 gallon drums. The soil will be removed to the district yard. The drums will be labled and samples will be taken for oil finger print, pcb's and tph. The fuel spill was not caued by Con Edison however we will have to clean up the spill so we can continue our work. L.FARO 34079 update,78189,paul lonseth, lab analysis indicates no pcb's present in sample. added resolved date and stop date changed opn field. Logger Kenneth Heyman #96534 11/04/02 13:30 Update: This is a very old spill and it is difficult to get additional information on this. Since this is a 3rd party spill and Paul Lonseth reported that the lab results report non-hazardous I will CLODE this spill and remove the resolve date. 06/16/06: This spill is transferred from Mike Mulqueen to Mr. Koon Tang. END DECRemark - 9712280

Remarks: Start CallerRemark - 9712280 ABANDONED FUEL LINE UNDER SIDEWALK - CONTAMINATED SOIL END CallerRemark - 9712280

NY Hist Spills:

Region of Spill:	2
Spill Number:	9712280
Investigator:	MULQUEEN
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Spill Date/Time:	02/03/1998 12:15
Reported to Dept Date/Time:	02/03/98 14:03

445 WEST 153RD ST (Continued) **S104504193**

SWIS:	62
Spiller Name:	LANGSAM PROPERTY SVCES
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Address:	Not reported
Spiller City,St,Zip:	Not reported
Spill Cause:	Equipment Failure
Reported to Dept:	On Land
Water Affected:	Not reported
Spill Source:	01
Spill Notifier:	Responsible Party
PBS Number:	Not reported
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Dt:	/ /
Enforcement Date:	/ /
Invstgn Complete:	/ /
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	/ /
Corrective Action Plan Submitted:	/ /
Date Region Sent Summary to Central Office:	/ /
Date Spill Entered In Computer Data File:	02/03/98
Date Spill Entered In Computer Data File:	Not reported
Update Date:	01/29/99
Is Updated:	False
PBS Number:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate Failed Tank:	Not reported
Gross Leak Rate:	Not reported
Material Class Type:	Petroleum
Quantity Spilled:	0
Unkonwn Quantity Spilled:	True
Units:	Gallons
Quantity Recovered:	0
Unkonwn Quantity Recovered:	False
Material:	#2 FUEL OIL
Class Type:	#2 FUEL OIL
Times Material Entry In File:	24464
CAS Number:	Not reported
Last Date:	19941207
DEC Remarks:	WORKING ON GAS LINE TOOK SAMPLE WILL REMOVE SOIL. 1/29/99 - LANGSAM PROPERTY TRYING TO SELL AND CONTACTED DAWN JOHNSON AT HESS REGARDING THE SPILL REPORT. TOLD DAWN THAT THEY HAD ABANDONED FILL THAT NEEDED INVESTIGATION.
Remark:	ABANDONED FUEL LINE UNDER SIDEWALK - CONTAMINATED SOIL

I36 SW < 1/8 553 ft. | **153 STREET APTS.LLLC** | **AST** | **A100193956**
445 W 153 ST | **N/A**
NY, NY 10031

Site 6 of 6 in cluster I

Relative: Higher

AST:

Actual: 119 ft.

AST:

Region:	STATE
Facility Id:	2-328782
UTM X:	589212.36652
UTM Y:	4520396.28101
Expiration Date:	11/27/11
Renewal Date:	/ /
Total Capacity:	4000
Facility Type:	Not reported
Site Type Name:	Apartment Building/Office Building
Site Type Status:	Active
Mailing Company:	FRIEDMAN MANAGEMENT CORP.
Mailing Title:	Not reported
Mailing Contact:	ADAM STRYKER
Mailing Address:	225 WEST 34TH STREET
Mailing Address 2:	SUITE 1305
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip Code:	10122
Mailing Phone No:	(212) 736-6888
Mailing Email:	Not reported
Owner Title:	MGR AGENT
Owner Name:	ADAM STRYKER
Owner Address:	C/O FRIEDMAM ,CORP. 225 WEST 34TH ST
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	10122
Owner Phone:	(212) 736-6888
Owner Company:	FRIEDMAN MGMT.
Emergency Contact:	ADAM STRYKER
Emergency Phone:	(212) 736-6888
Operator:	A. CASTRO
Operator Phone:	(212) 368-2616
Owner City:	NEW YORK]
Owner Sub Type:	Corporate or Commercial
Program Type:	PBS
Tank Number:	001
Tank Location Name:	Aboveground - in contact with soil
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	/ /
Capacity Gallons:	4000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping

153 STREET APTS.LLLC (Continued) **A100193956**

Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Exempt Suction Piping
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Product Level Gauge (A/G)
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

J37 **935 NICK C/0 BEACH LANE MANAGEMENT, INC** **AST** **U003383628**
North **935 SAINT NICHOLAS AVENUE** **HIST AST** **N/A**
< 1/8 **NEW YORK, NY 10032**
556 ft.

Site 1 of 6 in cluster J

Relative:
Higher

AST:

Actual:
142 ft.

AST:

Region:	STATE
Facility Id:	2-056537
UTM X:	589320.14307
UTM Y:	4520682.58043
Expiration Date:	02/18/12
Renewal Date:	10/30/01
Total Capacity:	5000
Facility Type:	Not reported
Site Type Name:	Apartment Building/Office Building
Site Type Status:	Active
Mailing Company:	935 NICK
Mailing Title:	Not reported
Mailing Contact:	MARK SCHARFMAN
Mailing Address:	C/O BEACH LANE MANAGEMENT, INC.
Mailing Address 2:	280 NO. CENTRAL PARK AVE., SUITE 210
Mailing City:	HARTSDALE
Mailing State:	NY
Mailing Zip Code:	10530
Mailing Phone No:	(914) 997-2435
Mailing Email:	Not reported
Owner Title:	Not reported
Owner Name:	Not reported
Owner Address:	280 NORTH CENTRAL PARK AVE., SUITE 210
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	10530
Owner Phone:	(914) 997-2435
Owner Company:	935 NICK C/0 BEACH LANE MANAGEMENT, INC.
Emergency Contact:	ROBERT BRYANT
Emergency Phone:	(917) 237-8635

935 NICK C/0 BEACH LANE MANAGEMENT, INC (Continued) **U003383628**

Operator:	HARVEY VINSON
Operator Phone:	(212) 926-5327
Owner City:	HARTSDALE
Owner Sub Type:	Corporate or Commercial
Program Type:	PBS

Tank Number:	001
Tank Location Name:	Aboveground - in contact with soil
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	04/08/16
Capacity Gallons:	5000
Material Name:	#6 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping
Pipe Type Name:	Galvanized Steel
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Exempt Suction Piping
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Product Level Gauge (A/G)
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

HIST AST:

PBS Number:	2-056537
SWIS Code:	6201
Operator:	HARVEY VINSON
Facility Phone:	(212) 926-5327
Facility Addr2:	935 SAINT NICHOLAS AVENUE
Facility Type:	APARTMENT BUILDING
Emergency:	ROBERT BRYANT
Emergency Tel:	(917) 237-8635
Old PBSNO:	Not reported
Date Inspected:	Not reported
Inspector:	Not reported
Result of Inspection:	Not reported
Owner Name:	935 NICK C/0 BEACH LANE MANAGEMENT, INC.
Owner Address:	280 NORTH CENTRAL PARK AVE., SUITE 210
Owner City,St,Zip:	HARTSDALE, NY 10530
Federal ID:	Not reported

935 NICK C/0 BEACH LANE MANAGEMENT, INC (Continued) **U003383628**

Owner Tel:	(914) 997-2435
Owner Type:	Corporate/Commercial
Owner Subtype:	Not reported
Mailing Contact:	MARK SCHARFMAN
Mailing Name:	935 NICK
Mailing Address:	C/O BEACH LANE MANAGEMENT, INC.
Mailing Address 2:	280 NO. CENTRAL PARK AVE., SUITE 210
Mailing City,St,Zip:	HARTSDALE, NY 10530
Mailing Telephone:	(914) 997-2435
Owner Mark:	Second Owner
Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Certification Flag:	False
Certification Date:	11/16/2001
Expiration:	02/18/2007
Renew Flag:	False
Renew Date:	20011030
Total Capacity:	5000
FAMT:	True
Facility Screen:	No Missing Data
Owner Screen:	No Missing Data
Tank Screen:	Minor Data Missing
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	62
Town or City Code:	01
Region:	2

Tank ID:	001
Tank Location:	ABOVEGROUND
Tank Status:	In Service
Install Date:	Not reported
Capacity (Gal):	5000
Product Stored:	NOS 5 OR 6 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	GALVANIZED STEEL
Pipe Internal:	Not reported
Pipe External:	Not reported
Tank Containment:	Not reported
Leak Detection:	0
Overfill Protection:	4
Dispenser Method:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	False
SPDES Number:	Not reported
Lat/Long:	Not reported

38 South < 1/8 560 ft. | **385 EDGECOMB AVE**
385 EDGECOMB AVE
MANHATTAN, NY | **NY Spills** | **S104495432**
NY Hist Spills | **N/A**

Relative: Lower

Actual: 100 ft.

NY Spills:

Site ID:	269989
Facility Addr2:	Not reported
Facility ID:	9403542
Spill Number:	9403542
Facility Type:	ER
SWIS:	3101
Region of Spill:	2
Investigator:	SMMARTIN
Referred To:	Not reported
Spill Date:	06/13/94
Reported to Dept:	06/13/94
CID:	15
Spill Cause:	Equipment Failure
Water Affected:	Not reported
Spill Source:	Institutional, Educational, Gov., Other
Spill Notifier:	Other
Cleanup Ceased:	06/13/94
Cleanup Meets Std:	True
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Trust:	False
Spill Class:	Not reported
Spill Closed Dt:	06/13/94
Remediation Phase:	0
Date Entered In Computer:	07/25/94
Spill Record Last Update:	09/30/04
Spiller Name:	Not reported
Spiller Company:	UNKNOWN
Spiller Address:	Not reported
Spiller City,St,Zip:	NY
Spiller Company:	999
Spiller Phone:	Not reported
Contact Name:	Not reported
Contact Phone:	Not reported
DEC Region:	2
Program Number:	9403542
DER Facility ID:	278617
Site ID:	269989
Operable Unit ID:	997290
Operable Unit:	01
Material ID:	383716
Material Code:	0002
Material Name:	#4 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	40.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
DEC Memo:	Start DECRemark - 9403542 Prior to Sept, 2004 data translation this spill Lead DEC Field was "MARTINKAT" END DECRemark - 9403542
Remarks:	Start CallerRemark - 9403542 MALFUNCTIONS OF GAUGE- CLEANUP W/ABSORP.

385 EDGECOMB AVE (Continued) **S104495432**

6/13 3:35 CALLED ABC LEFT #.
ON SIDEWALK OVER FILLA AT VENT. END CallerRemark - 9403542

Site ID:	269990
Facility Addr2:	Not reported
Facility ID:	9515044
Spill Number:	9515044
Facility Type:	ER
SWIS:	3101
Region of Spill:	2
Investigator:	SMMARTIN
Referred To:	Not reported
Spill Date:	02/23/96
Reported to Dept:	02/23/96
CID:	15
Spill Cause:	Equipment Failure
Water Affected:	Not reported
Spill Source:	Institutional, Educational, Gov., Other
Spill Notifier:	Other
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Trust:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	02/23/96
Remediation Phase:	0
Date Entered In Computer:	02/23/96
Spill Record Last Update:	03/14/96
Spiller Name:	Not reported
Spiller Company:	NO NAME
Spiller Address:	385 EDGECOMB AVE
Spiller City,St,Zip:	MANHATTEN, NY
Spiller Company:	001
Spiller Phone:	Not reported
Contact Name:	Not reported
Contact Phone:	Not reported
DEC Region:	2
Program Number:	9515044
DER Facility ID:	219876
Site ID:	269990
Operable Unit ID:	1026149
Operable Unit:	01
Material ID:	355171
Material Code:	0002
Material Name:	#4 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	12.00
Units:	Gallons
Recovered:	12.00
Resource Affected:	Soil
Oxygenate:	False
DEC Memo:	Start DECRemark - 9515044 Prior to Sept, 2004 data translation this spill Lead DEC Field was "MARTINKAT" 1) FROM PBS - OPERATOR, JOSE GARCIA (212) 368-5739 - NO LONGER SUPER BUT WILL GO OUT AND CHECK IF SPILL HAS BEEN CLEANED - GAVE ME

385 EDGECOMB AVE (Continued) **S104495432**

#(212) 491-9113 SUPER - THEY SAID WRONG #. 2) CALLED JOE, AL EASTMOND DOING CLEANUP. END DECRemark - 9515044

Remarks: Start CallerRemark - 9515044 VENT ALARM FAILED - SPILL ON SIDE WALK BEING CLEANED UP END CallerRemark - 9515044

Click this hyperlink while viewing on your computer to access additional NY_SPILL: detail in the EDR Site Report.

NY Hist Spills:

Region of Spill:	2
Spill Number:	9403542
Investigator:	MARTINKAT
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Spill Date/Time:	06/13/1994 15:26
Reported to Dept Date/Time:	06/13/94 15:26
SWIS:	62
Spiller Name:	UNKNOWN
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Address:	Not reported
Spiller City,St,Zip:	Not reported
Spill Cause:	Equipment Failure
Reported to Dept:	On Land
Water Affected:	Not reported
Spill Source:	02
Spill Notifier:	Other
PBS Number:	Not reported
Cleanup Ceased:	06/13/94
Cleanup Meets Std:	True
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Dt:	/ /
Enforcement Date:	/ /
Invstgn Complete:	/ /
UST Involvement:	False
Spill Class:	Not reported
Spill Closed Dt:	06/13/94
Corrective Action Plan Submitted:	/ /
Date Region Sent Summary to Central Office:	/ /
Date Spill Entered In Computer Data File:	07/25/94
Date Spill Entered In Computer Data File:	Not reported
Update Date:	/ /
Is Updated:	False
PBS Number:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate Failed Tank:	Not reported
Gross Leak Rate:	Not reported
Material Class Type:	Petroleum
Quantity Spilled:	40
Unkonwn Quantity Spilled:	False

385 EDGECOMB AVE (Continued) **S104495432**

Units: Gallons
Quantity Recovered: 0
Unkonwn Quantity Recovered: False
Material: #4 FUEL OIL
Class Type: #4 FUEL OIL
Times Material Entry In File: 1751
CAS Number: Not reported
Last Date: 19941205
DEC Remarks: Not reported
Remark: MALFUNCTIONS OF GAUGE- CLEANUP W/ABSORP.
6/13 3:35 CALLED ABC LEFT . ON SIDEWALK OVER FILLA AT VENT.

Region of Spill: 2
Spill Number: 9515044
Investigator: MARTINKAT
Caller Name: Not reported
Caller Agency: Not reported
Caller Phone: Not reported
Notifier Name: Not reported
Notifier Agency: Not reported
Notifier Phone: Not reported
Spill Date/Time: 02/23/1996 09:50
Reported to Dept Date/Time: 02/23/96 10:05
SWIS: 62
Spiller Name: NO NAME
Spiller Contact: Not reported
Spiller Phone: Not reported
Spiller Address: 385 EDGECOMB AVE
Spiller City,St,Zip: MANHATTEN, NY
Spill Cause: Equipment Failure
Reported to Dept: On Land
Water Affected: Not reported
Spill Source: 02
Spill Notifier: Other
PBS Number: Not reported
Cleanup Ceased: / /
Cleanup Meets Std: False
Last Inspection: / /
Recommended Penalty: Penalty Not Recommended
Spiller Cleanup Dt: / /
Enforcement Date: / /
Invstgn Complete: / /
UST Involvement: False
Spill Class: Known release with minimal potential for fire or hazard. DEC Response.
Willing Responsible Party. Corrective action taken.
Spill Closed Dt: 02/23/96
Corrective Action Plan Submitted: / /
Date Region Sent Summary to Central Office: / /
Date Spill Entered In Computer Data File: 02/23/96
Date Spill Entered In Computer Data File: Not reported
Update Date: 03/14/96
Is Updated: False
PBS Number: Not reported
Tank Number: Not reported
Tank Size: Not reported
Test Method: Not reported
Leak Rate Failed Tank: Not reported

385 EDGECOMB AVE (Continued) **S104495432**

Gross Leak Rate:	Not reported
Material Class Type:	Petroleum
Quantity Spilled:	12
Unkonwn Quantity Spilled:	False
Units:	Gallons
Quantity Recovered:	12
Unkonwn Quantity Recovered:	False
Material:	#4 FUEL OIL
Class Type:	#4 FUEL OIL
Times Material Entry In File:	1751
CAS Number:	Not reported
Last Date:	19941205
DEC Remarks:	1) FROM PBS - OPERATOR, JOSE GARCIA 212) 368-5739 - NO LONGER SUPER BUT WILL GO OUT AND CHECK IF SPILL HAS BEEN CLEANED - GAVE ME 212) 491-9113 SUPER - THEY SAID WRONG . 2) CALLED JOE, AL EASTMOND DOING CLEANUP.
Remark:	VENT ALARM FAILED - SPILL ON SIDE WALK BEING CLEANED UP

Region of Spill:	2
Spill Number:	9212757
Investigator:	CAMMISA
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Spill Date/Time:	02/11/1993 12:30
Reported to Dept Date/Time:	02/11/93 13:38
SWIS:	62
Spiller Name:	APT BLDG.
Spiller Contact:	Not reported
Spiller Phone:	(212) 283-3832
Spiller Address:	385 EDGECOMB AVE
Spiller City,St,Zip:	Not reported
Spill Cause:	Equipment Failure
Reported to Dept:	On Land
Water Affected:	Not reported
Spill Source:	01
Spill Notifier:	Other
PBS Number:	Not reported
Cleanup Ceased:	02/01/93
Cleanup Meets Std:	True
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Dt:	/ /
Enforcement Date:	/ /
Invstgn Complete:	/ /
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	02/01/93
Corrective Action Plan Submitted:	/ /
Date Region Sent Summary to Central Office:	/ /
Date Spill Entered In Computer Data File:	02/11/93
Date Spill Entered In Computer Data File:	Not reported
Update Date:	/ /
Is Updated:	False

385 EDGECOMB AVE (Continued) **S104495432**

PBS Number:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate Failed Tank:	Not reported
Gross Leak Rate:	Not reported
Material Class Type:	Petroleum
Quantity Spilled:	3
Unkonwn Quantity Spilled:	False
Units:	Gallons
Quantity Recovered:	0
Unkonwn Quantity Recovered:	False
Material:	#4 FUEL OIL
Class Type:	#4 FUEL OIL
Times Material Entry In File:	1751
CAS Number:	Not reported
Last Date:	19941205
DEC Remarks:	Not reported
Remark:	SUSPECT FAULTY PETROMETER-OIL CAME OUT VENT ONTO SIDEWALK-DRIVER CONTAINED W/ SPEEDI-DRI SPILL CLEANED-UP BY SPILL TEAM-AL EASTMOND TO DISPOSE WILL NOTIFY NYCDEP

Region of Spill:	2
Spill Number:	9612833
Investigator:	MARTINKAT
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Spill Date/Time:	01/29/1997 09:00
Reported to Dept Date/Time:	01/29/97 11:53
SWIS:	62
Spiller Name:	T AND S TRUCKING
Spiller Contact:	ROCKY VENUTO
Spiller Phone:	(718) 499-2900
Spiller Address:	53 2ND AVE
Spiller City,St,Zip:	BROOKLYN, NY 11215-
Spill Cause:	Equipment Failure
Reported to Dept:	On Land
Water Affected:	Not reported
Spill Source:	01
Spill Notifier:	Responsible Party
PBS Number:	Not reported
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Dt:	/ /
Enforcement Date:	/ /
Invstgn Complete:	/ /
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	01/29/97
Corrective Action Plan Submitted:	/ /

385 EDGECOMB AVE (Continued) **S104495432**

Date Region Sent Summary to Central Office: / /
Date Spill Entered In Computer Data File: 01/29/97
Date Spill Entered In Computer Data File: Not reported
Update Date: 01/30/97
Is Updated: False
PBS Number: Not reported
Tank Number: Not reported
Tank Size: Not reported
Test Method: Not reported
Leak Rate Failed Tank: Not reported
Gross Leak Rate: Not reported
Material Class Type: Petroleum
Quantity Spilled: 8
Unkonwn Quantity Spilled: False
Units: Gallons
Quantity Recovered: 8
Unkonwn Quantity Recovered: False
Material: #4 FUEL OIL
Class Type: #4 FUEL OIL
Times Material Entry In File: 1751
CAS Number: Not reported
Last Date: 19941205
DEC Remarks: Not reported
Remark: SPILL CAUSED BY FAULTY GAUGE. CLEANUP COMPLETE

Click this hyperlink while viewing on your computer to access additional NY_HIST_SPILL: detail in the EDR Site Report.

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39 **449 WEST 153RD ST** **AST** **U003390958**
SW **449 WEST 153RD ST** **HIST AST** **N/A**
< 1/8 **NEW YORK, NY 10031**
564 ft.

Relative: Higher

Actual: 127 ft.

AST:

AST:
Region: STATE
Facility Id: 2-359556
UTM X: 589203.28108
UTM Y: 4520401.38938
Expiration Date: 08/28/12
Renewal Date: 04/05/02
Total Capacity: 2000
Facility Type: Not reported
Site Type Name: Apartment Building/Office Building
Site Type Status: Active
Mailing Company: LANGSAM PROPERTY SERVICES CORPORATION
Mailing Title: Not reported
Mailing Contact: MARIA MCCULLOUGH
Mailing Address: 1601 BRONXDALE AVENUE
Mailing Address 2: SUITE 201
Mailing City: BRONX
Mailing State: NY
Mailing Zip Code: 10462
Mailing Phone No: (718) 518-8000
Mailing Email: Not reported
Owner Title: ADM. ASST
Owner Name: MARIA MCCULLOUGH

449 WEST 153RD ST (Continued) **U003390958**

Owner Address:	1601 BRONXDALE AV
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	10022
Owner Phone:	(718) 518-8000
Owner Company:	115 WEST 128TH STREET CORPORATION
Emergency Contact:	CLIFF HILLE
Emergency Phone:	(718) 518-8000
Operator:	JUAM MADERA
Operator Phone:	(347) 739-5345
Owner City:	BRONX
Owner Sub Type:	Corporate or Commercial
Program Type:	PBS

Tank Number:	001
Tank Location Name:	Aboveground - in contact with soil
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	03/21/85
Capacity Gallons:	2000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Exempt Suction Piping
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Product Level Gauge (A/G)
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

HIST AST:

PBS Number:	2-359556
SWIS Code:	6201
Operator:	EUGENE JOHNSON
Facility Phone:	(212) 690-8520
Facility Addr2:	449 WEST 153RD ST
Facility Type:	APARTMENT BUILDING
Emergency:	JAMES LUCENTI
Emergency Tel:	(718) 261-5346

449 WEST 153RD ST (Continued) **U003390958**

Old PBSNO:	Not reported
Date Inspected:	Not reported
Inspector:	Not reported
Result of Inspection:	Not reported
Owner Name:	115 WEST 128TH STREET CORPORATION
Owner Address:	515 MADISON AVE , SUITE 905
Owner City,St,Zip:	NEW YORK, NY 10022
Federal ID:	Not reported
Owner Tel:	(212) 421-2173
Owner Type:	Corporate/Commercial
Owner Subtype:	Not reported
Mailing Contact:	Not reported
Mailing Name:	LANGSAM PROPERTY SERVICES CORPORATION
Mailing Address:	1601 BRONXDALE AVENUE
Mailing Address 2:	Not reported
Mailing City,St,Zip:	BRONX, NY 10462
Mailing Telephone:	(718) 518-8000
Owner Mark:	First Owner
Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Certification Flag:	False
Certification Date:	04/21/1998
Expiration:	08/28/2002
Renew Flag:	False
Renew Date:	Not reported
Total Capacity:	2000
FAMT:	True
Facility Screen:	No Missing Data
Owner Screen:	No Missing Data
Tank Screen:	Minor Data Missing
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	62
Town or City Code:	01
Region:	2
Tank ID:	001
Tank Location:	ABOVEGROUND
Tank Status:	In Service
Install Date:	Not reported
Capacity (Gal):	2000
Product Stored:	NOS 1,2, OR 4 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	STEEL/IRON
Pipe Internal:	Not reported
Pipe External:	Not reported
Tank Containment:	None
Leak Detection:	0
Overfill Protection:	4
Dispenser Method:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported

449 WEST 153RD ST (Continued) **U003390958**

Missing Data for Tank:	Minor Data Missing
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	False
SPDES Number:	Not reported
Lat/Long:	Not reported

J40
North
< 1/8
634 ft.

Relative:
Higher

Actual:
143 ft.

938 ST NICHOLAS AV
MANHATTAN, NY

NY Spills **S105140466**
NY Hist Spills **N/A**

Site 2 of 6 in cluster J

NY Spills:

Site ID:	306446
Facility Addr2:	Not reported
Facility ID:	0105627
Spill Number:	0105627
Facility Type:	ER
SWIS:	3101
Region of Spill:	2
Investigator:	JMROMMEL
Referred To:	Not reported
Spill Date:	08/24/01
Reported to Dept:	08/24/01
CID:	15
Spill Cause:	Human Error
Water Affected:	Not reported
Spill Source:	Private Dwelling
Spill Notifier:	Other
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Trust:	False
Spill Class:	Possible release with minimal potential for fire or hazard or Known release with no damage. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	08/28/01
Remediation Phase:	0
Date Entered In Computer:	08/24/01
Spill Record Last Update:	08/28/01
Spiller Name:	FRANK AMATO
Spiller Company:	Not reported
Spiller Address:	938 ST NICHOLAS AV
Spiller City,St,Zip:	MANHATTAN, NY
Spiller Company:	001
Spiller Phone:	(718) 222-8701
Contact Name:	FRANK AMATO
Contact Phone:	(718) 222-8701
DEC Region:	2
Program Number:	0105627
DER Facility ID:	247499
Site ID:	306446
Operable Unit ID:	843984
Operable Unit:	01
Material ID:	534083

(Continued) **S105140466**

Material Code: 0002
Material Name: #4 Fuel Oil
Case No.: Not reported
Material FA: Petroleum
Quantity: 10.00
Units: Gallons
Recovered: 0.00
Resource Affected: Soil
Oxygenate: False
DEC Memo: Start DECRemark - 0105627 Prior to Sept, 2004 data translation this spill Lead DEC Field was "ROMMEL" 08/24/01 Spoke to Tommy at BLT. Oil spilled out of vent into a contained area - concrete floor and walls - no impact to soil or to drains. Cleaned with speedy dri. Will return to celan with Orange Biodegradable solvent. Closed. JMR END DECRemark - 0105627
Remarks: Start CallerRemark - 0105627 BROKEN GAUGE CAUSED TANK OVERFILL - CLEAN UP IN PROGRESS END CallerRemark - 0105627

NY Hist Spills:
Region of Spill: 2
Spill Number: 0105627
Investigator: ROMMEL
Caller Name: Not reported
Caller Agency: Not reported
Caller Phone: Not reported
Notifier Name: Not reported
Notifier Agency: Not reported
Notifier Phone: Not reported
Spill Date/Time: 08/24/2001 14:30
Reported to Dept Date/Time: 08/24/01 14:34
SWIS: 62
Spiller Name: Not reported
Spiller Contact: FRANK AMATO
Spiller Phone: (718) 222-8701
Spiller Contact: FRANK AMATO
Spiller Phone: (718) 222-8701
Spiller Address: 938 ST NICHOLAS AV
Spiller City,St,Zip: MANHATTAN, NY
Spill Cause: Human Error
Reported to Dept: On Land
Water Affected: Not reported
Spill Source: 09
Spill Notifier: Other
PBS Number: Not reported
Cleanup Ceased: / /
Cleanup Meets Std: False
Last Inspection: / /
Recommended Penalty: Penalty Not Recommended
Spiller Cleanup Dt: / /
Enforcement Date: / /
Invstgn Complete: / /
UST Involvement: False
Spill Class: Possible release with minimal potential for fire or hazard or Known release with no damage. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: 08/28/01
Corrective Action Plan Submitted: / /
Date Region Sent Summary to Central Office: / /

(Continued) **S105140466**

Date Spill Entered In Computer Data File:	08/24/01
Date Spill Entered In Computer Data File:	Not reported
Update Date:	08/28/01
Is Updated:	False
PBS Number:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate Failed Tank:	Not reported
Gross Leak Rate:	Not reported
Material Class Type:	Petroleum
Quantity Spilled:	10
Unkonwn Quantity Spilled:	False
Units:	Gallons
Quantity Recovered:	0
Unkonwn Quantity Recovered:	True
Material:	#4 FUEL OIL
Class Type:	#4 FUEL OIL
Times Material Entry In File:	1751
CAS Number:	Not reported
Last Date:	19941205
DEC Remarks:	08/24/01 Spoke to Tommy at BLT. Oil spilled out of vent into a contained area - concrete floor and walls - no impact to soil or to drains. Cleaned with speedy dri. Will return to celan with Orange Biodegradable solvent. Closed. JMR
Remark:	BROKEN GAUGE CAUSED TANK OVERFILL - CLEAN UP IN PROGRESS

J41 **940 ST. NICHOLAS, LLC** **UST** **U003178535**
North **940 ST. NICHOLAS AVENUE** **HIST UST** **N/A**
< 1/8 **NEW YORK, NY 10027**
634 ft.

Site 3 of 6 in cluster J

Relative: Higher

UST:

Actual: 143 ft.

UST:

Facility Id:	2-602910
Expiration Date:	12/15/09
Renewal Date:	/ /
Total Capacity:	6000
Facility Type:	Not reported
Mailing Company:	% J&M REALTY SERVICES CORP
Mailing Title:	Not reported
Mailing Contact:	940 ST. NICHOLAS LLC
Mailing Address:	21 WEST 86TH STREET
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip Code:	10024
Mailing Phone No:	(212) 721-0424
Mailing Email:	Not reported
Owner Title:	AGENT FOR 940 ST. NICHOLAS, LLC
Owner Name:	JERRY EDELMAN
Owner Address:	C/O J&M REALTY SERVICES, 21 W. 86 STREET
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	10024
Owner Phone:	(212) 721-0424

940 ST. NICHOLAS, LLC (Continued) **U003178535**

Owner Company:	940 ST. NICHOLAS, LLC
Emergency Contact:	J & M REALTY SERVICES
Emergency Phone:	(212) 721-0424
Operator:	J & M REALTY SERVICES
Operator Phone:	(212) 721-0424
Owner City:	NEW YORK
Owner Sub Type:	Corporate or Commercial
UTM X:	589338.23871
UTM Y:	4520706.44727
Site Type Name:	Apartment Building/Office Building
Site Type Status:	Active
Comments:	Not reported
Program Type:	PBS
Tank Number:	001
Tank Location Name:	Underground
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	/ /
Capacity Gallons:	6000
Material Name:	#4 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel Tank Encased in Concrete
Tank Internal Protection:	None
Tank Internal Protection 1:	Jacketed
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Aboveground
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Vault (w/o access)
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	None
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	None
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Vent Whistle
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	None
Tightness Test Method:	Unknown
Date Tested:	/ /
Next Test Date:	12/27/87
Date Tank Closed:	/ /

HIST UST:

PBS Number:	2-602910
SPDES Number:	Not reported
Emergency Contact:	VITO SACCHETTI
Emergency Telephone:	(718) 828-1111
Operator:	VITO SACCHETTI
Operator Telephone:	(718) 828-1111
Owner Name:	MICHAEL SACCHETTI

940 ST. NICHOLAS, LLC (Continued) **U003178535**

Owner Address:	1466 ST. PETERS AVE.
Owner City,St,Zip:	BRONX, NY 10461
Owner Telephone:	(718) 828-1111
Owner Type:	Corporate/Commercial
Owner Subtype:	Not reported
Mailing Name:	SACCHETTI & SON, INC.
Mailing Address:	1466 ST. PETERS AVENUE
Mailing Address 2:	Not reported
Mailing City,St,Zip:	BRONX, NY 10461
Mailing Contact:	VITO SACCHETTI
Mailing Telephone:	(718) 828-1111
Owner Mark:	First Owner
Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Facility Addr2:	Not reported
SWIS ID:	6201
Old PBS Number:	Not reported
Facility Type:	APARTMENT BUILDING
Inspected Date:	Not reported
Inspector:	Not reported
Inspection Result:	Not reported
Federal ID:	Not reported
Certification Flag:	False
Certification Date:	11/05/2001
Expiration Date:	01/17/2007
Renew Flag:	False
Renewal Date:	Not reported
Total Capacity:	5000
FAMT:	True
Facility Screen:	No Missing Data
Owner Screen:	No Missing Data
Tank Screen:	Minor Data Missing
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	62
Town or City:	01
Region:	2
Tank Id:	001
Tank Location:	UNDERGROUND, VAULTED, WITH ACCESS
Tank Status:	In Service
Install Date:	Not reported
Capacity (gals):	5000
Product Stored:	NOS 1,2, OR 4 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	STEEL/IRON
Pipe Internal:	Not reported
Pipe External:	Not reported
Second Containment:	Not reported
Leak Detection:	Not reported
Overfill Prot:	Product Level Gauge
Dispenser:	Not reported

940 ST. NICHOLAS, LLC (Continued) **U003178535**

Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	Not reported

J42 **938 ST. NICHOLAS AVE.** **AST** **A100178321**
North **938 ST. NICHOLAS AVENUE** **N/A**
< 1/8 **NEW YORK, NY 10032**
634 ft.

Site 4 of 6 in cluster J

Relative: Higher

AST:

Actual: 143 ft.

AST:

Region:	STATE
Facility Id:	2-606108
UTM X:	589304.72285
UTM Y:	4520680.46152
Expiration Date:	06/26/06
Renewal Date:	/ /
Total Capacity:	5000
Facility Type:	Not reported
Site Type Name:	Apartment Building/Office Building
Site Type Status:	Active
Mailing Company:	WAVECREST MANAGEMENT TEAM
Mailing Title:	Not reported
Mailing Contact:	NEIGHBORHOOD RESTORE HDFC
Mailing Address:	129-09 26TH AVENUE
Mailing Address 2:	SUITE 301
Mailing City:	FLUSHING
Mailing State:	NY
Mailing Zip Code:	11354
Mailing Phone No:	(718) 463-1200
Mailing Email:	Not reported
Owner Title:	Not reported
Owner Name:	Not reported
Owner Address:	129-09 26TH AVENUE, SUITE 301
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	11354
Owner Phone:	(718) 463-1200
Owner Company:	NEIGHBORHOOD RESTORE HDFC, % WAVECREST
Emergency Contact:	PAUL MARTINEZ
Emergency Phone:	(718) 463-1200
Operator:	PAUL MARTINEZ
Operator Phone:	(718) 463-1200
Owner City:	FLUSHING
Owner Sub Type:	Corporate or Commercial
Program Type:	PBS
Tank Number:	01
Tank Location Name:	Aboveground - in contact with soil
Tank Status:	In Service
Tank Model:	Not reported

938 ST. NICHOLAS AVE. (Continued) **A100178321**

Pipe Model:	Not reported
Active Status:	Active
Install Date:	/ /
Capacity Gallons:	5000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Aboveground
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Product Level Gauge (A/G)
Type Of Overfill Prevention 2:	Vent Whistle
Dispenser Method:	Not reported
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

43
WSW
< 1/8
634 ft.

ABAX INC
444 W 153RD ST APT 51
NEW YORK, NY 10031

RCRA-SQG **1001961539**
FINDS **NYR000083261**

Relative:
Higher

Actual:
141 ft.

RCRAInfo:

Owner:	NYCHPD - HOUSING PRESERVATION & DEV (212) 863-7764
EPA ID:	NYR000083261
Contact:	SWAVEK NASIADKA (718) 784-2229
Classification:	Small Quantity Generator
TSDF Activities:	Not reported
Violation Status:	No violations found

FINDS:
Other Pertinent Environmental Activity Identified at Site

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

44 SSE < 1/8 636 ft. | **CHAMA HOLDING CORP**
393 EDGECOMBE AVE
MANHATTAN, NY 10031 | **AST** | **U003389072**
HIST AST | **N/A**

Relative: Lower

Actual: 89 ft.

AST:

AST:

Region:	STATE
Facility Id:	2-285072
UTM X:	589396.96734
UTM Y:	4520473.56461
Expiration Date:	07/14/12
Renewal Date:	03/06/02
Total Capacity:	3000
Facility Type:	Not reported
Site Type Name:	Apartment Building/Office Building
Site Type Status:	Active
Mailing Company:	CHAMA HOLDING CORP
Mailing Title:	Not reported
Mailing Contact:	Not reported
Mailing Address:	PO BOX 191024
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip Code:	11219
Mailing Phone No:	(718) 972-5010
Mailing Email:	Not reported
Owner Title:	VP
Owner Name:	SHIMON GREISMAN
Owner Address:	PO BOX 191024
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	11219
Owner Phone:	(718) 972-5010
Owner Company:	CHAMA HOLDING CORP
Emergency Contact:	JOSE BENITEZ
Emergency Phone:	(718) 972-5010
Operator:	JOSE BENITEZ
Operator Phone:	(718) 972-5010
Owner City:	BROOKLYN
Owner Sub Type:	Corporate or Commercial
Program Type:	PBS
Tank Number:	001
Tank Location Name:	Aboveground - in contact with soil
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	01/01/45
Capacity Gallons:	3000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping
Pipe Type Name:	Steel/Carbon Steel/Iron

CHAMA HOLDING CORP (Continued) **U003389072**

Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Vault (w/o access)
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Exempt Suction Piping
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Product Level Gauge (A/G)
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

HIST AST:

PBS Number:	2-285072
SWIS Code:	6201
Operator:	VICTOR SERRANO
Facility Phone:	(718) 972-5010
Facility Addr2:	393 EDGECOMBE AVE
Facility Type:	APARTMENT BUILDING
Emergency:	VICTOR SERRANO
Emergency Tel:	(212) 491-2678
Old PBSNO:	Not reported
Date Inspected:	Not reported
Inspector:	Not reported
Result of Inspection:	Not reported
Owner Name:	CHAMA HOLDING CORP
Owner Address:	PO BOX 191024
Owner City,St,Zip:	BROOKLYN, NY 11219
Federal ID:	Not reported
Owner Tel:	(718) 972-5010
Owner Type:	Corporate/Commercial
Owner Subtype:	Not reported
Mailing Contact:	Not reported
Mailing Name:	CHAMA HOLDING CORP
Mailing Address:	PO BOX 191024
Mailing Address 2:	Not reported
Mailing City,St,Zip:	BROOKLYN, NY 11219
Mailing Telephone:	(718) 972-5010
Owner Mark:	First Owner
Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Certification Flag:	False
Certification Date:	07/07/1997
Expiration:	07/14/2002
Renew Flag:	False
Renew Date:	Not reported
Total Capacity:	3000
FAMT:	True
Facility Screen:	No Missing Data
Owner Screen:	No Missing Data

CHAMA HOLDING CORP (Continued) **U003389072**

Tank Screen:	Minor Data Missing
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	62
Town or City Code:	01
Region:	2

Tank ID:	001
Tank Location:	ABOVEGROUND
Tank Status:	In Service
Install Date:	Not reported
Capacity (Gal):	3000
Product Stored:	NOS 1,2, OR 4 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	STEEL/IRON
Pipe Internal:	Not reported
Pipe External:	Not reported
Tank Containment:	Diking
Leak Detection:	0
Overfill Protection:	4
Dispenser Method:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	False
SPDES Number:	Not reported
Lat/Long:	Not reported

J45 **465 WEST 157 STREET** **AST** **A100183359**
North **465 WEST 157TH STREET** **N/A**
< 1/8 **NEW YORK, NY 10032**
637 ft.

Site 5 of 6 in cluster J

Relative:
Higher

AST:

Actual:
144 ft.

AST:

Region:	STATE
Facility Id:	2-606780
UTM X:	589295.98280
UTM Y:	4520698.89708
Expiration Date:	08/22/11
Renewal Date:	/ /
Total Capacity:	2500
Facility Type:	Not reported
Site Type Name:	Apartment Building/Office Building
Site Type Status:	Active
Mailing Company:	NYC/HPD/DAMP
Mailing Title:	Not reported
Mailing Contact:	ASST. COMMISSIONER/DAMP
Mailing Address:	100 GOLD STREET

465 WEST 157 STREET (Continued) **A100183359**

Mailing Address 2:	#7Z5
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip Code:	10038
Mailing Phone No:	(212) 863-7301
Mailing Email:	Not reported
Owner Title:	ASST COMMISSIONER DAMP
Owner Name:	WILLA H. PADGETT
Owner Address:	100 GOLD ST., #7Z5
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	10038
Owner Phone:	(212) 863-7301
Owner Company:	NYC/HPD/DAMP
Emergency Contact:	213/215 MOTT ST. H.D.F.C.
Emergency Phone:	(646) 613-0908
Operator:	ASST. COMM. DAMP
Operator Phone:	(212) 863-7301
Owner City:	NEW YORK
Owner Sub Type:	Local Government
Program Type:	PBS
Tank Number:	001
Tank Location Name:	Aboveground - in contact with soil
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	/ /
Capacity Gallons:	2500
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	Painted/Asphalt Coating
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Aboveground/Underground Combination
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Vent Whistle
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

K46 SSW < 1/8 648 ft. | **853 ST. NICHOLAS REALTY CORP.** | **AST** | **U003395557**
853 ST. NICHOLAS AVE | **HIST AST** | **N/A**
NEW YORK, NY 10031

Site 1 of 3 in cluster K

Relative: Equal

AST:

Actual: 111 ft.

AST:

Region:	STATE
Facility Id:	2-600147
UTM X:	589229.07952
UTM Y:	4520325.20592
Expiration Date:	06/05/11
Renewal Date:	04/01/02
Total Capacity:	3500
Facility Type:	Not reported
Site Type Name:	Apartment Building/Office Building
Site Type Status:	Active
Mailing Company:	853 ST. NICHOLAS REALTY CORP.
Mailing Title:	Not reported
Mailing Contact:	GARY B. RESNICK
Mailing Address:	998C OLD COUNTRY ROAD
Mailing Address 2:	#303
Mailing City:	PLAINVIEW
Mailing State:	NY
Mailing Zip Code:	11803
Mailing Phone No:	(631) 643-8707
Mailing Email:	GRES@OPTONLINE.NET
Owner Title:	AGENT
Owner Name:	GARY B. RESNICK
Owner Address:	998C OLD COUNTRY ROAD, #303
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	11803
Owner Phone:	(631) 643-8707
Owner Company:	853 ST. NICHOLAS REALTY CORP
Emergency Contact:	GARY B. RESNICK
Emergency Phone:	(917) 560-3347
Operator:	MARCELINO ABREU
Operator Phone:	(917) 560-3346
Owner City:	PLAINVIEW
Owner Sub Type:	Corporate or Commercial
Program Type:	PBS
Tank Number:	001
Tank Location Name:	Aboveground on crib, rack, or cradle
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	/ /
Capacity Gallons:	3500
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	Epoxy Liner
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Aboveground

853 ST. NICHOLAS REALTY CORP. (Continued) **U003395557**

Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Vault (w/o access)
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Vent Whistle
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Submersible
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

HIST AST:

PBS Number:	2-600147
SWIS Code:	6201
Operator:	JIMMY SIMMONS
Facility Phone:	(212) 283-4305
Facility Addr2:	853 ST. NICHOLAS AVE
Facility Type:	APARTMENT BUILDING
Emergency:	GARY RESNICK
Emergency Tel:	(212) 567-3399
Old PBSNO:	Not reported
Date Inspected:	Not reported
Inspector:	Not reported
Result of Inspection:	Not reported
Owner Name:	853 ST. NICHOLAS REALTY CORP
Owner Address:	232 SHERMAN AVENUE, #23
Owner City,St,Zip:	NEW YORK, NY 10034
Federal ID:	Not reported
Owner Tel:	(212) 567-3399
Owner Type:	Corporate/Commercial
Owner Subtype:	Not reported
Mailing Contact:	GARY RESNICK
Mailing Name:	RESNICK & INTNER REALTY CO., LLC.
Mailing Address:	2 WEST 45TH STREET
Mailing Address 2:	SUITE 900
Mailing City,St,Zip:	NEW YORK, NY 10036
Mailing Telephone:	(212) 567-3399
Owner Mark:	First Owner
Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Certification Flag:	False
Certification Date:	06/20/1996
Expiration:	06/05/2001
Renew Flag:	False
Renew Date:	Not reported
Total Capacity:	3000
FAMT:	True
Facility Screen:	No Missing Data

853 ST. NICHOLAS REALTY CORP. (Continued) **U003395557**

Owner Screen:	No Missing Data
Tank Screen:	No Missing Data
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	62
Town or City Code:	01
Region:	2

Tank ID:	001
Tank Location:	ABOVEGROUND ON SADDLES LEGS, STILTS, RACK, OR CRADLE
Tank Status:	In Service
Install Date:	Not reported
Capacity (Gal):	3000
Product Stored:	NOS 1,2, OR 4 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	1
Tank External:	1
Pipe Location:	Underground
Pipe Type:	STEEL/IRON
Pipe Internal:	Epoxy Liner
Pipe External:	1
Tank Containment:	Diking
Leak Detection:	0
Overfill Protection:	4
Dispenser Method:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	No Missing Data
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	True
SPDES Number:	Not reported
Lat/Long:	Not reported

J47 **RESIDENCE** **LTANKS** **S104515028**
North **943 ST NICHOLAS AVE** **HIST LTANKS** **N/A**
1/8-1/4 **MANHATTAN, NY**
662 ft.

Site 6 of 6 in cluster J

Relative:
Higher

Actual:
146 ft.

LTANKS:

Site ID:	114403
Spill Date:	10/09/98
Facility Addr2:	Not reported
Facility ID:	9808544
Program Number:	9808544
SWIS:	3101
Region of Spill:	2
Investigator:	WOOLSEY
Referred To:	Not reported
Reported to Dept:	10/09/98
CID:	15
Spill Cause:	Tank Overfill
Water Affected:	Not reported
Spill Source:	Private Dwelling
Spill Notifier:	Responsible Party

RESIDENCE (Continued) **S104515028**

Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	10/09/98
Remediation Phase:	0
Date Entered In Computer:	10/09/98
Spill Record Last Update:	11/10/99
Spille Namer:	JANET MATOS
Spiller Company:	CASTLE OIL CO
Spiller Phone:	(718) 579-3413
Spiller Extention:	Not reported
Spiller Address:	290 LOCUST AVE
Spiller City,St,Zip:	NEW YORK, NY
Spiller County:	001
Spiller Contact:	KENNETH
Spiller Phone:	(212) 491-9579
Spiller Extention:	Not reported
DEC Region:	2
Program Number:	9808544
DER Facility ID:	99775
Site ID:	114403
Operable Unit ID:	1069731
Operable Unit:	01
Material ID:	316043
Material Code:	0001
Material Name:	#2 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	5.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
Site ID:	Not reported
Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported
DEC Memo:	Not reported
Remarks:	Start CallerRemark - 9808544 SPILL HAS BEEN CONTAINED FOR CLEANUP. END CallerRemark - 9808544

HIST LTANKS:

Region of Spill:	2
Spill Number:	9808544
Investigator:	WOOLSEY
Caller Name:	Not reported
Caller Agency:	Not reported

RESIDENCE (Continued) **S104515028**

Caller Phone:	Not reported
Caller Extension:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Notifier Extension:	Not reported
Spill Date:	10/09/1998
Spill Time:	12:52
Reported to Department Date:	10/09/98
Reported to Department Time:	12:55
SWIS:	62
Spiller Contact:	KENNETH
Spiller Phone:	(212) 491-9579
Spiller Extention:	Not reported
Spiller Name:	CASTLE OIL CO
Spiller Address:	290 LOCUST AVE
Spiller City,St,Zip:	BRONX, NY
Facility Contact:	JANET MATOS
Facility Phone:	(718) 579-3413
Facility Extention:	Not reported
Spill Cause:	Tank Overfill
Resource Affectd:	On Land
Water Affected:	Not reported
Spill Source:	Private Dwelling
Spill Notifier:	Responsible Party
PBS Number:	Not reported
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Date:	/ /
Enforcement Date:	/ /
Investigation Complete:	/ /
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	10/09/98
Date Region Sent Summary to Central Office:	/ /
Corrective Action Plan Submitted:	/ /
Date Spill Entered In Computer Data File:	10/09/98
Time Spill Entered In Computer Data File:	Not reported
Spill Record Last Update:	11/10/99
Is Updated:	False
PBS Number:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate Failed Tank:	Not reported
Gross Leak Rate:	Not reported
Material Class Type:	Petroleum
Quantity Spilled:	5
Unkonwn Quantity Spilled:	False
Units:	Gallons
Quantity Recovered:	0
Unkonwn Quantity Recovered:	True
Material:	#2 FUEL OIL
Class Type:	#2 FUEL OIL

RESIDENCE (Continued) **S104515028**

Times Material Entry In File: 24464
CAS Number: Not reported
Last Date: 19941207
DEC Remarks: ONLY ABOUT 2 GALS. ON SIDEWALK. NO SEWERS AFFECTED, THEY WILL RECOVER ENTIRE AMOUNT.
Spill Cause: SPILL HAS BEEN CONTAINED FOR CLEANUP.

L48 **CONSOLIDATED EDISON** **NY MANIFEST** **1009239629**
WNW **W 155TH ST / AMSTERDAM AVE** **N/A**
1/8-1/4 **NEW YORK, NY 10032**
685 ft.

Site 1 of 3 in cluster L

Relative: Higher

Actual: 147 ft.

NY MANIFEST:

Document ID:	NYE0512514
Manifest Status:	Not reported
Trans1 State ID:	NYD006982359
Trans2 State ID:	Not reported
Generator Ship Date:	10/02/2000
Trans1 Recv Date:	10/02/2000
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	10/03/2000
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYP004063665
Trans1 EPA ID:	NYD077444263
Trans2 EPA ID:	Not reported
TSDF ID:	20408AD
Waste Code:	B007 - OTHER MISCELLANEOUS PCB WASTES
Quantity:	00204
Units:	K - Kilograms (2.2 pounds)
Number of Containers:	003
Container Type:	DM - Metal drums, barrels
Handling Method:	L Landfill.
Specific Gravity:	01.00
Year:	00
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYP004063665
Facility Name:	CONSOLIDATED EDISON
Facility Address:	W 155TH ST & AMSTERDAM AVE
Facility City:	NEW YORK
Facility Address 2:	Not reported
Country:	USA
County:	NE
Mailing Name:	CONSOLIDATED EDISON
Mailing Contact:	FRANKLIN MURRAY
Mailing Address:	4 IRVING PLACE RM 828

CONSOLIDATED EDISON (Continued) **1009239629**

Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-460-2808
Document ID:	NYE0683163
Manifest Status:	Not reported
Trans1 State ID:	NYD006982359
Trans2 State ID:	Not reported
Generator Ship Date:	09/29/2000
Trans1 Recv Date:	09/29/2000
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	10/02/2000
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYP004063665
Trans1 EPA ID:	NYD077444263
Trans2 EPA ID:	Not reported
TSDF ID:	20408AD
Waste Code:	B007 - OTHER MISCELLANEOUS PCB WASTES
Quantity:	00218
Units:	K - Kilograms (2.2 pounds)
Number of Containers:	003
Container Type:	DM - Metal drums, barrels
Handling Method:	L Landfill.
Specific Gravity:	01.00
Year:	00
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYP004063665
Facility Name:	CONSOLIDATED EDISON
Facility Address:	W 155TH ST & AMSTERDAM AVE
Facility City:	NEW YORK
Facility Address 2:	Not reported
Country:	USA
County:	NE
Mailing Name:	CONSOLIDATED EDISON
Mailing Contact:	FRANKLIN MURRAY
Mailing Address:	4 IRVING PLACE RM 828
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported

CONSOLIDATED EDISON (Continued) **1009239629**

Mailing Country: USA
Mailing Phone: 212-460-2808

L49
WNW
1/8-1/4
685 ft.

Relative:
Higher

Actual:
147 ft.

1920 AMSTERDAM AVE.
1920 AMSTERDAM AVENUE
NEW YORK, NY 10032

UST **U004045138**
N/A

Site 2 of 3 in cluster L

UST:

UST:

Facility Id:	2-608843
Expiration Date:	04/14/08
Renewal Date:	/ /
Total Capacity:	16000
Facility Type:	Not reported
Mailing Company:	EMPIRE STATE FUEL OIL
Mailing Title:	Not reported
Mailing Contact:	KENNETH REED
Mailing Address:	1640 MCDONALD AVENUE
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip Code:	11230
Mailing Phone No:	(718) 627-5100
Mailing Email:	Not reported
Owner Title:	Not reported
Owner Name:	Not reported
Owner Address:	107-109 EAST 126 ST.
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	10035
Owner Phone:	(212) 996-0200
Owner Company:	MARION SCOTT REAL ESTATE A/A/F DUNWELL PLAZA
Emergency Contact:	CARMEN ROLON
Emergency Phone:	(212) 996-0200
Operator:	FRED DELAHOSE
Operator Phone:	(917) 788-6372
Owner City:	NEW YORK
Owner Sub Type:	Corporate or Commercial
UTM X:	589122.21172
UTM Y:	4520605.53599
Site Type Name:	Apartment Building/Office Building
Site Type Status:	Active
Comments:	Not reported
Program Type:	PBS
Tank Number:	001
Tank Location Name:	Underground
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	/ /
Capacity Gallons:	16000
Material Name:	#2 Fuel Oil

1920 AMSTERDAM AVE. (Continued) **U004045138**

Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Aboveground/Underground Combination
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Exempt Suction Piping
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Product Level Gauge (A/G)
Type Of Overfill Prevention 2:	Vent Whistle
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Unknown
Date Tested:	/ /
Next Test Date:	12/27/87
Date Tank Closed:	/ /

K50 **849 ST NICHOLAS AVENUE** **UST** **U003835976**
SSW **849 ST. NICHOLAS AVENUE** **HIST UST** **N/A**
1/8-1/4 **NEW YORK, NY 10031**
686 ft.

Site 2 of 3 in cluster K

Relative:
Lower

UST:

Actual:
110 ft.

UST:

Facility Id:	2-606764
Expiration Date:	08/21/06
Renewal Date:	/ /
Total Capacity:	3000
Facility Type:	Not reported
Mailing Company:	NYC/HPD/DAMP
Mailing Title:	Not reported
Mailing Contact:	ASST. COMMISSIONER/DAMP
Mailing Address:	100 GOLD STREET
Mailing Address 2:	#7Z5
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip Code:	10038
Mailing Phone No:	(212) 863-7301
Mailing Email:	Not reported
Owner Title:	Not reported
Owner Name:	Not reported
Owner Address:	100 GOLD ST., #7Z5
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	10038
Owner Phone:	(212) 863-7301
Owner Company:	NYC/HPD/DAMP
Emergency Contact:	213/215 MOTT ST. H.D.F.C.

849 ST NICHOLAS AVENUE (Continued) **U003835976**

Emergency Phone:	(646) 613-0908
Operator:	ASST. COMMISSIONER/DAMP
Operator Phone:	(212) 863-7301
Owner City:	NEW YORK
Owner Sub Type:	Local Government
UTM X:	589188.73750
UTM Y:	4520292.02657
Site Type Name:	Apartment Building/Office Building
Site Type Status:	Active
Comments:	Not reported
Program Type:	PBS
Tank Number:	001
Tank Location Name:	Underground
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	/ /
Capacity Gallons:	3000
Material Name:	Gasoline
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	Painted/Asphalt Coating
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Aboveground/Underground Combination
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Vent Whistle
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Unknown
Date Tested:	/ /
Next Test Date:	12/27/87
Date Tank Closed:	/ /

HIST UST:

PBS Number:	2-606764
SPDES Number:	Not reported
Emergency Contact:	ASST. COMMISSIONER/DAMP
Emergency Telephone:	(212) 863-7301
Operator:	ASST. COMMISSIONER/DAMP
Operator Telephone:	(212) 863-7301
Owner Name:	NYC/HPD/DAMP
Owner Address:	100 GOLD ST., #7Z5
Owner City,St,Zip:	NEW YORK, NY 10038

849 ST NICHOLAS AVENUE (Continued) **U003835976**

Owner Telephone:	(212) 863-7301
Owner Type:	Local Government
Owner Subtype:	Not reported
Mailing Name:	NYC/HPD/DAMP
Mailing Address:	100 GOLD STREET
Mailing Address 2:	#7Z5
Mailing City,St,Zip:	NEW YORK, NY 10038
Mailing Contact:	ASST. COMMISSIONER/DAMP
Mailing Telephone:	(212) 863-7301
Owner Mark:	First Owner
Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Facility Addr2:	Not reported
SWIS ID:	6201
Old PBS Number:	Not reported
Facility Type:	APARTMENT BUILDING
Inspected Date:	Not reported
Inspector:	Not reported
Inspection Result:	Not reported
Federal ID:	Not reported
Certification Flag:	False
Certification Date:	08/24/2001
Expiration Date:	08/21/2006
Renew Flag:	False
Renewal Date:	Not reported
Total Capacity:	3000
FAMT:	True
Facility Screen:	No Missing Data
Owner Screen:	No Missing Data
Tank Screen:	Minor Data Missing
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	62
Town or City:	01
Region:	2
Tank Id:	001
Tank Location:	UNDERGROUND
Tank Status:	In Service
Install Date:	Not reported
Capacity (gals):	3000
Product Stored:	UNLEADED GASOLINE
Tank Type:	Steel/carbon steel
Tank Internal:	None
Tank External:	Painted/Asphalt Coating
Pipe Location:	Aboveground/Underground Combination
Pipe Type:	STEEL/IRON
Pipe Internal:	None
Pipe External:	None
Second Containment:	Not reported
Leak Detection:	None
Overfill Prot:	Vent Whistle
Dispenser:	Suction
Date Tested:	Not reported
Next Test Date:	12/27/1987

849 ST NICHOLAS AVENUE (Continued) **U003835976**

Missing Data for Tank: Minor Data Missing
Date Closed: Not reported
Test Method: Not reported
Deleted: False
Updated: True
Lat/long: Not reported

51
ESE
1/8-1/4
698 ft.

NYCTA - 155TH ST SUBSTATION
155TH ST & BRADHURST AVE
NEW YORK, NY 10039

RCRA-SQG **1000890214**
FINDS **NY0000277749**

Relative:
Lower

Actual:
19 ft.

RCRAInfo:
Owner: NEW YORK CITY TRANSIT AUTHORITY
(718) 330-4581
EPA ID: NY0000277749

Contact: Not reported

Classification: Small Quantity Generator
TSDF Activities: Not reported

Violation Status: No violations found

FINDS:
Other Pertinent Environmental Activity Identified at Site

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

M52
WNW
1/8-1/4
702 ft.

NYCHA - AUDUBON HOUSES
1909 AMSTERDAM AVE
NEW YORK, NY 10032

RCRA-SQG **1004762900**
FINDS **NYR000101600**

Site 1 of 2 in cluster M

Relative:
Higher

Actual:
147 ft.

RCRAInfo:
Owner: NYCHA
(718) 707-5731
EPA ID: NYR000101600

Contact: ANTHONY SOLOMITA
(718) 707-5731

Classification: Small Quantity Generator
TSDF Activities: Not reported

NYCHA - AUDUBON HOUSES (Continued) **1004762900**

Violation Status: No violations found

FINDS:
Other Pertinent Environmental Activity Identified at Site

FIS (New York - Facility Information System) is New York's Department of Environmental Conservation (DEC) information system for tracking environmental facility information found across the State.

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

M53 **AUDUBON HOUSES** **UST** **U001840710**
WNW **1909 AMSTERDAM AVENUE** **LTANKS** **N/A**
1/8-1/4 **NEW YORK, NY 10032** **HIST UST**
702 ft. **HIST LTANKS**

Site 2 of 2 in cluster M

Relative: Higher

Actual: 147 ft.

UST:

UST:

Facility Id:	2-474819
Expiration Date:	03/28/09
Renewal Date:	/ /
Total Capacity:	12000
Facility Type:	Not reported
Mailing Company:	NEW YORK CITY HOUSING AUTHORITY
Mailing Title:	Not reported
Mailing Contact:	FUEL OIL REMEDIATION COORDINATOR
Mailing Address:	23-02 49TH AVENUE
Mailing Address 2:	Not reported
Mailing City:	LONG ISLAND CITY
Mailing State:	NY
Mailing Zip Code:	11101
Mailing Phone No:	(718) 707-5725
Mailing Email:	Not reported
Owner Title:	FUEL OIL REMEDIATION COORD.
Owner Name:	FUEL OIL REMEDIATION COORD.
Owner Address:	23-02 49TH AVE
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	11101
Owner Phone:	(718) 707-5725
Owner Company:	NYC HOUSING AUTHORITY
Emergency Contact:	EMERGENCY SERVICE DEPT.
Emergency Phone:	(718) 707-5725
Operator:	FUEL OIL REM. COORD.
Operator Phone:	(718) 707-5725
Owner City:	LONG ISLAND CITY
Owner Sub Type:	NYC Housing Authority (Local Government)
UTM X:	589143.09833
UTM Y:	4520566.53164
Site Type Name:	Apartment Building/Office Building

AUDUBON HOUSES (Continued) **U001840710**

Site Type Status:	Active
Comments:	Not reported
Program Type:	PBS
Tank Number:	1
Tank Location Name:	Underground
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	01/01/94
Capacity Gallons:	12000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Fiberglass Coated Steel
Tank Internal Protection:	None
Tank Internal Protection 1:	Jacketed
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Underground/On-ground
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	Original Sacrificial Anode
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Double-Walled (Underground)
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	Interstitial - Electronic Monitoring
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Exempt Suction Piping
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	High Level Alarm
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

Tank Number:	OLD 1
Tank Location Name:	Underground
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	04/01/62
Capacity Gallons:	12000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	Wrapped

AUDUBON HOUSES (Continued) **U001840710**

Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Product Level Gauge (A/G)
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	04/01/94

LTANKS:

Site ID:	80798
Spill Date:	12/06/93
Facility Addr2:	Not reported
Facility ID:	9310784
Program Number:	9310784
SWIS:	3101
Region of Spill:	2
Investigator:	HEALY
Referred To:	Not reported
Reported to Dept:	12/06/93
CID:	15
Spill Cause:	Tank Failure
Water Affected:	Not reported
Spill Source:	Institutional, Educational, Gov., Other
Spill Notifier:	Responsible Party
Cleanup Ceased:	05/01/95
Cleanup Meets Standard:	True
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	05/01/95
Remediation Phase:	0
Date Entered In Computer:	12/07/93
Spill Record Last Update:	05/01/95
Spille Namer:	Not reported
Spiller Company:	NYCHA
Spiller Phone:	(212) 306-3142
Spiller Extention:	Not reported
Spiller Address:	250 BROADWAY
Spiller City,St,Zip:	NEW YORK, NY
Spiller County:	001
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
DEC Region:	2
Program Number:	9310784
DER Facility ID:	74832

AUDUBON HOUSES (Continued) **U001840710**

Site ID:	80798
Operable Unit ID:	989529
Operable Unit:	01
Material ID:	389859
Material Code:	0003
Material Name:	#6 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	-1.00
Units:	Not reported
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
Site ID:	80798
Spill Tank Test:	1542263
Tank Number:	001
Tank Size:	0
Test Method:	00
Leak Rate:	0.00
Gross Fail:	Not reported
Modified By:	Spills
Last Modified:	10/01/04
Test Method:	Unknown
DEC Memo:	Not reported
Remarks:	Start CallerRemark - 9310784 FOUND CONTAMINATED SOIL IN TANK PULL - SOIL IS STOCK PILED. END CallerRemark - 9310784

Site ID:	303173
Spill Date:	01/06/93
Facility Addr2:	Not reported
Facility ID:	9211486
Program Number:	9211486
SWIS:	3101
Region of Spill:	2
Investigator:	HEALY
Referred To:	Not reported
Reported to Dept:	01/06/93
CID:	15
Spill Cause:	Tank Overfill
Water Affected:	Not reported
Spill Source:	Unknown
Spill Notifier:	Affected Persons
Cleanup Ceased:	01/07/93
Cleanup Meets Standard:	True
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	01/07/93
Remediation Phase:	0
Date Entered In Computer:	01/08/93
Spill Record Last Update:	05/14/98
Spille Namer:	Not reported
Spiller Company:	NYC HOUSING AUTHORITY
Spiller Phone:	(212) 306-3129
Spiller Extention:	Not reported

AUDUBON HOUSES (Continued) **U001840710**

Spiller Address:	250 BROADWAY
Spiller City,St,Zip:	NEW YORK, NY -
Spiller County:	001
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
DEC Region:	2
Program Number:	9211486
DER Facility ID:	244956
Site ID:	303173
Operable Unit ID:	975775
Operable Unit:	01
Material ID:	404886
Material Code:	0002
Material Name:	#4 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	75.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
Site ID:	303173
Spill Tank Test:	1541032
Tank Number:	Not reported
Tank Size:	0
Test Method:	00
Leak Rate:	0.00
Gross Fail:	Not reported
Modified By:	Spills
Last Modified:	10/01/04
Test Method:	Unknown
DEC Memo:	Not reported
Remarks:	Start CallerRemark - 9211486 SPILL ON BOILER ROOM FLOOR AND MOST ON SOIL OUTSIDE, NYCHA STAFF AND WINSTON CONTRACTING DOING CLEANUP END CallerRemark - 9211486

HIST UST:

PBS Number:	2-474819
SPDES Number:	Not reported
Emergency Contact:	EMERGENCY SERVICE SQUAD
Emergency Telephone:	(212) 289-3940
Operator:	RAFAEL VELEZ
Operator Telephone:	(212) 306-3142
Owner Name:	NYC HOUSING AUTHORITY
Owner Address:	250 BROADWAY
Owner City,St,Zip:	NEW YORK, NY 10007
Owner Telephone:	(212) 306-3142
Owner Type:	Local Government
Owner Subtype:	51
Mailing Name:	NYC HOUSING AUTHORITY
Mailing Address:	250 BROADWAY
Mailing Address 2:	16TH FLOOR
Mailing City,St,Zip:	NEW YORK, NY 10007
Mailing Contact:	FRANK OCELLO
Mailing Telephone:	(212) 306-3142
Owner Mark:	First Owner

AUDUBON HOUSES (Continued) **U001840710**

Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Facility Addr2:	Not reported
SWIS ID:	6201
Old PBS Number:	Not reported
Facility Type:	APARTMENT BUILDING
Inspected Date:	Not reported
Inspector:	Not reported
Inspection Result:	Not reported
Federal ID:	Not reported
Certification Flag:	False
Certification Date:	11/08/1999
Expiration Date:	03/28/2004
Renew Flag:	False
Renewal Date:	Not reported
Total Capacity:	12000
FAMT:	True
Facility Screen:	No Missing Data
Owner Screen:	Minor Data Missing
Tank Screen:	Minor Data Missing
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	62
Town or City:	01
Region:	2

Tank Id:	001
Tank Location:	UNDERGROUND
Tank Status:	Closed-Removed
Install Date:	19620401
Capacity (gals):	12000
Product Stored:	NOS 1,2, OR 4 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	STEEL/IRON
Pipe Internal:	Not reported
Pipe External:	Wrapped (Piping)
Second Containment:	None
Leak Detection:	None
Overfill Prot:	Product Level Gauge
Dispenser:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	11/01/1993
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	01
Tank Location:	UNDERGROUND

AUDUBON HOUSES (Continued) **U001840710**

Tank Status:	In Service
Install Date:	19940101
Capacity (gals):	12000
Product Stored:	NOS 1,2, OR 4 FUEL OIL
Tank Type:	Fiberglass coated steel
Tank Internal:	Not reported
Tank External:	Jacketed
Pipe Location:	Underground
Pipe Type:	STEEL/IRON
Pipe Internal:	None
Pipe External:	Sacrificial Anode
Second Containment:	Vault (w/access)
Leak Detection:	Electronic
Overfill Prot:	High Level Alarm
Dispenser:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	Not reported

HIST LTANKS:

Region of Spill:	2
Spill Number:	9310784
Investigator:	HEALY
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Caller Extension:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Notifier Extension:	Not reported
Spill Date:	12/06/1993
Spill Time:	11:44
Reported to Department Date:	12/06/93
Reported to Department Time:	12:44
SWIS:	62
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
Spiller Name:	NYCHA
Spiller Address:	250 BROADWAY
Spiller City,St,Zip:	NEW YORK CITY
Facility Contact:	Not reported
Facility Phone:	(212) 306-3142
Facility Extention:	Not reported
Spill Cause:	Tank Failure
Resource Affectd:	On Land
Water Affected:	Not reported
Spill Source:	Other Non Commercial/Industrial
Spill Notifier:	Responsible Party
PBS Number:	2-474819
Cleanup Ceased:	05/01/95

AUDUBON HOUSES (Continued) **U001840710**

Cleanup Meets Standard: True
Last Inspection: / /
Recommended Penalty: Penalty Not Recommended
Spiller Cleanup Date: / /
Enforcement Date: / /
Investigation Complete: / /
UST Involvement: False
Spill Class: Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: 05/01/95
Date Region Sent Summary to Central Office: / /
Corrective Action Plan Submitted: / /
Date Spill Entered In Computer Data File: 12/07/93
Time Spill Entered In Computer Data File: Not reported
Spill Record Last Update: 05/01/95
Is Updated: False
PBS Number: Not reported
Tank Number: 001
Tank Size: 0
Test Method: Not reported
Leak Rate Failed Tank: 0.00
Gross Leak Rate: Not reported
Material Class Type: Petroleum
Quantity Spilled: -1
Unkonwn Quantity Spilled: False
Units: Not reported
Quantity Recovered: 0
Unkonwn Quantity Recovered: False
Material: #6 FUEL OIL
Class Type: #6 FUEL OIL
Times Material Entry In File: 2190
CAS Number: Not reported
Last Date: 19940728
DEC Remarks: Not reported
Spill Cause: FOUND CONTAMINATED SOIL IN TANK PULL - SOIL IS STOCK PILED.

Region of Spill: 2
Spill Number: 9211486
Investigator: HEALY
Caller Name: Not reported
Caller Agency: Not reported
Caller Phone: Not reported
Caller Extension: Not reported
Notifier Name: Not reported
Notifier Agency: Not reported
Notifier Phone: Not reported
Notifier Extension: Not reported
Spill Date: 01/06/1993
Spill Time: 13:30
Reported to Department Date: 01/06/93
Reported to Department Time: 15:35
SWIS: 62
Spiller Contact: Not reported
Spiller Phone: Not reported
Spiller Extention: Not reported
Spiller Name: NYC HOUSING AUTHORITY
Spiller Address: 250 BROADWAY

AUDUBON HOUSES (Continued) **U001840710**

Spiller City,St,Zip:	NEW YORK, NY -
Facility Contact:	Not reported
Facility Phone:	(212) 306-3129
Facility Extention:	Not reported
Spill Cause:	Tank Overfill
Resource Affectd:	On Land
Water Affected:	Not reported
Spill Source:	Unknown
Spill Notifier:	Affected Persons
PBS Number:	2-474819
Cleanup Ceased:	01/07/93
Cleanup Meets Standard:	True
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Date:	/ /
Enforcement Date:	/ /
Investigation Complete:	/ /
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	01/07/93
Date Region Sent Summary to Central Office:	/ /
Corrective Action Plan Submitted:	/ /
Date Spill Entered In Computer Data File:	01/08/93
Time Spill Entered In Computer Data File:	Not reported
Spill Record Last Update:	05/14/98
Is Updated:	False
PBS Number:	Not reported
Tank Number:	Not reported
Tank Size:	0
Test Method:	Not reported
Leak Rate Failed Tank:	0.00
Gross Leak Rate:	Not reported
Material Class Type:	Petroleum
Quantity Spilled:	75
Unkonwn Quantity Spilled:	False
Units:	Gallons
Quantity Recovered:	0
Unkonwn Quantity Recovered:	False
Material:	#4 FUEL OIL
Class Type:	#4 FUEL OIL
Times Material Entry In File:	1751
CAS Number:	Not reported
Last Date:	19941205
DEC Remarks:	5/14/98 SSS CHANGED SPILL SITE FROM BUTHUNE TO AUDUBON HOUSES AFTER REVIEW OF THE FILES
Spill Cause:	SPILL ON BOILER ROOM FLOOR AND MOST ON SOIL OUTSIDE, NYCHA STAFF AND WINSTON CONTRACTING DOING CLEANUP

N54 SSW 1/8-1/4 708 ft. | **EDGECOMBE ASSOC**
48 SAINT NICHOLAS PL
NY, NY 10031 | **UST** / **HIST UST** | **U000417183** / **N/A**

Site 1 of 5 in cluster N

Relative: Lower

Actual: 103 ft.

UST:

UST:

Facility Id:	2-254177
Expiration Date:	07/14/92
Renewal Date:	/ /
Total Capacity:	0
Facility Type:	Not reported
Mailing Company:	EDGECOMBE ASSOC
Mailing Title:	Not reported
Mailing Contact:	Not reported
Mailing Address:	736 BROADWAY 4TH FL
Mailing Address 2:	Not reported
Mailing City:	NY
Mailing State:	NY
Mailing Zip Code:	10003
Mailing Phone No:	(212) 475-6001
Mailing Email:	Not reported
Owner Title:	Not reported
Owner Name:	Not reported
Owner Address:	736 BROADWAY 4TH FL
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	10003
Owner Phone:	(212) 475-6001
Owner Company:	EDGECOMBE ASSOC
Emergency Contact:	JED MANAGEMENT
Emergency Phone:	(212) 475-6001
Operator:	JED MANAGEMENT
Operator Phone:	(212) 475-6001
Owner City:	NY
Owner Sub Type:	Not reported
UTM X:	589292.08888
UTM Y:	4520268.45723
Site Type Name:	Unknown
Site Type Status:	Administratively Closed
Comments:	12/02/2003 - This site has been declared ADMINISTRATIVELY CLOSED. It has been removed from active status. (Please specify why below) Duplicate of 2-000442. nl
Program Type:	PBS
Tank Number:	001
Tank Location Name:	Underground
Tank Status:	Administratively Closed
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	/ /
Capacity Gallons:	4000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None

EDGECOMBE ASSOC (Continued) **U000417183**

Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Vault (w/o access)
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Product Level Gauge (A/G)
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	12/02/03

HIST UST:

PBS Number:	2-254177
SPDES Number:	Not reported
Emergency Contact:	JED MANAGEMENT
Emergency Telephone:	(212) 475-6001
Operator:	JED MANAGEMENT
Operator Telephone:	(212) 475-6001
Owner Name:	EDGECOMBE ASSOC
Owner Address:	736 BROADWAY 4TH FL
Owner City,St,Zip:	NY, NY 10003
Owner Telephone:	(212) 475-6001
Owner Type:	Not reported
Owner Subtype:	Not reported
Mailing Name:	EDGECOMBE ASSOC
Mailing Address:	736 BROADWAY 4TH FL
Mailing Address 2:	Not reported
Mailing City,St,Zip:	NY, NY 10003
Mailing Contact:	Not reported
Mailing Telephone:	(212) 475-6001
Owner Mark:	First Owner
Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Facility Addr2:	48 SAINT NICHOLAS PL
SWIS ID:	6201
Old PBS Number:	Not reported
Facility Type:	Not reported
Inspected Date:	Not reported
Inspector:	Not reported
Inspection Result:	Not reported
Federal ID:	Not reported
Certification Flag:	False
Certification Date:	07/14/1987
Expiration Date:	07/14/1992
Renew Flag:	False

EDGECOMBE ASSOC (Continued) **U000417183**

Renewal Date:	Not reported
Total Capacity:	4000
FAMT:	True
Facility Screen:	Minor Data Missing
Owner Screen:	Minor Data Missing
Tank Screen:	Minor Data Missing
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	62
Town or City:	01
Region:	2

Tank Id:	001
Tank Location:	UNDERGROUND
Tank Status:	In Service
Install Date:	Not reported
Capacity (gals):	4000
Product Stored:	NOS 1,2, OR 4 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	STEEL/IRON
Pipe Internal:	Not reported
Pipe External:	Not reported
Second Containment:	Diking
Leak Detection:	None
Overfill Prot:	Product Level Gauge
Dispenser:	Suction
Date Tested:	Not reported
Next Test Date:	12/27/1987
Missing Data for Tank:	Minor Data Missing
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	False
Lat/long:	Not reported

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55 **PRANA NINE PROPERTIES** **AST** **A100175741**
North **945 ST. NICHOLAS AVENUE** **N/A**
1/8-1/4 **NEW YORK, NY 10032**
715 ft.

Relative:
Higher

Actual:
150 ft.

AST:

AST:

Region:	STATE
Facility Id:	2-605500
UTM X:	589330.51428
UTM Y:	4520724.56168
Expiration Date:	09/22/10
Renewal Date:	/ /
Total Capacity:	3000
Facility Type:	MUITIPLE DWELLING
Site Type Name:	Other
Site Type Status:	Active
Mailing Company:	PRANA NINE PROPERTIES

PRANA NINE PROPERTIES (Continued) **A100175741**

Mailing Title:	Not reported
Mailing Contact:	ROSARIO RVIZ
Mailing Address:	507 W. 186TH ST. #A4
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip Code:	10033
Mailing Phone No:	Not reported
Mailing Email:	Not reported
Owner Title:	PROPERTY MANAGER
Owner Name:	MAURICE MCKENZIE
Owner Address:	507 W. 186TH ST. #A4
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	10033
Owner Phone:	Not reported
Owner Company:	PRANA NINE PROPERTIES
Emergency Contact:	MAURICE MCKENZIE
Emergency Phone:	Not reported
Operator:	BRION LOUISON
Operator Phone:	Not reported
Owner City:	NEW YORK
Owner Sub Type:	Private Resident
Program Type:	PBS

Tank Number:	001
Tank Location Name:	Aboveground - in contact with soil
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	01/01/01
Capacity Gallons:	3000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	Epoxy Liner
Tank Internal Protection 1:	Painted/Asphalt Coating
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Aboveground
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	Painted/Asphalt Coating
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Diking (Aboveground)
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Diking (Aboveground)
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	None
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Vent Whistle
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	None
Spill Prevention:	None
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /

PRANA NINE PROPERTIES (Continued) **A100175741**

Date Tank Closed: / /

N56 **ST. NICHOLAS PLACE LLC** **AST** **A100194247**
South **52-54 ST. NICHOLAS PLACE** **N/A**
1/8-1/4 **NEW YORK, NY 10031**
721 ft.

Site 2 of 5 in cluster N

Relative: Lower

Actual: 103 ft.

AST:

AST:

Region:	STATE
Facility Id:	2-607224
UTM X:	589268.89767
UTM Y:	4520274.45344
Expiration Date:	11/27/11
Renewal Date:	/ /
Total Capacity:	4000
Facility Type:	Not reported
Site Type Name:	Apartment Building/Office Building
Site Type Status:	Active
Mailing Company:	FRIEDMAN MANAGEMENT CORP.
Mailing Title:	Not reported
Mailing Contact:	ADAM STRYKER
Mailing Address:	225 WEST 34TH STREET
Mailing Address 2:	SUITE 1305
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip Code:	10122
Mailing Phone No:	(212) 736-6888
Mailing Email:	Not reported
Owner Title:	MGR AGENT
Owner Name:	ADAM STRYKER
Owner Address:	40 FRIEDMAN MGMT. CORP. 225 WEST 34TH ST
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	10122
Owner Phone:	(212) 736-6888
Owner Company:	FRIEDMAN MANAGEMENT
Emergency Contact:	ADAM STRYKER
Emergency Phone:	(212) 736-6888
Operator:	DANIEL MARTINEZ
Operator Phone:	(212) 368-6757
Owner City:	NEW YORK
Owner Sub Type:	Corporate or Commercial
Program Type:	PBS
Tank Number:	001
Tank Location Name:	Aboveground - in contact with soil
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	/ /
Capacity Gallons:	4000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron

ST. NICHOLAS PLACE LLC (Continued) **A100194247**

Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping
Pipe Type Name:	No Piping
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	None
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	None
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

N57 **49 SAINT NICHOLAS PLACE** **LTANKS** **S102233221**
SSW **49 SAINT NICHOLAS PLACE** **HIST LTANKS** **N/A**
1/8-1/4 **NEW YORK, NY**
731 ft.

Site 3 of 5 in cluster N

Relative:
Lower

Actual:
103 ft.

LTANKS:

Site ID:	214795
Spill Date:	11/01/95
Facility Addr2:	Not reported
Facility ID:	9509504
Program Number:	9509504
SWIS:	3101
Region of Spill:	2
Investigator:	LUCE
Referred To:	Not reported
Reported to Dept:	11/01/95
CID:	15
Spill Cause:	Tank Failure
Water Affected:	Not reported
Spill Source:	Private Dwelling
Spill Notifier:	Other
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	11/01/95
Remediation Phase:	0
Date Entered In Computer:	11/01/95
Spill Record Last Update:	11/09/95
Spille Namer:	IMANI BENNETT
Spiller Company:	IMANI BENNETT

49 SAINT NICHOLAS PLACE (Continued) **S102233221**

Spiller Phone:	(212) 491-4772
Spiller Extention:	Not reported
Spiller Address:	49 SAINT NICHOLAS PLACE
Spiller City,St,Zip:	NEW YORK, NY 10031-
Spiller County:	001
Spiller Contact:	IMANI BENNETT
Spiller Phone:	(212) 491-4772
Spiller Extention:	Not reported
DEC Region:	2
Program Number:	9509504
DER Facility ID:	177944
Site ID:	214795
Operable Unit ID:	1020054
Operable Unit:	01
Material ID:	360457
Material Code:	0001
Material Name:	#2 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	10.00
Units:	Gallons
Recovered:	10.00
Resource Affected:	Soil
Oxygenate:	False
Site ID:	Not reported
Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported
DEC Memo:	Not reported
Remarks:	Start CallerRemark - 9509504 LEAK FROM TANK ONTO CONCRETE BASEMENT FLOOR. TANK PUMPED OUT AND BEING REPLACED. END CallerRemark - 9509504

HIST LTANKS:

Region of Spill:	2
Spill Number:	9509504
Investigator:	LUCE
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Caller Extension:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Notifier Extension:	Not reported
Spill Date:	11/01/1995
Spill Time:	01:45
Reported to Department Date:	11/01/95
Reported to Department Time:	11:41
SWIS:	62
Spiller Contact:	IMANI BENNETT
Spiller Phone:	(212) 491-4772

49 SAINT NICHOLAS PLACE (Continued) **S102233221**

Spiller Extention:	Not reported
Spiller Name:	IMANI BENNETT
Spiller Address:	49 SAINT NICHOLAS PLACE
Spiller City,St,Zip:	NEW YORK, NY 10031-
Facility Contact:	IMANI BENNETT
Facility Phone:	(212) 491-4772
Facility Extention:	Not reported
Spill Cause:	Tank Failure
Resource Affectd:	On Land
Water Affected:	Not reported
Spill Source:	Private Dwelling
Spill Notifier:	Other
PBS Number:	Not reported
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Date:	/ /
Enforcement Date:	/ /
Investigation Complete:	/ /
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	11/01/95
Date Region Sent Summary to Central Office:	/ /
Corrective Action Plan Submitted:	/ /
Date Spill Entered In Computer Data File:	11/01/95
Time Spill Entered In Computer Data File:	Not reported
Spill Record Last Update:	11/09/95
Is Updated:	False
PBS Number:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate Failed Tank:	Not reported
Gross Leak Rate:	Not reported
Material Class Type:	Petroleum
Quantity Spilled:	10
Unkonwn Quantity Spilled:	False
Units:	Gallons
Quantity Recovered:	10
Unkonwn Quantity Recovered:	False
Material:	#2 FUEL OIL
Class Type:	#2 FUEL OIL
Times Material Entry In File:	24464
CAS Number:	Not reported
Last Date:	19941207
DEC Remarks:	Not reported
Spill Cause:	LEAK FROM TANK ONTO CONCRETE BASEMENT FLOOR. TANK PUMPED OUT AND BEING REPLACED.

O58 SSE 1/8-1/4 739 ft. | **CHAMA HOLDING CORP**
385 EDGECOMBE AVE
MANHATTAN, NY 10031 | **AST** | **U003388942**
HIST AST | **N/A**

Site 1 of 2 in cluster O

Relative: Lower

Actual: 86 ft.

AST:

AST:

Region:	STATE
Facility Id:	2-283908
UTM X:	589417.78513
UTM Y:	4520446.72688
Expiration Date:	07/14/12
Renewal Date:	03/06/02
Total Capacity:	4000
Facility Type:	Not reported
Site Type Name:	Apartment Building/Office Building
Site Type Status:	Active
Mailing Company:	CHAMA HOLDING CORP
Mailing Title:	Not reported
Mailing Contact:	Not reported
Mailing Address:	PO BOX 191024
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip Code:	11219
Mailing Phone No:	(718) 972-5010
Mailing Email:	Not reported
Owner Title:	Not reported
Owner Name:	Not reported
Owner Address:	PO BOX 191024
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	11219
Owner Phone:	(718) 972-5010
Owner Company:	CHAMA HOLDING CORP
Emergency Contact:	EDUARDO MARTINEZ
Emergency Phone:	(718) 972-5010
Operator:	EDUARDO MARTINEZ
Operator Phone:	(212) 491-1540
Owner City:	BROOKLYN
Owner Sub Type:	Corporate or Commercial
Program Type:	PBS
Tank Number:	001
Tank Location Name:	Aboveground - in contact with soil
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	01/01/43
Capacity Gallons:	4000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping

CHAMA HOLDING CORP (Continued) **U003388942**

Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Vault (w/o access)
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Exempt Suction Piping
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Product Level Gauge (A/G)
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

HIST AST:

PBS Number:	2-283908
SWIS Code:	6201
Operator:	VICTOR SERRANO
Facility Phone:	(212) 491-2678
Facility Addr2:	385 EDGECOMBE AVE
Facility Type:	APARTMENT BUILDING
Emergency:	VICTOR SERRANO
Emergency Tel:	(718) 972-5010
Old PBSNO:	Not reported
Date Inspected:	Not reported
Inspector:	Not reported
Result of Inspection:	Not reported
Owner Name:	CHAMA HOLDING CORP
Owner Address:	PO BOX 191024
Owner City,St,Zip:	BROOKLYN, NY 11219
Federal ID:	Not reported
Owner Tel:	(718) 972-5010
Owner Type:	Corporate/Commercial
Owner Subtype:	Not reported
Mailing Contact:	Not reported
Mailing Name:	CHAMA HOLDING CORP
Mailing Address:	PO BOX 191024
Mailing Address 2:	Not reported
Mailing City,St,Zip:	BROOKLYN, NY 11219
Mailing Telephone:	(718) 972-5010
Owner Mark:	First Owner
Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Certification Flag:	False
Certification Date:	08/01/1997
Expiration:	07/14/2002
Renew Flag:	False
Renew Date:	Not reported
Total Capacity:	4000
FAMT:	True
Facility Screen:	No Missing Data

CHAMA HOLDING CORP (Continued) **U003388942**

Owner Screen:	No Missing Data
Tank Screen:	Minor Data Missing
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	62
Town or City Code:	01
Region:	2

Tank ID:	001
Tank Location:	ABOVEGROUND
Tank Status:	In Service
Install Date:	Not reported
Capacity (Gal):	4000
Product Stored:	NOS 1,2, OR 4 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	STEEL/IRON
Pipe Internal:	Not reported
Pipe External:	Not reported
Tank Containment:	Diking
Leak Detection:	0
Overfill Protection:	4
Dispenser Method:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	True
SPDES Number:	Not reported
Lat/Long:	Not reported

P59 **501 W 156TH ST HOUSING DEV** **UST** **U001836987**
NW **501 W 156TH ST** **HIST UST** **N/A**
1/8-1/4 **MANHATTAN, NY 10032**
744 ft.

Site 1 of 9 in cluster P

Relative: Higher

UST:

Actual: 147 ft.

UST:

Facility Id:	2-332062
Expiration Date:	08/23/03
Renewal Date:	09/29/93
Total Capacity:	5000
Facility Type:	Not reported
Mailing Company:	501 W 156TH ST HOUSING DEV
Mailing Title:	Not reported
Mailing Contact:	Not reported
Mailing Address:	501 W 156TH ST
Mailing Address 2:	Not reported
Mailing City:	MANHATTAN
Mailing State:	NY
Mailing Zip Code:	10032

501 W 156TH ST HOUSING DEV (Continued) **U001836987**

Mailing Phone No:	(212) 926-5390
Mailing Email:	Not reported
Owner Title:	Not reported
Owner Name:	Not reported
Owner Address:	501 W 156TH ST
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	10032
Owner Phone:	(212) 926-5390
Owner Company:	501 W 156TH ST HOUSING DEV
Emergency Contact:	JANIFER P. WILSON
Emergency Phone:	(212) 926-5390
Operator:	CATHERINE MOZEE
Operator Phone:	(212) 926-5390
Owner City:	MANHATTAN
Owner Sub Type:	Corporate or Commercial
UTM X:	589193.95243
UTM Y:	4520692.15782
Site Type Name:	Apartment Building/Office Building
Site Type Status:	Active
Comments:	Not reported
Program Type:	PBS
Tank Number:	038
Tank Location Name:	Underground
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	12/01/64
Capacity Gallons:	5000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	Epoxy Liner
Tank Internal Protection 1:	Painted/Asphalt Coating
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Underground/On-ground
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	Jacketed
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	Groundwater Well
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Vent Whistle
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Not reported
Spill Prevention:	Not reported
Tightness Test Method:	Unknown
Date Tested:	/ /
Next Test Date:	12/27/87
Date Tank Closed:	/ /

501 W 156TH ST HOUSING DEV (Continued) **U001836987**

HIST UST:

PBS Number:	2-332062
SPDES Number:	Not reported
Emergency Contact:	JANIFER P. WILSON
Emergency Telephone:	(212) 926-5390
Operator:	CATHERINE MOZEE
Operator Telephone:	(212) 926-5390
Owner Name:	501 W 156TH ST HOUSING DEV
Owner Address:	501 W 156TH ST
Owner City,St,Zip:	MANHATTAN, NY 10032
Owner Telephone:	(212) 926-5390
Owner Type:	Corporate/Commercial
Owner Subtype:	Not reported
Mailing Name:	501 W 156TH ST HOUSING DEV
Mailing Address:	501 W 156TH ST
Mailing Address 2:	Not reported
Mailing City,St,Zip:	MANHATTAN, NY 10032
Mailing Contact:	Not reported
Mailing Telephone:	(212) 926-5390
Owner Mark:	First Owner
Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Facility Addr2:	501 W 156TH ST
SWIS ID:	6201
Old PBS Number:	Not reported
Facility Type:	APARTMENT BUILDING
Inspected Date:	Not reported
Inspector:	Not reported
Inspection Result:	Not reported
Federal ID:	Not reported
Certification Flag:	False
Certification Date:	08/05/1998
Expiration Date:	08/23/2003
Renew Flag:	True
Renewal Date:	19930929
Total Capacity:	5000
FAMT:	True
Facility Screen:	No Missing Data
Owner Screen:	No Missing Data
Tank Screen:	No Missing Data
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	62
Town or City:	01
Region:	2
Tank Id:	038
Tank Location:	UNDERGROUND
Tank Status:	In Service
Install Date:	19641201
Capacity (gals):	5000
Product Stored:	NOS 1,2, OR 4 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	Epoxy Liner
Tank External:	Painted/Asphalt Coating

501 W 156TH ST HOUSING DEV (Continued) **U001836987**

Pipe Location:	Underground
Pipe Type:	STEEL/IRON
Pipe Internal:	Epoxy Liner
Pipe External:	Jacketed
Second Containment:	None
Leak Detection:	Groundwater Well
Overfill Prot:	Vent Whistle
Dispenser:	Gravity
Date Tested:	Not reported
Next Test Date:	12/27/1987
Missing Data for Tank:	No Missing Data
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	Not reported

P60 **OTHA/K & B CLEANERS** **DRYCLEANERS** **S106436126**
NW **1940 AMSTERDAM AVENUE** **N/A**
1/8-1/4 **NEW YORK, NY 10032**
744 ft.

Site 2 of 9 in cluster P

Relative: Higher

Actual: 147 ft.

DRYCLEANERS:

Facility ID:	2-6201-00330
Region:	NY

K61 **BLOCKERS CLEANERS** **RCRA-SQG** **1004756540**
SSW **840 ST NICHOLAS AVE** **FINDS** **NYD137908570**
1/8-1/4 **NEW YORK, NY 10031** **NY MANIFEST**
751 ft.

Site 3 of 3 in cluster K

Relative: Lower

Actual: 110 ft.

RCRAInfo:

Owner:	ADOLPHUS BLOCKER (212) 555-1212
EPA ID:	NYD137908570
Contact:	Not reported
Classification:	Conditionally Exempt Small Quantity Generator
TSDF Activities:	Not reported
Violation Status:	No violations found

FINDS:

Other Pertinent Environmental Activity Identified at Site

NJ-NJEMS (New Jersey - New Jersey Environmental Management System). The Department of Environmental Protection (NJDEP) manages large databases of environmental information in this integrated system.

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and

BLOCKERS CLEANERS (Continued) **1004756540**

corrective action activities required under RCRA.

NY MANIFEST:

Document ID:	NJA1421076
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	920602
Trans1 Recv Date:	920602
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	920602
Part A Recv Date:	Not reported
Part B Recv Date:	920616
Generator EPA ID:	NYD137908570
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NJD000768093
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00070
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	92
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD137908570
Facility Name:	BLOCKERS CLEANERS
Facility Address:	840 SAINT NICHOLAS AVENUE
Facility City:	NEW YORK
Facility Address 2:	Not reported
Country:	USA
County:	RI
Mailing Name:	BLOCKERS CLEANERS
Mailing Contact:	BLOCKERS CLEANERS
Mailing Address:	840 SAINT NICHOLAS AVENUE
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-368-9228

Document ID:	NJA1416324

BLOCKERS CLEANERS (Continued) **1004756540**

Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	920403
Trans1 Recv Date:	920403
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	920403
Part A Recv Date:	920414
Part B Recv Date:	920416
Generator EPA ID:	NYD137908570
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NJD000768093
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00070
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	92
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD137908570
Facility Name:	BLOCKERS CLEANERS
Facility Address:	840 SAINT NICHOLAS AVENUE
Facility City:	NEW YORK
Facility Address 2:	Not reported
Country:	USA
County:	RI
Mailing Name:	BLOCKERS CLEANERS
Mailing Contact:	BLOCKERS CLEANERS
Mailing Address:	840 SAINT NICHOLAS AVENUE
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-368-9228
Document ID:	NJA1463279
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	920630
Trans1 Recv Date:	920630

BLOCKERS CLEANERS (Continued) **1004756540**

Trans2 Recv Date:	Not reported
TSD Site Recv Date:	920630
Part A Recv Date:	920715
Part B Recv Date:	920710
Generator EPA ID:	NYD137908570
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NJD000768093
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00070
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	92
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD137908570
Facility Name:	BLOCKERS CLEANERS
Facility Address:	840 SAINT NICHOLAS AVENUE
Facility City:	NEW YORK
Facility Address 2:	Not reported
Country:	USA
County:	RI
Mailing Name:	BLOCKERS CLEANERS
Mailing Contact:	BLOCKERS CLEANERS
Mailing Address:	840 SAINT NICHOLAS AVENUE
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-368-9228
Document ID:	NJA1343557
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	920311
Trans1 Recv Date:	920311
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	920311
Part A Recv Date:	920326
Part B Recv Date:	920320
Generator EPA ID:	NYD137908570

BLOCKERS CLEANERS (Continued) **1004756540**

Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NJD000768093
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00070
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	92
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD137908570
Facility Name:	BLOCKERS CLEANERS
Facility Address:	840 SAINT NICHOLAS AVENUE
Facility City:	NEW YORK
Facility Address 2:	Not reported
Country:	USA
County:	RI
Mailing Name:	BLOCKERS CLEANERS
Mailing Contact:	BLOCKERS CLEANERS
Mailing Address:	840 SAINT NICHOLAS AVENUE
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-368-9228
Document ID:	NJA1375886
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	920117
Trans1 Recv Date:	920117
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	920117
Part A Recv Date:	920131
Part B Recv Date:	920129
Generator EPA ID:	NYD137908570
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NJD000768093
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00070

BLOCKERS CLEANERS (Continued) **1004756540**

Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	92
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD137908570
Facility Name:	BLOCKERS CLEANERS
Facility Address:	840 SAINT NICHOLAS AVENUE
Facility City:	NEW YORK
Facility Address 2:	Not reported
Country:	USA
County:	RI
Mailing Name:	BLOCKERS CLEANERS
Mailing Contact:	BLOCKERS CLEANERS
Mailing Address:	840 SAINT NICHOLAS AVENUE
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-368-9228
Document ID:	NJA1344597
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	920214
Trans1 Recv Date:	920214
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	920214
Part A Recv Date:	920225
Part B Recv Date:	920302
Generator EPA ID:	NYD137908570
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NJD000768093
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00070
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100

BLOCKERS CLEANERS (Continued) **1004756540**

Year:	92
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD137908570
Facility Name:	BLOCKERS CLEANERS
Facility Address:	840 SAINT NICHOLAS AVENUE
Facility City:	NEW YORK
Facility Address 2:	Not reported
Country:	USA
County:	RI
Mailing Name:	BLOCKERS CLEANERS
Mailing Contact:	BLOCKERS CLEANERS
Mailing Address:	840 SAINT NICHOLAS AVENUE
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-368-9228
Document ID:	NJA1351957
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	921201
Trans1 Recv Date:	921201
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	921201
Part A Recv Date:	921214
Part B Recv Date:	921215
Generator EPA ID:	NYD137908570
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NJD000768093
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00070
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	92
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported

BLOCKERS CLEANERS (Continued) **1004756540**

Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD137908570
Facility Name:	BLOCKERS CLEANERS
Facility Address:	840 SAINT NICHOLAS AVENUE
Facility City:	NEW YORK
Facility Address 2:	Not reported
Country:	USA
County:	RI
Mailing Name:	BLOCKERS CLEANERS
Mailing Contact:	BLOCKERS CLEANERS
Mailing Address:	840 SAINT NICHOLAS AVENUE
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-368-9228
Document ID:	NJA1420120
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	920909
Trans1 Recv Date:	920909
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	920909
Part A Recv Date:	920925
Part B Recv Date:	920922
Generator EPA ID:	NYD137908570
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NJD000768093
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00070
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	92
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported

BLOCKERS CLEANERS (Continued) **1004756540**

Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD137908570
Facility Name:	BLOCKERS CLEANERS
Facility Address:	840 SAINT NICHOLAS AVENUE
Facility City:	NEW YORK
Facility Address 2:	Not reported
Country:	USA
County:	RI
Mailing Name:	BLOCKERS CLEANERS
Mailing Contact:	BLOCKERS CLEANERS
Mailing Address:	840 SAINT NICHOLAS AVENUE
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-368-9228

Document ID:	NJA1413801
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	920730
Trans1 Recv Date:	920730
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	920730
Part A Recv Date:	Not reported
Part B Recv Date:	920812
Generator EPA ID:	NYD137908570
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NJD000768093
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00070
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	92
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD137908570
Facility Name:	BLOCKERS CLEANERS

BLOCKERS CLEANERS (Continued) **1004756540**

Facility Address:	840 SAINT NICHOLAS AVENUE
Facility City:	NEW YORK
Facility Address 2:	Not reported
Country:	USA
County:	RI
Mailing Name:	BLOCKERS CLEANERS
Mailing Contact:	BLOCKERS CLEANERS
Mailing Address:	840 SAINT NICHOLAS AVENUE
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-368-9228

Document ID:	NJA1415970
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	921006
Trans1 Recv Date:	921006
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	921006
Part A Recv Date:	921104
Part B Recv Date:	921023
Generator EPA ID:	NYD137908570
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NJD000768093
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00070
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	92
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD137908570
Facility Name:	BLOCKERS CLEANERS
Facility Address:	840 SAINT NICHOLAS AVENUE
Facility City:	NEW YORK
Facility Address 2:	Not reported
Country:	USA
County:	RI

BLOCKERS CLEANERS (Continued) **1004756540**

Mailing Name:	BLOCKERS CLEANERS
Mailing Contact:	BLOCKERS CLEANERS
Mailing Address:	840 SAINT NICHOLAS AVENUE
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-368-9228
Document ID:	NJA1545799
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	930420
Trans1 Recv Date:	930420
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	930420
Part A Recv Date:	930503
Part B Recv Date:	930503
Generator EPA ID:	NYD137908570
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NJD000768093
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00070
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	93
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD137908570
Facility Name:	BLOCKERS CLEANERS
Facility Address:	840 SAINT NICHOLAS AVENUE
Facility City:	NEW YORK
Facility Address 2:	Not reported
Country:	USA
County:	RI
Mailing Name:	BLOCKERS CLEANERS
Mailing Contact:	BLOCKERS CLEANERS
Mailing Address:	840 SAINT NICHOLAS AVENUE
Mailing Address 2:	Not reported
Mailing City:	NEW YORK

BLOCKERS CLEANERS (Continued) **1004756540**

Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-368-9228

Document ID:	NJA0503562
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	880803
Trans1 Recv Date:	880803
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	880803
Part A Recv Date:	880819
Part B Recv Date:	880819
Generator EPA ID:	NYD137908570
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NJD000768093
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00070
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Year:	88
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD137908570
Facility Name:	BLOCKERS CLEANERS
Facility Address:	840 SAINT NICHOLAS AVENUE
Facility City:	NEW YORK
Facility Address 2:	Not reported
Country:	USA
County:	RI
Mailing Name:	BLOCKERS CLEANERS
Mailing Contact:	BLOCKERS CLEANERS
Mailing Address:	840 SAINT NICHOLAS AVENUE
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-368-9228

BLOCKERS CLEANERS (Continued) **1004756540**

Document ID:	NJA0501401
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	880830
Trans1 Recv Date:	880830
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	880830
Part A Recv Date:	880922
Part B Recv Date:	880914
Generator EPA ID:	NYD137908570
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NJD000768093
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00070
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Year:	88
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD137908570
Facility Name:	BLOCKERS CLEANERS
Facility Address:	840 SAINT NICHOLAS AVENUE
Facility City:	NEW YORK
Facility Address 2:	Not reported
Country:	USA
County:	RI
Mailing Name:	BLOCKERS CLEANERS
Mailing Contact:	BLOCKERS CLEANERS
Mailing Address:	840 SAINT NICHOLAS AVENUE
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-368-9228

Document ID:	NJA1621463
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	930323

BLOCKERS CLEANERS (Continued) **1004756540**

Trans1 Recv Date:	930323
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	930323
Part A Recv Date:	930401
Part B Recv Date:	930402
Generator EPA ID:	NYD137908570
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NJD000768093
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00070
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	93
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD137908570
Facility Name:	BLOCKERS CLEANERS
Facility Address:	840 SAINT NICHOLAS AVENUE
Facility City:	NEW YORK
Facility Address 2:	Not reported
Country:	USA
County:	RI
Mailing Name:	BLOCKERS CLEANERS
Mailing Contact:	BLOCKERS CLEANERS
Mailing Address:	840 SAINT NICHOLAS AVENUE
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-368-9228
Document ID:	NJA1642378
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	930129
Trans1 Recv Date:	930129
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	930129
Part A Recv Date:	930212
Part B Recv Date:	930212

BLOCKERS CLEANERS (Continued) **1004756540**

Generator EPA ID:	NYD137908570
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NJD000768093
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00070
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	93
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD137908570
Facility Name:	BLOCKERS CLEANERS
Facility Address:	840 SAINT NICHOLAS AVENUE
Facility City:	NEW YORK
Facility Address 2:	Not reported
Country:	USA
County:	RI
Mailing Name:	BLOCKERS CLEANERS
Mailing Contact:	BLOCKERS CLEANERS
Mailing Address:	840 SAINT NICHOLAS AVENUE
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-368-9228

Document ID:	NJA1630527
Manifest Status:	Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	930520
Trans1 Recv Date:	930520
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	930520
Part A Recv Date:	930609
Part B Recv Date:	930616
Generator EPA ID:	NYD137908570
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NJD000768093
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV

BLOCKERS CLEANERS (Continued) **1004756540**

Quantity:	00070
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	93
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD137908570
Facility Name:	BLOCKERS CLEANERS
Facility Address:	840 SAINT NICHOLAS AVENUE
Facility City:	NEW YORK
Facility Address 2:	Not reported
Country:	USA
County:	RI
Mailing Name:	BLOCKERS CLEANERS
Mailing Contact:	BLOCKERS CLEANERS
Mailing Address:	840 SAINT NICHOLAS AVENUE
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-368-9228
Document ID:	NJA0511509
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	881123
Trans1 Recv Date:	881123
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	881123
Part A Recv Date:	881130
Part B Recv Date:	881212
Generator EPA ID:	NYD137908570
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NJD000768093
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00070
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	R Material recovery of more than 75 percent of the total material.

BLOCKERS CLEANERS (Continued) **1004756540**

Specific Gravity:	100
Year:	88
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD137908570
Facility Name:	BLOCKERS CLEANERS
Facility Address:	840 SAINT NICHOLAS AVENUE
Facility City:	NEW YORK
Facility Address 2:	Not reported
Country:	USA
County:	RI
Mailing Name:	BLOCKERS CLEANERS
Mailing Contact:	BLOCKERS CLEANERS
Mailing Address:	840 SAINT NICHOLAS AVENUE
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-368-9228
Document ID:	NJA0506228
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	881004
Trans1 Recv Date:	881004
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	881004
Part A Recv Date:	881020
Part B Recv Date:	881025
Generator EPA ID:	NYD137908570
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NJD000768093
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00070
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Year:	88
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported

BLOCKERS CLEANERS (Continued) **1004756540**

Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD137908570
Facility Name:	BLOCKERS CLEANERS
Facility Address:	840 SAINT NICHOLAS AVENUE
Facility City:	NEW YORK
Facility Address 2:	Not reported
Country:	USA
County:	RI
Mailing Name:	BLOCKERS CLEANERS
Mailing Contact:	BLOCKERS CLEANERS
Mailing Address:	840 SAINT NICHOLAS AVENUE
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-368-9228
Document ID:	NJA0511868
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	881230
Trans1 Recv Date:	881230
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	881230
Part A Recv Date:	890112
Part B Recv Date:	890110
Generator EPA ID:	NYD137908570
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NJD000768093
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00140
Units:	P - Pounds
Number of Containers:	002
Container Type:	DM - Metal drums, barrels
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Year:	88
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported

BLOCKERS CLEANERS (Continued) **1004756540**

Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD137908570
Facility Name:	BLOCKERS CLEANERS
Facility Address:	840 SAINT NICHOLAS AVENUE
Facility City:	NEW YORK
Facility Address 2:	Not reported
Country:	USA
County:	RI
Mailing Name:	BLOCKERS CLEANERS
Mailing Contact:	BLOCKERS CLEANERS
Mailing Address:	840 SAINT NICHOLAS AVENUE
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-368-9228

Document ID:	NJA1612153
Manifest Status:	Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	930625
Trans1 Recv Date:	930625
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	930625
Part A Recv Date:	930709
Part B Recv Date:	930721
Generator EPA ID:	NYD137908570
Trans1 EPA ID:	ILD984908202
Trans2 EPA ID:	Not reported
TSDF ID:	NJD000768093
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00070
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	93
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD137908570

BLOCKERS CLEANERS (Continued) **1004756540**

Facility Name:	BLOCKERS CLEANERS
Facility Address:	840 SAINT NICHOLAS AVENUE
Facility City:	NEW YORK
Facility Address 2:	Not reported
Country:	USA
County:	RI
Mailing Name:	BLOCKERS CLEANERS
Mailing Contact:	BLOCKERS CLEANERS
Mailing Address:	840 SAINT NICHOLAS AVENUE
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-368-9228

Click this hyperlink while viewing on your computer to access
40 additional NY_MANIFEST: record(s) in the EDR Site Report.

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62 **515 EDGECOMBE AVENUE** **AST** **U003383840**
NNE **515 EDGECOMBE AVENUE** **HIST AST** **N/A**
1/8-1/4 **NEW YORK, NY 10032**
757 ft.

Relative:
Higher

Actual:
129 ft.

AST:

AST:

Region:	STATE
Facility Id:	2-064106
UTM X:	589422.86831
UTM Y:	4520695.70292
Expiration Date:	03/10/12
Renewal Date:	11/13/01
Total Capacity:	3000
Facility Type:	Not reported
Site Type Name:	Apartment Building/Office Building
Site Type Status:	Active
Mailing Company:	515 EDGECOMBE OWNERS CORP C/O J& M REALTY SERVICE
Mailing Title:	Not reported
Mailing Contact:	Not reported
Mailing Address:	21 WEST 86TH STREET
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip Code:	10013
Mailing Phone No:	2127) 210-424
Mailing Email:	Not reported
Owner Title:	AGENT
Owner Name:	JERRY EDELMAN
Owner Address:	P O BOX 51 CANAL ST STATION
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	10013
Owner Phone:	(212) 925-3987
Owner Company:	515 EDGECOMBE OWNERS CORP
Emergency Contact:	SYED ALI
Emergency Phone:	(917) 468-1382

515 EDGECOMBE AVENUE (Continued) **U003383840**

Operator:	SYED ALI
Operator Phone:	(917) 468-1382
Owner City:	NEW YORK
Owner Sub Type:	Corporate or Commercial
Program Type:	PBS
Tank Number:	001
Tank Location Name:	Aboveground - in contact with soil
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	01/27/26
Capacity Gallons:	3000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	Jacketed
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Aboveground/Underground Combination
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	Painted/Asphalt Coating
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Vault (w/o access)
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	Other
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Exempt Suction Piping
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Product Level Gauge (A/G)
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

HIST AST:

PBS Number:	2-064106
SWIS Code:	6201
Operator:	FRED WORLEY
Facility Phone:	(212) 283-0593
Facility Addr2:	515 EDGECOMBE AVENUE
Facility Type:	APARTMENT BUILDING
Emergency:	FRED WORLEY
Emergency Tel:	(212) 283-0593
Old PBSNO:	Not reported
Date Inspected:	Not reported
Inspector:	Not reported
Result of Inspection:	Not reported
Owner Name:	515 EDGECOMBE OWNERS CORP
Owner Address:	P O BOX 51 CANAL ST STATION
Owner City,St,Zip:	NEW YORK, NY 10013
Federal ID:	Not reported

515 EDGECOMBE AVENUE (Continued) **U003383840**

Owner Tel:	(212) 925-3987
Owner Type:	Corporate/Commercial
Owner Subtype:	Not reported
Mailing Contact:	Not reported
Mailing Name:	515 EDGECOMBE OWNERS CORP
Mailing Address:	P O BOX 51
Mailing Address 2:	CANAL STREET STATION
Mailing City,St,Zip:	NEW YORK, NY 10013
Mailing Telephone:	(212) 925-3987
Owner Mark:	First Owner
Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Certification Flag:	True
Certification Date:	Not reported
Expiration:	03/10/2007
Renew Flag:	False
Renew Date:	20011113
Total Capacity:	3000
FAMT:	True
Facility Screen:	No Missing Data
Owner Screen:	No Missing Data
Tank Screen:	No Missing Data
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	62
Town or City Code:	01
Region:	2

Tank ID:	001
Tank Location:	ABOVEGROUND
Tank Status:	In Service
Install Date:	Not reported
Capacity (Gal):	3000
Product Stored:	NOS 1,2, OR 4 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	0
Tank External:	5
Pipe Location:	Aboveground/Underground Combination
Pipe Type:	STEEL/IRON
Pipe Internal:	None
Pipe External:	1
Tank Containment:	Diking
Leak Detection:	9
Overfill Protection:	4
Dispenser Method:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	No Missing Data
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	True
SPDES Number:	Not reported
Lat/Long:	Not reported

Q63
SE
1/8-1/4
769 ft.

Relative:
Lower

Actual:
22 ft.

JGS PARKING GARAGE, INC.
250 BRADHURST AVENUE
NEW YORK, NY 10039

UST **U004047265**
N/A

Site 1 of 2 in cluster Q

UST:

UST:

Facility Id:	2-608783
Expiration Date:	04/03/08
Renewal Date:	/ /
Total Capacity:	0
Facility Type:	Not reported
Mailing Company:	KALEIDAPARK, INC.
Mailing Title:	Not reported
Mailing Contact:	SAMY BRAHIMY
Mailing Address:	139 SAINT FELIX STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip Code:	11217-1432
Mailing Phone No:	(718) 852-8553
Mailing Email:	Not reported
Owner Title:	Not reported
Owner Name:	Not reported
Owner Address:	139 SAINT FELIX STREET
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	11217
Owner Phone:	(718) 852-8553
Owner Company:	ADCO NCP USA LTD % KALEIDAPARK, INC
Emergency Contact:	STELLA
Emergency Phone:	(917) 887-3360
Operator:	ED DISLA
Operator Phone:	(212) 368-5899
Owner City:	BROOKLYN
Owner Sub Type:	Corporate or Commercial
UTM X:	589478.04054
UTM Y:	4520330.49747
Site Type Name:	Other
Site Type Status:	Unregulated
Comments:	Not reported
Program Type:	PBS
Tank Number:	01
Tank Location Name:	Underground
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	/ /
Capacity Gallons:	550
Material Name:	Gasoline
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	Painted/Asphalt Coating
Tank Internal Protection 2:	Not reported

JGS PARKING GARAGE, INC. (Continued) **U004047265**

Pipe Location Name:	Underground/On-ground
Pipe Type Name:	Galvanized Steel
Pipe External Protection 1:	Painted/Asphalt Coating
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Product Level Gauge (A/G)
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	03/01/03

Tank Number:	02
Tank Location Name:	Underground
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	/ /
Capacity Gallons:	550
Material Name:	Gasoline
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	Painted/Asphalt Coating
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Underground/On-ground
Pipe Type Name:	Galvanized Steel
Pipe External Protection 1:	Painted/Asphalt Coating
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Product Level Gauge (A/G)
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	03/01/03

Tank Number:	03

JGS PARKING GARAGE, INC. (Continued) **U004047265**

Tank Location Name:	Underground
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	/ /
Capacity Gallons:	550
Material Name:	Gasoline
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	Painted/Asphalt Coating
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Underground/On-ground
Pipe Type Name:	Galvanized Steel
Pipe External Protection 1:	Painted/Asphalt Coating
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Product Level Gauge (A/G)
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	03/01/03

Tank Number:	04
Tank Location Name:	Underground
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	/ /
Capacity Gallons:	550
Material Name:	Gasoline
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	Painted/Asphalt Coating
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Underground/On-ground
Pipe Type Name:	Galvanized Steel
Pipe External Protection 1:	Painted/Asphalt Coating
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported

JGS PARKING GARAGE, INC. (Continued) **U004047265**

Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Product Level Gauge (A/G)
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	03/01/03

Tank Number:	05
Tank Location Name:	Underground
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	/ /
Capacity Gallons:	550
Material Name:	Gasoline
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	Painted/Asphalt Coating
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Underground/On-ground
Pipe Type Name:	Galvanized Steel
Pipe External Protection 1:	Painted/Asphalt Coating
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Product Level Gauge (A/G)
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	03/01/03

P64 **1946 AMSTERDAM AVE.** **AST** **A100183553**
NNW **1946 AMSTERDAM AVENUE** **N/A**
1/8-1/4 **NEW YORK, NY 10032**
787 ft.

Site 3 of 9 in cluster P

Relative: Higher

AST:

Actual: 147 ft.

AST:

Region:	STATE
Facility Id:	2-606990
UTM X:	589175.88957

1946 AMSTERDAM AVE. (Continued) **A100183553**

UTM Y:	4520706.66154
Expiration Date:	09/24/11
Renewal Date:	/ /
Total Capacity:	5000
Facility Type:	Not reported
Site Type Name:	Apartment Building/Office Building
Site Type Status:	Active
Mailing Company:	JAVA DEL VALLE CORP.
Mailing Title:	Not reported
Mailing Contact:	JOSE SANCHEZ
Mailing Address:	P.O. BOX 503
Mailing Address 2:	COOPER STA.
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip Code:	10276-0503
Mailing Phone No:	(212) 777-8459
Mailing Email:	Not reported
Owner Title:	PRES
Owner Name:	JOSE SANCHEZ
Owner Address:	P.O. BOX 503
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	10276-0503
Owner Phone:	(212) 777-8459
Owner Company:	JAVA DEL VALLE CORP.
Emergency Contact:	VIRGINIA SANCHEZ
Emergency Phone:	(917) 531-0748
Operator:	JOSE SANCHEZ
Operator Phone:	(212) 777-8459
Owner City:	NEW YORK
Owner Sub Type:	Corporate or Commercial
Program Type:	PBS
Tank Number:	001
Tank Location Name:	Aboveground - in contact with soil
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	/ /
Capacity Gallons:	5000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	Painted/Asphalt Coating
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Aboveground/Underground Combination
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	Painted/Asphalt Coating
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Vault (w/o access)
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	Interstitial - Electronic Monitoring
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Exempt Suction Piping

1946 AMSTERDAM AVE. (Continued) **A100183553**

Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Vent Whistle
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

P65 **K&B CLEANERS** **RCRA-SQG** **1000103578**
NNW **1946 AMSTERDAM AVE** **FINDS** **NYD981482417**
1/8-1/4 **NEW YORK, NY 10032** **NY MANIFEST**
787 ft.

Site 4 of 9 in cluster P

Relative:
Higher

Actual:
147 ft.

RCRAInfo:

Owner:	OTHA BROWN
	(212) 555-1212
EPA ID:	NYD981482417
Contact:	Not reported
Classification:	Small Quantity Generator
TSDF Activities:	Not reported
Violation Status:	No violations found

FINDS:

Other Pertinent Environmental Activity Identified at Site

NJ-NJEMS (New Jersey - New Jersey Environmental Management System). The Department of Environmental Protection (NJDEP) manages large databases of environmental information in this integrated system.

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

NY MANIFEST:

Document ID:	NJA0229476
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	860926
Trans1 Recv Date:	860926
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	860926
Part A Recv Date:	861006
Part B Recv Date:	861007
Generator EPA ID:	NYD981482417
Trans1 EPA ID:	ILD000805911
Trans2 EPA ID:	Not reported
TSDF ID:	NJD000768093

K&B CLEANERS (Continued) **1000103578**

Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00120
Units:	P - Pounds
Number of Containers:	001
Container Type:	CF - Fiber or plastic boxes, cartons
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Year:	86
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD981482417
Facility Name:	K & B CLEANERS
Facility Address:	1946 AMSTERDAM AVENUE
Facility City:	NEW YORK
Facility Address 2:	Not reported
Country:	USA
County:	NE
Mailing Name:	K & B CLEANERS
Mailing Contact:	K & B CLEANERS
Mailing Address:	1946 AMSTERDAM AVENUE
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-926-6200
Document ID:	NJA0233734
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	860925
Trans1 Recv Date:	860925
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	860925
Part A Recv Date:	861007
Part B Recv Date:	861007
Generator EPA ID:	NYD981482417
Trans1 EPA ID:	ILD000805911
Trans2 EPA ID:	Not reported
TSDF ID:	NJD000768093
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00140
Units:	P - Pounds
Number of Containers:	007
Container Type:	CF - Fiber or plastic boxes, cartons

K&B CLEANERS (Continued) **1000103578**

Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Year:	86
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD981482417
Facility Name:	K & B CLEANERS
Facility Address:	1946 AMSTERDAM AVENUE
Facility City:	NEW YORK
Facility Address 2:	Not reported
Country:	USA
County:	NE
Mailing Name:	K & B CLEANERS
Mailing Contact:	K & B CLEANERS
Mailing Address:	1946 AMSTERDAM AVENUE
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-926-6200
Document ID:	NJA0364735
Manifest Status:	Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	871005
Trans1 Recv Date:	871005
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	871005
Part A Recv Date:	871118
Part B Recv Date:	871014
Generator EPA ID:	NYD981482417
Trans1 EPA ID:	NJD000768093
Trans2 EPA ID:	Not reported
TSDF ID:	NJD000768093
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00080
Units:	P - Pounds
Number of Containers:	001
Container Type:	CF - Fiber or plastic boxes, cartons
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Year:	87
Manifest Tracking Num:	Not reported
Import Ind:	Not reported

K&B CLEANERS (Continued) **1000103578**

Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD981482417
Facility Name:	K & B CLEANERS
Facility Address:	1946 AMSTERDAM AVENUE
Facility City:	NEW YORK
Facility Address 2:	Not reported
Country:	USA
County:	NE
Mailing Name:	K & B CLEANERS
Mailing Contact:	K & B CLEANERS
Mailing Address:	1946 AMSTERDAM AVENUE
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-926-6200
Document ID:	MNA5053775
Manifest Status:	Completed copy
Trans1 State ID:	000000000
Trans2 State ID:	Not reported
Generator Ship Date:	870416
Trans1 Recv Date:	870416
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	870416
Part A Recv Date:	870427
Part B Recv Date:	870429
Generator EPA ID:	NYD981482417
Trans1 EPA ID:	NJD000768093
Trans2 EPA ID:	Not reported
TSDF ID:	NJD000768093
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00080
Units:	P - Pounds
Number of Containers:	001
Container Type:	CF - Fiber or plastic boxes, cartons
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	00195
Units:	P - Pounds
Number of Containers:	001
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Year:	87

K&B CLEANERS (Continued) **1000103578**

Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD981482417
Facility Name:	K & B CLEANERS
Facility Address:	1946 AMSTERDAM AVENUE
Facility City:	NEW YORK
Facility Address 2:	Not reported
Country:	USA
County:	NE
Mailing Name:	K & B CLEANERS
Mailing Contact:	K & B CLEANERS
Mailing Address:	1946 AMSTERDAM AVENUE
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-926-6200
Document ID:	NJA0244195
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	861212
Trans1 Recv Date:	861212
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	861212
Part A Recv Date:	861229
Part B Recv Date:	861229
Generator EPA ID:	NYD981482417
Trans1 EPA ID:	ILD000805911
Trans2 EPA ID:	Not reported
TSDF ID:	NJD000768093
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00160
Units:	P - Pounds
Number of Containers:	002
Container Type:	CF - Fiber or plastic boxes, cartons
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	00150
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	R Material recovery of more than 75 percent of the total material.

K&B CLEANERS (Continued) **1000103578**

Specific Gravity:	100
Year:	86
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD981482417
Facility Name:	K & B CLEANERS
Facility Address:	1946 AMSTERDAM AVENUE
Facility City:	NEW YORK
Facility Address 2:	Not reported
Country:	USA
County:	NE
Mailing Name:	K & B CLEANERS
Mailing Contact:	K & B CLEANERS
Mailing Address:	1946 AMSTERDAM AVENUE
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-926-6200
Document ID:	NJA1343562
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	920309
Trans1 Recv Date:	920309
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	920309
Part A Recv Date:	920410
Part B Recv Date:	920323
Generator EPA ID:	NYD981482417
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NJD000768093
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00195
Units:	P - Pounds
Number of Containers:	001
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	92
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported

K&B CLEANERS (Continued) **1000103578**

Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD981482417
Facility Name:	K & B CLEANERS
Facility Address:	1946 AMSTERDAM AVENUE
Facility City:	NEW YORK
Facility Address 2:	Not reported
Country:	USA
County:	NE
Mailing Name:	K & B CLEANERS
Mailing Contact:	K & B CLEANERS
Mailing Address:	1946 AMSTERDAM AVENUE
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-926-6200
Document ID:	NJA1416329
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	920403
Trans1 Recv Date:	920403
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	920403
Part A Recv Date:	Not reported
Part B Recv Date:	920416
Generator EPA ID:	NYD981482417
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NJD000768093
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00120
Units:	P - Pounds
Number of Containers:	002
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	92
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported

K&B CLEANERS (Continued) **1000103578**

Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD981482417
Facility Name:	K & B CLEANERS
Facility Address:	1946 AMSTERDAM AVENUE
Facility City:	NEW YORK
Facility Address 2:	Not reported
Country:	USA
County:	NE
Mailing Name:	K & B CLEANERS
Mailing Contact:	K & B CLEANERS
Mailing Address:	1946 AMSTERDAM AVENUE
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-926-6200

Document ID:	NJA1463284
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	920630
Trans1 Recv Date:	920630
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	920630
Part A Recv Date:	Not reported
Part B Recv Date:	920710
Generator EPA ID:	NYD981482417
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NJD000768093
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00120
Units:	P - Pounds
Number of Containers:	002
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	92
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD981482417

K&B CLEANERS (Continued) **1000103578**

Facility Name:	K & B CLEANERS
Facility Address:	1946 AMSTERDAM AVENUE
Facility City:	NEW YORK
Facility Address 2:	Not reported
Country:	USA
County:	NE
Mailing Name:	K & B CLEANERS
Mailing Contact:	K & B CLEANERS
Mailing Address:	1946 AMSTERDAM AVENUE
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-926-6200
Document ID:	NJA1632171
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	921211
Trans1 Recv Date:	921211
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	921211
Part A Recv Date:	930409
Part B Recv Date:	921229
Generator EPA ID:	NYD981482417
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NJD000768093
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00120
Units:	P - Pounds
Number of Containers:	002
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	92
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD981482417
Facility Name:	K & B CLEANERS
Facility Address:	1946 AMSTERDAM AVENUE
Facility City:	NEW YORK
Facility Address 2:	Not reported
Country:	USA

K&B CLEANERS (Continued) **1000103578**

County:	NE
Mailing Name:	K & B CLEANERS
Mailing Contact:	K & B CLEANERS
Mailing Address:	1946 AMSTERDAM AVENUE
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-926-6200
Document ID:	NJA1344255
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	920124
Trans1 Recv Date:	920124
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	920124
Part A Recv Date:	920410
Part B Recv Date:	920207
Generator EPA ID:	NYD981482417
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NJD000768093
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00195
Units:	P - Pounds
Number of Containers:	001
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	92
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD981482417
Facility Name:	K & B CLEANERS
Facility Address:	1946 AMSTERDAM AVENUE
Facility City:	NEW YORK
Facility Address 2:	Not reported
Country:	USA
County:	NE
Mailing Name:	K & B CLEANERS
Mailing Contact:	K & B CLEANERS
Mailing Address:	1946 AMSTERDAM AVENUE
Mailing Address 2:	Not reported

K&B CLEANERS (Continued) **1000103578**

Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-926-6200
Document ID:	NJA1344602
Manifest Status:	Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	920220
Trans1 Recv Date:	920220
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	920220
Part A Recv Date:	920410
Part B Recv Date:	921020
Generator EPA ID:	NYD981482417
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NJD000768093
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00060
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	92
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD981482417
Facility Name:	K & B CLEANERS
Facility Address:	1946 AMSTERDAM AVENUE
Facility City:	NEW YORK
Facility Address 2:	Not reported
Country:	USA
County:	NE
Mailing Name:	K & B CLEANERS
Mailing Contact:	K & B CLEANERS
Mailing Address:	1946 AMSTERDAM AVENUE
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA

K&B CLEANERS (Continued) **1000103578**

Mailing Phone:	212-926-6200

Document ID:	NJA1375891
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	920220
Trans1 Recv Date:	920220
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	920220
Part A Recv Date:	920410
Part B Recv Date:	920303
Generator EPA ID:	NYD981482417
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NJD000768093
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00060
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	92
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD981482417
Facility Name:	K & B CLEANERS
Facility Address:	1946 AMSTERDAM AVENUE
Facility City:	NEW YORK
Facility Address 2:	Not reported
Country:	USA
County:	NE
Mailing Name:	K & B CLEANERS
Mailing Contact:	K & B CLEANERS
Mailing Address:	1946 AMSTERDAM AVENUE
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-926-6200

Document ID:	NYC4863183
Manifest Status:	Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID:	08690

K&B CLEANERS (Continued) **1000103578**

Trans2 State ID:	Not reported
Generator Ship Date:	970926
Trans1 Recv Date:	970926
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	971001
Part A Recv Date:	Not reported
Part B Recv Date:	971029
Generator EPA ID:	NYD981482417
Trans1 EPA ID:	ILD984908202
Trans2 EPA ID:	Not reported
TSDF ID:	OHD980587364
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00195
Units:	P - Pounds
Number of Containers:	001
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	97
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD981482417
Facility Name:	K & B CLEANERS
Facility Address:	1946 AMSTERDAM AVENUE
Facility City:	NEW YORK
Facility Address 2:	Not reported
Country:	USA
County:	NE
Mailing Name:	K & B CLEANERS
Mailing Contact:	K & B CLEANERS
Mailing Address:	1946 AMSTERDAM AVENUE
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-926-6200
Document ID:	MNA5044648
Manifest Status:	Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID:	000000000
Trans2 State ID:	Not reported
Generator Ship Date:	870212
Trans1 Recv Date:	870212
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	870212

K&B CLEANERS (Continued) **1000103578**

Part A Recv Date:	870224
Part B Recv Date:	870410
Generator EPA ID:	NYD981482417
Trans1 EPA ID:	NJD000768093
Trans2 EPA ID:	Not reported
TSDF ID:	NJD000768093
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00080
Units:	P - Pounds
Number of Containers:	001
Container Type:	CF - Fiber or plastic boxes, cartons
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Year:	87
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD981482417
Facility Name:	K & B CLEANERS
Facility Address:	1946 AMSTERDAM AVENUE
Facility City:	NEW YORK
Facility Address 2:	Not reported
Country:	USA
County:	NE
Mailing Name:	K & B CLEANERS
Mailing Contact:	K & B CLEANERS
Mailing Address:	1946 AMSTERDAM AVENUE
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-926-6200

Document ID:	NYA6939988
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	871130
Trans1 Recv Date:	871130
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	871130
Part A Recv Date:	871207
Part B Recv Date:	871215
Generator EPA ID:	NYD981482417
Trans1 EPA ID:	NJD000768093
Trans2 EPA ID:	Not reported

K&B CLEANERS (Continued) **1000103578**

TSDF ID:	NJD000768093
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00195
Units:	P - Pounds
Number of Containers:	001
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	00080
Units:	P - Pounds
Number of Containers:	001
Container Type:	CF - Fiber or plastic boxes, cartons
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Year:	87
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD981482417
Facility Name:	K & B CLEANERS
Facility Address:	1946 AMSTERDAM AVENUE
Facility City:	NEW YORK
Facility Address 2:	Not reported
Country:	USA
County:	NE
Mailing Name:	K & B CLEANERS
Mailing Contact:	K & B CLEANERS
Mailing Address:	1946 AMSTERDAM AVENUE
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-926-6200
Document ID:	NJA0300798
Manifest Status:	Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	870521
Trans1 Recv Date:	870521
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	870521
Part A Recv Date:	870527
Part B Recv Date:	870617
Generator EPA ID:	NYD981482417

K&B CLEANERS (Continued) **1000103578**

Trans1 EPA ID:	ILD000805911
Trans2 EPA ID:	Not reported
TSDF ID:	NJD000768093
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00240
Units:	P - Pounds
Number of Containers:	003
Container Type:	CF - Fiber or plastic boxes, cartons
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Year:	87
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD981482417
Facility Name:	K & B CLEANERS
Facility Address:	1946 AMSTERDAM AVENUE
Facility City:	NEW YORK
Facility Address 2:	Not reported
Country:	USA
County:	NE
Mailing Name:	K & B CLEANERS
Mailing Contact:	K & B CLEANERS
Mailing Address:	1946 AMSTERDAM AVENUE
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-926-6200
Document ID:	NJA0362484
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	871110
Trans1 Recv Date:	871110
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	871110
Part A Recv Date:	871117
Part B Recv Date:	871124
Generator EPA ID:	NYD981482417
Trans1 EPA ID:	NJD000768093
Trans2 EPA ID:	Not reported
TSDF ID:	NJD000768093
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00160

K&B CLEANERS (Continued) **1000103578**

Units:	P - Pounds
Number of Containers:	002
Container Type:	CF - Fiber or plastic boxes, cartons
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Year:	87
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD981482417
Facility Name:	K & B CLEANERS
Facility Address:	1946 AMSTERDAM AVENUE
Facility City:	NEW YORK
Facility Address 2:	Not reported
Country:	USA
County:	NE
Mailing Name:	K & B CLEANERS
Mailing Contact:	K & B CLEANERS
Mailing Address:	1946 AMSTERDAM AVENUE
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-926-6200
Document ID:	MNA5049309
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	870320
Trans1 Recv Date:	870320
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	870320
Part A Recv Date:	870327
Part B Recv Date:	870331
Generator EPA ID:	NYD981482417
Trans1 EPA ID:	NJD000768093
Trans2 EPA ID:	Not reported
TSDF ID:	NJD000768093
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00160
Units:	P - Pounds
Number of Containers:	002
Container Type:	CF - Fiber or plastic boxes, cartons
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100

K&B CLEANERS (Continued) **1000103578**

Year:	87
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD981482417
Facility Name:	K & B CLEANERS
Facility Address:	1946 AMSTERDAM AVENUE
Facility City:	NEW YORK
Facility Address 2:	Not reported
Country:	USA
County:	NE
Mailing Name:	K & B CLEANERS
Mailing Contact:	K & B CLEANERS
Mailing Address:	1946 AMSTERDAM AVENUE
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-926-6200
Document ID:	NJA1413806
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	920730
Trans1 Recv Date:	920730
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	920730
Part A Recv Date:	930409
Part B Recv Date:	920812
Generator EPA ID:	NYD981482417
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NJD000768093
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00140
Units:	P - Pounds
Number of Containers:	002
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	92
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported

K&B CLEANERS (Continued) **1000103578**

Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD981482417
Facility Name:	K & B CLEANERS
Facility Address:	1946 AMSTERDAM AVENUE
Facility City:	NEW YORK
Facility Address 2:	Not reported
Country:	USA
County:	NE
Mailing Name:	K & B CLEANERS
Mailing Contact:	K & B CLEANERS
Mailing Address:	1946 AMSTERDAM AVENUE
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-926-6200
Document ID:	NJA2683033
Manifest Status:	Completed copy
Trans1 State ID:	08690
Trans2 State ID:	Not reported
Generator Ship Date:	970603
Trans1 Recv Date:	970603
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	970603
Part A Recv Date:	970613
Part B Recv Date:	970620
Generator EPA ID:	NYD981482417
Trans1 EPA ID:	ILD984908202
Trans2 EPA ID:	Not reported
TSDF ID:	NJD000768093
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00390
Units:	P - Pounds
Number of Containers:	002
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	97
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported

K&B CLEANERS (Continued) **1000103578**

Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD981482417
Facility Name:	K & B CLEANERS
Facility Address:	1946 AMSTERDAM AVENUE
Facility City:	NEW YORK
Facility Address 2:	Not reported
Country:	USA
County:	NE
Mailing Name:	K & B CLEANERS
Mailing Contact:	K & B CLEANERS
Mailing Address:	1946 AMSTERDAM AVENUE
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-926-6200

Click this hyperlink while viewing on your computer to access
69 additional NY_MANIFEST: record(s) in the EDR Site Report.

Q66 **242-246 BRADHURST HOLDING LLC** **AST** **A100175631**
SE **242-246 BRADHURST AVENUE** **N/A**
1/8-1/4 **NEW YORK, NY 10039**
789 ft.

Site 2 of 2 in cluster Q

Relative:
Lower

AST:

Actual:
21 ft.

AST:

Region:	STATE
Facility Id:	2-605366
UTM X:	589453.07575
UTM Y:	4520322.15137
Expiration Date:	06/15/10
Renewal Date:	/ /
Total Capacity:	5000
Facility Type:	Not reported
Site Type Name:	Apartment Building/Office Building
Site Type Status:	Active
Mailing Company:	242-246 BRADHURST HOLDING
Mailing Title:	Not reported
Mailing Contact:	LEWIS BARBANEL
Mailing Address:	C/O BARBERRY ROSE
Mailing Address 2:	100 CEDARHURST AVE SUITE 202
Mailing City:	CEDAUHURST
Mailing State:	NY
Mailing Zip Code:	11516
Mailing Phone No:	(516) 374-6080
Mailing Email:	Not reported
Owner Title:	MANAGING AGENT
Owner Name:	LEWIS BARBANEL
Owner Address:	100 CEDARHURST AVE SUITE 202
Owner Address 2:	Not reported
Owner State:	NY

242-246 BRADHURST HOLDING LLC (Continued) **A100175631**

Owner Zip Code:	11516
Owner Phone:	(516) 374-6080
Owner Company:	242-246 BRADHURST HOLDING C/O BARBERRY ROSE MGMT
Emergency Contact:	MORDY OBERSTEIN
Emergency Phone:	(516) 779-0915
Operator:	JOSE DIAZ
Operator Phone:	(516) 779-1270
Owner City:	CEDAUHURST
Owner Sub Type:	Corporate or Commercial
Program Type:	PBS

Tank Number:	1
Tank Location Name:	Aboveground - in contact with soil
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	/ /
Capacity Gallons:	5000
Material Name:	#6 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping
Pipe Type Name:	No Piping
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	None
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	None
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

L67 **509-517 WEST 155TH STREET** **AST** **A100175101**
WNW **509-517 WEST 155TH STREET** **N/A**
1/8-1/4 **NEW YORK, NY 10032**
789 ft.

Site 3 of 3 in cluster L

Relative: Higher

AST:

Actual: 147 ft.

AST:

Region:	STATE
Facility Id:	2-305626
UTM X:	589094.42173
UTM Y:	4520617.13894

509-517 WEST 155TH STREET (Continued) **A100175101**

Expiration Date:	03/29/11
Renewal Date:	/ /
Total Capacity:	5000
Facility Type:	Not reported
Site Type Name:	Apartment Building/Office Building
Site Type Status:	Active
Mailing Company:	PINNACLE GROUP
Mailing Title:	Not reported
Mailing Contact:	MEIR BOUSKLLA
Mailing Address:	P.O. BOX 1919
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip Code:	10116
Mailing Phone No:	(212) 564-2111
Mailing Email:	Not reported
Owner Title:	AGENT
Owner Name:	MICHELLE MORALES
Owner Address:	P.O. BOX 1919
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	10116
Owner Phone:	(212) 564-2111
Owner Company:	509 REALTY CO. LLC
Emergency Contact:	MICHELLE MORALES
Emergency Phone:	(212) 564-2111
Operator:	SAIT
Operator Phone:	(917) 641-9267
Owner City:	NEW YORK
Owner Sub Type:	Corporate or Commercial
Program Type:	PBS

Tank Number:	01
Tank Location Name:	Aboveground - in contact with soil
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	/ /
Capacity Gallons:	5000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Aboveground/Underground Combination
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Vault (w/o access)
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Exempt Suction Piping
Pipe Leak Detection 2:	Not reported

509-517 WEST 155TH STREET (Continued) **A100175101**

Type Of Overfill Prevention 1:	Product Level Gauge (A/G)
Type Of Overfill Prevention 2:	Vent Whistle
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

P68 **BETHUNE (AUDUBON HOUSES)** **UST** **U000410770**
NNW **1945 AMSTERDAM AVENUE** **HIST UST** **N/A**
1/8-1/4 **NEW YORK, NY 10032**
798 ft.

Site 5 of 9 in cluster P

Relative: Higher

UST:

Actual: 147 ft.

UST:

Facility Id:	2-474827
Expiration Date:	03/28/09
Renewal Date:	/ /
Total Capacity:	10000
Facility Type:	Not reported
Mailing Company:	NEW YORK CITY HOUSING AUTHORITY
Mailing Title:	Not reported
Mailing Contact:	FUEL OIL REMEDIATION COORDINATOR
Mailing Address:	23-02 49TH AVENUE
Mailing Address 2:	Not reported
Mailing City:	LONG ISLAND CITY
Mailing State:	NY
Mailing Zip Code:	11101
Mailing Phone No:	(718) 707-5725
Mailing Email:	Not reported
Owner Title:	FUEL OIL REMEDIATION COORD.
Owner Name:	FUEL OIL REMEDIATION COORD.
Owner Address:	23-02 49TH AVE
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	11101
Owner Phone:	(718) 707-5725
Owner Company:	NYC HOUSING AUTHORITY
Emergency Contact:	EMERGENCY SERVICE DEPT.
Emergency Phone:	(718) 707-5725
Operator:	FUEL OIL REMEDIATION COORD.
Operator Phone:	(718) 707-5725
Owner City:	LONG ISLAND CITY
Owner Sub Type:	NYC Housing Authority (Local Government)
UTM X:	589217.47979
UTM Y:	4520706.20887
Site Type Name:	Apartment Building/Office Building
Site Type Status:	Active
Comments:	Not reported
Program Type:	PBS
Tank Number:	1
Tank Location Name:	Underground
Tank Status:	In Service

BETHUNE (AUDUBON HOUSES) (Continued) **U000410770**

Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	05/01/98
Capacity Gallons:	10000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Fiberglass Coated Steel
Tank Internal Protection:	Glass Liner
Tank Internal Protection 1:	Fiberglass
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Underground/On-ground
Pipe Type Name:	Equivalent Technology
Pipe External Protection 1:	Other
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Double-Walled (Underground)
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	Interstitial - Electronic Monitoring
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Exempt Suction Piping
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	High Level Alarm
Type Of Overfill Prevention 2:	Product Level Gauge (A/G)
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Horner EZ Check I or II
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

Tank Number:	OLD 1
Tank Location Name:	Underground
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	/ /
Capacity Gallons:	20000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping
Pipe Type Name:	No Piping
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported

BETHUNE (AUDUBON HOUSES) (Continued) **U000410770**

Type Of Overfill Prevention 1:	None
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	None
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	04/01/98

HIST UST:

PBS Number:	2-474827
SPDES Number:	Not reported
Emergency Contact:	EMERGENCY SERVICE SQUAD
Emergency Telephone:	(212) 289-3940
Operator:	RAFAEL VELEZ
Operator Telephone:	(212) 306-3142
Owner Name:	NYC HOUSING AUTHORITY
Owner Address:	250 BROADWAY
Owner City,St,Zip:	NEW YORK, NY 10007
Owner Telephone:	(212) 306-3142
Owner Type:	Local Government
Owner Subtype:	51
Mailing Name:	REMEDIATION SECTION
Mailing Address:	NEW YORK CITY HOUSING AUTHORITY
Mailing Address 2:	250 BROADWAY-16TH FLOOR
Mailing City,St,Zip:	NEW YORK, NY 10007
Mailing Contact:	FRANK OCELLO
Mailing Telephone:	(212) 306-3142
Owner Mark:	First Owner
Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Facility Addr2:	1945 AMSTERDAM AVENUE
SWIS ID:	6201
Old PBS Number:	Not reported
Facility Type:	APARTMENT BUILDING
Inspected Date:	Not reported
Inspector:	Not reported
Inspection Result:	Not reported
Federal ID:	Not reported
Certification Flag:	False
Certification Date:	10/29/1999
Expiration Date:	03/28/2004
Renew Flag:	False
Renewal Date:	Not reported
Total Capacity:	10000
FAMT:	True
Facility Screen:	No Missing Data
Owner Screen:	Minor Data Missing
Tank Screen:	No Missing Data
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	62
Town or City:	01
Region:	2

BETHUNE (AUDUBON HOUSES) (Continued) **U000410770**

Tank Id:	001
Tank Location:	UNDERGROUND
Tank Status:	In Service
Install Date:	19980501
Capacity (gals):	10000
Product Stored:	NOS 1,2, OR 4 FUEL OIL
Tank Type:	Fiberglass coated steel
Tank Internal:	Glass Liner
Tank External:	Fiberglass
Pipe Location:	Underground
Pipe Type:	FIBERGLASS REINFORCED PLASTIC
Pipe Internal:	Other
Pipe External:	Other
Second Containment:	Vault (w/access)
Leak Detection:	Electronic
Overfill Prot:	High Level Alarm, Product Level Gauge
Dispenser:	Suction
Date Tested:	04/01/1992
Next Test Date:	Not reported
Missing Data for Tank:	No Missing Data
Date Closed:	04/01/1998
Test Method:	Horner EZ Check
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	OLD 001
Tank Location:	UNDERGROUND
Tank Status:	Closed-Removed
Install Date:	Not reported
Capacity (gals):	20000
Product Stored:	NOS 1,2, OR 4 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	Not reported
Pipe Internal:	Not reported
Pipe External:	Not reported
Second Containment:	Not reported
Leak Detection:	Not reported
Overfill Prot:	Not reported
Dispenser:	Not reported
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	04/01/1998
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	Not reported

P69
NNW
1/8-1/4
798 ft.

Relative:
Higher

Actual:
147 ft.

BETHUNE HOUSES
1945 AMSTERDAM AVENUE
NEW YORK CITY, NY

LTANKS **S104073518**
HIST LTANKS **N/A**

Site 6 of 9 in cluster P

LTANKS:

Site ID:	210171
Spill Date:	04/23/91
Facility Addr2:	Not reported
Facility ID:	9100898
Program Number:	9100898
SWIS:	3101
Region of Spill:	2
Investigator:	SACCACIO
Referred To:	Not reported
Reported to Dept:	04/23/91
CID:	15
Spill Cause:	Tank Test Failure
Water Affected:	Not reported
Spill Source:	Institutional, Educational, Gov., Other
Spill Notifier:	Tank Tester
Cleanup Ceased:	09/09/94
Cleanup Meets Standard:	True
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	09/09/94
Remediation Phase:	0
Date Entered In Computer:	04/25/91
Spill Record Last Update:	05/14/98
Spille Namer:	Not reported
Spiller Company:	NYC HOUSEING AUTHORITY
Spiller Phone:	(212) 306-3142
Spiller Extention:	Not reported
Spiller Address:	250 BROADWAY
Spiller City,St,Zip:	NEW YORK, NY
Spiller County:	001
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
DEC Region:	2
Program Number:	9100898
DER Facility ID:	174226
Site ID:	210171
Operable Unit ID:	954427
Operable Unit:	01
Material ID:	427064
Material Code:	0002
Material Name:	#4 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	-1.00
Units:	Pounds
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False

BETHUNE HOUSES (Continued) **S104073518**

Site ID:	210171
Spill Tank Test:	1538484
Tank Number:	001
Tank Size:	0
Test Method:	00
Leak Rate:	0.00
Gross Fail:	Not reported
Modified By:	Spills
Last Modified:	10/01/04
Test Method:	Unknown
DEC Memo:	Not reported
Remarks:	Start CallerRemark - 9100898 20K TANK FAILED HORNER EZY CHECK,VISUAL LEAK, TO REPAIR & RETEST. END CallerRemark - 9100898

HIST LTANKS:

Region of Spill:	2
Spill Number:	9100898
Investigator:	SACCACIO
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Caller Extension:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Notifier Extension:	Not reported
Spill Date:	04/23/1991
Spill Time:	12:00
Reported to Department Date:	04/23/91
Reported to Department Time:	15:02
SWIS:	62
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
Spiller Name:	NYC HOUSEING AUTHORITY
Spiller Address:	250 BROADWAY
Spiller City,St,Zip:	NEW YORK, N.Y.
Facility Contact:	Not reported
Facility Phone:	(212) 306-3142
Facility Extention:	Not reported
Spill Cause:	Tank Test Failure
Resource Affectd:	On Land
Water Affected:	Not reported
Spill Source:	Other Non Commercial/Industrial
Spill Notifier:	Tank Tester
PBS Number:	2-474827
Cleanup Ceased:	09/09/94
Cleanup Meets Standard:	True
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Date:	/ /
Enforcement Date:	/ /
Investigation Complete:	/ /
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	09/09/94

BETHUNE HOUSES (Continued) **S104073518**

Date Region Sent Summary to Central Office: / /
Corrective Action Plan Submitted: / /
Date Spill Entered In Computer Data File: 04/25/91
Time Spill Entered In Computer Data File: Not reported
Spill Record Last Update: 05/14/98
Is Updated: False
PBS Number: Not reported
Tank Number: 001
Tank Size: 0
Test Method: Not reported
Leak Rate Failed Tank: 0.00
Gross Leak Rate: Not reported
Material Class Type: Petroleum
Quantity Spilled: -1
Unkonwn Quantity Spilled: False
Units: Pounds
Quantity Recovered: 0
Unkonwn Quantity Recovered: False
Material: #4 FUEL OIL
Class Type: #4 FUEL OIL
Times Material Entry In File: 1751
CAS Number: Not reported
Last Date: 19941205
DEC Remarks: Not reported
Spill Cause: 20K TANK FAILED HORNER EZY CHECK,VISUAL LEAK, TO REPAIR RETEST.

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70 SSW 1/8-1/4 798 ft. **MELROSE HOUSING ESTATES LP** **AST** **A100295016**
408 EAST 152ND STREET **N/A**
BRONX, NY 10455

Relative: Lower

Actual: 107 ft.

AST:

AST:
Region: STATE
Facility Id: 2-609254
UTM X: 591367.16613
UTM Y: 4519131.88769
Expiration Date: 09/25/08
Renewal Date: / /
Total Capacity: 2000
Facility Type: Not reported
Site Type Name: Unknown
Site Type Status: Active
Mailing Company: 2804 THIRD AVENUE
Mailing Title: Not reported
Mailing Contact: MARY C. RAMIREZ
Mailing Address: 4TH FLOOR
Mailing Address 2: Not reported
Mailing City: BRONX
Mailing State: NY
Mailing Zip Code: 10455
Mailing Phone No: (718) 401-7823
Mailing Email: Not reported
Owner Title: Not reported
Owner Name: Not reported
Owner Address: 2804 THIRD AVENUE 4TH FLOOR
Owner Address 2: Not reported

MELROSE HOUSING ESTATES LP (Continued) **A100295016**

Owner State:	NY
Owner Zip Code:	10455
Owner Phone:	(718) 401-7823
Owner Company:	MELROSE HOUSING ESTATES LP
Emergency Contact:	MARY C. RAMIREZ
Emergency Phone:	(718) 401-7823
Operator:	MARY C. RAMIREZ
Operator Phone:	(718) 401-7823
Owner City:	BRONX
Owner Sub Type:	Corporate or Commercial
Program Type:	PBS

Tank Number:	001
Tank Location Name:	Aboveground - in contact with soil
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	/ /
Capacity Gallons:	2000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Aboveground
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Vault (w/o access)
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	Impervious Barrier/Concrete Pad (A/G)
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Exempt Suction Piping
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Vent Whistle
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

R71 **450-454 WEST 152ND STREET HDFC** **AST** **A100292386**
SW **450 WEST 152ND STREET** **N/A**
1/8-1/4 **NEW YORK, NY 10031**
806 ft.

Site 1 of 3 in cluster R

Relative: Higher

AST:

Actual: 116 ft.

AST:

Region:	STATE
Facility Id:	2-608797
UTM X:	589129.15599

450-454 WEST 152ND STREET HDFC (Continued) **A100292386**

UTM Y:	4520309.51571
Expiration Date:	04/07/08
Renewal Date:	/ /
Total Capacity:	5000
Facility Type:	Not reported
Site Type Name:	Apartment Building/Office Building
Site Type Status:	Active
Mailing Company:	450-454 WEST 152ND ST HDFC
Mailing Title:	Not reported
Mailing Contact:	JEANETTE WILLIAMS
Mailing Address:	450 WEST 152ND STREET
Mailing Address 2:	454 WEST 152ND STREET
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip Code:	10031
Mailing Phone No:	(646) 548-0484
Mailing Email:	Not reported
Owner Title:	Not reported
Owner Name:	Not reported
Owner Address:	P.O. BOX 2088, MANHATTANVILLE STATION
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	10027
Owner Phone:	(646) 548-0484
Owner Company:	JEANETTE WILLIAMS
Emergency Contact:	BARNEICE WILLIAMS
Emergency Phone:	(917) 507-6244
Operator:	MONTEBELLO OIL
Operator Phone:	(212) 744-7440
Owner City:	NEW YORK
Owner Sub Type:	Corporate or Commercial
Program Type:	PBS
Tank Number:	001
Tank Location Name:	Aboveground on crib, rack, or cradle
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	/ /
Capacity Gallons:	5000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	Jacketed
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Aboveground
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Vault (w/o access)
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Exempt Suction Piping

450-454 WEST 152ND STREET HDFC (Continued) **A100292386**

Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Product Level Gauge (A/G)
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

R72
SW
1/8-1/4
812 ft.

Relative:
Higher

Actual:
118 ft.

453 W 152ND ST. LLC **AST** **A100173349**
453 WEST 152ND STREET **N/A**
NEW YORK, NY 10031

Site 2 of 3 in cluster R

AST:

AST:

Region:	STATE
Facility Id:	2-257249
UTM X:	589183.81956
UTM Y:	4520322.88298
Expiration Date:	12/21/10
Renewal Date:	/ /
Total Capacity:	3000
Facility Type:	Not reported
Site Type Name:	Apartment Building/Office Building
Site Type Status:	Active
Mailing Company:	REUSSI MANAGEMENT
Mailing Title:	Not reported
Mailing Contact:	PETER SIEGEL
Mailing Address:	P.O. BOX 2198
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip Code:	10101-2198
Mailing Phone No:	(212) 265-3304
Mailing Email:	Not reported
Owner Title:	MANAGING MEMBER
Owner Name:	PETER SIEGEL
Owner Address:	P.O. BOX 2198
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	10101-2198
Owner Phone:	(212) 265-3304
Owner Company:	453 W 152ND, LLC
Emergency Contact:	MAVREEN RUMPRASHAD
Emergency Phone:	(212) 265-3304
Operator:	COCO RIVERA
Operator Phone:	(212) 265-3304
Owner City:	NEW YORK
Owner Sub Type:	Corporate or Commercial
Program Type:	PBS
Tank Number:	001
Tank Location Name:	Aboveground - in contact with soil
Tank Status:	In Service

453 W 152ND ST. LLC (Continued) **A100173349**

Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	/ /
Capacity Gallons:	3000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Aboveground
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Product Level Gauge (A/G)
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Submersible
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

N73 **CITY OF NY DEPARTMENT OF H.P.D** **AST** **U003395935**
SSW **400 W 152 ST** **HIST AST** **N/A**
1/8-1/4 **MANHATTAN, NY 10031**
821 ft.

Site 4 of 5 in cluster N

Relative: Lower

AST:

Actual: 103 ft.

AST:

Region:	STATE
Facility Id:	2-601060
UTM X:	589274.52962
UTM Y:	4520262.91588
Expiration Date:	10/21/97
Renewal Date:	/ /
Total Capacity:	3000
Facility Type:	Not reported
Site Type Name:	Unknown
Site Type Status:	Active
Mailing Company:	CITY OF NY DEPARTMENT OF H.P.D
Mailing Title:	Not reported
Mailing Contact:	IVAN SCHWARTZ
Mailing Address:	75 MAIDEN LANE
Mailing Address 2:	4TH FL- RM 427’
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip Code:	10038

CITY OF NY DEPARTMENT OF H.P.D (Continued) **U003395935**

Mailing Phone No:	(212) 806-8037
Mailing Email:	Not reported
Owner Title:	Not reported
Owner Name:	Not reported
Owner Address:	75 MAIDEN LANE
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	10038
Owner Phone:	(212) 806-8306
Owner Company:	CITY OF NY DEPARTMENT OF H.P.D
Emergency Contact:	LOUISE BECTON
Emergency Phone:	(212) 234-3656
Operator:	JOHN PRESAK
Operator Phone:	(212) 234-1175
Owner City:	NEW YORK
Owner Sub Type:	Local Government
Program Type:	PBS

Tank Number:	1
Tank Location Name:	Aboveground - in contact with soil
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	/ /
Capacity Gallons:	3000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	Painted/Asphalt Coating
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Aboveground/Underground Combination
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	Painted/Asphalt Coating
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Vault (w/o access)
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Exempt Suction Piping
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Vent Whistle
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

HIST AST:

PBS Number:	2-601060
SWIS Code:	6201
Operator:	JOHN PRESAK
Facility Phone:	(212) 234-1175

CITY OF NY DEPARTMENT OF H.P.D (Continued) **U003395935**

Facility Addr2:	400 W 152 ST
Facility Type:	Not reported
Emergency:	LOUISE BECTON
Emergency Tel:	(212) 234-3654
Old PBSNO:	Not reported
Date Inspected:	Not reported
Inspector:	Not reported
Result of Inspection:	Not reported
Owner Name:	CITY OF NY DEPARTMENT OF H.P.D
Owner Address:	75 MAIDEN LANE
Owner City,St,Zip:	NEW YORK, NY 10038
Federal ID:	Not reported
Owner Tel:	(212) 806-8306
Owner Type:	Local Government
Owner Subtype:	Not reported
Mailing Contact:	IVAN SCHWARTZ
Mailing Name:	CITY OF NY DEPARTMENT OF H.P.D
Mailing Address:	75 MAIDEN LANE
Mailing Address 2:	4TH FL- RM 427'
Mailing City,St,Zip:	NEW YORK, NY 10038
Mailing Telephone:	(212) 806-8037
Owner Mark:	First Owner
Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Certification Flag:	False
Certification Date:	10/23/1992
Expiration:	10/21/1997
Renew Flag:	False
Renew Date:	Not reported
Total Capacity:	3000
FAMT:	True
Facility Screen:	Minor Data Missing
Owner Screen:	Minor Data Missing
Tank Screen:	No Missing Data
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	62
Town or City Code:	01
Region:	2
Tank ID:	1
Tank Location:	ABOVEGROUND
Tank Status:	In Service
Install Date:	Not reported
Capacity (Gal):	3000
Product Stored:	NOS 1,2, OR 4 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	0
Tank External:	01
Pipe Location:	Aboveground/Underground Combination
Pipe Type:	STEEL/IRON
Pipe Internal:	None
Pipe External:	01
Tank Containment:	Diking
Leak Detection:	00

CITY OF NY DEPARTMENT OF H.P.D (Continued) **U003395935**

Overfill Protection:	06
Dispenser Method:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	No Missing Data
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	True
SPDES Number:	Not reported
Lat/Long:	Not reported

N74 **401 WEST 152 ST HDFC** **AST** **U003393878**
SSW **401 WEST 152 ST** **HIST AST** **N/A**
1/8-1/4 **NEW YORK, NY 10031**
821 ft.

Site 5 of 5 in cluster N

Relative: Lower

AST:

Actual: 103 ft.

AST:

Region:	STATE
Facility Id:	2-346942
UTM X:	589278.69201
UTM Y:	4520274.40159
Expiration Date:	12/14/07
Renewal Date:	08/05/02
Total Capacity:	2000
Facility Type:	Not reported
Site Type Name:	Apartment Building/Office Building
Site Type Status:	Active
Mailing Company:	401 WEST 152 ST HDFC
Mailing Title:	Not reported
Mailing Contact:	SUPER FACILITY MANAGER
Mailing Address:	401 WEST 152 ST
Mailing Address 2:	C/O APARTMENT 1C
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip Code:	10031
Mailing Phone No:	(212) 862-4464
Mailing Email:	Not reported
Owner Title:	Not reported
Owner Name:	Not reported
Owner Address:	401 WEST 152 ST C/O APARTMENT 1C
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	10031
Owner Phone:	(212) 862-4464
Owner Company:	401 WEST 152 ST HDFC
Emergency Contact:	SAMUEL SIMON
Emergency Phone:	(212) 283-7761
Operator:	BASYL A. BRYAN
Operator Phone:	(212) 862-4464
Owner City:	NEW YORK
Owner Sub Type:	Corporate or Commercial
Program Type:	PBS
Tank Number:	001

401 WEST 152 ST HDFC (Continued) **U003393878**

Tank Location Name:	Aboveground - in contact with soil
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	07/01/84
Capacity Gallons:	2000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	Painted/Asphalt Coating
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Aboveground
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Vault (w/o access)
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Exempt Suction Piping
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Product Level Gauge (A/G)
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

HIST AST:

PBS Number:	2-346942
SWIS Code:	6201
Operator:	BASYL A. BRYAN
Facility Phone:	(212) 862-4464
Facility Addr2:	401 WEST 152 ST
Facility Type:	APARTMENT BUILDING
Emergency:	SAMUEL SIMON
Emergency Tel:	(212) 283-7761
Old PBSNO:	Not reported
Date Inspected:	Not reported
Inspector:	Not reported
Result of Inspection:	Not reported
Owner Name:	401 WEST 152 ST HDFC
Owner Address:	401 WEST 152 ST C/O APARTMENT 1C
Owner City,St,Zip:	NEW YORK, NY 10031
Federal ID:	Not reported
Owner Tel:	(212) 862-4464
Owner Type:	Corporate/Commercial
Owner Subtype:	Not reported
Mailing Contact:	SUPER FACILITY MANAGER
Mailing Name:	401 WEST 152 ST HDFC
Mailing Address:	401 WEST 152 ST
Mailing Address 2:	C/O APARTMENT 1C

401 WEST 152 ST HDFC (Continued) **U003393878**

Mailing City,St,Zip:	NEW YORK, NY 10031
Mailing Telephone:	(212) 862-4464
Owner Mark:	First Owner
Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Certification Flag:	False
Certification Date:	10/29/1999
Expiration:	12/14/2002
Renew Flag:	False
Renew Date:	Not reported
Total Capacity:	2000
FAMT:	True
Facility Screen:	No Missing Data
Owner Screen:	No Missing Data
Tank Screen:	No Missing Data
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	62
Town or City Code:	01
Region:	2

Tank ID:	001
Tank Location:	ABOVEGROUND
Tank Status:	In Service
Install Date:	19840701
Capacity (Gal):	2000
Product Stored:	NOS 1,2, OR 4 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	0
Tank External:	01
Pipe Location:	Aboveground
Pipe Type:	STEEL/IRON
Pipe Internal:	None
Pipe External:	00
Tank Containment:	Diking
Leak Detection:	0
Overfill Protection:	4
Dispenser Method:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	No Missing Data
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	True
SPDES Number:	Not reported
Lat/Long:	Not reported

O75 **CHAMA HOLDING CORP** **AST** **U003388953**
South **379-81 EDGECOMBE AVE** **HIST AST** **N/A**
1/8-1/4 **NEW YORK, NY 10031**
827 ft.

Site 2 of 2 in cluster O

Relative:
Lower

AST:

Actual:
86 ft.

AST:

Region:	STATE
Facility Id:	2-284130
UTM X:	589374.99589
UTM Y:	4520345.96778
Expiration Date:	07/14/12
Renewal Date:	03/06/02
Total Capacity:	5000
Facility Type:	Not reported
Site Type Name:	Apartment Building/Office Building
Site Type Status:	Active
Mailing Company:	CHAMA HOLDING CORP
Mailing Title:	Not reported
Mailing Contact:	Not reported
Mailing Address:	P.O. BOX 191024
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip Code:	11219
Mailing Phone No:	(718) 972-5010
Mailing Email:	Not reported
Owner Title:	Not reported
Owner Name:	Not reported
Owner Address:	P.O. BOX 191024
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	11219
Owner Phone:	(718) 972-5010
Owner Company:	CHAMA HOLDING CORP
Emergency Contact:	JAUN BACA
Emergency Phone:	(718) 972-5010
Operator:	JAUN BACA
Operator Phone:	(212) 926-4546
Owner City:	BROOKLYN
Owner Sub Type:	Corporate or Commercial
Program Type:	PBS
Tank Number:	001
Tank Location Name:	Aboveground - in contact with soil
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	01/01/49
Capacity Gallons:	5000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping

CHAMA HOLDING CORP (Continued) **U003388953**

Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Vault (w/o access)
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Exempt Suction Piping
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Product Level Gauge (A/G)
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

HIST AST:

PBS Number:	2-284130
SWIS Code:	6201
Operator:	FIDEL GALANO
Facility Phone:	(212) 862-2369
Facility Addr2:	379 EDGECOMBE AVE
Facility Type:	APARTMENT BUILDING
Emergency:	FIDEL GALANO
Emergency Tel:	(212) 862-2369
Old PBSNO:	Not reported
Date Inspected:	Not reported
Inspector:	Not reported
Result of Inspection:	Not reported
Owner Name:	CHAMA HOLDING CORP
Owner Address:	P.O. BOX 191024
Owner City,St,Zip:	BROOKLYN, NY 11219
Federal ID:	Not reported
Owner Tel:	(718) 972-5010
Owner Type:	Corporate/Commercial
Owner Subtype:	Not reported
Mailing Contact:	Not reported
Mailing Name:	CHAMA HOLDING CORP
Mailing Address:	P.O. BOX 191024
Mailing Address 2:	Not reported
Mailing City,St,Zip:	BROOKLYN, NY 11219
Mailing Telephone:	(718) 972-5010
Owner Mark:	First Owner
Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Certification Flag:	False
Certification Date:	07/07/1997
Expiration:	07/14/2002
Renew Flag:	False
Renew Date:	Not reported
Total Capacity:	5000
FAMT:	True
Facility Screen:	No Missing Data

CHAMA HOLDING CORP (Continued) **U003388953**

Owner Screen:	No Missing Data
Tank Screen:	Minor Data Missing
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	62
Town or City Code:	01
Region:	2

Tank ID:	001
Tank Location:	ABOVEGROUND
Tank Status:	In Service
Install Date:	Not reported
Capacity (Gal):	5000
Product Stored:	NOS 1,2, OR 4 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	STEEL/IRON
Pipe Internal:	Not reported
Pipe External:	Not reported
Tank Containment:	Diking
Leak Detection:	0
Overfill Protection:	4
Dispenser Method:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	False
SPDES Number:	Not reported
Lat/Long:	Not reported

S76 **1885 AMSTERDAM AVE** **UST** **U000397309**
West **1885 AMSTERDAM AVE** **HIST UST** **N/A**
1/8-1/4 **NEW YORK, NY 10032**
831 ft.

Site 1 of 4 in cluster S

Relative:
Higher

UST:

Actual:
142 ft.

UST:

Facility Id:	2-270636
Expiration Date:	06/18/92
Renewal Date:	/ /
Total Capacity:	0
Facility Type:	Not reported
Mailing Company:	1885 AMSTERDAM AVE
Mailing Title:	Not reported
Mailing Contact:	Not reported
Mailing Address:	34 34TH STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip Code:	11232

1885 AMSTERDAM AVE (Continued) **U000397309**

Mailing Phone No:	(718) 832-6500
Mailing Email:	Not reported
Owner Title:	Not reported
Owner Name:	Not reported
Owner Address:	110 E 23RD ST
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	10010
Owner Phone:	(212) 475-4263
Owner Company:	DELTA MGMT-%COASTAL PETROL CO
Emergency Contact:	COASTAL PETROLEUM TANK CORP
Emergency Phone:	(212) 475-4263
Operator:	L. AMSTERDAM RLTY CORP
Operator Phone:	(212) 769-1344
Owner City:	NEW YORK
Owner Sub Type:	Not reported
UTM X:	589095.67021
UTM Y:	4520478.36204
Site Type Name:	Unknown
Site Type Status:	Unregulated
Comments:	08/10/92 - All attempts to contact this facility have failed. Mail is being returned as undeliverable, and no one is reachable by telephone. This site will not receive any future mailing correspondence, including registration renewal applications and tank testing overdue notices, until this problem has been resolved. A site inspection is necessary to determine the true status of this facility. For all intents and purposes, it's UNDELIVERABLE. This site, however, is still considered active until deemed otherwise.
Program Type:	PBS
Tank Number:	001
Tank Location Name:	Underground, vaulted, with access
Tank Status:	Closed - In Place
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	/ /
Capacity Gallons:	3000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Vault (w/o access)
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Product Level Gauge (A/G)
Type Of Overfill Prevention 2:	Not reported

1885 AMSTERDAM AVE (Continued) **U000397309**

Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	12/01/93

HIST UST:

PBS Number:	2-270636
SPDES Number:	Not reported
Emergency Contact:	COASTAL PETROLEUM TANK CORP
Emergency Telephone:	(212) 475-4263
Operator:	L. AMSTERDAM RLTY CORP
Operator Telephone:	(212) 769-1344
Owner Name:	DELTA MGMT-%COASTAL PETROL CO
Owner Address:	110 E 23RD ST
Owner City,St,Zip:	NEW YORK, NY 10010
Owner Telephone:	(212) 475-4263
Owner Type:	Not reported
Owner Subtype:	Not reported
Mailing Name:	1885 AMSTERDAM AVE
Mailing Address:	34 34TH STREET
Mailing Address 2:	Not reported
Mailing City,St,Zip:	BROOKLYN, NY 11232
Mailing Contact:	Not reported
Mailing Telephone:	(718) 832-6500
Owner Mark:	First Owner
Facility Status:	2 - Unregulated by PBS (the total capacity is less than 1,101 gallons) and Subpart 360-14.
Facility Addr2:	1885 AMSTERDAM AVE
SWIS ID:	6201
Old PBS Number:	Not reported
Facility Type:	Not reported
Inspected Date:	Not reported
Inspector:	Not reported
Inspection Result:	Not reported
Federal ID:	Not reported
Certification Flag:	False
Certification Date:	06/18/1987
Expiration Date:	06/18/1992
Renew Flag:	False
Renewal Date:	Not reported
Total Capacity:	0
FAMT:	True
Facility Screen:	Minor Data Missing
Owner Screen:	Minor Data Missing
Tank Screen:	0
Dead Letter:	True
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	62
Town or City:	01
Region:	2

Tank Id:	001
Tank Location:	UNDERGROUND, VAULTED, WITH ACCESS
Tank Status:	Closed-In Place

1885 AMSTERDAM AVE (Continued) **U000397309**

Install Date:	Not reported
Capacity (gals):	3000
Product Stored:	NOS 1,2, OR 4 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	STEEL/IRON
Pipe Internal:	Not reported
Pipe External:	Not reported
Second Containment:	Diking
Leak Detection:	None
Overfill Prot:	Product Level Gauge
Dispenser:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	12/01/1993
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	Not reported

T77 **464 WEST 152ND ST** **AST** **U003388998**
SW **464 W 152ND ST** **HIST AST** **N/A**
1/8-1/4 **NEW YORK, NY 10031**
843 ft.

Site 1 of 3 in cluster T

Relative: Higher

AST:

Actual: 124 ft.

AST:

Region:	STATE
Facility Id:	2-257087
UTM X:	589126.77038
UTM Y:	4520340.06917
Expiration Date:	07/14/07
Renewal Date:	03/06/02
Total Capacity:	2500
Facility Type:	Not reported
Site Type Name:	Apartment Building/Office Building
Site Type Status:	Active
Mailing Company:	464 WEST 152ND STREET H.D.F.C.
Mailing Title:	Not reported
Mailing Contact:	EUNICE PARSONS
Mailing Address:	464 WEST 152 STREET
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip Code:	10031
Mailing Phone No:	Not reported
Mailing Email:	Not reported
Owner Title:	PRESIDENT
Owner Name:	EUNICE PARSONS
Owner Address:	464 WEST 152 STREET
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	10031

464 WEST 152ND ST (Continued) **U003388998**

Owner Phone:	Not reported
Owner Company:	464 WEST 152ND STREET H.D.F.C.
Emergency Contact:	EUNICE PARSONS
Emergency Phone:	Not reported
Operator:	ROBERT BROWN
Operator Phone:	Not reported
Owner City:	NEW YORK
Owner Sub Type:	Private Resident
Program Type:	PBS

Tank Number:	001
Tank Location Name:	Aboveground - in contact with soil
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	/ /
Capacity Gallons:	2500
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	Painted/Asphalt Coating
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Aboveground
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	Painted/Asphalt Coating
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Vault (w/access)
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Vault (with Access)
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	None
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Vent Whistle
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	None
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

HIST AST:

PBS Number:	2-257087
SWIS Code:	6201
Operator:	K. BRIGGS
Facility Phone:	(212) 281-8657
Facility Addr2:	464 W 152ND ST
Facility Type:	APARTMENT BUILDING
Emergency:	ALAN R BUSH INC
Emergency Tel:	(212) 795-1555
Old PBSNO:	Not reported
Date Inspected:	Not reported
Inspector:	Not reported
Result of Inspection:	Not reported

464 WEST 152ND ST (Continued) **U003388998**

Owner Name:	464 WEST 152ND ST HDFC
Owner Address:	2460 LEMOINE AVENUE, 3RD FLOOR
Owner City,St,Zip:	FORT LEE, NJ 07024
Federal ID:	Not reported
Owner Tel:	(212) 795-1555
Owner Type:	Corporate/Commercial
Owner Subtype:	Not reported
Mailing Contact:	ALBERTA TUNISON
Mailing Name:	ALAN BUSH INC.
Mailing Address:	2460 LEMOINE AVE. 3RD FL.
Mailing Address 2:	Not reported
Mailing City,St,Zip:	FORT LEE, NJ 07024
Mailing Telephone:	(212) 795-1555
Owner Mark:	First Owner
Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Certification Flag:	False
Certification Date:	07/09/1997
Expiration:	07/14/2002
Renew Flag:	False
Renew Date:	Not reported
Total Capacity:	2500
FAMT:	True
Facility Screen:	No Missing Data
Owner Screen:	No Missing Data
Tank Screen:	Minor Data Missing
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	62
Town or City Code:	01
Region:	2

Tank ID:	001
Tank Location:	ABOVEGROUND
Tank Status:	In Service
Install Date:	Not reported
Capacity (Gal):	2500
Product Stored:	NOS 1,2, OR 4 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	STEEL/IRON
Pipe Internal:	Not reported
Pipe External:	Not reported
Tank Containment:	None
Leak Detection:	0
Overfill Protection:	4
Dispenser Method:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False

464 WEST 152ND ST (Continued) **U003388998**

Updated: False
SPDES Number: Not reported
Lat/Long: Not reported

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78 ESE 1/8-1/4 844 ft.

364 EAST 155TH STREET/ BR **LTANKS** **S100144740**
364 EAST 155TH STREET **HIST LTANKS** **N/A**
NEW YORK CITY, NY

Relative: Lower

Actual: 18 ft.

LTANKS:

Site ID:	135234
Spill Date:	08/05/87
Facility Addr2:	Not reported
Facility ID:	8703706
Program Number:	8703706
SWIS:	0301
Region of Spill:	2
Investigator:	BATTISTA
Referred To:	Not reported
Reported to Dept:	08/05/87
CID:	Not reported
Spill Cause:	Tank Test Failure
Water Affected:	Not reported
Spill Source:	Institutional, Educational, Gov., Other
Spill Notifier:	Tank Tester
Cleanup Ceased:	10/07/92
Cleanup Meets Standard:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	10/07/92
Remediation Phase:	0
Date Entered In Computer:	08/20/87
Spill Record Last Update:	02/15/94
Spille Namer:	Not reported
Spiller Company:	Not reported
Spiller Phone:	(212) 292-6970
Spiller Extention:	Not reported
Spiller Address:	Not reported
Spiller City,St,Zip:	ZZ
Spiller County:	001
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
DEC Region:	2
Program Number:	8703706
DER Facility ID:	116111
Site ID:	135234
Operable Unit ID:	907590
Operable Unit:	01
Material ID:	469932
Material Code:	0001
Material Name:	#2 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	0.00

364 EAST 155TH STREET/ BR (Continued) **S100144740**

Units:	Not reported
Recovered:	0.00
Resource Affected:	Groundwater
Oxygenate:	False
Site ID:	135234
Spill Tank Test:	1531286
Tank Number:	Not reported
Tank Size:	0
Test Method:	00
Leak Rate:	0.00
Gross Fail:	Not reported
Modified By:	Spills
Last Modified:	10/01/04
Test Method:	Unknown
DEC Memo:	Not reported
Remarks:	Start CallerRemark - 8703706 -.225 GAL/HR. 1500 GALLON UNDERGROUND TANK PETRO-TITE, WILL EXCAVATE AND RETEST THIS WEEK. END CallerRemark - 8703706

HIST LTANKS:

Region of Spill:	2
Spill Number:	8703706
Investigator:	BATTISTA
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Caller Extension:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Notifier Extension:	Not reported
Spill Date:	08/05/1987
Spill Time:	13:30
Reported to Department Date:	08/05/87
Reported to Department Time:	14:20
SWIS:	60
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
Spiller Name:	Not reported
Spiller Address:	Not reported
Spiller City,St,Zip:	Not reported
Facility Contact:	Not reported
Facility Phone:	(212) 292-6970
Facility Extention:	Not reported
Spill Cause:	Tank Test Failure
Resource Affectd:	Groundwater
Water Affected:	Not reported
Spill Source:	Other Non Commercial/Industrial
Spill Notifier:	Tank Tester
PBS Number:	Not reported
Cleanup Ceased:	10/07/92
Cleanup Meets Standard:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Date:	/ /
Enforcement Date:	/ /
Investigation Complete:	/ /

364 EAST 155TH STREET/ BR (Continued) **S100144740**

UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	10/07/92
Date Region Sent Summary to Central Office:	/ /
Corrective Action Plan Submitted:	/ /
Date Spill Entered In Computer Data File:	08/20/87
Time Spill Entered In Computer Data File:	Not reported
Spill Record Last Update:	02/15/94
Is Updated:	False
PBS Number:	Not reported
Tank Number:	Not reported
Tank Size:	0
Test Method:	Not reported
Leak Rate Failed Tank:	0.00
Gross Leak Rate:	Not reported
Material Class Type:	Petroleum
Quantity Spilled:	0
Unkonwn Quantity Spilled:	False
Units:	Not reported
Quantity Recovered:	0
Unkonwn Quantity Recovered:	False
Material:	#2 FUEL OIL
Class Type:	#2 FUEL OIL
Times Material Entry In File:	24464
CAS Number:	Not reported
Last Date:	19941207
DEC Remarks:	Not reported
Spill Cause:	-.225 GAL/HR. 1500 GALLON UNDERGROUND TANK PETRO-TITE, WILL EXCAVATE AND RETEST THIS WEEK.

P79 **SMH REALTY CORP.** **AST** **U003395088**
NW **512 WEST 156TH STREET** **HIST AST** **N/A**
1/8-1/4 **NEW YORK, NY 10031**
846 ft.

Site 7 of 9 in cluster P

Relative: Higher

AST:

Actual: 144 ft.

AST:

Region:	STATE
Facility Id:	2-471526
UTM X:	589161.43883
UTM Y:	4520695.98414
Expiration Date:	03/28/04
Renewal Date:	/ /
Total Capacity:	4000
Facility Type:	Not reported
Site Type Name:	Apartment Building/Office Building
Site Type Status:	Active
Mailing Company:	SMH REALTY CORP.
Mailing Title:	Not reported
Mailing Contact:	REAL STATE MGMT
Mailing Address:	P.O. BOX 919 GPO
Mailing Address 2:	Not reported
Mailing City:	BRONX
Mailing State:	NY
Mailing Zip Code:	10451

SMH REALTY CORP. (Continued) **U003395088**

Mailing Phone No:	(718) 562-6860
Mailing Email:	Not reported
Owner Title:	Not reported
Owner Name:	Not reported
Owner Address:	P.O. BOX 919 GPO
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	10451
Owner Phone:	(718) 562-6860
Owner Company:	SMH REALTY CORP.
Emergency Contact:	PEDRO ROJA
Emergency Phone:	(212) 690-2491
Operator:	PEDRO ROJA
Operator Phone:	(212) 690-2491
Owner City:	BRONX
Owner Sub Type:	Corporate or Commercial
Program Type:	PBS

Tank Number:	001
Tank Location Name:	Aboveground on crib, rack, or cradle
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	/ /
Capacity Gallons:	4000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Aboveground
Pipe Type Name:	Galvanized Steel
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Vault (w/o access)
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	In-Tank System (ATG)
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Product Level Gauge (A/G)
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Not reported
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

HIST AST:

PBS Number:	2-471526
SWIS Code:	6201
Operator:	PEDRO ROJA
Facility Phone:	(212) 690-2491

SMH REALTY CORP. (Continued) **U003395088**

Facility Addr2:	512 WEST 156TH STREET
Facility Type:	APARTMENT BUILDING
Emergency:	PEDRO ROJA
Emergency Tel:	(212) 690-2491
Old PBSNO:	Not reported
Date Inspected:	Not reported
Inspector:	Not reported
Result of Inspection:	Not reported
Owner Name:	SMH REALTY CORP.
Owner Address:	P.O. BOX 919 GPO
Owner City,St,Zip:	BRONX, NY 10451
Federal ID:	Not reported
Owner Tel:	(718) 562-6860
Owner Type:	Corporate/Commercial
Owner Subtype:	Not reported
Mailing Contact:	REAL STATE MGMT
Mailing Name:	SMH REALTY CORP.
Mailing Address:	P.O. BOX 919 GPO
Mailing Address 2:	Not reported
Mailing City,St,Zip:	BRONX, NY 10451
Mailing Telephone:	(718) 562-6860
Owner Mark:	First Owner
Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Certification Flag:	False
Certification Date:	02/19/1999
Expiration:	03/28/2004
Renew Flag:	False
Renew Date:	Not reported
Total Capacity:	4000
FAMT:	True
Facility Screen:	No Missing Data
Owner Screen:	No Missing Data
Tank Screen:	Minor Data Missing
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	62
Town or City Code:	01
Region:	2

Tank ID:	001
Tank Location:	ABOVEGROUND ON SADDLES LEGS, STILTS, RACK, OR CRADLE
Tank Status:	In Service
Install Date:	Not reported
Capacity (Gal):	4000
Product Stored:	NOS 1,2, OR 4 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	0
Tank External:	0
Pipe Location:	Aboveground
Pipe Type:	GALVANIZED STEEL
Pipe Internal:	Not reported
Pipe External:	Not reported
Tank Containment:	Diking
Leak Detection:	4

SMH REALTY CORP. (Continued) **U003395088**

Overfill Protection:	4
Dispenser Method:	Gravity
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	True
SPDES Number:	Not reported
Lat/Long:	Not reported

T80 **465 W 152ND ST.** **AST** **A100173526**
SW **465 WEST 152ND STREET** **N/A**
1/8-1/4 **NEW YORK, NY 10031**
851 ft.

Site 2 of 3 in cluster T

Relative: Higher

AST:

Actual: 125 ft.

AST:

Region:	STATE
Facility Id:	2-604739
UTM X:	589148.84552
UTM Y:	4520341.77886
Expiration Date:	01/13/11
Renewal Date:	/ /
Total Capacity:	4000
Facility Type:	Not reported
Site Type Name:	Apartment Building/Office Building
Site Type Status:	Active
Mailing Company:	REUSSI MGT, LLC FOR 465 W. 152ND STREET
Mailing Title:	Not reported
Mailing Contact:	PETER SIEGEL
Mailing Address:	P.O. BOX 2198
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip Code:	10101-2198
Mailing Phone No:	(212) 388-8088
Mailing Email:	Not reported
Owner Title:	MANAGING MEMBER
Owner Name:	PETER SIEGEL
Owner Address:	P.O. BOX 2198
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	10101-2198
Owner Phone:	(212) 388-8088
Owner Company:	465 W. 152ND, LLC
Emergency Contact:	MAUREEN RAMPRASHAD
Emergency Phone:	(212) 388-8088
Operator:	JUAN RIVERA
Operator Phone:	(347) 321-5047
Owner City:	NEW YORK
Owner Sub Type:	Corporate or Commercial
Program Type:	PBS
Tank Number:	1

465 W 152ND ST. (Continued) **A100173526**

Tank Location Name:	Aboveground - in contact with impervious barrier
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	01/01/80
Capacity Gallons:	4000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	None
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	None
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Product Level Gauge (A/G)
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	None
Spill Prevention:	None
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

T81 **DANCE THEATRE OF HARLEM** **AST** **U003390345**
SW **466 WEST 152ND ST** **HIST AST** **N/A**
1/8-1/4 **NY, NY 10031**
851 ft.

Site 3 of 3 in cluster T

Relative: Higher

AST:

Actual: 125 ft.

AST:

Region:	STATE
Facility Id:	2-213497
UTM X:	589121.93320
UTM Y:	4520342.56435
Expiration Date:	07/28/08
Renewal Date:	/ /
Total Capacity:	3035
Facility Type:	Not reported
Site Type Name:	School
Site Type Status:	Active
Mailing Company:	DANCE THEATRE OF HARLEM
Mailing Title:	Not reported
Mailing Contact:	SHARON WILLIAMS
Mailing Address:	466 WEST 152ND STREET
Mailing Address 2:	Not reported
Mailing City:	NEW YORK

DANCE THEATRE OF HARLEM (Continued) **U003390345**

Mailing State:	NY
Mailing Zip Code:	10031
Mailing Phone No:	(212) 690-2800
Mailing Email:	Not reported
Owner Title:	Not reported
Owner Name:	Not reported
Owner Address:	466 WEST 152ND ST
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	10031
Owner Phone:	(212) 690-2800
Owner Company:	DANCE THEATRE OF HARLEM
Emergency Contact:	OLGA L. CANO
Emergency Phone:	(212) 690-2800
Operator:	OLGA L. CANO
Operator Phone:	(212) 690-2800
Owner City:	NEW YORK
Owner Sub Type:	Corporate or Commercial
Program Type:	PBS

Tank Number:	466
Tank Location Name:	Aboveground - in contact with soil
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	/ /
Capacity Gallons:	3035
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Aboveground/Underground Combination
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Other
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Exempt Suction Piping
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Product Level Gauge (A/G)
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

HIST AST:

PBS Number:	2-213497
SWIS Code:	6201

DANCE THEATRE OF HARLEM (Continued) **U003390345**

Operator:	OLGA L. CANO
Facility Phone:	(212) 690-2800
Facility Addr2:	466 WEST 152ND ST
Facility Type:	SCHOOL
Emergency:	OLGA L. CANO
Emergency Tel:	(908) 354-6689
Old PBSNO:	Not reported
Date Inspected:	Not reported
Inspector:	Not reported
Result of Inspection:	Not reported
Owner Name:	DANCE THEATRE OF HARLEM
Owner Address:	466 WEST 152ND ST
Owner City,St,Zip:	NEW YORK, NY 10031
Federal ID:	Not reported
Owner Tel:	(212) 690-2800
Owner Type:	Corporate/Commercial
Owner Subtype:	Not reported
Mailing Contact:	OLGA L. CANO
Mailing Name:	DANCE THEATRE OF HARLEM
Mailing Address:	466 WEST 152ND ST
Mailing Address 2:	Not reported
Mailing City,St,Zip:	NEW YORK, NY 10031
Mailing Telephone:	(212) 690-2800
Owner Mark:	First Owner
Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Certification Flag:	False
Certification Date:	05/30/2000
Expiration:	07/28/2003
Renew Flag:	False
Renew Date:	Not reported
Total Capacity:	3035
FAMT:	True
Facility Screen:	No Missing Data
Owner Screen:	No Missing Data
Tank Screen:	No Missing Data
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	62
Town or City Code:	01
Region:	2

Tank ID:	466
Tank Location:	ABOVEGROUND
Tank Status:	In Service
Install Date:	Not reported
Capacity (Gal):	3035
Product Stored:	NOS 1,2, OR 4 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	0
Tank External:	0
Pipe Location:	Aboveground/Underground Combination
Pipe Type:	STEEL/IRON
Pipe Internal:	None
Pipe External:	0

DANCE THEATRE OF HARLEM (Continued) **U003390345**

Tank Containment:	Double-Walled
Leak Detection:	0
Overfill Protection:	4
Dispenser Method:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	No Missing Data
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	True
SPDES Number:	Not reported
Lat/Long:	Not reported

U82 **234 BRADHURST AVENUE** **AST** **A100129131**
SE **234 BRADHURST AVENUE** **N/A**
1/8-1/4 **NEW YORK, NY 10039**
856 ft.

Site 1 of 2 in cluster U

Relative:
Lower

AST:

Actual:
22 ft.

AST:

Region:	STATE
Facility Id:	2-603812
UTM X:	589493.45515
UTM Y:	4520291.65540
Expiration Date:	12/10/08
Renewal Date:	/ /
Total Capacity:	2000
Facility Type:	Not reported
Site Type Name:	Unknown
Site Type Status:	Active
Mailing Company:	LEMLE & WOLFF, INC.
Mailing Title:	Not reported
Mailing Contact:	W. EGAN
Mailing Address:	5925 BROADWAY
Mailing Address 2:	Not reported
Mailing City:	BRONX
Mailing State:	NY
Mailing Zip Code:	10463
Mailing Phone No:	(718) 884-7676
Mailing Email:	Not reported
Owner Title:	Not reported
Owner Name:	Not reported
Owner Address:	5925 BROADWAY
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	10463
Owner Phone:	(718) 884-7676
Owner Company:	CENTRAL HARLEM MUTUAL H.D.F.C.
Emergency Contact:	LEMLE & WOLFF, INC.
Emergency Phone:	(718) 884-7676
Operator:	LEMLE & WOLFF, INC.
Operator Phone:	(718) 884-7676
Owner City:	BRONX
Owner Sub Type:	Corporate or Commercial
Program Type:	PBS

234 BRADHURST AVENUE (Continued) **A100129131**

Tank Number:	001
Tank Location Name:	Aboveground - in contact with soil
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	/ /
Capacity Gallons:	2000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	Painted/Asphalt Coating
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Aboveground/Underground Combination
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Exempt Suction Piping
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Vent Whistle
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

V83 **377 EDGECOMBE AVE** **AST** **A100292271**
South **377 EDGECOMBE AVE** **N/A**
1/8-1/4 **NEW YORK, NY 10031**
858 ft.

Site 1 of 2 in cluster V

Relative:
Lower

AST:

Actual:
87 ft.

AST:

Region:	STATE
Facility Id:	2-607335
UTM X:	589378.15306
UTM Y:	4520291.76192
Expiration Date:	01/23/12
Renewal Date:	/ /
Total Capacity:	2000
Facility Type:	Not reported
Site Type Name:	Apartment Building/Office Building
Site Type Status:	Active
Mailing Company:	Not reported
Mailing Title:	Not reported
Mailing Contact:	WESTHAB INC.
Mailing Address:	85 EXECUTIVE BLVD
Mailing Address 2:	Not reported

377 EDGECOMBE AVE (Continued) **A100292271**

Mailing City:	ELMSFORD
Mailing State:	NY
Mailing Zip Code:	10523
Mailing Phone No:	Not reported
Mailing Email:	Not reported
Owner Title:	DIRECTOR OF FACILITIES
Owner Name:	KEVIN MCAULIFFE
Owner Address:	121 6TH AVE
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	10013
Owner Phone:	Not reported
Owner Company:	NEIGHBORHOOD RESTORE H.D.F.C C/O CATCH CORP.
Emergency Contact:	JULIO FUENTES
Emergency Phone:	Not reported
Operator:	JULIO FUENTES
Operator Phone:	Not reported
Owner City:	NEW YORK
Owner Sub Type:	Private Resident
Program Type:	PBS

Tank Number:	001
Tank Location Name:	Aboveground - in contact with soil
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	01/01/65
Capacity Gallons:	2000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Aboveground
Pipe Type Name:	No Piping
Pipe External Protection 1:	Wrapped
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Other
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Exempt Suction Piping
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Vent Whistle
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

P84 **514-516 W 156TH ST** **LTANKS** **S104275665**
NW **514-516 W 156TH ST** **HIST LTANKS** **N/A**
1/8-1/4 **MANHATTAN, NY**
860 ft.

Site 8 of 9 in cluster P

Relative:
Higher

Actual:
144 ft.

LTANKS:

Site ID:	296109
Spill Date:	06/26/91
Facility Addr2:	Not reported
Facility ID:	9104009
Program Number:	9104009
SWIS:	3101
Region of Spill:	2
Investigator:	SIGONA
Referred To:	Not reported
Reported to Dept:	07/05/91
CID:	15
Spill Cause:	Tank Overfill
Water Affected:	Not reported
Spill Source:	Non Major Facility > 1,100 gal
Spill Notifier:	Citizen
Cleanup Ceased:	11/18/94
Cleanup Meets Standard:	True
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	False
Spill Class:	Known release that creates potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	11/18/94
Remediation Phase:	0
Date Entered In Computer:	07/15/91
Spill Record Last Update:	11/18/94
Spille Namer:	Not reported
Spiller Company:	CAISI MGMT CO
Spiller Phone:	(516) 233-5673
Spiller Extention:	Not reported
Spiller Address:	PO BOX 4116
Spiller City,St,Zip:	FARMINGDALE, NY 11735
Spiller County:	001
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
DEC Region:	2
Program Number:	9104009
DER Facility ID:	239624
Site ID:	296109
Operable Unit ID:	954785
Operable Unit:	01
Material ID:	423119
Material Code:	0001
Material Name:	#2 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	200.00
Units:	Not reported
Recovered:	0.00
Resource Affected:	Sewer
Oxygenate:	False

514-516 W 156TH ST (Continued) **S104275665**

Site ID:	Not reported
Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported
DEC Memo:	Not reported
Remarks:	Start CallerRemark - 9104009 OIL IN COURTYARD AND AROUND STORAGE TANK END CallerRemark - 9104009

HIST LTANKS:

Region of Spill:	2
Spill Number:	9104009
Investigator:	SIGONA
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Caller Extension:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Notifier Extension:	Not reported
Spill Date:	06/26/1991
Spill Time:	00:01
Reported to Department Date:	07/05/91
Reported to Department Time:	11:00
SWIS:	62
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
Spiller Name:	CAISI MGMT CO
Spiller Address:	PO BOX 4116
Spiller City,St,Zip:	FARMINGDALE, NY 11735
Facility Contact:	Not reported
Facility Phone:	(516) 233-5673
Facility Extention:	Not reported
Spill Cause:	Tank Overfill
Resource Affectd:	In Sewer
Water Affected:	Not reported
Spill Source:	Non Major Facility > 1,100 gallons
Spill Notifier:	Citizen
PBS Number:	Not reported
Cleanup Ceased:	11/18/94
Cleanup Meets Standard:	True
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Date:	/ /
Enforcement Date:	/ /
Investigation Complete:	/ /
UST Involvement:	False
Spill Class:	Known release that creates potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	11/18/94

514-516 W 156TH ST (Continued) **S104275665**

Date Region Sent Summary to Central Office:	/ /
Corrective Action Plan Submitted:	/ /
Date Spill Entered In Computer Data File:	07/15/91
Time Spill Entered In Computer Data File:	Not reported
Spill Record Last Update:	11/18/94
Is Updated:	False
PBS Number:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate Failed Tank:	Not reported
Gross Leak Rate:	Not reported
Material Class Type:	Petroleum
Quantity Spilled:	200
Unkonwn Quantity Spilled:	False
Units:	Not reported
Quantity Recovered:	0
Unkonwn Quantity Recovered:	False
Material:	#2 FUEL OIL
Class Type:	#2 FUEL OIL
Times Material Entry In File:	24464
CAS Number:	Not reported
Last Date:	19941207
DEC Remarks:	/ / : OWNER HIRED TYREE BROS INC TO RESPOND CLEAN UP.
Spill Cause:	OIL IN COURTYARD AND AROUND STORAGE TANK

P85 **J & TE REALTH CORP** **AST** **U003387069**
NW **515-519 WEST 156 ST** **HIST AST** **N/A**
1/8-1/4 **MANHATTAN, NY 10032**
864 ft.

Site 9 of 9 in cluster P

Relative: Higher

AST:

Actual: 144 ft.

AST:

Region:	STATE
Facility Id:	2-287830
UTM X:	589122.34311
UTM Y:	4520699.29283
Expiration Date:	06/22/10
Renewal Date:	03/06/02
Total Capacity:	5000
Facility Type:	Not reported
Site Type Name:	Apartment Building/Office Building
Site Type Status:	Active
Mailing Company:	MUS REALTY LLC
Mailing Title:	Not reported
Mailing Contact:	MORWIN SCHMOOKLER
Mailing Address:	PO BOX 1568 FDR STATION
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip Code:	10150-1568
Mailing Phone No:	(917) 710-8403
Mailing Email:	Not reported
Owner Title:	MEMBER
Owner Name:	JANE UPTON
Owner Address:	PO BOX 1568 FDR STATION

J & TE REALTH CORP (Continued) **U003387069**

Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	10150-1568
Owner Phone:	(917) 710-8403
Owner Company:	MUS REALTY LLC
Emergency Contact:	UZI EVRON
Emergency Phone:	(917) 295-1565
Operator:	UZI EVRON
Operator Phone:	(917) 295-1565
Owner City:	NEW YORK
Owner Sub Type:	Corporate or Commercial
Program Type:	PBS

Tank Number:	001
Tank Location Name:	Aboveground - in contact with soil
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	01/01/25
Capacity Gallons:	5000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Vault (w/o access)
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Exempt Suction Piping
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Product Level Gauge (A/G)
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

HIST AST:

PBS Number:	2-287830
SWIS Code:	6201
Operator:	TONI ROBIOU
Facility Phone:	(212) 862-7060
Facility Addr2:	515 WEST 156 ST
Facility Type:	APARTMENT BUILDING
Emergency:	TONI ROBIOU
Emergency Tel:	(212) 862-7060
Old PBSNO:	Not reported

J & TE REALTH CORP (Continued) **U003387069**

Date Inspected:	Not reported
Inspector:	Not reported
Result of Inspection:	Not reported
Owner Name:	J & TE REALTY CORP
Owner Address:	P.O. BOX 919 GPO
Owner City,St,Zip:	BRONX, NY 10451
Federal ID:	Not reported
Owner Tel:	(212) 562-6860
Owner Type:	Corporate/Commercial
Owner Subtype:	Not reported
Mailing Contact:	Not reported
Mailing Name:	REAL ESTATE MANAGEMENT
Mailing Address:	P. O. BOX 919
Mailing Address 2:	Not reported
Mailing City,St,Zip:	BRONX, NY 10451-0919
Mailing Telephone:	(212) 562-6860
Owner Mark:	First Owner
Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Certification Flag:	False
Certification Date:	07/15/1997
Expiration:	07/07/2002
Renew Flag:	False
Renew Date:	Not reported
Total Capacity:	5000
FAMT:	True
Facility Screen:	No Missing Data
Owner Screen:	No Missing Data
Tank Screen:	Minor Data Missing
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	62
Town or City Code:	01
Region:	2

Tank ID:	001
Tank Location:	ABOVEGROUND
Tank Status:	In Service
Install Date:	Not reported
Capacity (Gal):	5000
Product Stored:	NOS 1,2, OR 4 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	STEEL/IRON
Pipe Internal:	Not reported
Pipe External:	Not reported
Tank Containment:	Diking
Leak Detection:	0
Overfill Protection:	4
Dispenser Method:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing

J & TE REALTH CORP (Continued) **U003387069**

Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	False
SPDES Number:	Not reported
Lat/Long:	Not reported

W86 **ROGER MORRIS APT. CORP.** **AST** **U003388087**
North **474-8 WEST 158TH STREET** **HIST AST** **N/A**
1/8-1/4 **NEW YORK, NY 10032**
871 ft.

Site 1 of 3 in cluster W

Relative: Higher

AST:

Actual: 148 ft.

AST:

Region:	STATE
Facility Id:	2-256080
UTM X:	589331.73680
UTM Y:	4520759.54564
Expiration Date:	07/10/12
Renewal Date:	03/06/02
Total Capacity:	4500
Facility Type:	Not reported
Site Type Name:	Apartment Building/Office Building
Site Type Status:	Active
Mailing Company:	Z & R MANAGEMENT CORPORATION
Mailing Title:	Not reported
Mailing Contact:	ROGER MORRIS APT. CORP.
Mailing Address:	1751 SECOND AVE
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip Code:	10128
Mailing Phone No:	Not reported
Mailing Email:	Not reported
Owner Title:	MANAGING AGENT
Owner Name:	MARK ZWEIBON
Owner Address:	Z & R MANAGEMENT, 1623 3RD AVENUE
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	10128
Owner Phone:	Not reported
Owner Company:	ROGER MORRIS APT. CORP
Emergency Contact:	MARK ZWEIBON
Emergency Phone:	Not reported
Operator:	BERL BROWN
Operator Phone:	Not reported
Owner City:	NEW YORK
Owner Sub Type:	Private Resident
Program Type:	PBS
Tank Number:	001
Tank Location Name:	Aboveground - in contact with soil
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active

ROGER MORRIS APT. CORP. (Continued) **U003388087**

Install Date:	07/01/40
Capacity Gallons:	4500
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Vault (w/o access)
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Exempt Suction Piping
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Product Level Gauge (A/G)
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

HIST AST:

PBS Number:	2-256080
SWIS Code:	6201
Operator:	BERL BROWN
Facility Phone:	(212) 491-3610
Facility Addr2:	474 WEST 158 STREET
Facility Type:	Not reported
Emergency:	ROGER MORRIS
Emergency Tel:	(212) 926-6000
Old PBSNO:	Not reported
Date Inspected:	Not reported
Inspector:	Not reported
Result of Inspection:	Not reported
Owner Name:	IRWIN RIKOON
Owner Address:	Z & R MANAGEMENT, 1623 3RD AVENUE
Owner City,St,Zip:	NEW YORK, NY 10128
Federal ID:	Not reported
Owner Tel:	(212) 926-6000
Owner Type:	Private Resident
Owner Subtype:	Not reported
Mailing Contact:	ROGER MORRIS APT. CORP.
Mailing Name:	Z & R MANAGEMENT CORPORATION
Mailing Address:	1623 3RD AVENUE
Mailing Address 2:	SUITE 201
Mailing City,St,Zip:	NEW YORK, NY 10128
Mailing Telephone:	(212) 926-6000
Owner Mark:	First Owner
Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist

ROGER MORRIS APT. CORP. (Continued) **U003388087**

	or not at the facility.
Certification Flag:	False
Certification Date:	09/25/1998
Expiration:	07/10/2002
Renew Flag:	False
Renew Date:	Not reported
Total Capacity:	4500
FAMT:	True
Facility Screen:	Minor Data Missing
Owner Screen:	No Missing Data
Tank Screen:	Minor Data Missing
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	62
Town or City Code:	01
Region:	2
Tank ID:	001
Tank Location:	ABOVEGROUND
Tank Status:	In Service
Install Date:	Not reported
Capacity (Gal):	4500
Product Stored:	NOS 1,2, OR 4 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	STEEL/IRON
Pipe Internal:	Not reported
Pipe External:	Not reported
Tank Containment:	Diking
Leak Detection:	0
Overfill Protection:	4
Dispenser Method:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	False
SPDES Number:	Not reported
Lat/Long:	Not reported

W87 **473 WEST 158TH ST** **AST** **U003386231**
North **473 W 158TH ST** **HIST AST** **N/A**
1/8-1/4 **NEW YORK, NY 10032**
872 ft.

Site 2 of 3 in cluster W

Relative:
Higher

AST:

Actual:
148 ft.

AST:

Region:	STATE
Facility Id:	2-206199
UTM X:	589369.01774
UTM Y:	4520776.32029

473 WEST 158TH ST (Continued) **U003386231**

Expiration Date:	06/30/12
Renewal Date:	02/05/02
Total Capacity:	5000
Facility Type:	Not reported
Site Type Name:	Apartment Building/Office Building
Site Type Status:	Active
Mailing Company:	473 W 158TH REALTY CORPORATION
Mailing Title:	Not reported
Mailing Contact:	M. RAHBAR
Mailing Address:	P.O. BOX 159
Mailing Address 2:	Not reported
Mailing City:	ALBERTSON
Mailing State:	NY
Mailing Zip Code:	11507
Mailing Phone No:	(516) 484-5932
Mailing Email:	Not reported
Owner Title:	Not reported
Owner Name:	Not reported
Owner Address:	P.O. BOX 159
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	11507
Owner Phone:	(212) 926-5611
Owner Company:	473 W 158TH REALTY CORPORATION
Emergency Contact:	LUIS OLAN
Emergency Phone:	(212) 491-6594
Operator:	LUIS OLAN
Operator Phone:	(212) 491-6594
Owner City:	ALBERTSON
Owner Sub Type:	Corporate or Commercial
Program Type:	PBS

Tank Number:	001
Tank Location Name:	Aboveground on crib, rack, or cradle
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	01/01/20
Capacity Gallons:	5000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Exempt Suction Piping
Pipe Leak Detection 2:	Not reported

473 WEST 158TH ST (Continued) **U003386231**

Type Of Overfill Prevention 1:	Product Level Gauge (A/G)
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

HIST AST:

PBS Number:	2-206199
SWIS Code:	6201
Operator:	LUIS OLAN
Facility Phone:	(212) 491-6594
Facility Addr2:	473 W 158TH ST
Facility Type:	APARTMENT BUILDING
Emergency:	LUIS OLAN
Emergency Tel:	(212) 491-6594
Old PBSNO:	Not reported
Date Inspected:	Not reported
Inspector:	Not reported
Result of Inspection:	Not reported
Owner Name:	473 W 158TH REALTY CORPORATION
Owner Address:	P.O. BOX 159
Owner City,St,Zip:	ALBERTSON, NY 11507
Federal ID:	Not reported
Owner Tel:	(212) 926-5611
Owner Type:	Corporate/Commercial
Owner Subtype:	Not reported
Mailing Contact:	M. RAHBAR
Mailing Name:	473 W 158TH REALTY CORPORATION
Mailing Address:	P.O. BOX 159
Mailing Address 2:	Not reported
Mailing City,St,Zip:	ALBERTSON, NY 11507
Mailing Telephone:	(212) 926-5611
Owner Mark:	First Owner
Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Certification Flag:	False
Certification Date:	05/07/1998
Expiration:	06/30/2002
Renew Flag:	False
Renew Date:	Not reported
Total Capacity:	5000
FAMT:	True
Facility Screen:	No Missing Data
Owner Screen:	No Missing Data
Tank Screen:	Minor Data Missing
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	62
Town or City Code:	01
Region:	2
Tank ID:	001

473 WEST 158TH ST (Continued) **U003386231**

Tank Location:	ABOVEGROUND ON SADDLES LEGS, STILTS, RACK, OR CRADLE
Tank Status:	In Service
Install Date:	Not reported
Capacity (Gal):	5000
Product Stored:	NOS 1,2, OR 4 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	STEEL/IRON
Pipe Internal:	Not reported
Pipe External:	Not reported
Tank Containment:	None
Leak Detection:	0
Overfill Protection:	4
Dispenser Method:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	False
SPDES Number:	Not reported
Lat/Long:	Not reported

X88 **PRANA NINE PROPERTIES, LLC** **AST** **A100175575**
NW **516 WEST 156TH STREET** **N/A**
1/8-1/4 **NEW YORK, NY 10032**
877 ft.

Site 1 of 4 in cluster X

Relative: Higher

AST:

Actual: 143 ft.

AST:

Region:	STATE
Facility Id:	2-605300
UTM X:	589152.18649
UTM Y:	4520700.97953
Expiration Date:	11/02/09
Renewal Date:	/ /
Total Capacity:	2000
Facility Type:	Not reported
Site Type Name:	Apartment Building/Office Building
Site Type Status:	Active
Mailing Company:	PRANA NINE PROPERTIES, LLC
Mailing Title:	Not reported
Mailing Contact:	WILLIAM STANLEY
Mailing Address:	542 MAIN STREET
Mailing Address 2:	SUITE 2
Mailing City:	NEW ROCHELLE
Mailing State:	NY
Mailing Zip Code:	10801
Mailing Phone No:	(914) 380-8220
Mailing Email:	Not reported
Owner Title:	MANAGING AGENT
Owner Name:	WILLIAM STANLEY
Owner Address:	542 MAIN STREET, STE 2

PRANA NINE PROPERTIES, LLC (Continued) **A100175575**

Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	10801
Owner Phone:	(914) 380-8220
Owner Company:	PRANA NINE PROPERTIES, LLC
Emergency Contact:	MARIZED SIERRA
Emergency Phone:	(914) 380-8220
Operator:	LUIS SANTANA
Operator Phone:	(914) 973-3500
Owner City:	NEW ROCHELLE
Owner Sub Type:	Corporate or Commercial
Program Type:	PBS
Tank Number:	001
Tank Location Name:	Aboveground - in contact with soil
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	01/01/01
Capacity Gallons:	2000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	Epoxy Liner
Tank Internal Protection 1:	Painted/Asphalt Coating
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Vault (w/o access)
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	None
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	None
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

W89 **961 ST. NICHOLAS AVENUE** **AST** **A100173353**
North **961 SAINT NICHOLAS AVE** **N/A**
1/8-1/4 **NEW YORK, NY 10032**
898 ft.

Site 3 of 3 in cluster W

Relative: Higher

AST:

Actual: 151 ft.

AST:

Region:	STATE
Facility Id:	2-267392

961 ST. NICHOLAS AVENUE (Continued) **A100173353**

UTM X:	589347.78796
UTM Y:	4520788.49806
Expiration Date:	10/26/10
Renewal Date:	/ /
Total Capacity:	5000
Facility Type:	Not reported
Site Type Name:	Apartment Building/Office Building
Site Type Status:	Active
Mailing Company:	BROOKE TOWER LLC
Mailing Title:	Not reported
Mailing Contact:	BOYSIE SIEW
Mailing Address:	115 VERMILYEA AVENUE
Mailing Address 2:	1A
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip Code:	10034
Mailing Phone No:	Not reported
Mailing Email:	Not reported
Owner Title:	MEMBER OF LLC
Owner Name:	BOYSIE SIEW
Owner Address:	115 VERMILYEA AVENUE, APT. 1A
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	10034
Owner Phone:	Not reported
Owner Company:	BROOKE TOWERS LLC
Emergency Contact:	BOYSIE SIEW
Emergency Phone:	Not reported
Operator:	MANUAL DIAZ
Operator Phone:	Not reported
Owner City:	NEW YORK
Owner Sub Type:	Private Resident
Program Type:	PBS

Tank Number:	001
Tank Location Name:	Aboveground on crib, rack, or cradle
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	/ /
Capacity Gallons:	5000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Aboveground/Underground Combination
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported

961 ST. NICHOLAS AVENUE (Continued) **A100173353**

Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Product Level Gauge (A/G)
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	None
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

Y90
WNW
1/8-1/4
898 ft.

Relative:
Higher

Actual:
146 ft.

NORTH PRESBYTERIAN CHURCH **AST** **A100183571**
525 WEST 155TH STREET **N/A**
NEW YORK, NY 10032

Site 1 of 3 in cluster Y

AST:

AST:

Region:	STATE
Facility Id:	2-607010
UTM X:	589065.62146
UTM Y:	4520633.94212
Expiration Date:	09/26/11
Renewal Date:	/ /
Total Capacity:	3000
Facility Type:	Not reported
Site Type Name:	Other
Site Type Status:	Active
Mailing Company:	NORTH PRESBYTERIAN CHURCH
Mailing Title:	Not reported
Mailing Contact:	ETHEL CRAWFORD
Mailing Address:	525 WEST 155TH STREET
Mailing Address 2:	Not reported
Mailing City:	NEW YORK,
Mailing State:	NY
Mailing Zip Code:	10032
Mailing Phone No:	(212) 926-5162
Mailing Email:	Not reported
Owner Title:	Not reported
Owner Name:	Not reported
Owner Address:	525 WEST 155TH STREET
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	10032
Owner Phone:	(212) 926-5162
Owner Company:	NORTH PRESBYTERIAN CHURCH
Emergency Contact:	ETHEL CRAWFORD
Emergency Phone:	(212) 926-5142
Operator:	ETHEL CRAWFORD
Operator Phone:	(212) 862-2660
Owner City:	NEW YORK
Owner Sub Type:	Corporate or Commercial
Program Type:	PBS
Tank Number:	001
Tank Location Name:	Aboveground - in contact with soil

NORTH PRESBYTERIAN CHURCH (Continued) **A100183571**

Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	/ /
Capacity Gallons:	3000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Aboveground/Underground Combination
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Vault (w/o access)
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Exempt Suction Piping
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Product Level Gauge (A/G)
Type Of Overfill Prevention 2:	Vent Whistle
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

U91 **230 BRADHURST AVE.** **AST** **S107782749**
SSE **230 BRADHURST AVE.** **HIST AST** **N/A**
1/8-1/4 **NYC, NY 10039**
907 ft.

Site 2 of 2 in cluster U

Relative: Lower

AST:

Actual: 21 ft.

AST:

Region:	STATE
Facility Id:	2-601015
UTM X:	589488.27217
UTM Y:	4520273.93989
Expiration Date:	10/21/02
Renewal Date:	05/31/02
Total Capacity:	0
Facility Type:	Not reported
Site Type Name:	Apartment Building/Office Building
Site Type Status:	Unregulated
Mailing Company:	NYC/HPD/DAMP
Mailing Title:	Not reported
Mailing Contact:	ASST. COMMISSIONER/DAMP
Mailing Address:	Not reported
Mailing Address 2:	100 GOLD ST #7Z5
Mailing City:	NEW YORK
Mailing State:	NY

230 BRADHURST AVE. (Continued) **S107782749**

Mailing Zip Code:	10038
Mailing Phone No:	(212) 863-7301
Mailing Email:	Not reported
Owner Title:	Not reported
Owner Name:	Not reported
Owner Address:	100 GOLD ST #7Z5
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	10038
Owner Phone:	(212) 863-7301
Owner Company:	NYC/HPD/DAMP
Emergency Contact:	213/215 MOTT ST. H.D.F.C.
Emergency Phone:	(646) 613-0908
Operator:	ASST. COMMISSIONER/DAMP
Operator Phone:	(212) 863-7301
Owner City:	NEW YORK
Owner Sub Type:	Local Government
Program Type:	PBS

Tank Number:	1
Tank Location Name:	Aboveground - in contact with soil
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	/ /
Capacity Gallons:	2000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	Painted/Asphalt Coating
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Aboveground/Underground Combination
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Vault (w/o access)
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Exempt Suction Piping
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Vent Whistle
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	09/17/02

HIST AST:

PBS Number:	2-601015
SWIS Code:	6201
Operator:	ASST. COMMISSIONER/DAMP

230 BRADHURST AVE. (Continued) **S107782749**

Facility Phone:	(212) 863-7301
Facility Addr2:	230 BRADHURST AVE.
Facility Type:	APARTMENT BUILDING
Emergency:	ASST. COMMISSIONER/DAMP
Emergency Tel:	(212) 863-7301
Old PBSNO:	Not reported
Date Inspected:	Not reported
Inspector:	Not reported
Result of Inspection:	Not reported
Owner Name:	NYC/HPD/DAMP
Owner Address:	100 GOLD ST #7Z5
Owner City,St,Zip:	NEW YORK, NY 10038
Federal ID:	Not reported
Owner Tel:	(212) 863-7301
Owner Type:	Local Government
Owner Subtype:	Not reported
Mailing Contact:	ASST. COMMISSIONER/DAMP
Mailing Name:	NYC/HPD/DAMP
Mailing Address:	Not reported
Mailing Address 2:	100 GOLD ST #7Z5
Mailing City,St,Zip:	NEW YORK, NY 10038
Mailing Telephone:	(212) 863-7301
Owner Mark:	First Owner
Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Certification Flag:	False
Certification Date:	03/09/2001
Expiration:	10/21/2002
Renew Flag:	False
Renew Date:	Not reported
Total Capacity:	1500
FAMT:	True
Facility Screen:	No Missing Data
Owner Screen:	No Missing Data
Tank Screen:	No Missing Data
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	62
Town or City Code:	01
Region:	2

Tank ID:	1
Tank Location:	ABOVEGROUND
Tank Status:	In Service
Install Date:	Not reported
Capacity (Gal):	1500
Product Stored:	NOS 1,2, OR 4 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	0
Tank External:	1
Pipe Location:	Aboveground/Underground Combination
Pipe Type:	STEEL/IRON
Pipe Internal:	None
Pipe External:	0
Tank Containment:	Diking

230 BRADHURST AVE. (Continued) **S107782749**

Leak Detection:	0
Overfill Protection:	6
Dispenser Method:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	No Missing Data
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	True
SPDES Number:	Not reported
Lat/Long:	Not reported

S92 **ST.CATHERINE OF GENOA CHURCH** **UST** **U004078701**
West **506 WEST 153RD STREET** **N/A**
1/8-1/4 **NEW YORK, NY 10031**
914 ft.

Site 2 of 4 in cluster S

Relative:
Higher

Actual:
142 ft.

UST:

UST:

Facility Id:	2-510556
Expiration Date:	02/05/06
Renewal Date:	/ /
Total Capacity:	3000
Facility Type:	Not reported
Mailing Company:	ST.CATHERINE OF GENOA
Mailing Title:	Not reported
Mailing Contact:	PASTOR DAVID NOLAN
Mailing Address:	502 WEST 153RD STREET
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip Code:	10031
Mailing Phone No:	(212) 862-6130
Mailing Email:	Not reported
Owner Title:	Not reported
Owner Name:	Not reported
Owner Address:	506 WEST 153RD STREET
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	10031
Owner Phone:	(212) 862-6130
Owner Company:	ST.CATHERINE_OF GENOA CHURCH
Emergency Contact:	PASTOR NOLAN
Emergency Phone:	(212) 862-6130
Operator:	PASTOR NOLAN
Operator Phone:	(212) 862-6130
Owner City:	NEW YORK
Owner Sub Type:	Not reported
UTM X:	589057.42048
UTM Y:	4520468.24175
Site Type Name:	Other
Site Type Status:	Active
Comments:	Not reported
Program Type:	PBS

ST.CATHERINE OF GENOA CHURCH (Continued) **U004078701**

Tank Number:	001
Tank Location Name:	Underground
Tank Status:	Closed - In Place
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	/ /
Capacity Gallons:	5000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Underground/On-ground
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Vent Whistle
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	05/01/01

Tank Number:	002
Tank Location Name:	Underground
Tank Status:	Closed - In Place
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	/ /
Capacity Gallons:	2000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Underground/On-ground
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None

ST.CATHERINE OF GENOA CHURCH (Continued) **U004078701**

Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Vent Whistle
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	05/01/01

S93
West
1/8-1/4
916 ft.

Relative:
Higher

Actual:
142 ft.

ST.CATHERINE OF GENOA CHURCH
506 WEST 153RD STREET
NEW YORK, NY 10031

AST **U001841187**
HIST AST **N/A**
HIST UST

Site 3 of 4 in cluster S

AST:

AST:

Region:	STATE
Facility Id:	2-510556
UTM X:	589057.42048
UTM Y:	4520468.24175
Expiration Date:	02/05/06
Renewal Date:	/ /
Total Capacity:	3000
Facility Type:	Not reported
Site Type Name:	Other
Site Type Status:	Active
Mailing Company:	ST.CATHERINE OF GENOA
Mailing Title:	Not reported
Mailing Contact:	PASTOR DAVID NOLAN
Mailing Address:	502 WEST 153RD STREET
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip Code:	10031
Mailing Phone No:	(212) 862-6130
Mailing Email:	Not reported
Owner Title:	Not reported
Owner Name:	Not reported
Owner Address:	506 WEST 153RD STREET
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	10031
Owner Phone:	(212) 862-6130
Owner Company:	ST.CATHERINE_OF GENOA CHURCH
Emergency Contact:	PASTOR NOLAN
Emergency Phone:	(212) 862-6130
Operator:	PASTOR NOLAN
Operator Phone:	(212) 862-6130
Owner City:	NEW YORK
Owner Sub Type:	Not reported
Program Type:	PBS
Tank Number:	003

ST.CATHERINE OF GENOA CHURCH (Continued) **U001841187**

Tank Location Name:	Aboveground - in contact with soil
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	05/01/01
Capacity Gallons:	3000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Aboveground
Pipe Type Name:	Copper
Pipe External Protection 1:	Painted/Asphalt Coating
Pipe External Protection 2:	Wrapped
Tank Secondary Containment 1:	Other
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	Impervious Barrier/Concrete Pad (A/G)
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Exempt Suction Piping
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Product Level Gauge (A/G)
Type Of Overfill Prevention 2:	Vent Whistle
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

HIST AST:

PBS Number:	2-510556
SWIS Code:	6201
Operator:	PASTOR NOLAN
Facility Phone:	(212) 862-6130
Facility Addr2:	506 WEST 153RD STREET
Facility Type:	OTHER
Emergency:	PASTOR NOLAN
Emergency Tel:	(212) 862-6130
Old PBSNO:	Not reported
Date Inspected:	Not reported
Inspector:	Not reported
Result of Inspection:	Not reported
Owner Name:	ST.CATHERINE_OF GENOA CHURCH
Owner Address:	506 WEST 153RD STREET
Owner City,St,Zip:	NEW YORK, NY 10031
Federal ID:	Not reported
Owner Tel:	(212) 862-6130
Owner Type:	Not reported
Owner Subtype:	Not reported
Mailing Contact:	PASTOR DAVID NOLAN
Mailing Name:	ST.CATHERINE OF GENOA
Mailing Address:	502 WEST 153RD STREET
Mailing Address 2:	Not reported

ST.CATHERINE OF GENOA CHURCH (Continued) **U001841187**

Mailing City,St,Zip:	NEW YORK, NY 10031
Mailing Telephone:	(212) 862-6130
Owner Mark:	First Owner
Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Certification Flag:	False
Certification Date:	08/24/2001
Expiration:	02/05/2006
Renew Flag:	False
Renew Date:	Not reported
Total Capacity:	3000
FAMT:	True
Facility Screen:	No Missing Data
Owner Screen:	Minor Data Missing
Tank Screen:	No Missing Data
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	62
Town or City Code:	01
Region:	2

Tank ID:	003
Tank Location:	ABOVEGROUND
Tank Status:	In Service
Install Date:	20010501
Capacity (Gal):	3000
Product Stored:	NOS 1,2, OR 4 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	0
Tank External:	0
Pipe Location:	Aboveground
Pipe Type:	FIBERGLASS COATED STEEL
Pipe Internal:	None
Pipe External:	61
Tank Containment:	Double-Walled
Leak Detection:	5
Overfill Protection:	46
Dispenser Method:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	No Missing Data
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	True
SPDES Number:	Not reported
Lat/Long:	Not reported

HIST UST:

PBS Number:	2-510556
SPDES Number:	Not reported
Emergency Contact:	PASTOR NOLAN
Emergency Telephone:	(212) 862-6130
Operator:	PASTOR NOLAN
Operator Telephone:	(212) 862-6130

ST.CATHERINE OF GENOA CHURCH (Continued) **U001841187**

Owner Name:	ST.CATHERINE_OF GENOA CHURCH
Owner Address:	506 WEST 153RD STREET
Owner City,St,Zip:	NEW YORK, NY 10031
Owner Telephone:	(212) 862-6130
Owner Type:	Not reported
Owner Subtype:	Not reported
Mailing Name:	ST.CATHERINE OF GENOA
Mailing Address:	502 WEST 153RD STREET
Mailing Address 2:	Not reported
Mailing City,St,Zip:	NEW YORK, NY 10031
Mailing Contact:	PASTOR DAVID NOLAN
Mailing Telephone:	(212) 862-6130
Owner Mark:	First Owner
Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Facility Addr2:	506 WEST 153RD STREET
SWIS ID:	6201
Old PBS Number:	Not reported
Facility Type:	OTHER
Inspected Date:	Not reported
Inspector:	Not reported
Inspection Result:	Not reported
Federal ID:	Not reported
Certification Flag:	False
Certification Date:	08/24/2001
Expiration Date:	02/05/2006
Renew Flag:	False
Renewal Date:	Not reported
Total Capacity:	3000
FAMT:	True
Facility Screen:	No Missing Data
Owner Screen:	Minor Data Missing
Tank Screen:	No Missing Data
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	62
Town or City:	01
Region:	2
Tank Id:	001
Tank Location:	UNDERGROUND
Tank Status:	Closed-In Place
Install Date:	Not reported
Capacity (gals):	5000
Product Stored:	NOS 1,2, OR 4 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	None
Tank External:	None
Pipe Location:	Underground
Pipe Type:	STEEL/IRON
Pipe Internal:	None
Pipe External:	None
Second Containment:	None
Leak Detection:	None
Overfill Prot:	Vent Whistle

ST.CATHERINE OF GENOA CHURCH (Continued) **U001841187**

Dispenser:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	No Missing Data
Date Closed:	05/01/2001
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	002
Tank Location:	UNDERGROUND
Tank Status:	Closed-In Place
Install Date:	Not reported
Capacity (gals):	2000
Product Stored:	NOS 1,2, OR 4 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	None
Tank External:	None
Pipe Location:	Underground
Pipe Type:	STEEL/IRON
Pipe Internal:	None
Pipe External:	None
Second Containment:	None
Leak Detection:	None
Overfill Prot:	Vent Whistle
Dispenser:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	No Missing Data
Date Closed:	05/01/2001
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	Not reported

S94 **ST CATHERINE OF GENOA** **LTANKS** **S105054664**
West **506 WEST 153 RD ST** **HIST LTANKS** **N/A**
1/8-1/4 **MANHATTAN, NY**
916 ft.

Site 4 of 4 in cluster S

Relative:
Higher

Actual:
142 ft.

LTANKS:

Site ID:	276466
Spill Date:	04/18/01
Facility Addr2:	Not reported
Facility ID:	0100674
Program Number:	0100674
SWIS:	3101
Region of Spill:	2
Investigator:	VRNATTAN
Referred To:	Not reported
Reported to Dept:	04/18/01
CID:	15
Spill Cause:	Tank Failure
Water Affected:	Not reported
Spill Source:	Institutional, Educational, Gov., Other

ST CATHERINE OF GENOA (Continued) **S105054664**

Spill Notifier:	Other
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	01/19/06
Remediation Phase:	0
Date Entered In Computer:	04/18/01
Spill Record Last Update:	01/19/06
Spille Namer:	PASTOR DAVID NOLAN
Spiller Company:	ST CATHERINE OF GENOA
Spiller Phone:	(212) 862-6130
Spiller Extention:	Not reported
Spiller Address:	506 WEST 153RD ST
Spiller City,St,Zip:	MANHATTAN, NY
Spiller County:	001
Spiller Contact:	PASTOR DAVID NOLAN
Spiller Phone:	(212) 862-6130
Spiller Extention:	Not reported
DEC Region:	2
Program Number:	0100674
DER Facility ID:	224769
Site ID:	276466
Operable Unit ID:	837582
Operable Unit:	01
Material ID:	536386
Material Code:	0001
Material Name:	#2 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	0.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
Site ID:	Not reported
Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported
DEC Memo:	Start DECRemark - 0100674 Vivek Nattanmai. December 29, 2005 Reviewed the spill report, identified the property owner and sent a letter dated 12/30/05 to the property owner requesting for information. Vivek Nattanmai. January 19, 2006 Based on the information provided by Pastor Kenneth J. Smith and based on the information found on PBS (#2-510556), no action is required. The PBS report states that two underground tanks (5,000 and 2,000 gal.) tanks closed in-place on May 01, 2001 and a new above ground tank (3,000 gal.) was installed on May 01, 2001. SPILL REPORT CLOSED ON JANUARY 19, 2006. END DECRemark - 0100674

ST CATHERINE OF GENOA (Continued) **S105054664**

Remarks: Start CallerRemark - 0100674 TANK WAS CLEANED YESTERDAY AND TODAY UPON INSPECTION OIL HAD SEEPED OUT FROM TANK. END CallerRemark - 0100674

HIST LTANKS:

Region of Spill:	2
Spill Number:	0100674
Investigator:	SIGONA
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Caller Extension:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Notifier Extension:	Not reported
Spill Date:	04/18/2001
Spill Time:	09:00
Reported to Department Date:	04/18/01
Reported to Department Time:	10:15
SWIS:	62
Spiller Contact:	PASTOR DAVID NOLAN
Spiller Phone:	(212) 862-6130
Spiller Extention:	Not reported
Spiller Name:	ST CATHERINE OF GENOA
Spiller Address:	506 WEST 153 RD ST
Spiller City,St,Zip:	MANHATTAN, NY
Facility Contact:	PASTOR DAVID NOLAN
Facility Phone:	(212) 862-6130
Facility Extention:	Not reported
Spill Cause:	Tank Failure
Resource Affectd:	On Land
Water Affected:	Not reported
Spill Source:	Other Non Commercial/Industrial
Spill Notifier:	Other
PBS Number:	Not reported
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Date:	/ /
Enforcement Date:	/ /
Investigation Complete:	/ /
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	/ /
Date Region Sent Summary to Central Office:	/ /
Corrective Action Plan Submitted:	/ /
Date Spill Entered In Computer Data File:	04/18/01
Time Spill Entered In Computer Data File:	Not reported
Spill Record Last Update:	04/19/01
Is Updated:	False
PBS Number:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate Failed Tank:	Not reported

ST CATHERINE OF GENOA (Continued) **S105054664**

Gross Leak Rate:	Not reported
Material Class Type:	Petroleum
Quantity Spilled:	0
Unkonwn Quantity Spilled:	True
Units:	Gallons
Quantity Recovered:	0
Unkonwn Quantity Recovered:	False
Material:	#2 FUEL OIL
Class Type:	#2 FUEL OIL
Times Material Entry In File:	24464
CAS Number:	Not reported
Last Date:	19941207
DEC Remarks:	Not reported
Spill Cause:	TANK WAS CLEANED YESTERDAY AND TODAY UPON INSPECTION OIL HAD SEEPED OUT FROM TANK.

X95 **523 WEST 156TH STREET** **AST** **A100292499**
NW **523 WEST 156 STREET** **N/A**
1/8-1/4 **NEW YORK, NY 10032**
928 ft.

Site 2 of 4 in cluster X

Relative:
Higher

AST:

Actual:
141 ft.

AST:

Region:	STATE
Facility Id:	2-609976
UTM X:	589109.84862
UTM Y:	4520707.64104
Expiration Date:	08/23/11
Renewal Date:	/ /
Total Capacity:	2000
Facility Type:	Not reported
Site Type Name:	Apartment Building/Office Building
Site Type Status:	Active
Mailing Company:	C/O COLTOWN PROPERTIES LLC
Mailing Title:	Not reported
Mailing Contact:	HARLEM 521-156 ASSOCIATES, LLC
Mailing Address:	95 DELANCEY STREET
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip Code:	10002
Mailing Phone No:	(212) 671-1060
Mailing Email:	CUSTOMERSERVICE@COLTOWN.COM
Owner Title:	PRINCIPAL
Owner Name:	ISREAL WEINBERSER
Owner Address:	95 DELANCEY STREET
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	10002
Owner Phone:	(212) 671-1060
Owner Company:	HARLEM 521-156 ASSOCIATES, LLC
Emergency Contact:	COLTOWN PROPERTIES LLC
Emergency Phone:	(212) 671-1060
Operator:	BROOKLYN HEATING
Operator Phone:	(718) 444-7771
Owner City:	NEW YORK

523 WEST 156TH STREET (Continued) **A100292499**

Owner Sub Type:	Corporate or Commercial
Program Type:	PBS
Tank Number:	01
Tank Location Name:	Aboveground on crib, rack, or cradle
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	04/20/00
Capacity Gallons:	2000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel Tank Encased in Concrete
Tank Internal Protection:	Not reported
Tank Internal Protection 1:	Painted/Asphalt Coating
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Aboveground
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	None
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Exempt Suction Piping
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Vent Whistle
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	None
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

R96 **484 CONVENT AVENUE** **AST** **A100182999**
SW **484 CONVENT AVENUE** **N/A**
1/8-1/4 **NEW YORK, NY 10031**
931 ft.

Site 3 of 3 in cluster R

Relative:
Higher

AST:

Actual:
113 ft.

AST:

Region:	STATE
Facility Id:	2-601021
UTM X:	589182.77736
UTM Y:	4520276.46267
Expiration Date:	10/21/07
Renewal Date:	05/31/02
Total Capacity:	0
Facility Type:	Not reported
Site Type Name:	Apartment Building/Office Building
Site Type Status:	Unregulated
Mailing Company:	NYC/HPD/DAMP
Mailing Title:	Not reported

484 CONVENT AVENUE (Continued) **A100182999**

Mailing Contact:	ASST. COMMISSIONER/DAMP
Mailing Address:	100 GOLD STREET
Mailing Address 2:	#7Z5
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip Code:	10038
Mailing Phone No:	(212) 863-7301
Mailing Email:	Not reported
Owner Title:	ASST COMMISSIONER DAMP
Owner Name:	WILLA H. PADGETT
Owner Address:	100 GOLD ST., #7Z5
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	10038
Owner Phone:	(212) 863-7301
Owner Company:	NYC/HPD/DAMP
Emergency Contact:	213/215 MOTT ST. H.D.F.C.
Emergency Phone:	(646) 613-0908
Operator:	ASST. COMMISSIONER/DAMP
Operator Phone:	(212) 863-7301
Owner City:	NEW YORK
Owner Sub Type:	Local Government
Program Type:	PBS
Tank Number:	1
Tank Location Name:	Aboveground - in contact with soil
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	/ /
Capacity Gallons:	2500
Material Name:	Gasoline
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	Painted/Asphalt Coating
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Aboveground/Underground Combination
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Vent Whistle
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	12/26/06

X97 **525 WEST 156TH STREET** **AST** **U003388289**
NW **525 W 156TH ST** **HIST AST** **N/A**
1/8-1/4 **NEW YORK, NY 10032**
951 ft.

Site 3 of 4 in cluster X

Relative:
Higher

AST:

Actual:
141 ft.

AST:

Region:	STATE
Facility Id:	2-269174
UTM X:	589138.18412
UTM Y:	4520722.23803
Expiration Date:	05/28/08
Renewal Date:	05/06/02
Total Capacity:	3000
Facility Type:	Not reported
Site Type Name:	Apartment Building/Office Building
Site Type Status:	Active
Mailing Company:	PRANA SEVEN PROPERTIES, LP
Mailing Title:	Not reported
Mailing Contact:	CELESTE VASQUEZ-RUGEL
Mailing Address:	% JMG MANAGEMENT PLUS, INC.
Mailing Address 2:	542 MAIN STREET, SUITE 2
Mailing City:	NEW ROCHELLE
Mailing State:	NY
Mailing Zip Code:	10801
Mailing Phone No:	(914) 380-8220
Mailing Email:	Not reported
Owner Title:	Not reported
Owner Name:	Not reported
Owner Address:	P.O. BOX 949
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	10704
Owner Phone:	(914) 667-4500
Owner Company:	PRANA SEVEN PROPERTIES, LP
Emergency Contact:	MARIZED SIERRA
Emergency Phone:	(914) 667-4500
Operator:	JUAN GARCIA
Operator Phone:	(917) 632-7703
Owner City:	MT. VERNON
Owner Sub Type:	Not reported
Program Type:	PBS
Tank Number:	001
Tank Location Name:	Aboveground - in contact with soil
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	/ /
Capacity Gallons:	3000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping

525 WEST 156TH STREET (Continued) **U003388289**

Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Exempt Suction Piping
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Product Level Gauge (A/G)
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

HIST AST:

PBS Number:	2-269174
SWIS Code:	6201
Operator:	EFULVIO DIAZ
Facility Phone:	(212) 977-8828
Facility Addr2:	525 W 156TH ST
Facility Type:	APARTMENT BUILDING
Emergency:	JOEL ARAGONA
Emergency Tel:	(212) 977-8828
Old PBSNO:	Not reported
Date Inspected:	Not reported
Inspector:	Not reported
Result of Inspection:	Not reported
Owner Name:	WADSWORTH ASSOCIATES VII
Owner Address:	C/O ARAGONA MGT 1780 BROADWAY
Owner City,St,Zip:	NEW YORK, NY 10019
Federal ID:	Not reported
Owner Tel:	(212) 977-8828
Owner Type:	Corporate/Commercial
Owner Subtype:	Not reported
Mailing Contact:	JOEL ARAGONA
Mailing Name:	ARAGONA MGT
Mailing Address:	1780 BROADWAY
Mailing Address 2:	Not reported
Mailing City,St,Zip:	NEW YORK, NY 10019
Mailing Telephone:	(212) 977-8828
Owner Mark:	First Owner
Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Certification Flag:	False
Certification Date:	09/11/1998
Expiration:	09/19/2002
Renew Flag:	False
Renew Date:	Not reported
Total Capacity:	3000
FAMT:	True
Facility Screen:	No Missing Data

525 WEST 156TH STREET (Continued) **U003388289**

Owner Screen:	No Missing Data
Tank Screen:	Minor Data Missing
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	62
Town or City Code:	01
Region:	2

Tank ID:	001
Tank Location:	ABOVEGROUND
Tank Status:	In Service
Install Date:	Not reported
Capacity (Gal):	3000
Product Stored:	NOS 1,2, OR 4 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	STEEL/IRON
Pipe Internal:	Not reported
Pipe External:	Not reported
Tank Containment:	Not reported
Leak Detection:	0
Overfill Protection:	4
Dispenser Method:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	False
SPDES Number:	Not reported
Lat/Long:	Not reported

V98 **371 EDGECOMBE AVENUE, HDFC** **AST** **U003395031**
South **371 EDGECOMBE AVENUE** **HIST AST** **N/A**
1/8-1/4 **NEW YORK, NY 10030**
953 ft.

Site 2 of 2 in cluster V

Relative:
Lower

AST:

Actual:
86 ft.

AST:

Region:	STATE
Facility Id:	2-471224
UTM X:	589442.25232
UTM Y:	4520376.19018
Expiration Date:	02/08/09
Renewal Date:	/ /
Total Capacity:	4000
Facility Type:	Not reported
Site Type Name:	Apartment Building/Office Building
Site Type Status:	Active
Mailing Company:	371 EDGECOMBE AVENUE, HDFC
Mailing Title:	Not reported
Mailing Contact:	JUNE SARTOR, PRESIDENT

371 EDGECOMBE AVENUE, HDFC (Continued) **U003395031**

Mailing Address:	C/O 371 EDGECOMBE AVENUE
Mailing Address 2:	371 EDGECOMBE AVENUE, #5D
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip Code:	10031
Mailing Phone No:	(212) 491-9039
Mailing Email:	Not reported
Owner Title:	PRESIDENT
Owner Name:	JUNE SARTOR
Owner Address:	371 EDGECOMBE AVENUE
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	10031
Owner Phone:	(212) 491-9039
Owner Company:	371 EDGECOMBE AVENUE, HDFC
Emergency Contact:	RHONDA MCLEAN
Emergency Phone:	(212) 491-7285
Operator:	JUNE SARTOR, PRESIDENT
Operator Phone:	(212) 491-9039
Owner City:	NEW YORK
Owner Sub Type:	Corporate or Commercial
Program Type:	PBS
Tank Number:	001
Tank Location Name:	Aboveground - in contact with impervious barrier
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	/ /
Capacity Gallons:	4000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	Painted/Asphalt Coating
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Aboveground/Underground Combination
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Vault (w/access)
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	None
Tank Leak Detection 1:	Impervious Barrier/Concrete Pad (A/G)
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	None
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Vent Whistle
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	None
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

371 EDGECOMBE AVENUE, HDFC (Continued) **U003395031**

HIST AST:

PBS Number:	2-471224
SWIS Code:	6201
Operator:	JUNE SARTOR, PRESIDENT
Facility Phone:	(212) 491-9039
Facility Addr2:	371 EDGECOMBE AVENUE
Facility Type:	Not reported
Emergency:	JUNE SARTOR, PRESIDENT
Emergency Tel:	(212) 491-9039
Old PBSNO:	Not reported
Date Inspected:	Not reported
Inspector:	Not reported
Result of Inspection:	Not reported
Owner Name:	371 EDGECOMBE AVENUE, HDFC
Owner Address:	371 EDGECOMBE AVENUE
Owner City,St,Zip:	NEW YORK, NY 10031
Federal ID:	Not reported
Owner Tel:	(212) 491-9039
Owner Type:	Corporate/Commercial
Owner Subtype:	Not reported
Mailing Contact:	MS. JANE SARTOR, PRESID.
Mailing Name:	371 EDGECOMBE AVENUE, HDFC
Mailing Address:	371 EDGECOMBE AVENUE
Mailing Address 2:	Not reported
Mailing City,St,Zip:	NEW YORK, NY 10031
Mailing Telephone:	(212) 491-9039
Owner Mark:	Second Owner
Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Certification Flag:	False
Certification Date:	02/19/1999
Expiration:	02/08/2004
Renew Flag:	False
Renew Date:	Not reported
Total Capacity:	4000
FAMT:	True
Facility Screen:	Minor Data Missing
Owner Screen:	Minor Data Missing
Tank Screen:	No Missing Data
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	62
Town or City Code:	01
Region:	2

Tank ID:	001
Tank Location:	ABOVEGROUND
Tank Status:	In Service
Install Date:	Not reported
Capacity (Gal):	4000
Product Stored:	NOS 1,2, OR 4 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	0
Tank External:	01
Pipe Location:	Aboveground/Underground Combination

371 EDGECOMBE AVENUE, HDFC (Continued) **U003395031**

Pipe Type:	STEEL/IRON
Pipe Internal:	None
Pipe External:	00
Tank Containment:	Diking
Leak Detection:	00
Overfill Protection:	06
Dispenser Method:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	No Missing Data
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	True
SPDES Number:	Not reported
Lat/Long:	Not reported

Z99 **40 ST. NICHOLAS LLC** **AST** **A100193928**
SSW **40 ST. NICHOLAS PLACE** **N/A**
1/8-1/4 **NEW YORK, NY 10031**
969 ft.

Site 1 of 3 in cluster Z

Relative:
Lower

AST:

Actual:
99 ft.

AST:

Region:	STATE
Facility Id:	2-251089
UTM X:	589270.50295
UTM Y:	4520226.22953
Expiration Date:	10/10/11
Renewal Date:	/ /
Total Capacity:	4500
Facility Type:	Not reported
Site Type Name:	Apartment Building/Office Building
Site Type Status:	Active
Mailing Company:	FRIEDMAN MANAGEMENT CORP.
Mailing Title:	Not reported
Mailing Contact:	ADAM STRYKER
Mailing Address:	225 WEST 34TH STREET
Mailing Address 2:	SUITE 1305
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip Code:	10122
Mailing Phone No:	(212) 736-6888
Mailing Email:	Not reported
Owner Title:	MANAGING AGENT
Owner Name:	ADAM STRYKER
Owner Address:	225 WEST 34TH STREET
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	10122
Owner Phone:	(212) 736-6888
Owner Company:	40 ST. NICHOLAS LLC % FRIEDMAN MGMT. CORP.
Emergency Contact:	ADAM STRYKER
Emergency Phone:	(212) 736-6888
Operator:	DANIEL MARTINEZ
Operator Phone:	(212) 368-6757

40 ST. NICHOLAS LLC (Continued) **A100193928**

Owner City:	NEW YORK
Owner Sub Type:	Corporate or Commercial
Program Type:	PBS
Tank Number:	001
Tank Location Name:	Aboveground - in contact with soil
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	/ /
Capacity Gallons:	4500
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Vault (w/o access)
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Exempt Suction Piping
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Product Level Gauge (A/G)
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

Y100 **535 WEST 155TH STREET** **AST** **A100292509**
WNW **535 WEST 155TH STREET** **N/A**
1/8-1/4 **NEW YORK, NY 10032**
987 ft.

Site 2 of 3 in cluster Y

Relative:
Higher

AST:

Actual:
143 ft.

AST:

Region:	STATE
Facility Id:	2-609719
UTM X:	589043.29491
UTM Y:	4520646.21883
Expiration Date:	09/30/09
Renewal Date:	/ /
Total Capacity:	4000
Facility Type:	Not reported
Site Type Name:	Apartment Building/Office Building
Site Type Status:	Active
Mailing Company:	ELH MGMT. LLC

535 WEST 155TH STREET (Continued) **A100292509**

Mailing Title:	Not reported
Mailing Contact:	ALEX TORRES
Mailing Address:	98 ROCKWELL PLACE
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip Code:	11217
Mailing Phone No:	(718) 855-5620
Mailing Email:	Not reported
Owner Title:	PROPERTY MANAGER
Owner Name:	ALEX TORRES
Owner Address:	98 ROCKWELL PLACE
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	11217
Owner Phone:	(718) 855-5620
Owner Company:	LH 155 REALTY LLC
Emergency Contact:	ALEX TORRES
Emergency Phone:	(718) 855-5620
Operator:	FABIO MARTINEZ
Operator Phone:	(718) 974-0996
Owner City:	BROOKLYN
Owner Sub Type:	Corporate or Commercial
Program Type:	PBS
Tank Number:	1
Tank Location Name:	Aboveground - in contact with impervious barrier
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	05/20/90
Capacity Gallons:	4000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel Tank Encased in Concrete
Tank Internal Protection:	None
Tank Internal Protection 1:	Original Impressed Current
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Aboveground
Pipe Type Name:	Other
Pipe External Protection 1:	Original Impressed Current
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	Impervious Barrier/Concrete Pad (A/G)
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Vent Whistle
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	None
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /

535 WEST 155TH STREET (Continued) **A100292509**

Date Tank Closed: / /

X101 **531 WEST 156 STREET** **AST** **A100292508**
NW **531 WEST 156TH STREET** **N/A**
1/8-1/4 **NEW YORK, NY 10032**
995 ft.

Site 4 of 4 in cluster X

Relative:
Higher

Actual:
140 ft.

AST:

AST:

Region:	STATE
Facility Id:	2-607671
UTM X:	589091.68850
UTM Y:	4520717.08121
Expiration Date:	04/18/12
Renewal Date:	/ /
Total Capacity:	3000
Facility Type:	Not reported
Site Type Name:	Apartment Building/Office Building
Site Type Status:	Active
Mailing Company:	NYC/HPD/DAMP
Mailing Title:	Not reported
Mailing Contact:	ASST. COMMISSIONER/DAMP
Mailing Address:	100 GOLD STREET, #7-L2
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip Code:	10038
Mailing Phone No:	(212) 863-7305
Mailing Email:	Not reported
Owner Title:	ASST. COMMISSIONER
Owner Name:	WILLA PADGETT
Owner Address:	100 GOLD STREET, #7-L2
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	10038
Owner Phone:	(212) 863-7305
Owner Company:	NYC/HPD/DAMP
Emergency Contact:	ASST. COMMISSIONER/DAMP
Emergency Phone:	(212) 863-7305
Operator:	ASST. COMMISSIONER/DAMP
Operator Phone:	(212) 863-7305
Owner City:	NEW YORK
Owner Sub Type:	Local Government
Program Type:	PBS
Tank Number:	001
Tank Location Name:	Aboveground - in contact with soil
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	01/01/83
Capacity Gallons:	3000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron

531 WEST 156 STREET (Continued) **A100292508**

Tank Internal Protection:	None
Tank Internal Protection 1:	Painted/Asphalt Coating
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Aboveground/Underground Combination
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	Painted/Asphalt Coating
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	None
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	None
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Vent Whistle
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	None
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

AA102 **824 ST NICHOLAS AVE** **UST** **U003835907**
SSW **824 SAINT NICHOLAS AVENUE** **HIST UST** **N/A**
1/8-1/4 **NEW YORK, NY 10031**
995 ft.

Site 1 of 4 in cluster AA

Relative: Lower

UST:

Actual: 110 ft.

UST:

Facility Id:	2-470317
Expiration Date:	03/28/09
Renewal Date:	/ /
Total Capacity:	4000
Facility Type:	Not reported
Mailing Company:	NYC/HPD/DAMP
Mailing Title:	Not reported
Mailing Contact:	ASST. COMMISSIONER/DAMP
Mailing Address:	100 GOLD STREET
Mailing Address 2:	#7Z5
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip Code:	10038
Mailing Phone No:	(212) 863-7301
Mailing Email:	Not reported
Owner Title:	Not reported
Owner Name:	Not reported
Owner Address:	100 GOLD ST #7Z5
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	10038
Owner Phone:	(212) 863-7301
Owner Company:	NYC/HPD/DAMP
Emergency Contact:	213/215 MOTT ST. H.D.F.C.
Emergency Phone:	(646) 613-0908
Operator:	ASST. COMMISSIONER/DAMP

824 ST NICHOLAS AVE (Continued) **U003835907**

Operator Phone:	(212) 863-7301
Owner City:	NEW YORK
Owner Sub Type:	Local Government
UTM X:	589212.51750
UTM Y:	4520223.08652
Site Type Name:	Apartment Building/Office Building
Site Type Status:	Active
Comments:	Not reported
Program Type:	PBS
Tank Number:	001
Tank Location Name:	Underground
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	/ /
Capacity Gallons:	4000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	Painted/Asphalt Coating
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Aboveground/Underground Combination
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Exempt Suction Piping
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Vent Whistle
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Horner EZY3/EZY3 Locator Plus
Date Tested:	04/26/01
Next Test Date:	04/26/06
Date Tank Closed:	/ /

HIST UST:

PBS Number:	2-470317
SPDES Number:	Not reported
Emergency Contact:	ASST. COMMISSIONER/DAMP
Emergency Telephone:	(212) 863-7301
Operator:	ASST. COMMISSIONER/DAMP
Operator Telephone:	(212) 863-7301
Owner Name:	NYC/HPD/DAMP
Owner Address:	100 GOLD ST #7Z5
Owner City,St,Zip:	NEW YORK, NY 10038
Owner Telephone:	(212) 863-7301
Owner Type:	Local Government

824 ST NICHOLAS AVE (Continued) **U003835907**

Owner Subtype:	Not reported
Mailing Name:	NYC/HPD/DAMP
Mailing Address:	100 GOLD ST #7Z5
Mailing Address 2:	100 GOLD ST #7Z5
Mailing City,St,Zip:	NEW YORK, NY 10038
Mailing Contact:	ASST. COMMISSIONER/DAMP
Mailing Telephone:	(212) 863-7301
Owner Mark:	First Owner
Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Facility Addr2:	824 SAINT NICHOLAS AV
SWIS ID:	6201
Old PBS Number:	Not reported
Facility Type:	APARTMENT BUILDING
Inspected Date:	Not reported
Inspector:	Not reported
Inspection Result:	Not reported
Federal ID:	Not reported
Certification Flag:	False
Certification Date:	06/08/2001
Expiration Date:	03/28/2004
Renew Flag:	False
Renewal Date:	Not reported
Total Capacity:	4000
FAMT:	True
Facility Screen:	No Missing Data
Owner Screen:	No Missing Data
Tank Screen:	No Missing Data
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	62
Town or City:	01
Region:	2
Tank Id:	001
Tank Location:	UNDERGROUND
Tank Status:	In Service
Install Date:	Not reported
Capacity (gals):	4000
Product Stored:	NOS 1,2, OR 4 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	None
Tank External:	Painted/Asphalt Coating
Pipe Location:	Aboveground/Underground Combination
Pipe Type:	STEEL/IRON
Pipe Internal:	None
Pipe External:	None
Second Containment:	None
Leak Detection:	None
Overfill Prot:	Vent Whistle
Dispenser:	Suction
Date Tested:	04/26/2001
Next Test Date:	04/26/2006
Missing Data for Tank:	No Missing Data
Date Closed:	Not reported

824 ST NICHOLAS AVE (Continued) **U003835907**

Test Method:	21
Deleted:	False
Updated:	True
Lat/long:	Not reported

Z103
SSW
1/8-1/4
1015 ft.

N.K.P. REALTY CORP.
26 ST NICHOLAS PL
NEW YORK CITY, NY 10031

AST **U003391674**
HIST AST **N/A**

Site 2 of 3 in cluster Z

Relative:
Lower

Actual:
97 ft.

AST:

AST:

Region:	STATE
Facility Id:	2-404055
UTM X:	589232.40569
UTM Y:	4520154.49230
Expiration Date:	12/14/07
Renewal Date:	08/05/02
Total Capacity:	5000
Facility Type:	Not reported
Site Type Name:	Unknown
Site Type Status:	Active
Mailing Company:	N.K.P. REALTY CORP.
Mailing Title:	Not reported
Mailing Contact:	Not reported
Mailing Address:	5414 NEW UTRECHT AVE
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip Code:	11219
Mailing Phone No:	(718) 438-6200
Mailing Email:	Not reported
Owner Title:	Not reported
Owner Name:	Not reported
Owner Address:	5414 NEW UTRECHT AVE
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	11219
Owner Phone:	(718) 438-6200
Owner Company:	N.K.P. REALTY CORP.
Emergency Contact:	MARVIN HELLMAN
Emergency Phone:	(718) 438-6200
Operator:	JAMIE CHANDLER
Operator Phone:	(718) 438-6200
Owner City:	BROOKLYN
Owner Sub Type:	Not reported
Program Type:	PBS
Tank Number:	001
Tank Location Name:	Aboveground - in contact with soil
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	/ /
Capacity Gallons:	5000

N.K.P. REALTY CORP. (Continued) **U003391674**

Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Vault (w/o access)
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Exempt Suction Piping
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Product Level Gauge (A/G)
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

HIST AST:

PBS Number:	2-404055
SWIS Code:	6201
Operator:	JAMIE CHANDLER
Facility Phone:	(718) 438-6200
Facility Addr2:	26 ST NICHOLAS PL
Facility Type:	Not reported
Emergency:	MARVIN HELLMAN
Emergency Tel:	(718) 438-6200
Old PBSNO:	Not reported
Date Inspected:	Not reported
Inspector:	Not reported
Result of Inspection:	Not reported
Owner Name:	N.K.P. REALTY CORP.
Owner Address:	5414 NEW UTRECHT AVE
Owner City,St,Zip:	BROOKLYN, NY 11219
Federal ID:	Not reported
Owner Tel:	(718) 438-6200
Owner Type:	Not reported
Owner Subtype:	Not reported
Mailing Contact:	Not reported
Mailing Name:	N.K.P. REALTY CORP.
Mailing Address:	5414 NEW UTRECHT AVE
Mailing Address 2:	Not reported
Mailing City,St,Zip:	BROOKLYN, NY 11219
Mailing Telephone:	(718) 438-6200
Owner Mark:	First Owner
Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Certification Flag:	False

N.K.P. REALTY CORP. (Continued) **U003391674**

Certification Date:	12/01/1997
Expiration:	12/14/2002
Renew Flag:	False
Renew Date:	Not reported
Total Capacity:	5000
FAMT:	True
Facility Screen:	Minor Data Missing
Owner Screen:	Minor Data Missing
Tank Screen:	Minor Data Missing
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	62
Town or City Code:	01
Region:	2

Tank ID:	001
Tank Location:	ABOVEGROUND
Tank Status:	In Service
Install Date:	Not reported
Capacity (Gal):	5000
Product Stored:	NOS 1,2, OR 4 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	STEEL/IRON
Pipe Internal:	Not reported
Pipe External:	Not reported
Tank Containment:	Diking
Leak Detection:	0
Overfill Protection:	4
Dispenser Method:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	False
SPDES Number:	Not reported
Lat/Long:	Not reported

AB104 **LTANKS** **S105230103**
NNW **513-515 157TH ST** **HIST LTANKS** **N/A**
1/8-1/4 **MANHATTEN, NY**
1019 ft.

Site 1 of 5 in cluster AB

Relative:
Higher

Actual:
138 ft.

LTANKS:

Site ID:	95579
Spill Date:	12/03/01
Facility Addr2:	Not reported
Facility ID:	0108759
Program Number:	0108759
SWIS:	3101
Region of Spill:	2
Investigator:	JMKRIMGO

(Continued) **S105230103**

Referred To:	Not reported
Reported to Dept:	12/03/01
CID:	15
Spill Cause:	Tank Test Failure
Water Affected:	Not reported
Spill Source:	Private Dwelling
Spill Notifier:	Tank Tester
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	12/04/01
Remediation Phase:	0
Date Entered In Computer:	12/03/01
Spill Record Last Update:	12/04/01
Spille Namer:	UNKNOWN
Spiller Company:	NYC HOUSING AUTHORITY
Spiller Phone:	Not reported
Spiller Extention:	Not reported
Spiller Address:	23-02 49TH AVE
Spiller City,St,Zip:	LONG ISLAND CITY, NY 11011-
Spiller County:	001
Spiller Contact:	GREGORY SUHR
Spiller Phone:	(631) 586-4900
Spiller Extention:	Not reported
DEC Region:	2
Program Number:	0108759
DER Facility ID:	85480
Site ID:	95579
Operable Unit ID:	846153
Operable Unit:	01
Material ID:	529992
Material Code:	0001
Material Name:	#2 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	0.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
Site ID:	95579
Spill Tank Test:	1526742
Tank Number:	1
Tank Size:	2000
Test Method:	00
Leak Rate:	0.00
Gross Fail:	F
Modified By:	Spills
Last Modified:	10/01/04
Test Method:	Unknown
DEC Memo:	Start DECRemark - 0108759 Prior to Sept, 2004 data translation this spill Lead DEC Field was "KRIMGOLD" AST tank. No visible leaks. Will check the tank and fix if necessary END DECRemark - 0108759

(Continued) **S105230103**

Remarks: Start CallerRemark - 0108759 TANK TEST FAILURE AT ABOVE LOCATION. NYC CITY HOUSING AUTHORITY TO BE ADVISED OF TEST RESULTS. END CallerRemark - 0108759

HIST LTANKS:

Region of Spill:	2
Spill Number:	0108759
Investigator:	KRIMGOLD
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Caller Extension:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Notifier Extension:	Not reported
Spill Date:	12/03/2001
Spill Time:	11:20
Reported to Department Date:	12/03/01
Reported to Department Time:	11:33
SWIS:	62
Spiller Contact:	GREGORY SUHR
Spiller Phone:	(631) 586-4900
Spiller Extention:	Not reported
Spiller Name:	NYC HOUSING AUTHORITY
Spiller Address:	23-02 49TH AVE
Spiller City,St,Zip:	LONG ISLAND CITY, NY 11011-
Facility Contact:	UNKNOWN
Facility Phone:	( ) -
Facility Extention:	Not reported
Spill Cause:	Tank Test Failure
Resource Affectd:	On Land
Water Affected:	Not reported
Spill Source:	Private Dwelling
Spill Notifier:	Tank Tester
PBS Number:	2-471569
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Date:	/ /
Enforcement Date:	/ /
Investigation Complete:	/ /
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	12/04/01
Date Region Sent Summary to Central Office:	/ /
Corrective Action Plan Submitted:	/ /
Date Spill Entered In Computer Data File:	12/03/01
Time Spill Entered In Computer Data File:	Not reported
Spill Record Last Update:	12/04/01
Is Updated:	False
PBS Number:	Not reported
Tank Number:	1
Tank Size:	2000
Test Method:	Unknown
Leak Rate Failed Tank:	0.00

(Continued) **S105230103**

Gross Leak Rate:	Talk Test Failures only pass or fail
Material Class Type:	Petroleum
Quantity Spilled:	0
Unkonwn Quantity Spilled:	False
Units:	Gallons
Quantity Recovered:	0
Unkonwn Quantity Recovered:	False
Material:	#2 FUEL OIL
Class Type:	#2 FUEL OIL
Times Material Entry In File:	24464
CAS Number:	Not reported
Last Date:	19941207
DEC Remarks:	AST tank. No visible leaks. Will check the tank and fix if necessary
Spill Cause:	TANK TEST FAILURE AT ABOVE LOCATION. NYC CITY HOUSING AUTHORITY TO BE ADVISED OF TEST RESULTS.

AB105 **513-515 WEST 157 ST** **AST** **A100300975**
NNW **513-515 WEST 157TH STREET** **N/A**
1/8-1/4 **NEW YORK, NY 10032**
1019 ft.

Site 2 of 5 in cluster AB

Relative:
Higher

AST:

Actual:
138 ft.

AST:

Region:	STATE
Facility Id:	2-606781
UTM X:	589170.70930
UTM Y:	4520765.55340
Expiration Date:	08/22/11
Renewal Date:	/ /
Total Capacity:	0
Facility Type:	Not reported
Site Type Name:	Apartment Building/Office Building
Site Type Status:	Unregulated
Mailing Company:	NYC/HPD/DAMP
Mailing Title:	Not reported
Mailing Contact:	ASST. COMMISSIONER/DAMP
Mailing Address:	100 GOLD STREET
Mailing Address 2:	#7Z5
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip Code:	10038
Mailing Phone No:	(212) 863-7301
Mailing Email:	Not reported
Owner Title:	ASST COMMISSIONER DAMP
Owner Name:	WILLA H. PADGETT
Owner Address:	100 GOLD ST., #7Z5
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	10038
Owner Phone:	(212) 863-7301
Owner Company:	NYC/HPD/DAMP
Emergency Contact:	SUNDAY WEST 513-515 W 157TH ST HDFC
Emergency Phone:	(212) 781-3658
Operator:	ASST. COMM. PADGETT
Operator Phone:	(212) 863-7301
Owner City:	NEW YORK

513-515 WEST 157 ST (Continued) **A100300975**

Owner Sub Type:	Local Government
Program Type:	PBS
Tank Number:	1
Tank Location Name:	Aboveground - in contact with soil
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	/ /
Capacity Gallons:	2500
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Aboveground
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	None
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Exempt Suction Piping
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Vent Whistle
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Submersible
Spill Prevention:	None
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	12/10/06

AB106 **513 WEST 157 STREET** **HIST UST** **U003835981**
NNW **513 WEST 157TH STREET** **N/A**
1/8-1/4 **NEW YORK, NY 10032**
1019 ft.

Site 3 of 5 in cluster AB

Relative:
Higher

Actual:
138 ft.

HIST UST:

PBS Number:	2-606781
SPDES Number:	Not reported
Emergency Contact:	ASST. COMMISSIONER/DAMP
Emergency Telephone:	(212) 863-7301
Operator:	ASST. COMMISSIONER/DAMP
Operator Telephone:	(212) 863-7301
Owner Name:	NYC/HPD/DAMP
Owner Address:	100 GOLD ST., #7Z5
Owner City,St,Zip:	NEW YORK, NY 10038
Owner Telephone:	(212) 863-7301
Owner Type:	Local Government
Owner Subtype:	Not reported
Mailing Name:	NYC/HPD/DAMP
Mailing Address:	100 GOLD STREET

513 WEST 157 STREET (Continued) **U003835981**

Mailing Address 2:	#7Z5
Mailing City,St,Zip:	NEW YORK, NY 10038
Mailing Contact:	ASST. COMMISSIONER/DAMP
Mailing Telephone:	(212) 863-7301
Owner Mark:	First Owner
Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Facility Addr2:	Not reported
SWIS ID:	6201
Old PBS Number:	Not reported
Facility Type:	APARTMENT BUILDING
Inspected Date:	Not reported
Inspector:	Not reported
Inspection Result:	Not reported
Federal ID:	Not reported
Certification Flag:	False
Certification Date:	08/24/2001
Expiration Date:	08/22/2006
Renew Flag:	False
Renewal Date:	Not reported
Total Capacity:	2500
FAMT:	True
Facility Screen:	No Missing Data
Owner Screen:	No Missing Data
Tank Screen:	Minor Data Missing
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	62
Town or City:	01
Region:	2

Tank Id:	001
Tank Location:	UNDERGROUND
Tank Status:	In Service
Install Date:	Not reported
Capacity (gals):	2500
Product Stored:	UNLEADED GASOLINE
Tank Type:	Steel/carbon steel
Tank Internal:	None
Tank External:	Painted/Asphalt Coating
Pipe Location:	Aboveground/Underground Combination
Pipe Type:	STEEL/IRON
Pipe Internal:	None
Pipe External:	None
Second Containment:	Not reported
Leak Detection:	None
Overfill Prot:	Vent Whistle
Dispenser:	Suction
Date Tested:	Not reported
Next Test Date:	12/27/1987
Missing Data for Tank:	Minor Data Missing
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	True

513 WEST 157 STREET (Continued) **U003835981**

Lat/long: Not reported

AC107 **367 EDGECOMBE AVE. CORP.** **AST** **A100300196**
South **367 EDGECOMBE AVENUE** **N/A**
1/8-1/4 **NEW YORK, NY 10031**
1019 ft.

Site 1 of 2 in cluster AC

Relative: Lower

Actual: 86 ft.

AST:

AST:

Region:	STATE
Facility Id:	2-610430
UTM X:	589309.79595
UTM Y:	4520191.01266
Expiration Date:	03/03/10
Renewal Date:	/ /
Total Capacity:	1500
Facility Type:	Not reported
Site Type Name:	Apartment Building/Office Building
Site Type Status:	Active
Mailing Company:	RF EDGECOMBE LLC
Mailing Title:	PRESIDENT
Mailing Contact:	CHRISTOPHER BISGAARD
Mailing Address:	164 W 128TH ST - SUITE 1C
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip Code:	10027
Mailing Phone No:	(212) 671-1201
Mailing Email:	Not reported
Owner Title:	PRESIDENT
Owner Name:	CHRISTOPHER BISGAARD
Owner Address:	164 W 128TH ST - SUITE 1C
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	10027
Owner Phone:	(212) 671-1201
Owner Company:	RF EDGECOMBE LLC
Emergency Contact:	ANDREW HOROWITZ
Emergency Phone:	(212) 671-1201
Operator:	CHRISTOPHER BISGAARD
Operator Phone:	(212) 671-1201
Owner City:	NEW YORK
Owner Sub Type:	Corporate or Commercial
Program Type:	PBS
Tank Number:	001
Tank Location Name:	Aboveground - in contact with impervious barrier
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	01/01/07
Capacity Gallons:	1500
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron

367 EDGECOMBE AVE. CORP. (Continued) **A100300196**

Tank Internal Protection:	None
Tank Internal Protection 1:	Painted/Asphalt Coating
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Aboveground
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Other
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	None
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	None
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Vent Whistle
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Submersible
Spill Prevention:	None
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

Y108 **539 WEST 155TH STREET** **AST** **U003385275**
WNW **539 W 155TH ST** **HIST AST** **N/A**
1/8-1/4 **NEW YORK, NY 10032**
1022 ft.

Site 3 of 3 in cluster Y

Relative: Higher

AST:

Actual: 142 ft.

AST:

Region:	STATE
Facility Id:	2-108804
UTM X:	589065.75980
UTM Y:	4520664.96450
Expiration Date:	06/25/03
Renewal Date:	/ /
Total Capacity:	4000
Facility Type:	Not reported
Site Type Name:	Unknown
Site Type Status:	Active
Mailing Company:	LH 155 REALTY
Mailing Title:	Not reported
Mailing Contact:	SHAWN NURSE
Mailing Address:	186 ADELPHI STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip Code:	11205
Mailing Phone No:	Not reported
Mailing Email:	Not reported
Owner Title:	Not reported
Owner Name:	Not reported
Owner Address:	186 ADELPHI STREET
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	11205

539 WEST 155TH STREET (Continued) **U003385275**

Owner Phone:	Not reported
Owner Company:	LH 155 REALTY INC.
Emergency Contact:	JOE PIETRI
Emergency Phone:	Not reported
Operator:	JUAN RUIZ
Operator Phone:	Not reported
Owner City:	BROOKLYN
Owner Sub Type:	Private Resident
Program Type:	PBS

Tank Number:	001
Tank Location Name:	Aboveground - in contact with soil
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	07/01/69
Capacity Gallons:	4000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Vault (w/o access)
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Exempt Suction Piping
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Product Level Gauge (A/G)
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

HIST AST:

PBS Number:	2-108804
SWIS Code:	6201
Operator:	JUAN RUIZ
Facility Phone:	(212) 395-8474
Facility Addr2:	539 W 155TH ST
Facility Type:	Not reported
Emergency:	JOE PIETRI
Emergency Tel:	(917) 298-7759
Old PBSNO:	Not reported
Date Inspected:	Not reported
Inspector:	Not reported
Result of Inspection:	Not reported

539 WEST 155TH STREET (Continued) **U003385275**

Owner Name:	LH 155 REALTY INC.
Owner Address:	186 ADELPHI STREET
Owner City,St,Zip:	BROOKLYN, NY 11205
Federal ID:	Not reported
Owner Tel:	(718) 855-5620
Owner Type:	Private Resident
Owner Subtype:	Not reported
Mailing Contact:	SHAWN NURSE
Mailing Name:	LH 155 REALTY
Mailing Address:	186 ADELPHI STREET
Mailing Address 2:	Not reported
Mailing City,St,Zip:	BROOKLYN, NY 11205
Mailing Telephone:	(718) 855-3620
Owner Mark:	Second Owner
Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Certification Flag:	False
Certification Date:	06/29/1998
Expiration:	06/25/2003
Renew Flag:	False
Renew Date:	Not reported
Total Capacity:	4000
FAMT:	True
Facility Screen:	Minor Data Missing
Owner Screen:	No Missing Data
Tank Screen:	Minor Data Missing
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	62
Town or City Code:	01
Region:	2

Tank ID:	001
Tank Location:	ABOVEGROUND
Tank Status:	In Service
Install Date:	19690701
Capacity (Gal):	4000
Product Stored:	NOS 1,2, OR 4 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	STEEL/IRON
Pipe Internal:	Not reported
Pipe External:	Not reported
Tank Containment:	Diking
Leak Detection:	0
Overfill Protection:	4
Dispenser Method:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False

539 WEST 155TH STREET (Continued) **U003385275**

Updated: False
SPDES Number: Not reported
Lat/Long: Not reported

AD109 **535 WEST 156TH STREET** **AST** **U003395091**
NW **535 WEST 156TH STREET** **HIST AST** **N/A**
1/8-1/4 **NEW YORK, NY 10032**
1028 ft.

Site 1 of 4 in cluster AD

Relative: Higher

AST:

Actual: 139 ft.

AST:

Region:	STATE
Facility Id:	2-471534
UTM X:	589115.00992
UTM Y:	4520734.83709
Expiration Date:	03/28/94
Renewal Date:	/ /
Total Capacity:	2500
Facility Type:	Not reported
Site Type Name:	Unknown
Site Type Status:	Active
Mailing Company:	NYC HOUSING PRESERV & DEVEL
Mailing Title:	Not reported
Mailing Contact:	Not reported
Mailing Address:	2089-2091 ARTHUR AVENUE
Mailing Address 2:	Not reported
Mailing City:	BRONX
Mailing State:	NY
Mailing Zip Code:	10457
Mailing Phone No:	(718) 295-2178
Mailing Email:	Not reported
Owner Title:	Not reported
Owner Name:	Not reported
Owner Address:	2089-2091 ARTHUR AVENUE
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	10457
Owner Phone:	(718) 295-2178
Owner Company:	NYC HOUSING PRESERV & DEVEL
Emergency Contact:	JUANITA ARSENEC
Emergency Phone:	(212) 360-7900
Operator:	NYC HOUSING PRESERV & DEVEL
Operator Phone:	(212) 806-8565
Owner City:	BRONX
Owner Sub Type:	Not reported
Program Type:	PBS
Tank Number:	001
Tank Location Name:	Aboveground - in contact with soil
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	/ /
Capacity Gallons:	2500
Material Name:	#2 Fuel Oil

535 WEST 156TH STREET (Continued) **U003395091**

Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Product Level Gauge (A/G)
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Not reported
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

HIST AST:

PBS Number:	2-471534
SWIS Code:	6201
Operator:	NYC HOUSING PRESERV & DEVEL
Facility Phone:	(212) 806-8565
Facility Addr2:	535 WEST 156TH STREET
Facility Type:	Not reported
Emergency:	JUANITA ARSENEC
Emergency Tel:	(212) 360-7900
Old PBSNO:	Not reported
Date Inspected:	Not reported
Inspector:	Not reported
Result of Inspection:	Not reported
Owner Name:	NYC HOUSING PRESERV & DEVEL
Owner Address:	75 MAIDEN LANE
Owner City,St,Zip:	NEW YORK, NY 10038
Federal ID:	Not reported
Owner Tel:	(212) 806-8565
Owner Type:	Not reported
Owner Subtype:	Not reported
Mailing Contact:	Not reported
Mailing Name:	NYC HOUSING PRESERV & DEVEL
Mailing Address:	75 MAIDEN LANE
Mailing Address 2:	Not reported
Mailing City,St,Zip:	NEW YORK, NY 10038
Mailing Telephone:	(212) 806-8565
Owner Mark:	First Owner
Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Certification Flag:	False
Certification Date:	03/28/1989

535 WEST 156TH STREET (Continued) **U003395091**

Expiration:	03/28/1994
Renew Flag:	False
Renew Date:	Not reported
Total Capacity:	2500
FAMT:	True
Facility Screen:	Minor Data Missing
Owner Screen:	Minor Data Missing
Tank Screen:	Minor Data Missing
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	62
Town or City Code:	01
Region:	2

Tank ID:	001
Tank Location:	ABOVEGROUND
Tank Status:	In Service
Install Date:	Not reported
Capacity (Gal):	2500
Product Stored:	NOS 1,2, OR 4 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	STEEL/IRON
Pipe Internal:	Not reported
Pipe External:	Not reported
Tank Containment:	None
Leak Detection:	0
Overfill Protection:	4
Dispenser Method:	Gravity
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	False
SPDES Number:	Not reported
Lat/Long:	Not reported

Z110 **18-20 ST NICHOLAS PL.** **AST** **S102672363**
SSW **18-20 ST NICHOLAS PL** **LTANKS** **N/A**
1/8-1/4 **MANHATTAN, NY** **HIST AST**
1035 ft. **HIST LTANKS**

Site 3 of 3 in cluster Z

Relative:
Lower

AST:

Actual:
96 ft.

AST:

Region:	STATE
Facility Id:	2-331058
UTM X:	589198.13692
UTM Y:	4520176.69887
Expiration Date:	09/30/07
Renewal Date:	/ /
Total Capacity:	4000

18-20 ST NICHOLAS PL. (Continued) **S102672363**

Facility Type:	Not reported
Site Type Name:	Apartment Building/Office Building
Site Type Status:	Active
Mailing Company:	FRIEDMAN MANAGEMENT CORP
Mailing Title:	Not reported
Mailing Contact:	ADAM STRYKER
Mailing Address:	14 PENN PLAZA SUITE 1305
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip Code:	10122
Mailing Phone No:	(212) 736-6888
Mailing Email:	Not reported
Owner Title:	Not reported
Owner Name:	Not reported
Owner Address:	14PENN PLAZA SUITE 1305
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	10122
Owner Phone:	(212) 736-6888
Owner Company:	FRIEDMAN MANAGEMENT CORP
Emergency Contact:	ADAM STRYKER
Emergency Phone:	(212) 736-6888
Operator:	WILLIAM GUZMAN
Operator Phone:	(347) 538-6269
Owner City:	NEW YORK
Owner Sub Type:	Corporate or Commercial
Program Type:	PBS
Tank Number:	001
Tank Location Name:	Aboveground - in contact with soil
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	/ /
Capacity Gallons:	4000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Vault (w/o access)
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	Other
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Product Level Gauge (A/G)
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Not reported

18-20 ST NICHOLAS PL. (Continued) **S102672363**

Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

LTANKS:

Site ID:	324000
Spill Date:	02/01/94
Facility Addr2:	Not reported
Facility ID:	9312944
Program Number:	9312944
SWIS:	3101
Region of Spill:	2
Investigator:	CAMMISA
Referred To:	Not reported
Reported to Dept:	02/02/94
CID:	15
Spill Cause:	Tank Overfill
Water Affected:	Not reported
Spill Source:	Commercial/Industrial
Spill Notifier:	Other
Cleanup Ceased:	02/02/94
Cleanup Meets Standard:	True
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	02/02/94
Remediation Phase:	0
Date Entered In Computer:	02/03/94
Spill Record Last Update:	09/30/04
Spille Namer:	Not reported
Spiller Company:	SAME
Spiller Phone:	Not reported
Spiller Extention:	Not reported
Spiller Address:	Not reported
Spiller City,St,Zip:	NN
Spiller County:	999
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
DEC Region:	2
Program Number:	9312944
DER Facility ID:	260986
Site ID:	324000
Operable Unit ID:	991451
Operable Unit:	01
Material ID:	388348
Material Code:	0002
Material Name:	#4 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	50.00
Units:	Gallons
Recovered:	0.00

18-20 ST NICHOLAS PL. (Continued) **S102672363**

Resource Affected:	Soil
Oxygenate:	False
Site ID:	Not reported
Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported
DEC Memo:	Not reported
Remarks:	Start CallerRemark - 9312944 SUSPECT INCORRECT TANK-SITE WAS GIVEN TO OIL CO. - CUST. ORDERED 3000 GALS. OIL CAME OUT VENT 3,001 GALS - CUST. ARRANGING CLEAN UP - WILL NOTIFY NY DEP AL EASTMAN CLEANING SPILL - END CallerRemark - 9312944

HIST AST:

PBS Number:	2-331058
SWIS Code:	6201
Operator:	TOMES
Facility Phone:	(917) 785-0191
Facility Addr2:	18 ST NICHOLAS PLACE
Facility Type:	APARTMENT BUILDING
Emergency:	DANEY CABRERA
Emergency Tel:	(718) 796-9595
Old PBSNO:	Not reported
Date Inspected:	Not reported
Inspector:	Not reported
Result of Inspection:	Not reported
Owner Name:	PRANA ASSOC. 19
Owner Address:	3154 ALBANY CRESCENT
Owner City,St,Zip:	BRONX, NY 10463
Federal ID:	Not reported
Owner Tel:	(718) 796-9595
Owner Type:	Corporate/Commercial
Owner Subtype:	Not reported
Mailing Contact:	JONATHAN HOCHHAUSER
Mailing Name:	PMG
Mailing Address:	3154 ALBANY CRESCENT, 2ND FLOOR
Mailing Address 2:	Not reported
Mailing City,St,Zip:	BRONX, NY 10463
Mailing Telephone:	(718) 796-9595
Owner Mark:	First Owner
Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Certification Flag:	False
Certification Date:	12/07/1999
Expiration:	02/25/2003
Renew Flag:	False
Renew Date:	Not reported
Total Capacity:	4000
FAMT:	True
Facility Screen:	No Missing Data
Owner Screen:	No Missing Data
Tank Screen:	Minor Data Missing

18-20 ST NICHOLAS PL. (Continued) **S102672363**

Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	62
Town or City Code:	01
Region:	2

Tank ID:	001
Tank Location:	ABOVEGROUND
Tank Status:	In Service
Install Date:	Not reported
Capacity (Gal):	4000
Product Stored:	NOS 1,2, OR 4 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	STEEL/IRON
Pipe Internal:	Not reported
Pipe External:	Not reported
Tank Containment:	Diking
Leak Detection:	9
Overfill Protection:	4
Dispenser Method:	Gravity
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	True
SPDES Number:	Not reported
Lat/Long:	Not reported

HIST LTANKS:

Region of Spill:	2
Spill Number:	9312944
Investigator:	CAMMISA
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Caller Extension:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Notifier Extension:	Not reported
Spill Date:	02/01/1994
Spill Time:	16:00
Reported to Department Date:	02/02/94
Reported to Department Time:	14:01
SWIS:	62
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
Spiller Name:	SAME
Spiller Address:	Not reported
Spiller City,St,Zip:	Not reported

18-20 ST NICHOLAS PL. (Continued) **S102672363**

Facility Contact: Not reported
Facility Phone: Not reported
Facility Extention: Not reported
Spill Cause: Tank Overfill
Resource Affectd: On Land
Water Affected: Not reported
Spill Source: Other Commercial/Industrial
Spill Notifier: Other
PBS Number: Not reported
Cleanup Ceased: 02/02/94
Cleanup Meets Standard: True
Last Inspection: / /
Recommended Penalty: Penalty Not Recommended
Spiller Cleanup Date: / /
Enforcement Date: / /
Investigation Complete: / /
UST Involvement: False
Spill Class: Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: 02/02/94
Date Region Sent Summary to Central Office: / /
Corrective Action Plan Submitted: / /
Date Spill Entered In Computer Data File: 02/03/94
Time Spill Entered In Computer Data File: Not reported
Spill Record Last Update: / /
Is Updated: False
PBS Number: Not reported
Tank Number: Not reported
Tank Size: Not reported
Test Method: Not reported
Leak Rate Failed Tank: Not reported
Gross Leak Rate: Not reported
Material Class Type: Petroleum
Quantity Spilled: 50
Unkonwn Quantity Spilled: False
Units: Gallons
Quantity Recovered: 0
Unkonwn Quantity Recovered: False
Material: #4 FUEL OIL
Class Type: #4 FUEL OIL
Times Material Entry In File: 1751
CAS Number: Not reported
Last Date: 19941205
DEC Remarks: Not reported
Spill Cause: SUSPECT INCORRECT TANK-SITE WAS GIVEN TO OIL CO. - CUST. ORDERED 3000 GALS. OIL CAME OUT VENT 3,001 GALS - CUST. ARRANGING CLEAN UP - WILL NOTIFY NY DEP AL EASTMAN CLEANING SPILL -

AB111 **515 WEST 157TH STREET** **AST** **U004067686**
NNW **515 WEST 157TH STREET** **N/A**
1/8-1/4 **NEW YORK, NY 10032**
1044 ft.

Site 4 of 5 in cluster AB

Relative: Higher

AST:

Actual: 138 ft.

AST:

Region:	STATE
Facility Id:	2-471569
UTM X:	589200.02875
UTM Y:	4520782.60421
Expiration Date:	03/28/09
Renewal Date:	/ /
Total Capacity:	0
Facility Type:	Not reported
Site Type Name:	Apartment Building/Office Building
Site Type Status:	Administratively Closed
Mailing Company:	NYC/HPD/DAMP
Mailing Title:	Not reported
Mailing Contact:	ASST. COMMISSIONER/DAMP
Mailing Address:	100 GOLD STREET
Mailing Address 2:	#7Z5
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip Code:	10038
Mailing Phone No:	(212) 863-7301
Mailing Email:	Not reported
Owner Title:	Not reported
Owner Name:	Not reported
Owner Address:	100 GOLD ST., #7Z5
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	10038
Owner Phone:	(212) 863-7301
Owner Company:	NYC/HPD/DAMP
Emergency Contact:	213/215 MOTT ST. H.D.F.C.
Emergency Phone:	(646) 613-0908
Operator:	ASST. COMMISSIONER/DAMP
Operator Phone:	(212) 863-7301
Owner City:	NEW YORK
Owner Sub Type:	Local Government
Program Type:	PBS
Tank Number:	001
Tank Location Name:	Aboveground - in contact with soil
Tank Status:	Administratively Closed
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	/ /
Capacity Gallons:	2500
Material Name:	Gasoline
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	Painted/Asphalt Coating
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Aboveground/Underground Combination

515 WEST 157TH STREET (Continued) **U004067686**

Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Vent Whistle
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

AE112 **P. S. 93M** **UST** **U004047869**
WSW **501-503 WEST 152ND ST.** **N/A**
1/8-1/4 **NEW YORK, NY 10031**
1047 ft.

Site 1 of 3 in cluster AE

Relative: Higher

UST:

Actual: 134 ft.

UST:

Facility Id:	2-609649
Expiration Date:	07/15/09
Renewal Date:	/ /
Total Capacity:	0
Facility Type:	Not reported
Mailing Company:	N Y C SCHOOL CONSTRUCTION AUTHUORITY
Mailing Title:	Not reported
Mailing Contact:	MS. LEE GUTERMAN
Mailing Address:	30-30 THOMSON AVENUE
Mailing Address 2:	Not reported
Mailing City:	LONG ISLAND CITY
Mailing State:	NY
Mailing Zip Code:	11101
Mailing Phone No:	(718) 472-8502
Mailing Email:	Not reported
Owner Title:	PRINCIPAL GEOLOGIST
Owner Name:	RICHARD WETHERBEE
Owner Address:	30-30 THOMSON AVENUE
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	11101
Owner Phone:	(718) 472-8502
Owner Company:	N Y C SCHOOL CONSTRUCTION AUTHUORITY
Emergency Contact:	NYCSCA
Emergency Phone:	(718) 472-8502
Operator:	NYCSCA
Operator Phone:	(718) 472-8502
Owner City:	LONG ISLAND CITY
Owner Sub Type:	Other State Agency (State Government)
UTM X:	589004.69555

P. S. 93M (Continued) **U004047869**

UTM Y:	4520392.28338
Site Type Name:	School
Site Type Status:	Unregulated
Comments:	Not reported
Program Type:	PBS
Tank Number:	01
Tank Location Name:	Underground
Tank Status:	Closed - In Place
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	01/01/43
Capacity Gallons:	5000
Material Name:	Empty
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Underground/On-ground
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	None
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	None
Spill Prevention:	None
Tightness Test Method:	Unknown
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	09/29/03

AA113 **CONVENT GARDEN FOR WOMEN** **UST** **U003241898**
SSW **821 ST. NICHOLAS AVE** **HIST UST** **N/A**
1/8-1/4 **NEW YORK, NY 10031**
1048 ft.

Site 2 of 4 in cluster AA

Relative:
Lower

UST:

Actual:
105 ft.

UST:

Facility Id:	2-603282
Expiration Date:	12/31/02
Renewal Date:	/ /
Total Capacity:	0
Facility Type:	Not reported
Mailing Company:	NYC - DDC - UST PROGRAM
Mailing Title:	Not reported
Mailing Contact:	ANTHONY MARINO

CONVENT GARDEN FOR WOMEN (Continued) **U003241898**

Mailing Address:	30-30 THOMSON AVENUE, 5TH FLOOR
Mailing Address 2:	Not reported
Mailing City:	LIC
Mailing State:	NY
Mailing Zip Code:	11101
Mailing Phone No:	(718) 391-1062
Mailing Email:	Not reported
Owner Title:	Not reported
Owner Name:	Not reported
Owner Address:	16 WEST 61ST STREET
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	10023
Owner Phone:	(212) 408-0294
Owner Company:	NYC DEPARTMENT OF PARKS & RECREATION
Emergency Contact:	LEE T. HENRY
Emergency Phone:	(212) 408-0215
Operator:	NYC DEPT. OF PARKS
Operator Phone:	(212) 408-0215
Owner City:	NEW YORK
Owner Sub Type:	Local Government
UTM X:	589194.67980
UTM Y:	4520205.66251
Site Type Name:	Retail Gasoline Sales
Site Type Status:	Unregulated
Comments:	Not reported
Program Type:	PBS
Tank Number:	1
Tank Location Name:	Underground
Tank Status:	Closed - In Place
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	/ /
Capacity Gallons:	550
Material Name:	Gasoline
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Underground/On-ground
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	None
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	None

CONVENT GARDEN FOR WOMEN (Continued) **U003241898**

Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	10/01/97

Tank Number:	10
Tank Location Name:	Underground
Tank Status:	Closed - In Place
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	/ /
Capacity Gallons:	4000
Material Name:	Gasoline
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Underground/On-ground
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	None
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	None
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	10/01/97

Tank Number:	11
Tank Location Name:	Underground
Tank Status:	Closed - In Place
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	/ /
Capacity Gallons:	4000
Material Name:	Gasoline
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Underground/On-ground

CONVENT GARDEN FOR WOMEN (Continued) **U003241898**

Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	None
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	None
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	10/01/97

Tank Number:	2
Tank Location Name:	Underground
Tank Status:	Closed - In Place
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	/ /
Capacity Gallons:	550
Material Name:	Gasoline
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Underground/On-ground
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	None
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	None
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	10/01/97

Tank Number:	3
Tank Location Name:	Underground

CONVENT GARDEN FOR WOMEN (Continued) **U003241898**

Tank Status:	Closed - In Place
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	/ /
Capacity Gallons:	550
Material Name:	Gasoline
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Underground/On-ground
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	None
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	None
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	10/01/97

Tank Number:	4
Tank Location Name:	Underground
Tank Status:	Closed - In Place
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	/ /
Capacity Gallons:	550
Material Name:	Gasoline
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Underground/On-ground
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported

CONVENT GARDEN FOR WOMEN (Continued) **U003241898**

Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	None
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	None
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	10/01/97

Tank Number:	5
Tank Location Name:	Underground
Tank Status:	Closed - In Place
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	/ /
Capacity Gallons:	550
Material Name:	Gasoline
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Underground/On-ground
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	None
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	None
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	10/01/97

Tank Number:	6
Tank Location Name:	Underground
Tank Status:	Closed - In Place
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	/ /
Capacity Gallons:	550
Material Name:	Gasoline
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron

CONVENT GARDEN FOR WOMEN (Continued) **U003241898**

Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Underground/On-ground
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	None
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	None
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	10/01/97

Tank Number:	7
Tank Location Name:	Underground
Tank Status:	Closed - In Place
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	/ /
Capacity Gallons:	550
Material Name:	Gasoline
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Underground/On-ground
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	None
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	None
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	10/01/97

CONVENT GARDEN FOR WOMEN (Continued) **U003241898**

Tank Number:	8
Tank Location Name:	Underground
Tank Status:	Closed - In Place
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	/ /
Capacity Gallons:	550
Material Name:	Gasoline
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Underground/On-ground
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	None
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	None
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	10/01/97

Tank Number:	9
Tank Location Name:	Underground
Tank Status:	Closed - In Place
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	/ /
Capacity Gallons:	4000
Material Name:	Gasoline
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Underground/On-ground
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None

CONVENT GARDEN FOR WOMEN (Continued) **U003241898**

Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	None
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	None
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	10/01/97

HIST UST:

PBS Number:	2-603282
SPDES Number:	Not reported
Emergency Contact:	LEE T. HENRY
Emergency Telephone:	(212) 408-0215
Operator:	NYC DEPT. OF PARKS
Operator Telephone:	(212) 408-0215
Owner Name:	NYC DEPARTMENT OF PARKS & RECREATION
Owner Address:	16 WEST 61ST STREET
Owner City,St,Zip:	NEW YORK, NY 10023
Owner Telephone:	(212) 408-0294
Owner Type:	Local Government
Owner Subtype:	Not reported
Mailing Name:	NYC - DDC - UST PROGRAM
Mailing Address:	30-30 THOMSON AVENUE, 5TH FLOOR
Mailing Address 2:	Not reported
Mailing City,St,Zip:	LIC, NY 11101
Mailing Contact:	ANTHONY MARINO
Mailing Telephone:	(718) 391-1062
Owner Mark:	First Owner
Facility Status:	2 - Unregulated by PBS (the total capacity is less than 1,101 gallons) and Subpart 360-14.
Facility Addr2:	Not reported
SWIS ID:	6201
Old PBS Number:	Not reported
Facility Type:	RETAIL GASOLINE SALES
Inspected Date:	Not reported
Inspector:	Not reported
Inspection Result:	Not reported
Federal ID:	Not reported
Certification Flag:	False
Certification Date:	Not reported
Expiration Date:	12/31/2002
Renew Flag:	False
Renewal Date:	Not reported
Total Capacity:	0
FAMT:	True
Facility Screen:	No Missing Data
Owner Screen:	No Missing Data
Tank Screen:	0
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	62
Town or City:	01

CONVENT GARDEN FOR WOMEN (Continued) **U003241898**

Region: 2

Tank Id: 1
Tank Location: UNDERGROUND
Tank Status: Closed-In Place
Install Date: Not reported
Capacity (gals): 550
Product Stored: LEADED GASOLINE
Tank Type: Steel/carbon steel
Tank Internal: None
Tank External: None
Pipe Location: Underground
Pipe Type: STEEL/IRON
Pipe Internal: None
Pipe External: None
Second Containment: None
Leak Detection: None
Overfill Prot: None
Dispenser: Not reported
Date Tested: Not reported
Next Test Date: Not reported
Missing Data for Tank: Minor Data Missing
Date Closed: 10/01/1997
Test Method: Not reported
Deleted: False
Updated: True
Lat/long: Not reported

Tank Id: 10
Tank Location: UNDERGROUND
Tank Status: Closed-In Place
Install Date: Not reported
Capacity (gals): 4000
Product Stored: LEADED GASOLINE
Tank Type: Steel/carbon steel
Tank Internal: None
Tank External: None
Pipe Location: Underground
Pipe Type: STEEL/IRON
Pipe Internal: None
Pipe External: None
Second Containment: None
Leak Detection: None
Overfill Prot: None
Dispenser: Not reported
Date Tested: Not reported
Next Test Date: Not reported
Missing Data for Tank: Minor Data Missing
Date Closed: 10/01/1997
Test Method: Not reported
Deleted: False
Updated: True
Lat/long: Not reported

Tank Id: 11

CONVENT GARDEN FOR WOMEN (Continued) **U003241898**

Tank Location:	UNDERGROUND
Tank Status:	Closed-In Place
Install Date:	Not reported
Capacity (gals):	4000
Product Stored:	LEADED GASOLINE
Tank Type:	Steel/carbon steel
Tank Internal:	None
Tank External:	None
Pipe Location:	Underground
Pipe Type:	STEEL/IRON
Pipe Internal:	None
Pipe External:	None
Second Containment:	None
Leak Detection:	None
Overfill Prot:	None
Dispenser:	Not reported
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	10/01/1997
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	2
Tank Location:	UNDERGROUND
Tank Status:	Closed-In Place
Install Date:	Not reported
Capacity (gals):	550
Product Stored:	LEADED GASOLINE
Tank Type:	Steel/carbon steel
Tank Internal:	None
Tank External:	None
Pipe Location:	Underground
Pipe Type:	STEEL/IRON
Pipe Internal:	None
Pipe External:	None
Second Containment:	None
Leak Detection:	None
Overfill Prot:	None
Dispenser:	Not reported
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	10/01/1997
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	3
Tank Location:	UNDERGROUND
Tank Status:	Closed-In Place
Install Date:	Not reported

CONVENT GARDEN FOR WOMEN (Continued) **U003241898**

Capacity (gals):	550
Product Stored:	LEADED GASOLINE
Tank Type:	Steel/carbon steel
Tank Internal:	None
Tank External:	None
Pipe Location:	Underground
Pipe Type:	STEEL/IRON
Pipe Internal:	None
Pipe External:	None
Second Containment:	None
Leak Detection:	None
Overfill Prot:	None
Dispenser:	Not reported
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	10/01/1997
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	4
Tank Location:	UNDERGROUND
Tank Status:	Closed-In Place
Install Date:	Not reported
Capacity (gals):	550
Product Stored:	LEADED GASOLINE
Tank Type:	Steel/carbon steel
Tank Internal:	None
Tank External:	None
Pipe Location:	Underground
Pipe Type:	STEEL/IRON
Pipe Internal:	None
Pipe External:	None
Second Containment:	None
Leak Detection:	None
Overfill Prot:	None
Dispenser:	Not reported
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	10/01/1997
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	5
Tank Location:	UNDERGROUND
Tank Status:	Closed-In Place
Install Date:	Not reported
Capacity (gals):	550
Product Stored:	LEADED GASOLINE
Tank Type:	Steel/carbon steel

CONVENT GARDEN FOR WOMEN (Continued) **U003241898**

Tank Internal:	None
Tank External:	None
Pipe Location:	Underground
Pipe Type:	STEEL/IRON
Pipe Internal:	None
Pipe External:	None
Second Containment:	None
Leak Detection:	None
Overfill Prot:	None
Dispenser:	Not reported
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	10/01/1997
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	6
Tank Location:	UNDERGROUND
Tank Status:	Closed-In Place
Install Date:	Not reported
Capacity (gals):	550
Product Stored:	LEADED GASOLINE
Tank Type:	Steel/carbon steel
Tank Internal:	None
Tank External:	None
Pipe Location:	Underground
Pipe Type:	STEEL/IRON
Pipe Internal:	None
Pipe External:	None
Second Containment:	None
Leak Detection:	None
Overfill Prot:	None
Dispenser:	Not reported
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	10/01/1997
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	7
Tank Location:	UNDERGROUND
Tank Status:	Closed-In Place
Install Date:	Not reported
Capacity (gals):	550
Product Stored:	LEADED GASOLINE
Tank Type:	Steel/carbon steel
Tank Internal:	None
Tank External:	None
Pipe Location:	Underground

CONVENT GARDEN FOR WOMEN (Continued) **U003241898**

Pipe Type:	STEEL/IRON
Pipe Internal:	None
Pipe External:	None
Second Containment:	None
Leak Detection:	None
Overfill Prot:	None
Dispenser:	Not reported
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	10/01/1997
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	8
Tank Location:	UNDERGROUND
Tank Status:	Closed-In Place
Install Date:	Not reported
Capacity (gals):	550
Product Stored:	LEADED GASOLINE
Tank Type:	Steel/carbon steel
Tank Internal:	None
Tank External:	None
Pipe Location:	Underground
Pipe Type:	STEEL/IRON
Pipe Internal:	None
Pipe External:	None
Second Containment:	None
Leak Detection:	None
Overfill Prot:	None
Dispenser:	Not reported
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	10/01/1997
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	9
Tank Location:	UNDERGROUND
Tank Status:	Closed-In Place
Install Date:	Not reported
Capacity (gals):	4000
Product Stored:	LEADED GASOLINE
Tank Type:	Steel/carbon steel
Tank Internal:	None
Tank External:	None
Pipe Location:	Underground
Pipe Type:	STEEL/IRON
Pipe Internal:	None
Pipe External:	None

CONVENT GARDEN FOR WOMEN (Continued) **U003241898**

Second Containment:	None
Leak Detection:	None
Overfill Prot:	None
Dispenser:	Not reported
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	10/01/1997
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	Not reported

AA114 **400 WEST 151ST STREET** **AST** **U003394983**
SSW **400 WEST 151ST STREET** **HIST AST** **N/A**
1/8-1/4 **NEW YORK, NY 10031**
1054 ft.

Site 3 of 4 in cluster AA

Relative: Lower

AST:

Actual: 104 ft.

AST:

Region:	STATE
Facility Id:	2-470643
UTM X:	589195.82275
UTM Y:	4520215.77943
Expiration Date:	03/28/99
Renewal Date:	/ /
Total Capacity:	3000
Facility Type:	Not reported
Site Type Name:	Unknown
Site Type Status:	Active
Mailing Company:	CITY OF NEW HOUS. PRES. & DEV.
Mailing Title:	Not reported
Mailing Contact:	IVAN SCHWARTZ
Mailing Address:	75 MAIDEN LANE
Mailing Address 2:	4TH FLOOR - ROOM 427
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip Code:	10038
Mailing Phone No:	(212) 806-8037
Mailing Email:	Not reported
Owner Title:	Not reported
Owner Name:	Not reported
Owner Address:	75 MAIDEN LANE
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	10038
Owner Phone:	(212) 806-8091
Owner Company:	CITY OF NEW HOUS. PRES. & DEV.
Emergency Contact:	L. BELTON
Emergency Phone:	(212) 234-3656
Operator:	J. PRASEK
Operator Phone:	(212) 234-1175
Owner City:	NEW YORK
Owner Sub Type:	Local Government
Program Type:	PBS

400 WEST 151ST STREET (Continued) **U003394983**

Tank Number:	001
Tank Location Name:	Aboveground - in contact with soil
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	/ /
Capacity Gallons:	3000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Vault (w/o access)
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Exempt Suction Piping
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Product Level Gauge (A/G)
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

HIST AST:

PBS Number:	2-470643
SWIS Code:	6201
Operator:	J. PRASEK
Facility Phone:	(212) 234-1175
Facility Addr2:	400 WEST 151ST STREET
Facility Type:	Not reported
Emergency:	L. BELTON
Emergency Tel:	(212) 234-3656
Old PBSNO:	Not reported
Date Inspected:	Not reported
Inspector:	Not reported
Result of Inspection:	Not reported
Owner Name:	CITY OF NEW HOUS. PRES. & DEV.
Owner Address:	75 MAIDEN LANE
Owner City,St,Zip:	NEW YORK, NY 10038
Federal ID:	Not reported
Owner Tel:	(212) 806-8091
Owner Type:	Local Government
Owner Subtype:	Not reported
Mailing Contact:	IVAN SCHWARTZ
Mailing Name:	CITY OF NEW HOUS. PRES. & DEV.
Mailing Address:	75 MAIDEN LANE

400 WEST 151ST STREET (Continued) **U003394983**

Mailing Address 2:	4TH FLOOR - ROOM 427
Mailing City,St,Zip:	NEW YORK, NY 10038
Mailing Telephone:	(212) 806-8037
Owner Mark:	First Owner
Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Certification Flag:	False
Certification Date:	03/17/1994
Expiration:	03/28/1999
Renew Flag:	False
Renew Date:	Not reported
Total Capacity:	3000
FAMT:	True
Facility Screen:	Minor Data Missing
Owner Screen:	Minor Data Missing
Tank Screen:	Minor Data Missing
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	62
Town or City Code:	01
Region:	2

Tank ID:	001
Tank Location:	ABOVEGROUND
Tank Status:	In Service
Install Date:	Not reported
Capacity (Gal):	3000
Product Stored:	NOS 1,2, OR 4 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	STEEL/IRON
Pipe Internal:	Not reported
Pipe External:	Not reported
Tank Containment:	Diking
Leak Detection:	0
Overfill Protection:	4
Dispenser Method:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	False
SPDES Number:	Not reported
Lat/Long:	Not reported

AA115 **MELROSE HOUSING ESTATES LP** **AST** **A100295015**
SSW **389 EAST 151ST STREET** **N/A**
1/8-1/4 **BRONX, NY 10455**
1055 ft.

Site 4 of 4 in cluster AA

Relative:
Lower

AST:

Actual:
100 ft.

AST:

Region:	STATE
Facility Id:	2-609253
UTM X:	591285.37455
UTM Y:	4519082.02571
Expiration Date:	09/25/08
Renewal Date:	/ /
Total Capacity:	5000
Facility Type:	Not reported
Site Type Name:	Unknown
Site Type Status:	Active
Mailing Company:	2804 THIRD AVENUE
Mailing Title:	Not reported
Mailing Contact:	MARY C. RAMIREZ
Mailing Address:	4TH FLOOR
Mailing Address 2:	Not reported
Mailing City:	BRONX
Mailing State:	NY
Mailing Zip Code:	10455
Mailing Phone No:	(718) 401-7823
Mailing Email:	Not reported
Owner Title:	Not reported
Owner Name:	Not reported
Owner Address:	2804 THIRD AVENUE 4TH FLOOR
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	10455
Owner Phone:	(718) 401-7823
Owner Company:	MELROSE HOUSING ESTATES LP
Emergency Contact:	MARY C. RAMIREZ
Emergency Phone:	(718) 401-7823
Operator:	MR. ALMADEVA
Operator Phone:	(718) 401-7823
Owner City:	BRONX
Owner Sub Type:	Corporate or Commercial
Program Type:	PBS
Tank Number:	001
Tank Location Name:	Aboveground - in contact with soil
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	/ /
Capacity Gallons:	5000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Aboveground

MELROSE HOUSING ESTATES LP (Continued) **A100295015**

Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Vault (w/o access)
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	Impervious Barrier/Concrete Pad (A/G)
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Exempt Suction Piping
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Vent Whistle
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

116
SSW
1/8-1/4
1057 ft.

417 E 151 ST **AST** **A100292338**
417 EAST 151ST STREET **N/A**
BRONX, NY 10455

Relative:
Equal

Actual:
111 ft.

AST:

AST:

Region:	STATE
Facility Id:	2-609256
UTM X:	591348.30029
UTM Y:	4519061.37514
Expiration Date:	09/25/08
Renewal Date:	/ /
Total Capacity:	2000
Facility Type:	Not reported
Site Type Name:	Unknown
Site Type Status:	Active
Mailing Company:	MELROSE ESTATES HOUSING LP
Mailing Title:	Not reported
Mailing Contact:	MARY C. RAMIREZ
Mailing Address:	2804 THIRD AVENUE
Mailing Address 2:	Not reported
Mailing City:	BRONX
Mailing State:	NY
Mailing Zip Code:	10455
Mailing Phone No:	Not reported
Mailing Email:	Not reported
Owner Title:	Not reported
Owner Name:	Not reported
Owner Address:	2804 THIRD AVE
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	10455
Owner Phone:	Not reported
Owner Company:	MELROSE ESTATES HOUSING LP
Emergency Contact:	MARY C. RAMIREZ
Emergency Phone:	Not reported
Operator:	MR. PRADO

417 E 151 ST (Continued) **A100292338**

Operator Phone:	Not reported
Owner City:	BRONX
Owner Sub Type:	Private Resident
Program Type:	PBS
Tank Number:	001
Tank Location Name:	Aboveground - in contact with soil
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	/ /
Capacity Gallons:	2000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Aboveground
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Vault (w/o access)
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	Impervious Barrier/Concrete Pad (A/G)
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Exempt Suction Piping
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Vent Whistle
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

AE117 **502 WEST 152 LLC** **AST** **A100168913**
WSW **502 WEST 152ND STREET** **N/A**
1/8-1/4 **NEW YORK, NY 10031**
1060 ft.

Site 2 of 3 in cluster AE

Relative:
Higher

AST:

Actual:
135 ft.

AST:

Region:	STATE
Facility Id:	2-334073
UTM X:	589027.11225
UTM Y:	4520393.93493
Expiration Date:	02/06/12
Renewal Date:	/ /
Total Capacity:	3000
Facility Type:	Not reported
Site Type Name:	Apartment Building/Office Building
Site Type Status:	Active

502 WEST 152 LLC (Continued) **A100168913**

Mailing Company:	502 WEST 152 LLC
Mailing Title:	Not reported
Mailing Contact:	SHAMSY BARADARIAN
Mailing Address:	PO BOX 1393
Mailing Address 2:	Not reported
Mailing City:	ENGLEWOOD CLIFFS,
Mailing State:	NJ
Mailing Zip Code:	07632
Mailing Phone No:	(917) 806-2915
Mailing Email:	SHAMSYB@HOTMAIL.COM
Owner Title:	MEMBER
Owner Name:	SHAMSY BARADARIAN
Owner Address:	PO BOX 1393
Owner Address 2:	Not reported
Owner State:	NJ
Owner Zip Code:	07632
Owner Phone:	(201) 569-0014
Owner Company:	502 WEST 152 LLC
Emergency Contact:	SHAMSY BARADARIAN
Emergency Phone:	(917) 806-2915
Operator:	SHAMSY BARADARIAN
Operator Phone:	(212) 569-0014
Owner City:	ENGLEWOOD CLIFFS
Owner Sub Type:	Not reported
Program Type:	PBS

Tank Number:	001
Tank Location Name:	Aboveground - in contact with soil
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	01/01/00
Capacity Gallons:	3000
Material Name:	Gasoline
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Aboveground
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	Other
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Float Vent Valve
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Not reported
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /

502 WEST 152 LLC (Continued) **A100168913**

Next Test Date: / /
Date Tank Closed: / /

AD118 **539156 LLC** **AST** **A100159776**
NW **539-541 WEST 156TH STREET** **N/A**
1/8-1/4 **NEW YORK, NY 10032**
1062 ft.

Site 2 of 4 in cluster AD

Relative: Higher

AST:

Actual: 137 ft.

AST:

Region:	STATE
Facility Id:	2-604395
UTM X:	589069.38071
UTM Y:	4520727.81690
Expiration Date:	08/19/10
Renewal Date:	/ /
Total Capacity:	2000
Facility Type:	Not reported
Site Type Name:	Apartment Building/Office Building
Site Type Status:	Active
Mailing Company:	SOLAR REALTY MANAGEMENT
Mailing Title:	Not reported
Mailing Contact:	LUIS DIAZ
Mailing Address:	P.O. BOX 1970
Mailing Address 2:	JAF STATION
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip Code:	10031
Mailing Phone No:	(212) 633-9985
Mailing Email:	Not reported
Owner Title:	MANAGING MEMBER
Owner Name:	SARUHAN DINGIL
Owner Address:	236 WEST 26TH STREET, SUITE 801
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	10001
Owner Phone:	(212) 633-9985
Owner Company:	539156 LLC
Emergency Contact:	LUIS DIAZ
Emergency Phone:	(347) 245-4333
Operator:	ISIDORO RODRIGUEZ
Operator Phone:	(646) 492-2706
Owner City:	NEW YORK
Owner Sub Type:	Corporate or Commercial
Program Type:	PBS
Tank Number:	001
Tank Location Name:	Aboveground - in contact with soil
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	/ /
Capacity Gallons:	2000
Material Name:	#2 Fuel Oil
Percentage:	100.00

539156 LLC (Continued) **A100159776**

Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	Jacketed
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Aboveground
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Vault (w/access)
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	None
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	None
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Vent Whistle
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	None
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

AF119 **AP AMSTERDAM - 1973 AMSTERDAM LLC** **AST** **A100292449**
NNW **498 W. 158TH STREET** **N/A**
1/8-1/4 **NEW YORK, NY 10032**
1064 ft.

Site 1 of 5 in cluster AF

Relative: Higher

AST:

Actual: 148 ft.

AST:

Region:	STATE
Facility Id:	2-609629
UTM X:	589244.20202
UTM Y:	4520803.85638
Expiration Date:	03/08/11
Renewal Date:	/ /
Total Capacity:	3000
Facility Type:	Not reported
Site Type Name:	Apartment Building/Office Building
Site Type Status:	Active
Mailing Company:	TOWNHOUSE MGMT CO.
Mailing Title:	Not reported
Mailing Contact:	MICHAEL J. CALANDRA
Mailing Address:	70 E 55TH STREET - SUITE B100
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip Code:	10022
Mailing Phone No:	(212) 755-6556
Mailing Email:	Not reported
Owner Title:	VICE PRESIDENT
Owner Name:	MICHAEL J. CALANDRA
Owner Address:	70 E 55TH STREET
Owner Address 2:	Not reported
Owner State:	NY

AP AMSTERDAM - 1973 AMSTERDAM LLC (Continued) **A100292449**

Owner Zip Code:	10022
Owner Phone:	(212) 755-6556
Owner Company:	1973 AMSTERDAM LLC - C/O TOWNHOUSE MGMT CO.
Emergency Contact:	WILLIE MIRANDA
Emergency Phone:	(646) 996-0418
Operator:	RAFAEL BLANCO
Operator Phone:	(347) 386-6798
Owner City:	NEW YORK
Owner Sub Type:	Corporate or Commercial
Program Type:	PBS

Tank Number:	001
Tank Location Name:	Aboveground on crib, rack, or cradle
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	05/01/04
Capacity Gallons:	3000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Aboveground
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Vault (w/access)
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Vent Whistle
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

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120 **VARAE ROYAL REALTY** **AST** **A100183574**
SSE **216 BRADHURST AVENUE** **N/A**
1/8-1/4 **NEW YORK, NY 10039**
1071 ft.

Relative:
Lower

Actual:
20 ft.

AST:

AST:

Region:	STATE
Facility Id:	2-607014
UTM X:	589426.54468
UTM Y:	4520188.53888
Expiration Date:	09/27/06

VARAE ROYAL REALTY (Continued) **A100183574**

Renewal Date:	/ /
Total Capacity:	5000
Facility Type:	Not reported
Site Type Name:	Apartment Building/Office Building
Site Type Status:	Active
Mailing Company:	VARAE ROYAL REALTY INC
Mailing Title:	Not reported
Mailing Contact:	Not reported
Mailing Address:	45 LENOX ROAD
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip Code:	11226
Mailing Phone No:	(212) 690-4792
Mailing Email:	Not reported
Owner Title:	Not reported
Owner Name:	Not reported
Owner Address:	45 LENOX ROAD
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	11226
Owner Phone:	(212) 690-4792
Owner Company:	VARAE ROYAL REALTY INC.
Emergency Contact:	ROY DANIELS
Emergency Phone:	(212) 690-4792
Operator:	ROY DANIELS
Operator Phone:	(212) 234-1476
Owner City:	BROOKLYN
Owner Sub Type:	Corporate or Commercial
Program Type:	PBS

Tank Number:	01
Tank Location Name:	Aboveground - in contact with soil
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	/ /
Capacity Gallons:	5000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	Other
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Aboveground
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	High Level Alarm

VARAE ROYAL REALTY (Continued) **A100183574**

Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Not reported
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

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121 NNE 1/8-1/4 1085 ft. **SALVATION ARMY CITADEL CORPS** **AST** **A100295926**
425 EAST 159TH STREET **N/A**
BRONX, NY 10451

Relative: Higher

Actual: 143 ft.

AST:

AST:

Region:	STATE
Facility Id:	2-609160
UTM X:	591609.69510
UTM Y:	4519646.60863
Expiration Date:	07/30/08
Renewal Date:	/ /
Total Capacity:	2000
Facility Type:	Not reported
Site Type Name:	Other
Site Type Status:	Active
Mailing Company:	THE SALVATION ARMY
Mailing Title:	Not reported
Mailing Contact:	LT. COL. GERRY GAINES
Mailing Address:	120 WEST 14TH STREET
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip Code:	10011
Mailing Phone No:	(212) 337-7200
Mailing Email:	Not reported
Owner Title:	Not reported
Owner Name:	Not reported
Owner Address:	120 WEST 14TH STREET
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	10011
Owner Phone:	(212) 337-7200
Owner Company:	THE SALVATION ARMY
Emergency Contact:	SCHILDWACHTER OIL
Emergency Phone:	(718) 665-8472
Operator:	SCHILDWACHTER OIL
Operator Phone:	(718) 665-8472
Owner City:	NEW YORK
Owner Sub Type:	Corporate or Commercial
Program Type:	PBS
Tank Number:	001
Tank Location Name:	Aboveground on crib, rack, or cradle
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active

SALVATION ARMY CITADEL CORPS (Continued) **A100295926**

Install Date:	05/01/67
Capacity Gallons:	2000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	Painted/Asphalt Coating
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Aboveground
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	Painted/Asphalt Coating
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Vault (w/o access)
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Exempt Suction Piping
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	High Level Alarm
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

AC122 **363 EDGECOMBE AVE CORP.** **AST** **A100292241**
South **363 EDGECOMBE AVENUE** **N/A**
1/8-1/4 **NEW YORK, NY 10031**
1086 ft.

Site 2 of 2 in cluster AC

Relative:
Lower

AST:

Actual:
82 ft.

AST:

Region:	STATE
Facility Id:	2-609790
UTM X:	589309.79595
UTM Y:	4520191.01266
Expiration Date:	03/03/10
Renewal Date:	/ /
Total Capacity:	1500
Facility Type:	Not reported
Site Type Name:	Apartment Building/Office Building
Site Type Status:	Active
Mailing Company:	RF EDGECOMBE LLC
Mailing Title:	PRESIDENT
Mailing Contact:	CHRISTOPHER BISGAARD
Mailing Address:	164 W 128TH ST., SUITE 1C
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip Code:	10027
Mailing Phone No:	(212) 671-1201
Mailing Email:	Not reported
Owner Title:	PRESIDENT

363 EDGECOMBE AVE CORP. (Continued) **A100292241**

Owner Name:	CHRISTOPHER BISGAARD
Owner Address:	164 W 128TH ST., SUITE 1C
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	10027
Owner Phone:	(212) 671-1201
Owner Company:	RF EDGECOMBE LLC
Emergency Contact:	ANDREW HOROWITZ
Emergency Phone:	(212) 671-1201
Operator:	CHRISTOPHER BISGAARD
Operator Phone:	(212) 671-1201
Owner City:	NEW YORK
Owner Sub Type:	Corporate or Commercial
Program Type:	PBS
Tank Number:	001
Tank Location Name:	Aboveground - in contact with impervious barrier
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	01/01/46
Capacity Gallons:	1500
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	Painted/Asphalt Coating
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Aboveground
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Other
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	None
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	None
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Vent Whistle
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Submersible
Spill Prevention:	None
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

AB123 **519 WEST 157 STREET** **AST** **A100183356**
NNW **519 WEST 157TH STREET** **N/A**
1/8-1/4 **NEW YORK, NY 10032**
1093 ft.

Site 5 of 5 in cluster AB

Relative:
Higher

AST:

Actual:
137 ft.

AST:

Region:	STATE
Facility Id:	2-606777
UTM X:	589157.21338
UTM Y:	4520772.82919
Expiration Date:	08/22/06
Renewal Date:	/ /
Total Capacity:	2500
Facility Type:	Not reported
Site Type Name:	Apartment Building/Office Building
Site Type Status:	Active
Mailing Company:	NYC/HPD/DAMP
Mailing Title:	Not reported
Mailing Contact:	ASST. COMMISSIONER/DAMP
Mailing Address:	100 GOLD STREET
Mailing Address 2:	#7Z5
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip Code:	10038
Mailing Phone No:	(212) 863-7301
Mailing Email:	Not reported
Owner Title:	Not reported
Owner Name:	Not reported
Owner Address:	100 GOLD ST., #7Z5
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	10038
Owner Phone:	(212) 863-7301
Owner Company:	NYC/HPD/DAMP
Emergency Contact:	213/215 MOTT ST. H.D.F.C.
Emergency Phone:	(646) 613-0908
Operator:	ASST. COMMISSIONER/DAMP
Operator Phone:	(212) 863-7301
Owner City:	NEW YORK
Owner Sub Type:	Local Government
Program Type:	PBS
Tank Number:	001
Tank Location Name:	Aboveground - in contact with soil
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	/ /
Capacity Gallons:	2500
Material Name:	Gasoline
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	Painted/Asphalt Coating
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Aboveground/Underground Combination

519 WEST 157 STREET (Continued) **A100183356**

Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Vent Whistle
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

AF124 **507 W 158 ST** **UST** **U003835941**
NNW **507 WEST 158TH STREET** **HIST UST** **N/A**
1/8-1/4 **NEW YORK, NY 10032**
1098 ft.

Site 2 of 5 in cluster AF

Relative: Higher

UST:

Actual: 148 ft.

UST:

Facility Id:	2-601098
Expiration Date:	10/21/07
Renewal Date:	05/31/02
Total Capacity:	2500
Facility Type:	Not reported
Mailing Company:	NYC/HPD/DAMP
Mailing Title:	Not reported
Mailing Contact:	ASST. COMMISSIONER/DAMP
Mailing Address:	100 GOLD STREET
Mailing Address 2:	#7Z5
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip Code:	10038
Mailing Phone No:	(212) 863-7301
Mailing Email:	Not reported
Owner Title:	Not reported
Owner Name:	Not reported
Owner Address:	100 GOLD ST # 7Z5
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	10038
Owner Phone:	(212) 863-7301
Owner Company:	NYC/HPD/DAMP
Emergency Contact:	213/215 MOTT ST. H.D.F.C.
Emergency Phone:	(646) 613-0908
Operator:	ASST. COMMISSIONER/DAMP
Operator Phone:	(212) 863-7301
Owner City:	NEW YORK
Owner Sub Type:	Local Government
UTM X:	589253.74858

507 W 158 ST (Continued) **U003835941**

UTM Y:	4520838.32078
Site Type Name:	Apartment Building/Office Building
Site Type Status:	Active
Comments:	Not reported
Program Type:	PBS
Tank Number:	1
Tank Location Name:	Underground
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	/ /
Capacity Gallons:	2500
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	Painted/Asphalt Coating
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Aboveground/Underground Combination
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Vault (w/o access)
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Exempt Suction Piping
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Vent Whistle
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Horner EZY3/EZY3 Locator Plus
Date Tested:	06/14/01
Next Test Date:	06/14/06
Date Tank Closed:	/ /

HIST UST:

PBS Number:	2-601098
SPDES Number:	Not reported
Emergency Contact:	ASST. COMMISSIONER/DPM
Emergency Telephone:	(212) 863-7087
Operator:	ASST. COMMISSIONER/DPM
Operator Telephone:	(212) 863-7087
Owner Name:	NYC/HPD/DPM
Owner Address:	100 GOLD ST # 6Z1
Owner City,St,Zip:	NY, NY 10038
Owner Telephone:	(212) 863-7087
Owner Type:	Local Government
Owner Subtype:	Not reported
Mailing Name:	NYC/HPD/DPM
Mailing Address:	Not reported
Mailing Address 2:	100 GOLD ST # 6Z1

507 W 158 ST (Continued) **U003835941**

Mailing City,St,Zip:	NY, NY 10038
Mailing Contact:	ASST. COMMISSIONER/DPM
Mailing Telephone:	(212) 863-7087
Owner Mark:	First Owner
Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Facility Addr2:	507 W 158 ST
SWIS ID:	6201
Old PBS Number:	Not reported
Facility Type:	APARTMENT BUILDING
Inspected Date:	Not reported
Inspector:	Not reported
Inspection Result:	Not reported
Federal ID:	Not reported
Certification Flag:	False
Certification Date:	03/09/2001
Expiration Date:	10/21/2002
Renew Flag:	False
Renewal Date:	Not reported
Total Capacity:	2000
FAMT:	True
Facility Screen:	No Missing Data
Owner Screen:	No Missing Data
Tank Screen:	No Missing Data
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	62
Town or City:	01
Region:	2

Tank Id:	1
Tank Location:	UNDERGROUND
Tank Status:	In Service
Install Date:	Not reported
Capacity (gals):	2000
Product Stored:	NOS 1,2, OR 4 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	None
Tank External:	Painted/Asphalt Coating
Pipe Location:	Aboveground/Underground Combination
Pipe Type:	STEEL/IRON
Pipe Internal:	None
Pipe External:	None
Second Containment:	Diking
Leak Detection:	None
Overfill Prot:	Vent Whistle
Dispenser:	Suction
Date Tested:	Not reported
Next Test Date:	12/27/1987
Missing Data for Tank:	No Missing Data
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	Not reported

125 ESE 1/8-1/4 1101 ft. | **MANDE COMPLETE AUTO REPAIR**
304 WEST 155TH STREET
NEW YORK, NY 10039 | **AST** | **A100298703**
N/A

Relative: Lower

Actual: 17 ft.

AST:

AST:

Region:	STATE
Facility Id:	2-610262
UTM X:	0.00000
UTM Y:	0.00000
Expiration Date:	06/22/11
Renewal Date:	/ /
Total Capacity:	270
Facility Type:	AUTO REPAIR
Site Type Name:	Other
Site Type Status:	Waste Oil Storer
Mailing Company:	MANDE COMPLETE AUTO REPAIR
Mailing Title:	Not reported
Mailing Contact:	BOURAHIMA KEITA
Mailing Address:	304 WEST 155TH STREET
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip Code:	10039
Mailing Phone No:	(212) 690-4894
Mailing Email:	Not reported
Owner Title:	OWNER
Owner Name:	BOURAHIMA KEITA
Owner Address:	304 WEST 155TH STREET
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	10039
Owner Phone:	(212) 690-4894
Owner Company:	BOURAHIMA KEITA
Emergency Contact:	BOURAHIMA KEITA
Emergency Phone:	(917) 560-4532
Operator:	BOURAHIMA KEITA
Operator Phone:	(212) 690-4894
Owner City:	NEW YORK
Owner Sub Type:	Corporate or Commercial
Program Type:	PBS
Tank Number:	001
Tank Location Name:	Aboveground on crib, rack, or cradle
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	/ /
Capacity Gallons:	270
Material Name:	Waste Oil/Used Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	Other
Tank Internal Protection 1:	Not reported
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Aboveground
Pipe Type Name:	Not reported

MANDE COMPLETE AUTO REPAIR (Continued) **A100298703**

Pipe External Protection 1:	Not reported
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Not reported
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	Impervious Barrier/Concrete Pad (A/G)
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	None
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Float Vent Valve
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Catch Basin
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

AG126
SW
1/8-1/4
1106 ft.

30TH POLICE PRECINCT
451 WEST 151ST STREET
NEW YORK, NY 10028

UST **U001837716**
HIST UST **N/A**

Site 1 of 2 in cluster AG

Relative:
Higher

Actual:
116 ft.

UST:

UST:

Facility Id:	2-217328
Expiration Date:	10/15/07
Renewal Date:	06/04/02
Total Capacity:	14000
Facility Type:	Not reported
Mailing Company:	NYCPD BUILDING MAINTENANCE SECTION
Mailing Title:	Not reported
Mailing Contact:	SGT. MIKE SMITH
Mailing Address:	59-06 BROOKLYN-QUEENS EXPRESSWAY
Mailing Address 2:	Not reported
Mailing City:	QUEENS
Mailing State:	NY
Mailing Zip Code:	11377
Mailing Phone No:	(718) 476-6828
Mailing Email:	Not reported
Owner Title:	Not reported
Owner Name:	Not reported
Owner Address:	1 POLICE PLAZA, ROOM 800
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	10038
Owner Phone:	(212) 374-7650
Owner Company:	N.Y.C.P.D./ASD
Emergency Contact:	FUEL CONTROL UNIT
Emergency Phone:	(718) 476-7524
Operator:	N.Y.C.P.D.
Operator Phone:	(212) 690-8811
Owner City:	NEW YORK
Owner Sub Type:	Local Government
UTM X:	589104.91872
UTM Y:	4520277.85459

30TH POLICE PRECINCT (Continued) **U001837716**

Site Type Name:	Other
Site Type Status:	Active
Comments:	Not reported
Program Type:	PBS
Tank Number:	001
Tank Location Name:	Underground
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	07/01/69
Capacity Gallons:	550
Material Name:	Gasoline
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	Painted/Asphalt Coating
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping
Pipe Type Name:	Galvanized Steel
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Product Level Gauge (A/G)
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	03/01/96
Tank Number:	002
Tank Location Name:	Underground
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	07/01/69
Capacity Gallons:	550
Material Name:	Gasoline
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	Painted/Asphalt Coating
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping
Pipe Type Name:	Galvanized Steel

30TH POLICE PRECINCT (Continued) **U001837716**

Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Product Level Gauge (A/G)
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	03/01/96

Tank Number:	003
Tank Location Name:	Underground
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	07/01/69
Capacity Gallons:	550
Material Name:	Gasoline
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	Painted/Asphalt Coating
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping
Pipe Type Name:	Galvanized Steel
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Product Level Gauge (A/G)
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	03/01/96

Tank Number:	004
Tank Location Name:	Underground
Tank Status:	Closed - Removed

30TH POLICE PRECINCT (Continued) **U001837716**

Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	07/01/69
Capacity Gallons:	550
Material Name:	Gasoline
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	Painted/Asphalt Coating
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping
Pipe Type Name:	Galvanized Steel
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Product Level Gauge (A/G)
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	03/01/96

Tank Number:	005
Tank Location Name:	Underground
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	02/01/62
Capacity Gallons:	6000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	Painted/Asphalt Coating
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported

30TH POLICE PRECINCT (Continued) **U001837716**

Type Of Overfill Prevention 1:	Product Level Gauge (A/G)
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	03/01/02

Tank Number:	006
Tank Location Name:	Underground
Tank Status:	Closed - In Place
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	/ /
Capacity Gallons:	4000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	Painted/Asphalt Coating
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Product Level Gauge (A/G)
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	03/01/02

Tank Number:	007
Tank Location Name:	Underground
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	03/01/96
Capacity Gallons:	4000
Material Name:	Gasoline
Percentage:	100.00
Tank Type Name:	Fiberglass Reinforced Plastic (FRP)
Tank Internal Protection:	Fiberglass Liner (FRP)

30TH POLICE PRECINCT (Continued) **U001837716**

Tank Internal Protection 1:	Fiberglass
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Underground/On-ground
Pipe Type Name:	Fiberglass Reinforced Plastic (FRP)
Pipe External Protection 1:	Fiberglass
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Double-Walled (Underground)
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	Interstitial - Electronic Monitoring
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	High Level Alarm
Type Of Overfill Prevention 2:	Product Level Gauge (A/G)
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	03/01/11
Date Tank Closed:	/ /

Tank Number:	008
Tank Location Name:	Underground
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	03/01/02
Capacity Gallons:	10000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Fiberglass Coated Steel
Tank Internal Protection:	None
Tank Internal Protection 1:	Fiberglass
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Aboveground/Underground Combination
Pipe Type Name:	No Piping
Pipe External Protection 1:	Fiberglass
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Double-Walled (Underground)
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	Interstitial - Electronic Monitoring
Tank Leak Detection 2:	In-Tank System (ATG)
Pipe Leak Detection 1:	Exempt Suction Piping
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	High Level Alarm
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

30TH POLICE PRECINCT (Continued) **U001837716**

HIST UST:

PBS Number:	2-217328
SPDES Number:	Not reported
Emergency Contact:	FUEL CONTROL UNIT
Emergency Telephone:	(718) 476-7524
Operator:	N.Y.C.P.D.
Operator Telephone:	(212) 690-8811
Owner Name:	N.Y.C.P.D./ASD
Owner Address:	1 POLICE PLAZA, ROOM 800
Owner City,St,Zip:	NEW YORK, NY 10038
Owner Telephone:	(212) 374-7650
Owner Type:	Local Government
Owner Subtype:	Not reported
Mailing Name:	BUILDING MAINTENANCE SECTION
Mailing Address:	59-06 BROOKLYN-QUEENS EXPRESSWAY
Mailing Address 2:	Not reported
Mailing City,St,Zip:	QUEENS, NY 11377
Mailing Contact:	COMMANDING OFFICER
Mailing Telephone:	(718) 476-7576
Owner Mark:	First Owner
Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Facility Addr2:	451 W 151ST ST
SWIS ID:	6201
Old PBS Number:	Not reported
Facility Type:	OTHER
Inspected Date:	Not reported
Inspector:	Not reported
Inspection Result:	Not reported
Federal ID:	Not reported
Certification Flag:	False
Certification Date:	03/11/1998
Expiration Date:	10/15/2002
Renew Flag:	False
Renewal Date:	Not reported
Total Capacity:	14000
FAMT:	True
Facility Screen:	No Missing Data
Owner Screen:	No Missing Data
Tank Screen:	Minor Data Missing
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	62
Town or City:	01
Region:	2
Tank Id:	001
Tank Location:	UNDERGROUND
Tank Status:	Closed-Removed
Install Date:	19690701
Capacity (gals):	550
Product Stored:	UNLEADED GASOLINE
Tank Type:	Steel/carbon steel
Tank Internal:	None
Tank External:	Painted/Asphalt Coating

30TH POLICE PRECINCT (Continued) **U001837716**

Pipe Location:	Not reported
Pipe Type:	GALVANIZED STEEL
Pipe Internal:	Not reported
Pipe External:	None
Second Containment:	None
Leak Detection:	None
Overfill Prot:	Product Level Gauge
Dispenser:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	03/01/1996
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	002
Tank Location:	UNDERGROUND
Tank Status:	Closed-Removed
Install Date:	19690701
Capacity (gals):	550
Product Stored:	UNLEADED GASOLINE
Tank Type:	Steel/carbon steel
Tank Internal:	None
Tank External:	Painted/Asphalt Coating
Pipe Location:	Not reported
Pipe Type:	GALVANIZED STEEL
Pipe Internal:	Not reported
Pipe External:	None
Second Containment:	None
Leak Detection:	None
Overfill Prot:	Product Level Gauge
Dispenser:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	03/01/1996
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	003
Tank Location:	UNDERGROUND
Tank Status:	Closed-Removed
Install Date:	19690701
Capacity (gals):	550
Product Stored:	UNLEADED GASOLINE
Tank Type:	Steel/carbon steel
Tank Internal:	None
Tank External:	Painted/Asphalt Coating
Pipe Location:	Not reported
Pipe Type:	GALVANIZED STEEL
Pipe Internal:	Not reported

30TH POLICE PRECINCT (Continued) **U001837716**

Pipe External:	None
Second Containment:	None
Leak Detection:	None
Overfill Prot:	Product Level Gauge
Dispenser:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	03/01/1996
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	004
Tank Location:	UNDERGROUND
Tank Status:	Closed-Removed
Install Date:	19690701
Capacity (gals):	550
Product Stored:	UNLEADED GASOLINE
Tank Type:	Steel/carbon steel
Tank Internal:	None
Tank External:	Painted/Asphalt Coating
Pipe Location:	Not reported
Pipe Type:	GALVANIZED STEEL
Pipe Internal:	Not reported
Pipe External:	None
Second Containment:	None
Leak Detection:	None
Overfill Prot:	Product Level Gauge
Dispenser:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	03/01/1996
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	005
Tank Location:	UNDERGROUND
Tank Status:	In Service
Install Date:	19620201
Capacity (gals):	6000
Product Stored:	NOS 1,2, OR 4 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	None
Tank External:	Painted/Asphalt Coating
Pipe Location:	Not reported
Pipe Type:	STEEL/IRON
Pipe Internal:	Not reported
Pipe External:	None
Second Containment:	None
Leak Detection:	None

30TH POLICE PRECINCT (Continued) **U001837716**

Overfill Prot:	Product Level Gauge
Dispenser:	Suction
Date Tested:	Not reported
Next Test Date:	12/27/1987
Missing Data for Tank:	Minor Data Missing
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	006
Tank Location:	UNDERGROUND
Tank Status:	In Service
Install Date:	Not reported
Capacity (gals):	4000
Product Stored:	NOS 1,2, OR 4 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	None
Tank External:	Painted/Asphalt Coating
Pipe Location:	Not reported
Pipe Type:	STEEL/IRON
Pipe Internal:	Not reported
Pipe External:	None
Second Containment:	None
Leak Detection:	None
Overfill Prot:	Product Level Gauge
Dispenser:	Suction
Date Tested:	Not reported
Next Test Date:	12/27/1987
Missing Data for Tank:	Minor Data Missing
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	007
Tank Location:	UNDERGROUND
Tank Status:	In Service
Install Date:	19960301
Capacity (gals):	4000
Product Stored:	UNLEADED GASOLINE
Tank Type:	Fiberglass reinforced plastic [FRP]
Tank Internal:	Fiberglass Liner (FRP)
Tank External:	Fiberglass
Pipe Location:	Underground
Pipe Type:	STAINLESS STEEL ALLOY
Pipe Internal:	Fiberglass Liner (FRP)
Pipe External:	Fiberglass
Second Containment:	Vault (w/access)
Leak Detection:	Electronic
Overfill Prot:	High Level Alarm, Product Level Gauge
Dispenser:	Suction
Date Tested:	Not reported

30TH POLICE PRECINCT (Continued) **U001837716**

Next Test Date: Not reported
Missing Data for Tank: No Missing Data
Date Closed: Not reported
Test Method: Not reported
Deleted: False
Updated: True
Lat/long: Not reported

AG127 **30TH PRECINCT NYPD** **LTANKS** **S102233312**
SW **451 W 151ST ST** **HIST LTANKS** **N/A**
1/8-1/4 **MANHATTAN, NY**
1106 ft.

Site 2 of 2 in cluster AG

Relative: Higher

Actual: 116 ft.

LTANKS:

Site ID:	142140
Spill Date:	04/18/96
Facility Addr2:	Not reported
Facility ID:	9600861
Program Number:	9600861
SWIS:	3101
Region of Spill:	2
Investigator:	jamaison
Referred To:	Not reported
Reported to Dept:	04/18/96
CID:	15
Spill Cause:	Tank Failure
Water Affected:	Not reported
Spill Source:	Commercial/Industrial
Spill Notifier:	Other
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	True
Spill Class:	Known release that creates potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	09/26/06
Remediation Phase:	0
Date Entered In Computer:	04/18/96
Spill Record Last Update:	09/27/06
Spille Namer:	YOUNG LEE
Spiller Company:	30TH PRECINCT NYPD
Spiller Phone:	(212) 545-7440
Spiller Extention:	Not reported
Spiller Address:	451 W 151ST ST
Spiller City,St,Zip:	MANHATTAN, NY
Spiller County:	001
Spiller Contact:	YOUNG LEE
Spiller Phone:	(212) 545-7440
Spiller Extention:	Not reported
DEC Region:	2
Program Number:	9600861
DER Facility ID:	270708
Site ID:	142140
Operable Unit ID:	1028554
Operable Unit:	01
Material ID:	350696

30TH PRECINCT NYPD (Continued) **S102233312**

Material Code:	0009
Material Name:	Gasoline
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	0.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
Site ID:	Not reported
Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported
DEC Memo:	Start DECRemark - 9600861 Prior to Sept, 2004 data translation this spill Lead DEC Field was "KOLLEENY" TRANSFERRED FROM Y.KRIMGOLD TO KOLLEENY TO I. ISLAM. 6/6/05- Site's only GW contamination is being treated by injecting Permeox Plus and monitoring the GW sampling results for VOCs, Napthalene and DO by URS Corp. since 2003.The VOCs in GW has reduced substantially but still persits in two wells exceeding GW quality guidance values. Routine monitoring to continue. - II 8/29/05- Reviewed Apr.-June/05 monitoring report. Wells MW-04 and MW-10 still show exceedances of VOCs. Well MW-03 had a s history of minor exceedances of VOCs and couldn't be sampled in the sampling event(Apr/05) due to inaccessibility. But MW-03 is excluded fromthe contamination plume as per Fig. 2D of this report. It is indicated in the report that some of the injection wells have plugged resulting in decrease in in-take of the injected Permeox Plus, and URS plans to install two new injection wells in the vicinity of wells MW-04 & MW-10 which exhibit elevated contaminant levels. The Dept. concurs with URS's plan but advises to include MW-03 for GW sampling and monitoring as well.- II 3/09/06: This spill transferred from I. Islam to Q. Abidi.5/04/06: Contacted to Ms. Jane Staten (URS) on phone. For this site drillers are on board, they plan to over drill some of the ORC injection well to help delineate the dissolve phase. MW-4 and MW-10 had high concentration when last sampled in August2005, but they decreased from previous round. The drilling work probably start in June 2006 by Envirotrac, when they get the lab contract approved. -QA 8/18/06 DEC lead transferred from Q. Abidi to J.A. Maisonave. - JAM 9/26/06 Received Request of Spill Closure dated Sept. 15, 2006. GW samples were taken on June 6 and July 31, 2006. Although the latest GW analytical data showed that three compounds exceeded criteria in wells MW-4 and MW-10, the contamination is very minor and will naturally attenuate over time. No exceedances of criteria were detected in the previous GW samples collected at these wells. GW is not a source of potable water, and there are no apparent exposure pathways since its an asphalt covered parking lot. This spill case will be closed and a NFA letter will be issued. - JAM END DECRemark - 9600861
Remarks:	Start CallerRemark - 9600861 caller is removing tanks from site and found contaminated soil. Also see spill # 9515344. END CallerRemark - 9600861

HIST LTANKS:

Region of Spill:	2
Spill Number:	9600861
Investigator:	KRIMGOLD
Caller Name:	Not reported

30TH PRECINCT NYPD (Continued) **S102233312**

Caller Agency:	Not reported
Caller Phone:	Not reported
Caller Extension:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Notifier Extension:	Not reported
Spill Date:	04/18/1996
Spill Time:	11:00
Reported to Department Date:	04/18/96
Reported to Department Time:	12:29
SWIS:	62
Spiller Contact:	YOUNG LEE
Spiller Phone:	(212) 545-7440
Spiller Extention:	Not reported
Spiller Name:	30TH PRECINCT NYPD
Spiller Address:	451 W 151ST ST
Spiller City,St,Zip:	MANHATTAN, NY
Facility Contact:	YOUNG LEE
Facility Phone:	(212) 545-7440
Facility Extention:	Not reported
Spill Cause:	Tank Failure
Resource Affectd:	On Land
Water Affected:	Not reported
Spill Source:	Other Commercial/Industrial
Spill Notifier:	Other
PBS Number:	Not reported
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Date:	/ /
Enforcement Date:	/ /
Investigation Complete:	/ /
UST Involvement:	False
Spill Class:	Known release that creates potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	/ /
Date Region Sent Summary to Central Office:	/ /
Corrective Action Plan Submitted:	/ /
Date Spill Entered In Computer Data File:	04/18/96
Time Spill Entered In Computer Data File:	Not reported
Spill Record Last Update:	08/06/96
Is Updated:	False
PBS Number:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate Failed Tank:	Not reported
Gross Leak Rate:	Not reported
Material Class Type:	Petroleum
Quantity Spilled:	0
Unkonwn Quantity Spilled:	True
Units:	Gallons
Quantity Recovered:	0
Unkonwn Quantity Recovered:	False
Material:	GASOLINE

30TH PRECINCT NYPD (Continued) **S102233312**

Class Type:	GASOLINE
Times Material Entry In File:	21329
CAS Number:	Not reported
Last Date:	19940929
DEC Remarks:	Not reported
Spill Cause:	caller is removing tanks from site and found contaminated soil

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AD128 **544 WEST 156TH H.D.F.C.** **AST** **U003396087**
NW **544 WEST 156TH STREET** **HIST AST** **N/A**
1/8-1/4 **NEW YORK, NY 10032**
1115 ft.

Site 3 of 4 in cluster AD

Relative: Higher

AST:

Actual: 134 ft.

AST:

Region:	STATE
Facility Id:	2-601233
UTM X:	589087.16484
UTM Y:	4520736.16653
Expiration Date:	11/24/07
Renewal Date:	07/08/02
Total Capacity:	3000
Facility Type:	Not reported
Site Type Name:	Apartment Building/Office Building
Site Type Status:	Active
Mailing Company:	544 WEST 156 STREET TENANT ASSOC. H.D.F.C.
Mailing Title:	Not reported
Mailing Contact:	LARRY KLEIN
Mailing Address:	544 WEST 156 STREET #4W
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip Code:	10032
Mailing Phone No:	(212) 862-5083
Mailing Email:	Not reported
Owner Title:	Not reported
Owner Name:	Not reported
Owner Address:	544 WEST 156TH H.D.F.C.
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	10032
Owner Phone:	(212) 862-5083
Owner Company:	544 WEST 156TH STREET H.D.F.C.
Emergency Contact:	LARRY KLEIN
Emergency Phone:	(212) 862-5083
Operator:	LARRY KLEIN
Operator Phone:	(212) 862-5083
Owner City:	NEW YORK
Owner Sub Type:	Corporate or Commercial
Program Type:	PBS
Tank Number:	001
Tank Location Name:	Aboveground on crib, rack, or cradle
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active

544 WEST 156TH H.D.F.C. (Continued) **U003396087**

Install Date:	/ /
Capacity Gallons:	3000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Aboveground
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Vault (w/o access)
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Exempt Suction Piping
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Vent Whistle
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Unknown
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

HIST AST:

PBS Number:	2-601233
SWIS Code:	6201
Operator:	LARRY KLEIN
Facility Phone:	(212) 862-5083
Facility Addr2:	544 WEST 156TH STREET
Facility Type:	APARTMENT BUILDING
Emergency:	LARRY KLEIN
Emergency Tel:	(212) 862-5083
Old PBSNO:	Not reported
Date Inspected:	Not reported
Inspector:	Not reported
Result of Inspection:	Not reported
Owner Name:	544 WEST 156TH STREET H.D.F.C.
Owner Address:	544 WEST 156TH H.D.F.C.
Owner City,St,Zip:	NEW YORK, NY 10032
Federal ID:	Not reported
Owner Tel:	(212) 862-5083
Owner Type:	Corporate/Commercial
Owner Subtype:	Not reported
Mailing Contact:	LARRY KLEIN
Mailing Name:	544 WEST 156 STREET TENANT ASSOC. H.D.F.C.
Mailing Address:	544 WEST 156 STREET #4W
Mailing Address 2:	Not reported
Mailing City,St,Zip:	NEW YORK, NY 10032
Mailing Telephone:	(212) 862-5083
Owner Mark:	First Owner
Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist

544 WEST 156TH H.D.F.C. (Continued) **U003396087**

	or not at the facility.
Certification Flag:	False
Certification Date:	11/18/1997
Expiration:	11/24/2002
Renew Flag:	False
Renew Date:	Not reported
Total Capacity:	3000
FAMT:	True
Facility Screen:	No Missing Data
Owner Screen:	No Missing Data
Tank Screen:	No Missing Data
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	62
Town or City Code:	01
Region:	2

Tank ID:	001
Tank Location:	ABOVEGROUND ON SADDLES LEGS, STILTS, RACK, OR CRADLE
Tank Status:	In Service
Install Date:	Not reported
Capacity (Gal):	3000
Product Stored:	NOS 1,2, OR 4 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	0
Tank External:	00
Pipe Location:	Aboveground
Pipe Type:	STEEL/IRON
Pipe Internal:	None
Pipe External:	00
Tank Containment:	Diking
Leak Detection:	00
Overfill Protection:	06
Dispenser Method:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	No Missing Data
Date Closed:	Not reported
Test Method:	Unknown
Deleted:	False
Updated:	True
SPDES Number:	Not reported
Lat/Long:	Not reported

AE129 **WEST BRIDGE ASSOCIATES LP** **AST** **A100173486**
WSW **510 WEST 152ND STREET** **N/A**
1/8-1/4 **NEW YORK, NY 10031**
1120 ft.

Site 3 of 3 in cluster AE

Relative: Higher

AST:

Actual: 136 ft.

AST:

Region:	STATE
Facility Id:	2-601059
UTM X:	589008.69002
UTM Y:	4520404.03808

WEST BRIDGE ASSOCIATES LP (Continued) **A100173486**

Expiration Date:	10/25/10
Renewal Date:	/ /
Total Capacity:	3000
Facility Type:	Not reported
Site Type Name:	Apartment Building/Office Building
Site Type Status:	Active
Mailing Company:	WEST BRIDGE REALTY
Mailing Title:	Not reported
Mailing Contact:	CHRIS CALHOUN
Mailing Address:	875 ST. NICHOLAS AVE
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip Code:	10032
Mailing Phone No:	(212) 694-3303
Mailing Email:	Not reported
Owner Title:	V.P.
Owner Name:	CHRIS CALHOUN
Owner Address:	611 WEST 148TH STREET
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	10031
Owner Phone:	(212) 694-3303
Owner Company:	WEST BRIDGE ASSOCIATES, LP
Emergency Contact:	CHRIS CALHOUN
Emergency Phone:	(718) 562-4363
Operator:	ORLANDO TAVERAS
Operator Phone:	(917) 578-2156
Owner City:	NEW YORK
Owner Sub Type:	Corporate or Commercial
Program Type:	PBS
Tank Number:	001
Tank Location Name:	Aboveground on crib, rack, or cradle
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	/ /
Capacity Gallons:	3000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	Epoxy Liner
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Aboveground
Pipe Type Name:	Galvanized Steel
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Vault (w/o access)
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported

WEST BRIDGE ASSOCIATES LP (Continued) **A100173486**

Type Of Overfill Prevention 1:	None
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Not reported
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

AH130 **2918 8TH AVENUE ASSOCIATES** **AST** **U003388119**
SE **2918 8TH AVE** **HIST AST** **N/A**
1/8-1/4 **NEW YORK, NY 10039**
1123 ft.

Site 1 of 5 in cluster AH

Relative: Lower

AST:

Actual: 17 ft.

AST:

Region:	STATE
Facility Id:	2-256595
UTM X:	589620.92241
UTM Y:	4520295.64328
Expiration Date:	07/10/92
Renewal Date:	/ /
Total Capacity:	1500
Facility Type:	Not reported
Site Type Name:	Unknown
Site Type Status:	Active
Mailing Company:	2918 8TH AVENUE ASSOCIATES
Mailing Title:	Not reported
Mailing Contact:	Not reported
Mailing Address:	253-24 NORTHERN BLVD-SUITE 201
Mailing Address 2:	Not reported
Mailing City:	LITLLE NECK
Mailing State:	NY
Mailing Zip Code:	11363
Mailing Phone No:	(718) 896-5633
Mailing Email:	Not reported
Owner Title:	Not reported
Owner Name:	Not reported
Owner Address:	P.O.BOX 7495
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	11374
Owner Phone:	(718) 896-5633
Owner Company:	2918 8TH AVENUE ASSOCIATES
Emergency Contact:	LOUISE WOULIBY
Emergency Phone:	(718) 896-5633
Operator:	LOUISE WOULIBY
Operator Phone:	(718) 896-5633
Owner City:	REGO PARK
Owner Sub Type:	Not reported
Program Type:	PBS
Tank Number:	001
Tank Location Name:	Aboveground on crib, rack, or cradle
Tank Status:	In Service
Tank Model:	Not reported

2918 8TH AVENUE ASSOCIATES (Continued) **U003388119**

Pipe Model:	Not reported
Active Status:	Active
Install Date:	/ /
Capacity Gallons:	1500
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping
Pipe Type Name:	No Piping
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Exempt Suction Piping
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Product Level Gauge (A/G)
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

HIST AST:

PBS Number:	2-256595
SWIS Code:	6201
Operator:	LOUISE WOULIBY
Facility Phone:	(718) 896-5633
Facility Addr2:	2918 8TH AVE
Facility Type:	Not reported
Emergency:	LOUISE WOULIBY
Emergency Tel:	(212) 293-0552
Old PBSNO:	Not reported
Date Inspected:	Not reported
Inspector:	Not reported
Result of Inspection:	Not reported
Owner Name:	2918 8TH AVENUE ASSOCIATES
Owner Address:	P.O.BOX 7495
Owner City,St,Zip:	REGO PARK, NY 11374
Federal ID:	Not reported
Owner Tel:	(718) 896-5633
Owner Type:	Not reported
Owner Subtype:	Not reported
Mailing Contact:	Not reported
Mailing Name:	2918 8TH AVENUE ASSOCIATES
Mailing Address:	253-24 NORTHERN BLVD-SUITE 201
Mailing Address 2:	Not reported
Mailing City,St,Zip:	LITLLE NECK, NY 11363
Mailing Telephone:	(718) 896-5633
Owner Mark:	First Owner

2918 8TH AVENUE ASSOCIATES (Continued) **U003388119**

Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Certification Flag:	False
Certification Date:	07/10/1987
Expiration:	07/10/1992
Renew Flag:	False
Renew Date:	Not reported
Total Capacity:	1500
FAMT:	True
Facility Screen:	Minor Data Missing
Owner Screen:	Minor Data Missing
Tank Screen:	Minor Data Missing
Dead Letter:	True
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	62
Town or City Code:	01
Region:	2

Tank ID:	001
Tank Location:	ABOVEGROUND ON SADDLES LEGS, STILTS, RACK, OR CRADLE
Tank Status:	In Service
Install Date:	Not reported
Capacity (Gal):	1500
Product Stored:	NOS 1,2, OR 4 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	Not reported
Pipe Internal:	Not reported
Pipe External:	Not reported
Tank Containment:	None
Leak Detection:	0
Overfill Protection:	4
Dispenser Method:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	False
SPDES Number:	Not reported
Lat/Long:	Not reported

AH131 **MADAM C J WALKER HOUSES** **AST** **U004047476**
SE **2919 8 AVE** **N/A**
1/8-1/4 **NEW YORK, NY 10039**
1130 ft.

Site 2 of 5 in cluster AH

Relative:
Lower

AST:

Actual:
17 ft.

AST:

Region:	STATE
Facility Id:	2-083801

MADAM C J WALKER HOUSES (Continued) **U004047476**

UTM X:	589616.57385
UTM Y:	4520313.46530
Expiration Date:	04/14/09
Renewal Date:	/ /
Total Capacity:	0
Facility Type:	NONE
Site Type Name:	Other
Site Type Status:	Unregulated
Mailing Company:	ECDO MANAGEMENT
Mailing Title:	Not reported
Mailing Contact:	LYDIA B. BLAKELY
Mailing Address:	443 WEST 125 STREET
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip Code:	10027
Mailing Phone No:	(212) 678-0037
Mailing Email:	Not reported
Owner Title:	VICE PRESIDENT
Owner Name:	LYDIA B. BLAKELY
Owner Address:	443 WEST 125 STREET
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	10027
Owner Phone:	(212) 678-0037
Owner Company:	MADAM C J WALKER LLC
Emergency Contact:	EDMUND WISNANT
Emergency Phone:	(646) 235-7048
Operator:	ECDO MANAGEMENT
Operator Phone:	(212) 531-3211
Owner City:	NEW YORK
Owner Sub Type:	Corporate or Commercial
Program Type:	PBS
Tank Number:	001
Tank Location Name:	Aboveground - in contact with soil
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	/ /
Capacity Gallons:	4000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Vault (w/o access)
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported

MADAM C J WALKER HOUSES (Continued) **U004047476**

Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Product Level Gauge (A/G)
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	04/30/03

AD132 **546 WEST 156TH STREET HDFC** **AST** **U003395092**
NW **546 WEST 156TH STREET** **HIST AST** **N/A**
1/8-1/4 **NEW YORK, NY 10032**
1132 ft.

Site 4 of 4 in cluster AD

Relative: Higher

AST:

Actual: 133 ft.

AST:

Region:	STATE
Facility Id:	2-471542
UTM X:	589082.49656
UTM Y:	4520738.66376
Expiration Date:	04/27/08
Renewal Date:	01/08/03
Total Capacity:	4000
Facility Type:	Not reported
Site Type Name:	Apartment Building/Office Building
Site Type Status:	Active
Mailing Company:	546 WEST 156TH STREET H.D.F.CORP
Mailing Title:	Not reported
Mailing Contact:	MA J. REYES MONTBLANC, HER L&D
Mailing Address:	601 WEST 136TH STREET,
Mailing Address 2:	SUITE 1
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip Code:	10031-8101
Mailing Phone No:	(212) 862-5051
Mailing Email:	Not reported
Owner Title:	MANAGING DIRECTOR
Owner Name:	REYES MONTBLANC
Owner Address:	601 WEST 136TH STREET, SUITE 1
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	10031-8101
Owner Phone:	(212) 862-5051
Owner Company:	546 WEST 156TH STREET H.D.F.CORP
Emergency Contact:	J. REYES MONTBLANC
Emergency Phone:	(212) 862-2648
Operator:	546 WEST 156TH STREET HDFC
Operator Phone:	(212) 862-5051
Owner City:	NEW YORK
Owner Sub Type:	Corporate or Commercial
Program Type:	PBS
Tank Number:	001
Tank Location Name:	Aboveground on crib, rack, or cradle

546 WEST 156TH STREET HDFC (Continued) **U003395092**

Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	/ /
Capacity Gallons:	4000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Aboveground
Pipe Type Name:	Galvanized Steel
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Vault (w/o access)
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	None
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	None
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	None
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

HIST AST:

PBS Number:	2-471542
SWIS Code:	6201
Operator:	GETRUDIS SEBASTIAN
Facility Phone:	(212) 234-1363
Facility Addr2:	546 WEST 156TH STREET
Facility Type:	Not reported
Emergency:	GETRUDIS SEBASTIAN
Emergency Tel:	(212) 234-1363
Old PBSNO:	Not reported
Date Inspected:	Not reported
Inspector:	Not reported
Result of Inspection:	Not reported
Owner Name:	546 WEST 156TH STREET H.D.F.C.
Owner Address:	55 W. 125TH ST.#300/DEVE.OUTREACH, INC.
Owner City,St,Zip:	NEW YORK, NY 10027
Federal ID:	Not reported
Owner Tel:	(212) 234-1363
Owner Type:	Corporate/Commercial
Owner Subtype:	Not reported
Mailing Contact:	Not reported
Mailing Name:	DEVELOPMENT OUTREACH INC.
Mailing Address:	546 WEST 154TH STREET H.D.F.C.
Mailing Address 2:	55 WEST 125TH STREET SUITE 300
Mailing City,St,Zip:	NEW YORK, NY 10027

546 WEST 156TH STREET HDFC (Continued) **U003395092**

Mailing Telephone:	(212) 427-0320
Owner Mark:	Second Owner
Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Certification Flag:	False
Certification Date:	05/07/1998
Expiration:	04/27/2003
Renew Flag:	False
Renew Date:	Not reported
Total Capacity:	3000
FAMT:	True
Facility Screen:	Minor Data Missing
Owner Screen:	No Missing Data
Tank Screen:	Minor Data Missing
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	62
Town or City Code:	01
Region:	2

Tank ID:	001
Tank Location:	ABOVEGROUND
Tank Status:	In Service
Install Date:	Not reported
Capacity (Gal):	3000
Product Stored:	NOS 1,2, OR 4 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	GALVANIZED STEEL
Pipe Internal:	Not reported
Pipe External:	Not reported
Tank Containment:	Diking
Leak Detection:	0
Overfill Protection:	4
Dispenser Method:	Gravity
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	False
SPDES Number:	Not reported
Lat/Long:	Not reported

AH133
SE
1/8-1/4
1132 ft.

Relative:
Lower

Actual:
17 ft.

2915 8TH AVE -OR-
2915 FREDERICK DOUGLASS BLVD
MANHATTAN, NY 10039

AST **U003389394**
HIST AST **N/A**

Site 3 of 5 in cluster AH

AST:

AST:

Region:	STATE
Facility Id:	2-286605
UTM X:	589608.24834
UTM Y:	4520297.59897
Expiration Date:	08/24/07
Renewal Date:	04/04/02
Total Capacity:	3000
Facility Type:	Not reported
Site Type Name:	Apartment Building/Office Building
Site Type Status:	Active
Mailing Company:	HILDA BRATHWAITE ESSANDOH ETAL
Mailing Title:	Not reported
Mailing Contact:	HILDA ESSANDOH
Mailing Address:	548 WEST 165TH STREET
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip Code:	10032
Mailing Phone No:	Not reported
Mailing Email:	Not reported
Owner Title:	Not reported
Owner Name:	Not reported
Owner Address:	548 W. 165 ST
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	10032
Owner Phone:	Not reported
Owner Company:	HILDA BRATHWAITE ESSANDOH ETAL
Emergency Contact:	HILDA B. ESSANDOH
Emergency Phone:	Not reported
Operator:	CHRISTOPHER BRATHWAITE
Operator Phone:	Not reported
Owner City:	NY
Owner Sub Type:	Private Resident
Program Type:	PBS
Tank Number:	001
Tank Location Name:	Aboveground on crib, rack, or cradle
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	/ /
Capacity Gallons:	3000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping

2915 8TH AVE -OR- (Continued) **U003389394**

Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Exempt Suction Piping
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Product Level Gauge (A/G)
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

HIST AST:

PBS Number:	2-286605
SWIS Code:	6201
Operator:	CHRISTOPHER BRATHWAITE
Facility Phone:	(718) 297-0763
Facility Addr2:	2915 FREDERICK DOUGLASS BLVD
Facility Type:	APARTMENT BUILDING
Emergency:	HILDA B. ESSANDOH
Emergency Tel:	(212) 795-1525
Old PBSNO:	Not reported
Date Inspected:	Not reported
Inspector:	Not reported
Result of Inspection:	Not reported
Owner Name:	HILDA BRATHWAITE ESSANDOH ETAL
Owner Address:	545 W 187 ST
Owner City,St,Zip:	NY, NY 10033
Federal ID:	Not reported
Owner Tel:	(212) 795-1525
Owner Type:	Private Resident
Owner Subtype:	Not reported
Mailing Contact:	HILDA ESSANDOH
Mailing Name:	HILDA BRATHWAITE ESSANDOH ETAL
Mailing Address:	548 WEST 165TH STREET
Mailing Address 2:	Not reported
Mailing City,St,Zip:	NEW YORK, NY 10032
Mailing Telephone:	(212) 795-1525
Owner Mark:	First Owner
Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Certification Flag:	False
Certification Date:	04/10/2001
Expiration:	08/24/2002
Renew Flag:	False
Renew Date:	Not reported
Total Capacity:	3000
FAMT:	True
Facility Screen:	No Missing Data

2915 8TH AVE -OR- (Continued) **U003389394**

Owner Screen:	No Missing Data
Tank Screen:	Minor Data Missing
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	62
Town or City Code:	01
Region:	2

Tank ID:	001
Tank Location:	ABOVEGROUND ON SADDLES LEGS, STILTS, RACK, OR CRADLE
Tank Status:	In Service
Install Date:	Not reported
Capacity (Gal):	3000
Product Stored:	NOS 1,2, OR 4 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	STEEL/IRON
Pipe Internal:	Not reported
Pipe External:	Not reported
Tank Containment:	None
Leak Detection:	0
Overfill Protection:	4
Dispenser Method:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	True
SPDES Number:	Not reported
Lat/Long:	Not reported

AI134 **WBD REALTY. LLC** **AST** **U003395719**
North **463 WEST 159TH ST** **HIST AST** **N/A**
1/8-1/4 **NEW YORK, NY 10032**
1134 ft.

Site 1 of 5 in cluster AI

Relative: Higher

AST:

Actual: 155 ft.

AST:

Region:	STATE
Facility Id:	2-600707
UTM X:	589393.81876
UTM Y:	4520852.33841
Expiration Date:	03/24/11
Renewal Date:	01/08/03
Total Capacity:	2000
Facility Type:	Not reported
Site Type Name:	Apartment Building/Office Building
Site Type Status:	Active
Mailing Company:	MIDD 159TH LLC
Mailing Title:	Not reported
Mailing Contact:	MICHAEL HERSHKOWITZ

WBD REALTY. LLC (Continued) **U003395719**

Mailing Address:	160 EAST 56TH STREET, 5TH FL
Mailing Address 2:	Not reported
Mailing City:	NEW YORK‘
Mailing State:	NY
Mailing Zip Code:	10022
Mailing Phone No:	(212) 879-6696
Mailing Email:	Not reported
Owner Title:	MANAGING PARTNER
Owner Name:	MIDD 159TH LLC
Owner Address:	160 EAST 56TH STREET, 5TH FL
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	10022
Owner Phone:	(212) 879-6696
Owner Company:	MIDD 159TH LLC
Emergency Contact:	FRANKLIN SANCHEZ
Emergency Phone:	(646) 523-8968
Operator:	N/A
Operator Phone:	N/A
Owner City:	NEW YORK‘
Owner Sub Type:	Corporate or Commercial
Program Type:	PBS
Tank Number:	1
Tank Location Name:	Aboveground - in contact with soil
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	01/01/09
Capacity Gallons:	2000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Aboveground
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Exempt Suction Piping
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Automatic Shut-Off
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

WBD REALTY. LLC (Continued) **U003395719**

HIST AST:

PBS Number:	2-600707
SWIS Code:	6201
Operator:	JOSE ANDRICKSON
Facility Phone:	(917) 904-5736
Facility Addr2:	463 WEST 159TH ST
Facility Type:	APARTMENT BUILDING
Emergency:	JOSE ANDRICKSON
Emergency Tel:	(212) 740-3994
Old PBSNO:	Not reported
Date Inspected:	Not reported
Inspector:	Not reported
Result of Inspection:	Not reported
Owner Name:	WBD REALTY, LLC
Owner Address:	185 BRIDGE PLAZA NOARTH SUITE 301
Owner City,St,Zip:	FORT LEE, NJ 07024
Federal ID:	Not reported
Owner Tel:	(201) 944-6300
Owner Type:	Corporate/Commercial
Owner Subtype:	Not reported
Mailing Contact:	ELIOT C. NISENBAUM
Mailing Name:	KINGSLEY REALTY HOLDINGS, LTD
Mailing Address:	185 BRIDGE PLAZA NORTH
Mailing Address 2:	SUITE 301
Mailing City,St,Zip:	FORT LEE, NJ 07024
Mailing Telephone:	(201) 944-6300
Owner Mark:	Second Owner
Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Certification Flag:	False
Certification Date:	05/21/1998
Expiration:	04/09/2003
Renew Flag:	False
Renew Date:	Not reported
Total Capacity:	2000
FAMT:	True
Facility Screen:	No Missing Data
Owner Screen:	No Missing Data
Tank Screen:	No Missing Data
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	62
Town or City Code:	01
Region:	2

Tank ID:	1
Tank Location:	ABOVEGROUND
Tank Status:	In Service
Install Date:	Not reported
Capacity (Gal):	2000
Product Stored:	NOS 1,2, OR 4 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	0
Tank External:	00
Pipe Location:	Aboveground

WBD REALTY. LLC (Continued) **U003395719**

Pipe Type:	STEEL/IRON
Pipe Internal:	None
Pipe External:	00
Tank Containment:	None
Leak Detection:	00
Overfill Protection:	3
Dispenser Method:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	No Missing Data
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	True
SPDES Number:	Not reported
Lat/Long:	Not reported

AH135 **303 WEST 154TH ST** **UST** **U004076962**
SE **303 W 154TH ST** **N/A**
1/8-1/4 **NEW YORK, NY 10039**
1133 ft.

Site 4 of 5 in cluster AH

Relative:
Lower

UST:

Actual:
16 ft.

UST:

Facility Id:	2-196428
Expiration Date:	07/20/07
Renewal Date:	03/08/02
Total Capacity:	4000
Facility Type:	Not reported
Mailing Company:	LAWJOY REALTY CORP
Mailing Title:	Not reported
Mailing Contact:	MIKE KEY
Mailing Address:	5014 16TH AVE
Mailing Address 2:	SUITE 191
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip Code:	11204
Mailing Phone No:	(718) 677-1667
Mailing Email:	Not reported
Owner Title:	Not reported
Owner Name:	Not reported
Owner Address:	2302 NOSTRAND AVENUE #4547
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	11210
Owner Phone:	(718) 677-1667
Owner Company:	LAWJOY REALTY CORP
Emergency Contact:	MIKE KEY
Emergency Phone:	(718) 677-1667
Operator:	ROBERT CRASON
Operator Phone:	(212) 862-4511
Owner City:	BROOKLYN
Owner Sub Type:	Corporate or Commercial
UTM X:	589589.51198
UTM Y:	4520284.82606
Site Type Name:	Apartment Building/Office Building

303 WEST 154TH ST (Continued) **U004076962**

Site Type Status:	Active
Comments:	Not reported
Program Type:	PBS
Tank Number:	001
Tank Location Name:	Underground, vaulted, with access
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	/ /
Capacity Gallons:	4000
Material Name:	#6 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Exempt Suction Piping
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Product Level Gauge (A/G)
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

AH136 **303 WEST 154TH ST** **HIST UST** **U000402004**
SE **303 W 154TH ST** **N/A**
1/8-1/4 **NEW YORK, NY 10039**
1133 ft.

Site 5 of 5 in cluster AH

Relative:
Lower

Actual:
16 ft.

HIST UST:

PBS Number:	2-196428
SPDES Number:	Not reported
Emergency Contact:	ALAN R BUSH
Emergency Telephone:	(212) 795-1555
Operator:	ROBERT CRASON
Operator Telephone:	(212) 862-4511
Owner Name:	LAWJOY REALTY CORP
Owner Address:	2460 LEMOINE AVENUE 3RD FLOOR
Owner City,St,Zip:	FORT LEE, NJ 07024
Owner Telephone:	(212) 795-1555
Owner Type:	Corporate/Commercial
Owner Subtype:	Not reported

303 WEST 154TH ST (Continued) **U000402004**

Mailing Name:	ALAN BUSH INC.
Mailing Address:	2460 LEMOINE AVE 3RD FL.
Mailing Address 2:	Not reported
Mailing City,St,Zip:	FORT LEE, NJ 07024
Mailing Contact:	Not reported
Mailing Telephone:	(212) 795-1555
Owner Mark:	First Owner
Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Facility Addr2:	303 W 154TH ST
SWIS ID:	6201
Old PBS Number:	Not reported
Facility Type:	APARTMENT BUILDING
Inspected Date:	Not reported
Inspector:	Not reported
Inspection Result:	Not reported
Federal ID:	Not reported
Certification Flag:	False
Certification Date:	07/10/1997
Expiration Date:	07/20/2002
Renew Flag:	False
Renewal Date:	Not reported
Total Capacity:	4000
FAMT:	True
Facility Screen:	No Missing Data
Owner Screen:	No Missing Data
Tank Screen:	Minor Data Missing
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	62
Town or City:	01
Region:	2
Tank Id:	001
Tank Location:	UNDERGROUND, VAULTED, WITH ACCESS
Tank Status:	In Service
Install Date:	Not reported
Capacity (gals):	4000
Product Stored:	NOS 5 OR 6 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	STEEL/IRON
Pipe Internal:	Not reported
Pipe External:	Not reported
Second Containment:	None
Leak Detection:	None
Overfill Prot:	Product Level Gauge
Dispenser:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	Not reported
Test Method:	Not reported

303 WEST 154TH ST (Continued) **U000402004**

Deleted: False
Updated: False
Lat/long: Not reported

AF137 **BUILDING 512 W 158 ST** **AST** **U003390201**
NNW **512 W 158 ST** **HIST AST** **N/A**
1/8-1/4 **NEW YORK, NY 10032**
1134 ft.

Site 3 of 5 in cluster AF

Relative:
Higher

AST:

Actual:
146 ft.

AST:

Region:	STATE
Facility Id:	2-208957
UTM X:	589235.32605
UTM Y:	4520834.54543
Expiration Date:	01/06/08
Renewal Date:	/ /
Total Capacity:	3000
Facility Type:	Not reported
Site Type Name:	Apartment Building/Office Building
Site Type Status:	Active
Mailing Company:	WEST 158TH MNGMNT LLC
Mailing Title:	Not reported
Mailing Contact:	PHIL JACOBS
Mailing Address:	31 GRIFFEN AVENUE
Mailing Address 2:	#101
Mailing City:	SCARSDALE
Mailing State:	NY
Mailing Zip Code:	10583
Mailing Phone No:	(914) 725-1711
Mailing Email:	Not reported
Owner Title:	Not reported
Owner Name:	Not reported
Owner Address:	31 GRIFFEN AVE #101
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	10583
Owner Phone:	(914) 725-1711
Owner Company:	WEST 158TH MNGMNT LLC
Emergency Contact:	PHIL JACOBS
Emergency Phone:	(914) 725-1711
Operator:	HECTOR GONZALEZ
Operator Phone:	(914) 898-2893
Owner City:	SCARSDALE
Owner Sub Type:	Corporate or Commercial
Program Type:	PBS
Tank Number:	001
Tank Location Name:	Aboveground - in contact with soil
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	12/01/53
Capacity Gallons:	3000
Material Name:	#2 Fuel Oil

BUILDING 512 W 158 ST (Continued) **U003390201**

Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	Painted/Asphalt Coating
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Aboveground
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	Painted/Asphalt Coating
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Exempt Suction Piping
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Product Level Gauge (A/G)
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

HIST AST:

PBS Number:	2-208957
SWIS Code:	6201
Operator:	GUILLERMO CASTILLO
Facility Phone:	(212) 927-1409
Facility Addr2:	512 W 158 ST
Facility Type:	Not reported
Emergency:	GUILLERMO CASTILLO
Emergency Tel:	(212) 927-1409
Old PBSNO:	Not reported
Date Inspected:	Not reported
Inspector:	Not reported
Result of Inspection:	Not reported
Owner Name:	JAFRUD REALTY CORP
Owner Address:	408 W 130 ST PO BOX 101
Owner City,St,Zip:	NEW YORK, NY 10027
Federal ID:	Not reported
Owner Tel:	(212) 222-1141
Owner Type:	Not reported
Owner Subtype:	Not reported
Mailing Contact:	Not reported
Mailing Name:	MARTHIE L. THOMPSON
Mailing Address:	335 BROADWAY
Mailing Address 2:	Not reported
Mailing City,St,Zip:	NEW YORK, NY 10013
Mailing Telephone:	(212) 222-1141
Owner Mark:	First Owner
Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Certification Flag:	False
Certification Date:	08/24/1987

BUILDING 512 W 158 ST (Continued) **U003390201**

Expiration:	08/24/1992
Renew Flag:	False
Renew Date:	Not reported
Total Capacity:	3000
FAMT:	True
Facility Screen:	Minor Data Missing
Owner Screen:	Minor Data Missing
Tank Screen:	Minor Data Missing
Dead Letter:	True
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	62
Town or City Code:	01
Region:	2

Tank ID:	001
Tank Location:	ABOVEGROUND
Tank Status:	In Service
Install Date:	19531201
Capacity (Gal):	3000
Product Stored:	NOS 1,2, OR 4 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	GALVANIZED STEEL
Pipe Internal:	Not reported
Pipe External:	Not reported
Tank Containment:	None
Leak Detection:	0
Overfill Protection:	4
Dispenser Method:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	False
SPDES Number:	Not reported
Lat/Long:	Not reported

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138 **M-D** **AST** **U003388118**
SSW **813 ST NICHOLAS AVE** **HIST AST** **N/A**
1/8-1/4 **NEW YORK CITY, NY 10031**
1137 ft.

Relative:
Lower

Actual:
102 ft.

AST:

AST:

Region:	STATE
Facility Id:	2-256579
UTM X:	589185.91839
UTM Y:	4520176.91273
Expiration Date:	01/14/10
Renewal Date:	04/04/02
Total Capacity:	1500
Facility Type:	Not reported

M-D (Continued) **U003388118**

Site Type Name:	Apartment Building/Office Building
Site Type Status:	Active
Mailing Company:	WESLEY BROWN & RAQUEL C. BROWN
Mailing Title:	MANAGER
Mailing Contact:	RAQUEL C. BROWN
Mailing Address:	365 WEST 125TH ST. #2942
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip Code:	10027
Mailing Phone No:	Not reported
Mailing Email:	Not reported
Owner Title:	MANAGER
Owner Name:	RAQUEL C. BROWN
Owner Address:	365 WEST 125TH ST. #2942
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	10027
Owner Phone:	Not reported
Owner Company:	WESLEY BROWN & RAQUEL C. BROWN
Emergency Contact:	WESLEY D. BROWN & RAQUEL C. BROWN
Emergency Phone:	Not reported
Operator:	WESLEY D. BROWN
Operator Phone:	Not reported
Owner City:	NEW YORK
Owner Sub Type:	Private Resident
Program Type:	PBS
Tank Number:	001
Tank Location Name:	Aboveground - in contact with soil
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	/ /
Capacity Gallons:	1500
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping
Pipe Type Name:	Galvanized Steel
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Vault (w/o access)
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Product Level Gauge (A/G)
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported

M-D (Continued) **U003388118**

Tightness Test Method: Testing Not Required
Date Tested: / /
Next Test Date: / /
Date Tank Closed: / /

HIST AST:

PBS Number:	2-256579
SWIS Code:	6201
Operator:	WILLIAM RANDOLPH
Facility Phone:	(212) 283-9655
Facility Addr2:	813 ST NICHOLAS AVE
Facility Type:	APARTMENT BUILDING
Emergency:	WILLIAM RANDOLPH
Emergency Tel:	(212) 283-9655
Old PBSNO:	Not reported
Date Inspected:	Not reported
Inspector:	Not reported
Result of Inspection:	Not reported
Owner Name:	WILLIAM RANDOLPH
Owner Address:	1620 SEDGWICK AVE
Owner City,St,Zip:	BRONX, NY 10453
Federal ID:	Not reported
Owner Tel:	(212) 583-9056
Owner Type:	Corporate/Commercial
Owner Subtype:	Not reported
Mailing Contact:	Not reported
Mailing Name:	WILLIAM RANDOLPH
Mailing Address:	1620 SEDGWICK AVE
Mailing Address 2:	Not reported
Mailing City,St,Zip:	BRONX, NY 10453
Mailing Telephone:	(212) 583-9056
Owner Mark:	First Owner
Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Certification Flag:	False
Certification Date:	08/01/1997
Expiration:	08/24/2002
Renew Flag:	False
Renew Date:	Not reported
Total Capacity:	1500
FAMT:	True
Facility Screen:	No Missing Data
Owner Screen:	Minor Data Missing
Tank Screen:	Minor Data Missing
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	62
Town or City Code:	01
Region:	2

Tank ID:	001
Tank Location:	ABOVEGROUND
Tank Status:	In Service
Install Date:	Not reported
Capacity (Gal):	1500

M-D (Continued) **U003388118**

Product Stored:	LEADED GASOLINE
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	GALVANIZED STEEL
Pipe Internal:	Not reported
Pipe External:	Not reported
Tank Containment:	Diking
Leak Detection:	0
Overfill Protection:	4
Dispenser Method:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	False
SPDES Number:	Not reported
Lat/Long:	Not reported

AI139 **537 REALTY ASSOCIATES, LLC** **AST** **A100183589**
North **470 WEST 159TH STREET** **N/A**
1/8-1/4 **NEW YORK, NY 10031**
1138 ft.

Site 2 of 5 in cluster AI

Relative: Higher

AST:

Actual: 156 ft.

AST:

Region:	STATE
Facility Id:	2-607032
UTM X:	589363.64872
UTM Y:	4520828.50465
Expiration Date:	11/26/08
Renewal Date:	/ /
Total Capacity:	1500
Facility Type:	Not reported
Site Type Name:	Apartment Building/Office Building
Site Type Status:	Active
Mailing Company:	J&M REALTY CORP.
Mailing Title:	Not reported
Mailing Contact:	PAUL JACCOM
Mailing Address:	21 WEST 86TH STREET
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip Code:	10024
Mailing Phone No:	(212) 721-0424
Mailing Email:	Not reported
Owner Title:	Not reported
Owner Name:	Not reported
Owner Address:	21 WEST 86TH ST
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	10024
Owner Phone:	(212) 721-0424

537 REALTY ASSOCIATES, LLC (Continued) **A100183589**

Owner Company:	537 REALTY ASSOCIATES, LLC
Emergency Contact:	STEVEN JACKSON
Emergency Phone:	(917) 731-6534
Operator:	RAFAEL BLANCO
Operator Phone:	(347) 386-6798
Owner City:	NEW YORK
Owner Sub Type:	Corporate or Commercial
Program Type:	PBS
Tank Number:	001
Tank Location Name:	Aboveground - in contact with soil
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	/ /
Capacity Gallons:	1500
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Aboveground
Pipe Type Name:	Galvanized Steel
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	None
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	None
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

AI140 **WBD REALTY, LLC** **AST** **U003395720**
North **465 WEST 159TH ST** **HIST AST** **N/A**
1/8-1/4 **NEW YORK, NY 10032**
1141 ft.

Site 3 of 5 in cluster AI

Relative: Higher

AST:

Actual: 156 ft.

AST:

Region:	STATE
Facility Id:	2-600708
UTM X:	589391.35611
UTM Y:	4520853.75191
Expiration Date:	03/24/11
Renewal Date:	01/08/03

WBD REALTY, LLC (Continued) **U003395720**

Total Capacity:	2000
Facility Type:	Not reported
Site Type Name:	Apartment Building/Office Building
Site Type Status:	Active
Mailing Company:	MIDD 159TH LLC
Mailing Title:	MANAGING PARTNER
Mailing Contact:	MICHAEL HERSHKOWITZ
Mailing Address:	160 EAST 56TH STREET, 5TH FL
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip Code:	10022
Mailing Phone No:	(212) 879-6696
Mailing Email:	Not reported
Owner Title:	MANAGING PARTNER
Owner Name:	MICHAEL HERSHKOWITZ
Owner Address:	160 EAST 56TH STREET, 5TH FL
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	10022
Owner Phone:	(212) 879-6696
Owner Company:	MIDD 159TH LLC
Emergency Contact:	FRANKLIN SANCHEZ
Emergency Phone:	(646) 523-8968
Operator:	N/A
Operator Phone:	N/A
Owner City:	NEW YORK
Owner Sub Type:	Corporate or Commercial
Program Type:	PBS

Tank Number:	1
Tank Location Name:	Aboveground - in contact with soil
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	01/01/09
Capacity Gallons:	2000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Aboveground
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Exempt Suction Piping
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Automatic Shut-Off
Type Of Overfill Prevention 2:	Not reported

WBD REALTY, LLC (Continued) **U003395720**

Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

HIST AST:

PBS Number:	2-600708
SWIS Code:	6201
Operator:	JOSE ANDRICKSON
Facility Phone:	(917) 904-5736
Facility Addr2:	465 WEST 159TH ST
Facility Type:	Not reported
Emergency:	JOSE ANDRICKSON
Emergency Tel:	(212) 740-3994
Old PBSNO:	Not reported
Date Inspected:	Not reported
Inspector:	Not reported
Result of Inspection:	Not reported
Owner Name:	WBD REALTY LLC
Owner Address:	185 BRIDGE PLAZA NORTH, SUITE 301
Owner City,St,Zip:	FORT LEE, NJ 07024
Federal ID:	Not reported
Owner Tel:	(201) 944-6300
Owner Type:	Corporate/Commercial
Owner Subtype:	Not reported
Mailing Contact:	ELIOT C. NOSENBAUM
Mailing Name:	KINGSLEY REALTY HOLDINGS, LTD.
Mailing Address:	185 BRIDGE PLAZA NORTH
Mailing Address 2:	SUITE 301
Mailing City,St,Zip:	FORT LEE, NJ 07024
Mailing Telephone:	(201) 944-6300
Owner Mark:	Second Owner
Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Certification Flag:	False
Certification Date:	05/21/1998
Expiration:	04/09/2003
Renew Flag:	False
Renew Date:	Not reported
Total Capacity:	2000
FAMT:	True
Facility Screen:	Minor Data Missing
Owner Screen:	No Missing Data
Tank Screen:	No Missing Data
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	62
Town or City Code:	01
Region:	2
Tank ID:	1
Tank Location:	ABOVEGROUND
Tank Status:	In Service

WBD REALTY, LLC (Continued) **U003395720**

Install Date:	Not reported
Capacity (Gal):	2000
Product Stored:	NOS 1,2, OR 4 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	0
Tank External:	00
Pipe Location:	Aboveground
Pipe Type:	STEEL/IRON
Pipe Internal:	None
Pipe External:	00
Tank Containment:	None
Leak Detection:	00
Overfill Protection:	3
Dispenser Method:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	No Missing Data
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	True
SPDES Number:	Not reported
Lat/Long:	Not reported

AI141 **WED REALTY, LLC** **AST** **U003395718**
North **467 WEST 159TH ST** **HIST AST** **N/A**
1/8-1/4 **NEW YORK, NY 10032**
1144 ft.

Site 4 of 5 in cluster AI

Relative: Higher

AST:

Actual: 156 ft.

AST:

Region:	STATE
Facility Id:	2-600706
UTM X:	589388.89481
UTM Y:	4520855.05440
Expiration Date:	03/24/11
Renewal Date:	01/08/03
Total Capacity:	2000
Facility Type:	Not reported
Site Type Name:	Apartment Building/Office Building
Site Type Status:	Active
Mailing Company:	MIDD 159TH LLC
Mailing Title:	MANAGING PARTNER
Mailing Contact:	MICHAEL HERSHKOWITZ
Mailing Address:	160 EAST 56TH STREET, 5TH FL
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip Code:	10022
Mailing Phone No:	(212) 879-6696
Mailing Email:	Not reported
Owner Title:	MANAGING PARTNER
Owner Name:	MICHAEL HERSHKOWITZ
Owner Address:	160 EAST 56TH STREET, 5TH FL
Owner Address 2:	Not reported
Owner State:	NY

WED REALTY, LLC (Continued) **U003395718**

Owner Zip Code:	10022
Owner Phone:	(212) 879-6696
Owner Company:	MIDD 159TH LLC
Emergency Contact:	FRAKLIN SANCHEZ
Emergency Phone:	(646) 523-8968
Operator:	N/A
Operator Phone:	N/A
Owner City:	NEW YORK
Owner Sub Type:	Corporate or Commercial
Program Type:	PBS

Tank Number:	1
Tank Location Name:	Aboveground - in contact with soil
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	01/01/20
Capacity Gallons:	2000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Aboveground
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Exempt Suction Piping
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Automatic Shut-Off
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

HIST AST:

PBS Number:	2-600706
SWIS Code:	6201
Operator:	JOSE ANDRICKSON
Facility Phone:	(917) 904-5736
Facility Addr2:	467 WEST 159TH ST
Facility Type:	APARTMENT BUILDING
Emergency:	JOSE ANDRICKSON
Emergency Tel:	(212) 740-3994
Old PBSNO:	Not reported
Date Inspected:	Not reported
Inspector:	Not reported

WED REALTY, LLC (Continued) **U003395718**

Result of Inspection:	Not reported
Owner Name:	WBD REALTY, LLC
Owner Address:	185 BRIDGE PLAZA NORTH SUITE 301
Owner City,St,Zip:	FORT LEE, NJ 07024
Federal ID:	Not reported
Owner Tel:	(201) 944-6300
Owner Type:	Corporate/Commercial
Owner Subtype:	Not reported
Mailing Contact:	ELIOT C.NISENBAUM
Mailing Name:	KINGSLEY REALTY HOLDINGS, LTD.
Mailing Address:	185 BRIDGE PLAZA NORTH SUITE 301
Mailing Address 2:	Not reported
Mailing City,St,Zip:	FORT LEE, NJ 07024
Mailing Telephone:	(201) 944-6300
Owner Mark:	Second Owner
Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Certification Flag:	False
Certification Date:	05/21/1998
Expiration:	04/09/2003
Renew Flag:	False
Renew Date:	Not reported
Total Capacity:	2000
FAMT:	True
Facility Screen:	No Missing Data
Owner Screen:	No Missing Data
Tank Screen:	No Missing Data
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	62
Town or City Code:	01
Region:	2

Tank ID:	1
Tank Location:	ABOVEGROUND
Tank Status:	In Service
Install Date:	Not reported
Capacity (Gal):	2000
Product Stored:	NOS 1,2, OR 4 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	0
Tank External:	00
Pipe Location:	Aboveground
Pipe Type:	STEEL/IRON
Pipe Internal:	None
Pipe External:	00
Tank Containment:	None
Leak Detection:	00
Overfill Protection:	3
Dispenser Method:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	No Missing Data
Date Closed:	Not reported
Test Method:	Not reported

WED REALTY, LLC (Continued) **U003395718**

Deleted: False
Updated: True
SPDES Number: Not reported
Lat/Long: Not reported

AJ142 **APARTMENT BUILDING** **LTANKS** **S107523390**
NNW **523 WEST 157TH ST** **N/A**
1/8-1/4 **MANHATTAN, NY**
1144 ft.

Site 1 of 3 in cluster AJ

Relative:
Higher

Actual:
135 ft.

LTANKS:

Site ID:	358144
Spill Date:	01/16/06
Facility Addr2:	Not reported
Facility ID:	0511904
Program Number:	0511904
SWIS:	3101
Region of Spill:	2
Investigator:	mxferoze
Referred To:	Not reported
Reported to Dept:	01/16/06
CID:	15
Spill Cause:	Tank Test Failure
Water Affected:	Not reported
Spill Source:	Private Dwelling
Spill Notifier:	Tank Tester
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	03/03/06
Remediation Phase:	0
Date Entered In Computer:	01/16/06
Spill Record Last Update:	03/03/06
Spille Namer:	CHRIS GORGA
Spiller Company:	APARTMENT BUILDING
Spiller Phone:	(646) 772-1404
Spiller Extention:	Not reported
Spiller Address:	523 WEST 157TH ST
Spiller City,St,Zip:	MANHATTAN, NY
Spiller County:	001
Spiller Contact:	CHRIS GORGA
Spiller Phone:	(646) 772-1404
Spiller Extention:	Not reported
DEC Region:	2
Program Number:	0511904
DER Facility ID:	308161
Site ID:	358144
Operable Unit ID:	1115397
Operable Unit:	01
Material ID:	2105459
Material Code:	0001
Material Name:	#2 Fuel Oil
Case No.:	Not reported

APARTMENT BUILDING (Continued) **S107523390**

Material FA:	Petroleum
Quantity:	0.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
Site ID:	358144
Spill Tank Test:	1549646
Tank Number:	1
Tank Size:	1080
Test Method:	00
Leak Rate:	0.00
Gross Fail:	Not reported
Modified By:	Watchdog
Last Modified:	01/16/06
Test Method:	Unknown
Site ID:	358144
Spill Tank Test:	1549647
Tank Number:	Not reported
Tank Size:	0
Test Method:	03
Leak Rate:	0.00
Gross Fail:	Not reported
Modified By:	Watchdog
Last Modified:	01/16/06
Test Method:	Horner EZ Check I or II
DEC Memo:	Start DECRemark - 0511904 01/17/06 Feroze. TTF is sent to; Building owner/ Building Super 523 west 157 Th Street, New York. Ny 10032 03/02/06 Feroze talked with Mr.Jacy Green 212-831-4400. He informed that there was a problem in the testingapperatus. They fixed it and tested the tank again. The test was passed. He will fax me the tank test result on 03/03/06. 03/03/06 Feroze. I received tank test result from Mr.Jacy Green. The test result is passed. Accprding to PTC there was no soil contamination. The spill is closed. END DECRemark - 0511904
Remarks:	Start CallerRemark - 0511904 NO REMARKS. END CallerRemark - 0511904

AI143 **469-71 WEST 159TH STREET** **AST** **A100292410**
North **469-71 WEST 159TH STREET** **N/A**
1/8-1/4 **NEW YORK, NY 10032**
1148 ft.

Site 5 of 5 in cluster AI

Relative: Higher

Actual: 156 ft.

AST:

AST:

Region:	STATE
Facility Id:	2-607859
UTM X:	589356.43709
UTM Y:	4520846.07043
Expiration Date:	06/20/07
Renewal Date:	/ /
Total Capacity:	2000
Facility Type:	Not reported
Site Type Name:	Apartment Building/Office Building
Site Type Status:	Active
Mailing Company:	Not reported
Mailing Title:	Not reported
Mailing Contact:	MILTON MANNING 7A ADMIN

469-71 WEST 159TH STREET (Continued) **A100292410**

Mailing Address:	880 ST. NICHOLAS AVE
Mailing Address 2:	#21
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip Code:	10032
Mailing Phone No:	(212) 283-7914
Mailing Email:	Not reported
Owner Title:	Not reported
Owner Name:	Not reported
Owner Address:	880 ST. NICHOLAS AVE #21
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	10032
Owner Phone:	(212) 283-7914
Owner Company:	MILTON MANNING 7A ADMIN
Emergency Contact:	MILTON MANNING 7A
Emergency Phone:	(212) 283-7914
Operator:	MILTON MANNING 7A
Operator Phone:	(212) 283-7914
Owner City:	NEW YORK
Owner Sub Type:	Corporate or Commercial
Program Type:	PBS

Tank Number:	001
Tank Location Name:	Aboveground on crib, rack, or cradle
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	/ /
Capacity Gallons:	2000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	Painted/Asphalt Coating
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Aboveground
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Other
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	Interstitial - Electronic Monitoring
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Vent Whistle
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Not reported
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

AF144 **ANDRES CLEANERS** **DRYCLEANERS** **S106436121**
North **1988 AMSTERDAM AVE.** **N/A**
1/8-1/4 **NEW YORK, NY 10032**
1152 ft.

Site 4 of 5 in cluster AF

Relative:
Higher

DRYCLEANERS:
Facility ID: 2-6201-00314
Region: NY

Actual:
151 ft.

AF145 **A & R CLEANERS** **RCRA-SQG** **1000705526**
North **1988 AMSTERDAM AVE** **FINDS** **NYD986970044**
1/8-1/4 **NEW YORK, NY 10032** **NY MANIFEST**
1152 ft.

Site 5 of 5 in cluster AF

Relative:
Higher

RCRAInfo:
Owner: ANDRES NUNEZ
(212) 923-1489
EPA ID: NYD986970044

Contact: ANDRES NUNEZ
(212) 923-1489

Classification: Small Quantity Generator
TSDF Activities: Not reported

Violation Status: No violations found

Actual:
151 ft.

FINDS:
Other Pertinent Environmental Activity Identified at Site

AFS (Aerometric Information Retrieval System (AIRS) Facility Subsystem) replaces the former Compliance Data System (CDS), the National Emission Data System (NEDS), and the Storage and Retrieval of Aerometric Data (SAROAD). AIRS is the national repository for information concerning airborne pollution in the United States. AFS is used to track emissions and compliance data from industrial plants. AFS data are utilized by states to prepare State Implementation Plans to comply with regulatory programs and by EPA as an input for the estimation of total national emissions. AFS is undergoing a major redesign to support facility operating permits required under Title V of the Clean Air Act.

NJ-NJEMS (New Jersey - New Jersey Environmental Management System). The Department of Environmental Protection (NJDEP) manages large databases of environmental information in this integrated system.

FIS (New York - Facility Information System) is New York's Department of Environmental Conservation (DEC) information system for tracking environmental facility information found across the State.

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

A & R CLEANERS (Continued) **1000705526**

NY MANIFEST:

Document ID:	NYC6392946
Manifest Status:	Not reported
Trans1 State ID:	SCR000075150
Trans2 State ID:	NJD071629976
Generator Ship Date:	07/31/2001
Trans1 Recv Date:	07/31/2001
Trans2 Recv Date:	08/06/2001
TSD Site Recv Date:	08/07/2001
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYD986970044
Trans1 EPA ID:	OHD980587364
Trans2 EPA ID:	Not reported
TSDF ID:	NJDEPE086
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00160
Units:	P - Pounds
Number of Containers:	001
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	01.00
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00100
Units:	P - Pounds
Number of Containers:	001
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	01.00
Year:	01
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD986970044
Facility Name:	A & R CLEANERS
Facility Address:	1988 AMSTERDAM AVENUE
Facility City:	NEW YORK
Facility Address 2:	Not reported
Country:	USA
County:	NE
Mailing Name:	A & R CLEANERS
Mailing Contact:	A & R CLEANERS
Mailing Address:	1988 AMSTERDAM AVENUE
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported

A & R CLEANERS (Continued) **1000705526**

Mailing Country:	USA
Mailing Phone:	212-923-1489
Document ID:	NJA1416332
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	920403
Trans1 Recv Date:	920403
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	920403
Part A Recv Date:	920417
Part B Recv Date:	920416
Generator EPA ID:	NYD986970044
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NJD000768093
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00060
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	92
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD986970044
Facility Name:	A & R CLEANERS
Facility Address:	1988 AMSTERDAM AVENUE
Facility City:	NEW YORK
Facility Address 2:	Not reported
Country:	USA
County:	NE
Mailing Name:	A & R CLEANERS
Mailing Contact:	A & R CLEANERS
Mailing Address:	1988 AMSTERDAM AVENUE
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-923-1489
Document ID:	NJA1444367
Manifest Status:	Completed after the designated time period for a TSDF to get a copy to the DEC

A & R CLEANERS (Continued) **1000705526**

Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	920430
Trans1 Recv Date:	920430
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	920430
Part A Recv Date:	Not reported
Part B Recv Date:	920602
Generator EPA ID:	NYD986970044
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NJD000768093
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00195
Units:	P - Pounds
Number of Containers:	001
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	92
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD986970044
Facility Name:	A & R CLEANERS
Facility Address:	1988 AMSTERDAM AVENUE
Facility City:	NEW YORK
Facility Address 2:	Not reported
Country:	USA
County:	NE
Mailing Name:	A & R CLEANERS
Mailing Contact:	A & R CLEANERS
Mailing Address:	1988 AMSTERDAM AVENUE
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-923-1489
Document ID:	NJA1632173
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	921211
Trans1 Recv Date:	921211
Trans2 Recv Date:	Not reported

A & R CLEANERS (Continued) **1000705526**

TSD Site Recv Date:	921211
Part A Recv Date:	921223
Part B Recv Date:	921229
Generator EPA ID:	NYD986970044
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NJD000768093
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00120
Units:	P - Pounds
Number of Containers:	002
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	92
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD986970044
Facility Name:	A & R CLEANERS
Facility Address:	1988 AMSTERDAM AVENUE
Facility City:	NEW YORK
Facility Address 2:	Not reported
Country:	USA
County:	NE
Mailing Name:	A & R CLEANERS
Mailing Contact:	A & R CLEANERS
Mailing Address:	1988 AMSTERDAM AVENUE
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-923-1489
Document ID:	NJA1463287
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	920630
Trans1 Recv Date:	920630
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	920630
Part A Recv Date:	Not reported
Part B Recv Date:	920710
Generator EPA ID:	NYD986970044
Trans1 EPA ID:	ILD051060408

A & R CLEANERS (Continued) **1000705526**

Trans2 EPA ID:	Not reported
TSDF ID:	NJD000768093
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00195
Units:	P - Pounds
Number of Containers:	001
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	92
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD986970044
Facility Name:	A & R CLEANERS
Facility Address:	1988 AMSTERDAM AVENUE
Facility City:	NEW YORK
Facility Address 2:	Not reported
Country:	USA
County:	NE
Mailing Name:	A & R CLEANERS
Mailing Contact:	A & R CLEANERS
Mailing Address:	1988 AMSTERDAM AVENUE
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-923-1489
Document ID:	NJA1343565
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	920309
Trans1 Recv Date:	920309
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	920309
Part A Recv Date:	920319
Part B Recv Date:	920323
Generator EPA ID:	NYD986970044
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NJD000768093
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00060
Units:	P - Pounds

A & R CLEANERS (Continued) **1000705526**

Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	92
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD986970044
Facility Name:	A & R CLEANERS
Facility Address:	1988 AMSTERDAM AVENUE
Facility City:	NEW YORK
Facility Address 2:	Not reported
Country:	USA
County:	NE
Mailing Name:	A & R CLEANERS
Mailing Contact:	A & R CLEANERS
Mailing Address:	1988 AMSTERDAM AVENUE
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-923-1489
Document ID:	NJA1372525
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	921111
Trans1 Recv Date:	921111
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	921111
Part A Recv Date:	921125
Part B Recv Date:	921127
Generator EPA ID:	NYD986970044
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NJD000768093
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00195
Units:	P - Pounds
Number of Containers:	001
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	92

A & R CLEANERS (Continued) **1000705526**

Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD986970044
Facility Name:	A & R CLEANERS
Facility Address:	1988 AMSTERDAM AVENUE
Facility City:	NEW YORK
Facility Address 2:	Not reported
Country:	USA
County:	NE
Mailing Name:	A & R CLEANERS
Mailing Contact:	A & R CLEANERS
Mailing Address:	1988 AMSTERDAM AVENUE
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-923-1489

Document ID:	NJA1659990
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	930118
Trans1 Recv Date:	930118
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	930118
Part A Recv Date:	930128
Part B Recv Date:	930129
Generator EPA ID:	NYD986970044
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NJD000768093
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00195
Units:	P - Pounds
Number of Containers:	001
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	93
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported

A & R CLEANERS (Continued) **1000705526**

Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD986970044
Facility Name:	A & R CLEANERS
Facility Address:	1988 AMSTERDAM AVENUE
Facility City:	NEW YORK
Facility Address 2:	Not reported
Country:	USA
County:	NE
Mailing Name:	A & R CLEANERS
Mailing Contact:	A & R CLEANERS
Mailing Address:	1988 AMSTERDAM AVENUE
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-923-1489
Document ID:	NJA1419955
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	920824
Trans1 Recv Date:	920824
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	920824
Part A Recv Date:	Not reported
Part B Recv Date:	920903
Generator EPA ID:	NYD986970044
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NJD000768093
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00195
Units:	P - Pounds
Number of Containers:	001
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	92
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported

A & R CLEANERS (Continued) **1000705526**

Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD986970044
Facility Name:	A & R CLEANERS
Facility Address:	1988 AMSTERDAM AVENUE
Facility City:	NEW YORK
Facility Address 2:	Not reported
Country:	USA
County:	NE
Mailing Name:	A & R CLEANERS
Mailing Contact:	A & R CLEANERS
Mailing Address:	1988 AMSTERDAM AVENUE
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-923-1489

Document ID:	NYC6596910
Manifest Status:	Not reported
Trans1 State ID:	SCR000075150
Trans2 State ID:	NJD071629976
Generator Ship Date:	12/20/2001
Trans1 Recv Date:	12/20/2001
Trans2 Recv Date:	01/02/2002
TSD Site Recv Date:	01/08/2002
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYD986970044
Trans1 EPA ID:	OHD980587364
Trans2 EPA ID:	Not reported
TSDF ID:	NJDEP0869
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00375
Units:	P - Pounds
Number of Containers:	003
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	01.00
Year:	01
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD986970044
Facility Name:	A & R CLEANERS
Facility Address:	1988 AMSTERDAM AVENUE

A & R CLEANERS (Continued) **1000705526**

Facility City:	NEW YORK
Facility Address 2:	Not reported
Country:	USA
County:	NE
Mailing Name:	A & R CLEANERS
Mailing Contact:	A & R CLEANERS
Mailing Address:	1988 AMSTERDAM AVENUE
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-923-1489
Document ID:	NJA1544392
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	930419
Trans1 Recv Date:	930419
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	930419
Part A Recv Date:	930430
Part B Recv Date:	930503
Generator EPA ID:	NYD986970044
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NJD000768093
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00195
Units:	P - Pounds
Number of Containers:	001
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	93
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD986970044
Facility Name:	A & R CLEANERS
Facility Address:	1988 AMSTERDAM AVENUE
Facility City:	NEW YORK
Facility Address 2:	Not reported
Country:	USA
County:	NE
Mailing Name:	A & R CLEANERS

A & R CLEANERS (Continued) **1000705526**

Mailing Contact:	A & R CLEANERS
Mailing Address:	1988 AMSTERDAM AVENUE
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-923-1489
Document ID:	NJA1625909
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	930319
Trans1 Recv Date:	930319
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	930319
Part A Recv Date:	930330
Part B Recv Date:	930401
Generator EPA ID:	NYD986970044
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NJD000768093
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00060
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	93
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD986970044
Facility Name:	A & R CLEANERS
Facility Address:	1988 AMSTERDAM AVENUE
Facility City:	NEW YORK
Facility Address 2:	Not reported
Country:	USA
County:	NE
Mailing Name:	A & R CLEANERS
Mailing Contact:	A & R CLEANERS
Mailing Address:	1988 AMSTERDAM AVENUE
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY

A & R CLEANERS (Continued) **1000705526**

Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-923-1489

Document ID:	NJA1749827
Manifest Status:	Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	930818
Trans1 Recv Date:	930818
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	930818
Part A Recv Date:	930830
Part B Recv Date:	930923
Generator EPA ID:	NYD986970044
Trans1 EPA ID:	ILD984908202
Trans2 EPA ID:	Not reported
TSDF ID:	NJD000768093
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00060
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	93
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD986970044
Facility Name:	A & R CLEANERS
Facility Address:	1988 AMSTERDAM AVENUE
Facility City:	NEW YORK
Facility Address 2:	Not reported
Country:	USA
County:	NE
Mailing Name:	A & R CLEANERS
Mailing Contact:	A & R CLEANERS
Mailing Address:	1988 AMSTERDAM AVENUE
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-923-1489

A & R CLEANERS (Continued) **1000705526**

Document ID:	NJA1743143
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	930722
Trans1 Recv Date:	930722
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	930722
Part A Recv Date:	930809
Part B Recv Date:	930802
Generator EPA ID:	NYD986970044
Trans1 EPA ID:	ILD984908202
Trans2 EPA ID:	Not reported
TSDF ID:	NJD000768093
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00195
Units:	P - Pounds
Number of Containers:	001
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	93
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD986970044
Facility Name:	A & R CLEANERS
Facility Address:	1988 AMSTERDAM AVENUE
Facility City:	NEW YORK
Facility Address 2:	Not reported
Country:	USA
County:	NE
Mailing Name:	A & R CLEANERS
Mailing Contact:	A & R CLEANERS
Mailing Address:	1988 AMSTERDAM AVENUE
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-923-1489

Document ID:	NJA1659813
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	930505

A & R CLEANERS (Continued) **1000705526**

Trans1 Recv Date:	930505
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	930505
Part A Recv Date:	930517
Part B Recv Date:	930514
Generator EPA ID:	NYD986970044
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NJD000768093
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00060
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	93
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD986970044
Facility Name:	A & R CLEANERS
Facility Address:	1988 AMSTERDAM AVENUE
Facility City:	NEW YORK
Facility Address 2:	Not reported
Country:	USA
County:	NE
Mailing Name:	A & R CLEANERS
Mailing Contact:	A & R CLEANERS
Mailing Address:	1988 AMSTERDAM AVENUE
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-923-1489
Document ID:	NJA1629369
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	930525
Trans1 Recv Date:	930525
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	930525
Part A Recv Date:	930608
Part B Recv Date:	930618

A & R CLEANERS (Continued) **1000705526**

Generator EPA ID:	NYD986970044
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NJD000768093
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00195
Units:	P - Pounds
Number of Containers:	001
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	93
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD986970044
Facility Name:	A & R CLEANERS
Facility Address:	1988 AMSTERDAM AVENUE
Facility City:	NEW YORK
Facility Address 2:	Not reported
Country:	USA
County:	NE
Mailing Name:	A & R CLEANERS
Mailing Contact:	A & R CLEANERS
Mailing Address:	1988 AMSTERDAM AVENUE
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-923-1489

Document ID:	NJA1842578
Manifest Status:	Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID:	51736
Trans2 State ID:	Not reported
Generator Ship Date:	931119
Trans1 Recv Date:	931119
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	931119
Part A Recv Date:	931207
Part B Recv Date:	931221
Generator EPA ID:	NYD986970044
Trans1 EPA ID:	ILD984908202
Trans2 EPA ID:	Not reported
TSDF ID:	NJD000768093
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV

A & R CLEANERS (Continued) **1000705526**

Quantity:	00060
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	93
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD986970044
Facility Name:	A & R CLEANERS
Facility Address:	1988 AMSTERDAM AVENUE
Facility City:	NEW YORK
Facility Address 2:	Not reported
Country:	USA
County:	NE
Mailing Name:	A & R CLEANERS
Mailing Contact:	A & R CLEANERS
Mailing Address:	1988 AMSTERDAM AVENUE
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-923-1489
Document ID:	NJA1731419
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	930922
Trans1 Recv Date:	930922
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	930922
Part A Recv Date:	Not reported
Part B Recv Date:	931005
Generator EPA ID:	NYD986970044
Trans1 EPA ID:	ILD984908202
Trans2 EPA ID:	Not reported
TSDF ID:	NJD000768093
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00195
Units:	P - Pounds
Number of Containers:	001
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	B Incineration, heat recovery, burning.

A & R CLEANERS (Continued) **1000705526**

Specific Gravity:	100
Year:	93
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD986970044
Facility Name:	A & R CLEANERS
Facility Address:	1988 AMSTERDAM AVENUE
Facility City:	NEW YORK
Facility Address 2:	Not reported
Country:	USA
County:	NE
Mailing Name:	A & R CLEANERS
Mailing Contact:	A & R CLEANERS
Mailing Address:	1988 AMSTERDAM AVENUE
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-923-1489
Document ID:	NJA1848520
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	931228
Trans1 Recv Date:	931228
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	931228
Part A Recv Date:	940110
Part B Recv Date:	940120
Generator EPA ID:	NYD986970044
Trans1 EPA ID:	ILD984908202
Trans2 EPA ID:	Not reported
TSDF ID:	NJD000768093
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00195
Units:	P - Pounds
Number of Containers:	001
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	93
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported

A & R CLEANERS (Continued) **1000705526**

Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD986970044
Facility Name:	A & R CLEANERS
Facility Address:	1988 AMSTERDAM AVENUE
Facility City:	NEW YORK
Facility Address 2:	Not reported
Country:	USA
County:	NE
Mailing Name:	A & R CLEANERS
Mailing Contact:	A & R CLEANERS
Mailing Address:	1988 AMSTERDAM AVENUE
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-923-1489
Document ID:	NJA1808872
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	940117
Trans1 Recv Date:	940117
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	940117
Part A Recv Date:	940126
Part B Recv Date:	940131
Generator EPA ID:	NYD986970044
Trans1 EPA ID:	ILD984908202
Trans2 EPA ID:	Not reported
TSDF ID:	NJD000768093
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00060
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	94
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported

A & R CLEANERS (Continued) **1000705526**

Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD986970044
Facility Name:	A & R CLEANERS
Facility Address:	1988 AMSTERDAM AVENUE
Facility City:	NEW YORK
Facility Address 2:	Not reported
Country:	USA
County:	NE
Mailing Name:	A & R CLEANERS
Mailing Contact:	A & R CLEANERS
Mailing Address:	1988 AMSTERDAM AVENUE
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-923-1489

Click this hyperlink while viewing on your computer to access
23 additional NY_MANIFEST: record(s) in the EDR Site Report.

AK146 **518-20 WEST 152ND STREET** **AST** **A100173481**
WSW **518 WEST 152ND STREET** **N/A**
1/8-1/4 **NEW YORK, NY 10031**
1171 ft.

Site 1 of 9 in cluster AK

Relative: Higher

AST:

Actual: 136 ft.

AST:

Region:	STATE
Facility Id:	2-600014
UTM X:	588952.66134
UTM Y:	4520406.71031
Expiration Date:	03/18/11
Renewal Date:	/ /
Total Capacity:	4000
Facility Type:	Not reported
Site Type Name:	Apartment Building/Office Building
Site Type Status:	Active
Mailing Company:	% JOHN J. GROGAN & ASSOCIATES, INC.
Mailing Title:	Not reported
Mailing Contact:	STEPHEN D. KESSLER
Mailing Address:	360 LEXINGTON AVENUE
Mailing Address 2:	5TH FLOOR
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip Code:	10017
Mailing Phone No:	(212) 376-1480
Mailing Email:	SKESSLER@GROGANASSOC.COM
Owner Title:	PRESIDENT
Owner Name:	STEPHEN D. KESSLER
Owner Address:	360 LEXINGTON AVENUE - 5TH FLOOR
Owner Address 2:	Not reported

518-20 WEST 152ND STREET (Continued) **A100173481**

Owner State:	NY
Owner Zip Code:	10017
Owner Phone:	(212) 370-1480
Owner Company:	ROSK REALTY CORP.
Emergency Contact:	STEPHEN D. KESSLER
Emergency Phone:	(212) 370-1480
Operator:	PHILIP MAISELLO
Operator Phone:	(212) 690-5088
Owner City:	NEW YORK
Owner Sub Type:	Corporate or Commercial
Program Type:	PBS

Tank Number:	001
Tank Location Name:	Aboveground - in contact with soil
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	/ /
Capacity Gallons:	4000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	Not reported
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Aboveground
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	Wrapped
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Vault (w/o access)
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	Vapor Well
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Exempt Suction Piping
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	High Level Alarm
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

AK147 **WEST BRIDGE ASSOCIATES, L.P.** **AST** **A100168961**
WSW **519 WEST 152ND STREET** **N/A**
1/8-1/4 **NEW YORK, NY 10031**
1171 ft.

Site 2 of 9 in cluster AK

Relative: Higher

AST:

Actual: 136 ft.

AST:

Region:	STATE
Facility Id:	2-470260
UTM X:	588994.85619

WEST BRIDGE ASSOCIATES, L.P. (Continued) **A100168961**

UTM Y:	4520425.29888
Expiration Date:	09/14/10
Renewal Date:	/ /
Total Capacity:	4000
Facility Type:	Not reported
Site Type Name:	Apartment Building/Office Building
Site Type Status:	Active
Mailing Company:	WEST REALTY GROUP
Mailing Title:	Not reported
Mailing Contact:	CHRIS CALHOUN
Mailing Address:	611 W. 148TH STREET
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip Code:	10032
Mailing Phone No:	(212) 694-3303
Mailing Email:	Not reported
Owner Title:	V.P.
Owner Name:	CHRIS CALHOUN
Owner Address:	875 ST. NICHOLAS AVE
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	10032
Owner Phone:	(212) 624-3304
Owner Company:	WEST BRIDGE REALTY CORP.
Emergency Contact:	CHRIS CALHOUN
Emergency Phone:	(718) 562-4363
Operator:	ORLANDO TAVARES
Operator Phone:	(917) 578-2156
Owner City:	NEW YORK
Owner Sub Type:	Corporate or Commercial
Program Type:	PBS
Tank Number:	001
Tank Location Name:	Aboveground on crib, rack, or cradle
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	/ /
Capacity Gallons:	4000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Aboveground
Pipe Type Name:	Galvanized Steel
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Diking (Aboveground)
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Exempt Suction Piping

WEST BRIDGE ASSOCIATES, L.P. (Continued) **A100168961**

Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Vent Whistle
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

AL148 **520 WEST 158 STREET HDFC** **AST** **A100292497**
NNW **520 WEST 158 STREET** **N/A**
1/8-1/4 **NEW YORK, NY 10032**
1185 ft.

Site 1 of 4 in cluster AL

Relative: Higher

AST:

Actual: 140 ft.

AST:

Region:	STATE
Facility Id:	2-608421
UTM X:	589186.23021
UTM Y:	4520835.02050
Expiration Date:	02/27/08
Renewal Date:	/ /
Total Capacity:	5000
Facility Type:	Not reported
Site Type Name:	Apartment Building/Office Building
Site Type Status:	Active
Mailing Company:	C/O ADELINA RODGIGUEZ
Mailing Title:	Not reported
Mailing Contact:	520 W 158 ST HDFC
Mailing Address:	520 WEST 158 STREET
Mailing Address 2:	APT 1-D
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip Code:	10032
Mailing Phone No:	(212) 795-5316
Mailing Email:	Not reported
Owner Title:	Not reported
Owner Name:	Not reported
Owner Address:	520 WEST 158 STREET, APT 1-D
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	10032
Owner Phone:	(212) 795-5316
Owner Company:	ADELINA GODGEGUEZ PRESIDENT
Emergency Contact:	ADELINA RODGIGUEZ
Emergency Phone:	(212) 795-5316
Operator:	ADELINA RODRIGUEZ
Operator Phone:	(212) 795-5316
Owner City:	NEW YORK
Owner Sub Type:	Corporate or Commercial
Program Type:	PBS
Tank Number:	001
Tank Location Name:	Aboveground - in contact with soil
Tank Status:	In Service

520 WEST 158 STREET HDFC (Continued) **A100292497**

Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	/ /
Capacity Gallons:	5000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Aboveground
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Exempt Suction Piping
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Vent Whistle
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

149
SW
1/8-1/4
1186 ft.

470 CONVENT AVENUE
470 CONVENT AVENUE
NEW YORK, NY 10031

AST **U004045578**
N/A

Relative:
Higher

Actual:
112 ft.

AST:

AST:

Region:	STATE
Facility Id:	2-601017
UTM X:	589130.31757
UTM Y:	4520234.75092
Expiration Date:	10/21/07
Renewal Date:	05/31/02
Total Capacity:	0
Facility Type:	Not reported
Site Type Name:	Apartment Building/Office Building
Site Type Status:	Unregulated
Mailing Company:	DAN SIEGLE
Mailing Title:	Not reported
Mailing Contact:	Not reported
Mailing Address:	PROMANAGEMENT ASSOCIATES INC.
Mailing Address 2:	972 BROAD STREET
Mailing City:	NEWARK
Mailing State:	NJ
Mailing Zip Code:	07102
Mailing Phone No:	(973) 642-7888

470 CONVENT AVENUE (Continued) **U004045578**

Mailing Email:	Not reported
Owner Title:	Not reported
Owner Name:	Not reported
Owner Address:	100 GOLD ST., #7Z5
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	10038
Owner Phone:	(212) 863-7301
Owner Company:	NYC/HPD/DAMP
Emergency Contact:	DAN SIEGEL
Emergency Phone:	(973) 642-7888
Operator:	ASST. COMMISSIONER/DAMP
Operator Phone:	(212) 863-7301
Owner City:	NEW YORK
Owner Sub Type:	Local Government
Program Type:	PBS

Tank Number:	002
Tank Location Name:	Aboveground - in contact with soil
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	/ /
Capacity Gallons:	3200
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Aboveground
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Double-Walled (Underground)
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Vent Whistle
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Not reported
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	12/01/03

Tank Number:	1
Tank Location Name:	Aboveground - in contact with soil
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported

470 CONVENT AVENUE (Continued) **U004045578**

Active Status:	Inactive
Install Date:	/ /
Capacity Gallons:	4000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	Painted/Asphalt Coating
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Aboveground/Underground Combination
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	Painted/Asphalt Coating
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Vault (w/o access)
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Vent Whistle
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

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150 **RANGEL** **LTANKS** **S102662631**
NE **159-38 HARLEM RIVER DR** **HIST LTANKS** **N/A**
1/8-1/4 **MANHATTAN, NY**
1190 ft.

Relative:
Lower

Actual:
19 ft.

LTANKS:

Site ID:	279914
Spill Date:	04/08/96
Facility Addr2:	Not reported
Facility ID:	9601212
Program Number:	9601212
SWIS:	3101
Region of Spill:	2
Investigator:	HEALY
Referred To:	Not reported
Reported to Dept:	04/24/96
CID:	15
Spill Cause:	Tank Overfill
Water Affected:	Not reported
Spill Source:	Private Dwelling
Spill Notifier:	Affected Persons
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	07/23/97

RANGEL (Continued) **S102662631**

Remediation Phase:	0
Date Entered In Computer:	04/24/96
Spill Record Last Update:	12/20/05
Spille Namer:	Not reported
Spiller Company:	NYC HOUSING AUTHORITY
Spiller Phone:	Not reported
Spiller Extention:	Not reported
Spiller Address:	Not reported
Spiller City,St,Zip:	ZZ
Spiller County:	001
Spiller Contact:	MIKE SOTO
Spiller Phone:	(212) 283-4510
Spiller Extention:	Not reported
DEC Region:	2
Program Number:	9601212
DER Facility ID:	75927
Site ID:	279914
Operable Unit ID:	1032777
Operable Unit:	01
Material ID:	351028
Material Code:	0002
Material Name:	#4 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	50.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
Site ID:	Not reported
Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported
DEC Memo:	Not reported
Remarks:	Start CallerRemark - 9601212 tank is contained in a vault defective gasket caused tank overfill winston contracting notified for clean up END CallerRemark - 9601212

HIST LTANKS:

Region of Spill:	2
Spill Number:	9601212
Investigator:	HEALY
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Caller Extension:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Notifier Extension:	Not reported
Spill Date:	04/08/1996

RANGEL (Continued) **S102662631**

Spill Time:	12:00
Reported to Department Date:	04/24/96
Reported to Department Time:	11:46
SWIS:	62
Spiller Contact:	MIKE SOTO
Spiller Phone:	(212) 283-4510
Spiller Extention:	Not reported
Spiller Name:	NYC HOUSING AUTHORITY
Spiller Address:	Not reported
Spiller City,St,Zip:	Not reported
Facility Contact:	Not reported
Facility Phone:	Not reported
Facility Extention:	Not reported
Spill Cause:	Tank Overfill
Resource Affectd:	On Land
Water Affected:	Not reported
Spill Source:	Private Dwelling
Spill Notifier:	Affected Persons
PBS Number:	Not reported
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Date:	/ /
Enforcement Date:	/ /
Investigation Complete:	/ /
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	07/23/97
Date Region Sent Summary to Central Office:	/ /
Corrective Action Plan Submitted:	/ /
Date Spill Entered In Computer Data File:	04/24/96
Time Spill Entered In Computer Data File:	Not reported
Spill Record Last Update:	07/23/97
Is Updated:	False
PBS Number:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate Failed Tank:	Not reported
Gross Leak Rate:	Not reported
Material Class Type:	Petroleum
Quantity Spilled:	50
Unkonwn Quantity Spilled:	False
Units:	Gallons
Quantity Recovered:	0
Unkonwn Quantity Recovered:	False
Material:	#4 FUEL OIL
Class Type:	#4 FUEL OIL
Times Material Entry In File:	1751
CAS Number:	Not reported
Last Date:	19941205
DEC Remarks:	4/24/96 - Spill report from Cedric Hercules. Was making repairs to boilers and found overfill in tank vault of 50+ gallons. I checked the log book in the boiler room with Frank Ocello - found that the spill occurred on 4/22 but was never reported. Winston called to site to do clean up. Case no. R2-0020-96-05

RANGEL (Continued) **S102662631**

opened for failure to notify DEC of a spill.
Spill Cause: tank is contained in a vault defective gasket caused tank overfill winston contracting notified for clean up

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151 South 1/8-1/4 1190 ft.

357 EDGECOMBE AVE
357 EDGECOMBE AVENUE
NEW YORK, NY 10031

AST **U003387915**
HIST AST **N/A**

Relative: Lower

Actual: 75 ft.

AST:

AST:

Region:	STATE
Facility Id:	2-314560
UTM X:	589409.88479
UTM Y:	4520305.07645
Expiration Date:	11/21/08
Renewal Date:	05/06/02
Total Capacity:	6000
Facility Type:	Not reported
Site Type Name:	Apartment Building/Office Building
Site Type Status:	Active
Mailing Company:	J&M REALTY CORP.
Mailing Title:	Not reported
Mailing Contact:	PAUL JACCOM
Mailing Address:	21 WEST 86TH STREET
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip Code:	10024
Mailing Phone No:	(212) 721-0424
Mailing Email:	Not reported
Owner Title:	Not reported
Owner Name:	Not reported
Owner Address:	21 WEST 86 ST
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	10024
Owner Phone:	(212) 721-0424
Owner Company:	357 EDGECOMBE PARTNERS LLC % J&M REALTY
Emergency Contact:	PAUL JACCOM
Emergency Phone:	(212) 721-0424
Operator:	THEO PUGH
Operator Phone:	(917) 731-1106
Owner City:	NEW YORK
Owner Sub Type:	Corporate or Commercial
Program Type:	PBS
Tank Number:	001
Tank Location Name:	Aboveground - in contact with soil
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	/ /
Capacity Gallons:	6000
Material Name:	#6 Fuel Oil
Percentage:	100.00

357 EDGECOMBE AVE (Continued) **U003387915**

Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Vault (w/o access)
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Exempt Suction Piping
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Product Level Gauge (A/G)
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

HIST AST:

PBS Number:	2-314560
SWIS Code:	6201
Operator:	QUILLIE HUNTLEY
Facility Phone:	(212) 281-4210
Facility Addr2:	357 EDGECOMBE AVE
Facility Type:	APARTMENT BUILDING
Emergency:	IVAN LEIST
Emergency Tel:	(718) 258-0373
Old PBSNO:	Not reported
Date Inspected:	Not reported
Inspector:	Not reported
Result of Inspection:	Not reported
Owner Name:	IVAN LEIST
Owner Address:	3857 KINGS HIGHWAY
Owner City,St,Zip:	BROOKLYN, NY 11234
Federal ID:	Not reported
Owner Tel:	(718) 258-0373
Owner Type:	Private Resident
Owner Subtype:	Not reported
Mailing Contact:	IVAN LEIST
Mailing Name:	IVAN LEIST
Mailing Address:	3857 KINGS HIGHWAY
Mailing Address 2:	Not reported
Mailing City,St,Zip:	BROOKLYN, NY 11234
Mailing Telephone:	(718) 258-0373
Owner Mark:	First Owner
Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Certification Flag:	False
Certification Date:	08/26/1997
Expiration:	09/19/2002

357 EDGECOMBE AVE (Continued) **U003387915**

Renew Flag:	False
Renew Date:	Not reported
Total Capacity:	6000
FAMT:	True
Facility Screen:	No Missing Data
Owner Screen:	Minor Data Missing
Tank Screen:	Minor Data Missing
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	62
Town or City Code:	01
Region:	2

Tank ID:	001
Tank Location:	ABOVEGROUND
Tank Status:	In Service
Install Date:	Not reported
Capacity (Gal):	6000
Product Stored:	NOS 5 OR 6 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	STEEL/IRON
Pipe Internal:	Not reported
Pipe External:	Not reported
Tank Containment:	Diking
Leak Detection:	0
Overfill Protection:	4
Dispenser Method:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	False
SPDES Number:	Not reported
Lat/Long:	Not reported

AJ152 **527 REALTY NY LLC** **AST** **A100173452**
NW **527 WEST 157TH STREET** **N/A**
1/8-1/4 **NEW YORK, NY 10032**
1196 ft.

Site 2 of 3 in cluster AJ

Relative:
Higher

AST:

Actual:
132 ft.

AST:

Region:	STATE
Facility Id:	2-403008
UTM X:	589172.19438
UTM Y:	4520797.03421
Expiration Date:	09/29/10
Renewal Date:	/ /
Total Capacity:	3000
Facility Type:	Not reported

527 REALTY NY LLC (Continued) **A100173452**

Site Type Name:	Apartment Building/Office Building
Site Type Status:	Active
Mailing Company:	PINNACLE GROUP
Mailing Title:	Not reported
Mailing Contact:	MICHELLE MORALES
Mailing Address:	P.O. BOX 1920
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip Code:	10116
Mailing Phone No:	(212) 564-2111
Mailing Email:	Not reported
Owner Title:	AGENT
Owner Name:	MICHELLE MORALES
Owner Address:	P.O. BOX 1920
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	10116
Owner Phone:	(212) 564-2111
Owner Company:	527 REALTY NY LLC
Emergency Contact:	MICHELLE MORALES
Emergency Phone:	(212) 564-2111
Operator:	PEDRO
Operator Phone:	(646) 773-9521
Owner City:	NEW YORK
Owner Sub Type:	Corporate or Commercial
Program Type:	PBS
Tank Number:	001
Tank Location Name:	Aboveground - in contact with soil
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	/ /
Capacity Gallons:	3000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Vault (w/o access)
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Exempt Suction Piping
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Product Level Gauge (A/G)
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported

527 REALTY NY LLC (Continued) **A100173452**

Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

AL153 **522 WEST 158 STREET** **AST** **A100183365**
NNW **522 WEST 158TH STREET** **N/A**
1/8-1/4 **NEW YORK, NY 10032**
1197 ft.

Site 2 of 4 in cluster AL

Relative: Higher

AST:

Actual: 139 ft.

AST:

Region:	STATE
Facility Id:	2-606786
UTM X:	589181.73339
UTM Y:	4520837.29775
Expiration Date:	08/22/11
Renewal Date:	/ /
Total Capacity:	3000
Facility Type:	Not reported
Site Type Name:	Apartment Building/Office Building
Site Type Status:	Active
Mailing Company:	NYC/HPD/DAMP
Mailing Title:	Not reported
Mailing Contact:	ASST. COMMISSIONER/DAMP
Mailing Address:	Not reported
Mailing Address 2:	100 GOLD ST # 7Z5
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip Code:	10038
Mailing Phone No:	(212) 863-7301
Mailing Email:	Not reported
Owner Title:	100 GOLD ST # 7Z5
Owner Name:	WILLA H. PADGETT
Owner Address:	100 GOLD ST # 7Z5
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	10038
Owner Phone:	(212) 863-7301
Owner Company:	NYC/HPD/DAMP
Emergency Contact:	ASST. COMMISSIONER/DAMP
Emergency Phone:	(212) 863-7301
Operator:	ASST. COMMISSIONER/DAMP
Operator Phone:	(212) 863-7301
Owner City:	NEW YORK
Owner Sub Type:	Local Government
Program Type:	PBS
Tank Number:	1
Tank Location Name:	Aboveground - in contact with soil
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	/ /
Capacity Gallons:	3000

522 WEST 158 STREET (Continued) **A100183365**

Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	Painted/Asphalt Coating
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Aboveground/Underground Combination
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Exempt Suction Piping
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Vent Whistle
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

AM154 **555 W 156 ST** **AST** **U003391496**
NW **555 W 156 ST** **HIST AST** **N/A**
1/8-1/4 **NEW YORK, NY 10032**
1200 ft.

Site 1 of 4 in cluster AM

Relative: Higher

AST:

Actual: 131 ft.

AST:

Region:	STATE
Facility Id:	2-399221
UTM X:	589068.49446
UTM Y:	4520759.92239
Expiration Date:	10/07/11
Renewal Date:	/ /
Total Capacity:	5000
Facility Type:	Not reported
Site Type Name:	Apartment Building/Office Building
Site Type Status:	Active
Mailing Company:	BEACH LANE MANAGEMENT, INC.
Mailing Title:	Not reported
Mailing Contact:	555 PARTNERS, L.P.
Mailing Address:	280 NORTH CENTRAL PARK AVENUE,
Mailing Address 2:	SUITE # 210
Mailing City:	HARTSDALE,
Mailing State:	NY
Mailing Zip Code:	10530
Mailing Phone No:	(914) 997-2435
Mailing Email:	Not reported
Owner Title:	PRES
Owner Name:	MARK SCHARFMAN
Owner Address:	280 NORTH CENTRAL PARK AVENUE, SUITE 210

555 W 156 ST (Continued) **U003391496**

Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	10530
Owner Phone:	(914) 997-2435
Owner Company:	555 PARTNERS, L.P.
Emergency Contact:	ROBERT BRYANT
Emergency Phone:	(914) 438-6949
Operator:	RAFEAL SOSA
Operator Phone:	(914) 572-8818
Owner City:	HARTSDALE
Owner Sub Type:	Corporate or Commercial
Program Type:	PBS

Tank Number:	001
Tank Location Name:	Aboveground - in contact with soil
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	/ /
Capacity Gallons:	5000
Material Name:	#6 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Exempt Suction Piping
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Product Level Gauge (A/G)
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

HIST AST:

PBS Number:	2-399221
SWIS Code:	6201
Operator:	ANTONIO LANTIGUA
Facility Phone:	(917) 507-2109
Facility Addr2:	555 W 156 ST
Facility Type:	APARTMENT BUILDING
Emergency:	ROBERT BRYANT
Emergency Tel:	(917) 273-8635
Old PBSNO:	Not reported

555 W 156 ST (Continued) **U003391496**

Date Inspected:	Not reported
Inspector:	Not reported
Result of Inspection:	Not reported
Owner Name:	555 PARTNERS, L.P.
Owner Address:	280 NORTH CENTRAL PARK AVENUE, SUITE 210
Owner City,St,Zip:	HARTSDALE, NY 10530
Federal ID:	Not reported
Owner Tel:	(914) 997-2435
Owner Type:	Corporate/Commercial
Owner Subtype:	Not reported
Mailing Contact:	555 PARTNERS, L.P.
Mailing Name:	BEACH LANE MANAGEMENT, INC.
Mailing Address:	280 NORTH CENTRAL PARK AVENUE,
Mailing Address 2:	SUITE # 210
Mailing City,St,Zip:	HARTSDALE,, NY 10530
Mailing Telephone:	(914) 997-2435
Owner Mark:	Second Owner
Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Certification Flag:	False
Certification Date:	09/28/2001
Expiration:	10/07/2006
Renew Flag:	False
Renew Date:	Not reported
Total Capacity:	5000
FAMT:	True
Facility Screen:	No Missing Data
Owner Screen:	No Missing Data
Tank Screen:	Minor Data Missing
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	62
Town or City Code:	01
Region:	2
Tank ID:	001
Tank Location:	ABOVEGROUND
Tank Status:	In Service
Install Date:	Not reported
Capacity (Gal):	5000
Product Stored:	NOS 5 OR 6 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	STEEL/IRON
Pipe Internal:	Not reported
Pipe External:	Not reported
Tank Containment:	None
Leak Detection:	0
Overfill Protection:	4
Dispenser Method:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing

555 W 156 ST (Continued) **U003391496**

Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	True
SPDES Number:	Not reported
Lat/Long:	Not reported

AK155
WSW
1/8-1/4
1200 ft.

Relative:
Higher

Actual:
136 ft.

524 W. 152 ST. HDFC **AST** **A100183531**
524 WEST 152ND STREET **N/A**
NEW YORK, NY 10031

Site 3 of 9 in cluster AK

AST:

AST:

Region:	STATE
Facility Id:	2-606967
UTM X:	588955.62707
UTM Y:	4520405.23748
Expiration Date:	09/20/11
Renewal Date:	/ /
Total Capacity:	2000
Facility Type:	Not reported
Site Type Name:	Apartment Building/Office Building
Site Type Status:	Active
Mailing Company:	524 W. 152 ST HDFC
Mailing Title:	Not reported
Mailing Contact:	Not reported
Mailing Address:	524 WEST 152ND STREET
Mailing Address 2:	#10
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip Code:	10031
Mailing Phone No:	(212) 283-4493
Mailing Email:	Not reported
Owner Title:	Not reported
Owner Name:	JEAN GEE
Owner Address:	524 W. 152 ST. #10
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	10031
Owner Phone:	(212) 283-4493
Owner Company:	524 W. 152 ST HDFC
Emergency Contact:	JEAN GEE
Emergency Phone:	(212) 283-4493
Operator:	JEAN GEE
Operator Phone:	(212) 283-4493
Owner City:	NEW YORK
Owner Sub Type:	Corporate or Commercial
Program Type:	PBS
Tank Number:	001
Tank Location Name:	Aboveground - in contact with soil
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active

524 W. 152 ST. HDFC (Continued) **A100183531**

Install Date:	/ /
Capacity Gallons:	2000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Aboveground
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Diking (Aboveground)
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Exempt Suction Piping
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Vent Whistle
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

AK156 **CITY OF NY DEPARTMENT OF H.P.D** **AST** **U003395974**
WSW **522 W 152 ST** **HIST AST** **N/A**
1/8-1/4 **MANHATTAN, NY 10031**
1200 ft.

Site 4 of 9 in cluster AK

Relative: Higher

AST:

Actual: 136 ft.

AST:

Region:	STATE
Facility Id:	2-601099
UTM X:	588981.01662
UTM Y:	4520419.02587
Expiration Date:	10/21/97
Renewal Date:	/ /
Total Capacity:	1500
Facility Type:	Not reported
Site Type Name:	Apartment Building/Office Building
Site Type Status:	Active
Mailing Company:	CITY OF NY DEPARTMENT OF H.P.D
Mailing Title:	Not reported
Mailing Contact:	IVAN SCHWARTZ
Mailing Address:	75 MAIDEN LANE
Mailing Address 2:	4TH FL- RM 427
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip Code:	10038
Mailing Phone No:	(212) 806-8037
Mailing Email:	Not reported
Owner Title:	Not reported

CITY OF NY DEPARTMENT OF H.P.D (Continued) **U003395974**

Owner Name:	Not reported
Owner Address:	75 MAIDEN LANE
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	10038
Owner Phone:	(212) 806-8306
Owner Company:	CITY OF NY DEPARTMENT OF H.P.D
Emergency Contact:	LOUISE BECTON
Emergency Phone:	(212) 234-3656
Operator:	JOH PRESAK
Operator Phone:	(212) 234-1175
Owner City:	NEW YORK
Owner Sub Type:	Local Government
Program Type:	PBS

Tank Number:	1
Tank Location Name:	Aboveground - in contact with soil
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	/ /
Capacity Gallons:	1500
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	Painted/Asphalt Coating
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Aboveground/Underground Combination
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	Painted/Asphalt Coating
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Vault (w/o access)
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Exempt Suction Piping
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Vent Whistle
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

HIST AST:

PBS Number:	2-601099
SWIS Code:	6201
Operator:	JOH PRESAK
Facility Phone:	(212) 234-1175
Facility Addr2:	522 W 152 ST
Facility Type:	APARTMENT BUILDING
Emergency:	LOUISE BECTON

CITY OF NY DEPARTMENT OF H.P.D (Continued) **U003395974**

Emergency Tel:	(212) 234-3656
Old PBSNO:	Not reported
Date Inspected:	Not reported
Inspector:	Not reported
Result of Inspection:	Not reported
Owner Name:	CITY OF NY DEPARTMENT OF H.P.D
Owner Address:	75 MAIDEN LANE
Owner City,St,Zip:	NY, NY 10038
Federal ID:	Not reported
Owner Tel:	(212) 806-8306
Owner Type:	Local Government
Owner Subtype:	Not reported
Mailing Contact:	IVAN SCHWARTZ
Mailing Name:	CITY OF NY DEPARTMENT OF H.P.D
Mailing Address:	75 MAIDEN LANE
Mailing Address 2:	4TH FL- RM 427
Mailing City,St,Zip:	NY, NY 10038
Mailing Telephone:	(212) 806-8037
Owner Mark:	First Owner
Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Certification Flag:	False
Certification Date:	10/23/1992
Expiration:	10/21/1997
Renew Flag:	False
Renew Date:	Not reported
Total Capacity:	1500
FAMT:	True
Facility Screen:	No Missing Data
Owner Screen:	Minor Data Missing
Tank Screen:	No Missing Data
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	62
Town or City Code:	01
Region:	2
Tank ID:	1
Tank Location:	ABOVEGROUND
Tank Status:	In Service
Install Date:	Not reported
Capacity (Gal):	1500
Product Stored:	NOS 1,2, OR 4 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	0
Tank External:	01
Pipe Location:	Aboveground/Underground Combination
Pipe Type:	STEEL/IRON
Pipe Internal:	None
Pipe External:	01
Tank Containment:	Diking
Leak Detection:	00
Overfill Protection:	06
Dispenser Method:	Suction
Date Tested:	Not reported

CITY OF NY DEPARTMENT OF H.P.D (Continued) **U003395974**

Next Test Date:	Not reported
Missing Data for Tank:	No Missing Data
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	True
SPDES Number:	Not reported
Lat/Long:	Not reported

AK157 **523-525 WEST 152ND STREET H.D.F.C.** **AST** **U003394916**
WSW **523-525 WEST 152ND STREET** **HIST AST** **N/A**
1/8-1/4 **NEW YORK, NY 10031**
1200 ft.

Site 5 of 9 in cluster AK

Relative: Higher

AST:

Actual: 136 ft.

AST:

Region:	STATE
Facility Id:	2-469955
UTM X:	588943.40476
UTM Y:	4520411.81237
Expiration Date:	03/28/09
Renewal Date:	/ /
Total Capacity:	4000
Facility Type:	Not reported
Site Type Name:	Private Residence
Site Type Status:	Active
Mailing Company:	523-525 WEST 152ND STREET HDFC
Mailing Title:	Not reported
Mailing Contact:	SUPER FACILITY MANAGER
Mailing Address:	523-525 WEST 152ND STREET
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip Code:	10031
Mailing Phone No:	Not reported
Mailing Email:	Not reported
Owner Title:	Not reported
Owner Name:	Not reported
Owner Address:	523-525 W. 152ND STREET
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	10031
Owner Phone:	Not reported
Owner Company:	523-525 W. 152ND ST. HDFC
Emergency Contact:	KELVYN BELL
Emergency Phone:	Not reported
Operator:	523-525 W. 152ND ST. HDFC
Operator Phone:	Not reported
Owner City:	NEW YORK
Owner Sub Type:	Corporate or Commercial
Program Type:	PBS
Tank Number:	001
Tank Location Name:	Aboveground - in contact with soil
Tank Status:	In Service
Tank Model:	Not reported

523-525 WEST 152ND STREET H.D.F.C. (Continued) **U003394916**

Pipe Model:	Not reported
Active Status:	Active
Install Date:	/ /
Capacity Gallons:	4000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Aboveground
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Vault (w/o access)
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Exempt Suction Piping
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Product Level Gauge (A/G)
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

HIST AST:

PBS Number:	2-469955
SWIS Code:	6201
Operator:	NYC HOUSING PRESERV & DEVEL
Facility Phone:	(212) 806-8565
Facility Addr2:	523 WEST 152ND STREET
Facility Type:	Not reported
Emergency:	JUANITA ARSENEC
Emergency Tel:	(212) 360-7900
Old PBSNO:	Not reported
Date Inspected:	Not reported
Inspector:	Not reported
Result of Inspection:	Not reported
Owner Name:	NYC HOUSING PRESERV & DEVEL
Owner Address:	75 MAIDEN LANE
Owner City,St,Zip:	NEW YORK, NY 10038
Federal ID:	Not reported
Owner Tel:	(212) 806-8565
Owner Type:	Corporate/Commercial
Owner Subtype:	Not reported
Mailing Contact:	SUPER FACILITY MANAGER
Mailing Name:	523-525 WEST 152ND STREET H.D.F.C.
Mailing Address:	523-525 WEST 152ND STREET
Mailing Address 2:	Not reported
Mailing City,St,Zip:	NEW YORK, NY 10031
Mailing Telephone:	(212) 234-3877
Owner Mark:	First Owner

523-525 WEST 152ND STREET H.D.F.C. (Continued) **U003394916**

Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Certification Flag:	False
Certification Date:	01/20/1999
Expiration:	03/28/2004
Renew Flag:	False
Renew Date:	Not reported
Total Capacity:	4000
FAMT:	True
Facility Screen:	Minor Data Missing
Owner Screen:	No Missing Data
Tank Screen:	Minor Data Missing
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	62
Town or City Code:	01
Region:	2

Tank ID:	001
Tank Location:	ABOVEGROUND
Tank Status:	In Service
Install Date:	Not reported
Capacity (Gal):	4000
Product Stored:	UNLEADED GASOLINE
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	STEEL/IRON
Pipe Internal:	Not reported
Pipe External:	Not reported
Tank Containment:	Diking
Leak Detection:	0
Overfill Protection:	4
Dispenser Method:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	True
SPDES Number:	Not reported
Lat/Long:	Not reported

AL158 **525 WEST 158TH REALTY LLC** **AST** **A100292500**
NNW **525 WEST 158TH STREET** **N/A**
1/8-1/4 **NEW YORK, NY 10032**
1210 ft.

Site 3 of 4 in cluster AL

Relative: Higher

AST:

Actual: 138 ft.

AST:

Region:	STATE
Facility Id:	2-607302

525 WEST 158TH REALTY LLC (Continued) **A100292500**

UTM X:	589181.82015
UTM Y:	4520851.06592
Expiration Date:	05/09/10
Renewal Date:	/ /
Total Capacity:	3000
Facility Type:	Not reported
Site Type Name:	Apartment Building/Office Building
Site Type Status:	Active
Mailing Company:	525 WEST 158 STREET, LLC
Mailing Title:	Not reported
Mailing Contact:	Not reported
Mailing Address:	29 WEST 46TH STREET 6TH FL.
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip Code:	10036
Mailing Phone No:	Not reported
Mailing Email:	Not reported
Owner Title:	MANAGING MEMBER
Owner Name:	GODI ZAMIR
Owner Address:	29 WEST 46TH STREET 6TH FL.
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	10036
Owner Phone:	Not reported
Owner Company:	525 WEST 158 STREET, LLC
Emergency Contact:	LOUIS GIANO
Emergency Phone:	Not reported
Operator:	LOUIS GIANO
Operator Phone:	Not reported
Owner City:	NEW YORK
Owner Sub Type:	Private Resident
Program Type:	PBS

Tank Number:	001
Tank Location Name:	Aboveground on crib, rack, or cradle
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	/ /
Capacity Gallons:	3000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Aboveground
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Vault (w/o access)
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported

525 WEST 158TH REALTY LLC (Continued) **A100292500**

Pipe Leak Detection 1:	Exempt Suction Piping
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Vent Whistle
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

AM159 **556 W 156 ST** **AST** **U003389296**
NW **556 W 156 ST** **HIST AST** **N/A**
1/8-1/4 **NY, NY 10032**
1217 ft.

Site 2 of 4 in cluster AM

Relative: Higher

AST:

Actual: 131 ft.

AST:

Region:	STATE
Facility Id:	2-305359
UTM X:	589059.23953
UTM Y:	4520751.15097
Expiration Date:	08/22/07
Renewal Date:	03/06/02
Total Capacity:	3000
Facility Type:	Not reported
Site Type Name:	Apartment Building/Office Building
Site Type Status:	Active
Mailing Company:	DIANA ASSOCIATES TWENTY LP
Mailing Title:	Not reported
Mailing Contact:	WILLIAM STANLEY
Mailing Address:	C/O JMG MANAGEMENT PLUS INC
Mailing Address 2:	P.O. BOX 949
Mailing City:	YONKERS
Mailing State:	NY
Mailing Zip Code:	10704
Mailing Phone No:	(914) 667-4500
Mailing Email:	Not reported
Owner Title:	Not reported
Owner Name:	Not reported
Owner Address:	P.O. BOX 949
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	10704
Owner Phone:	(914) 667-4500
Owner Company:	PRONA ASSOCIATES TWENTY, LP C/O JMG MGMT PLUS INC
Emergency Contact:	MARIZED SIERRA
Emergency Phone:	(914) 667-4500
Operator:	CESAR GUARACA
Operator Phone:	(212) 368-0861
Owner City:	YONKERS
Owner Sub Type:	Not reported
Program Type:	PBS
Tank Number:	001
Tank Location Name:	Aboveground - in contact with soil

556 W 156 ST (Continued) **U003389296**

Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	/ /
Capacity Gallons:	3000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Aboveground
Pipe Type Name:	Galvanized Steel
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	None
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	None
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

HIST AST:

PBS Number:	2-305359
SWIS Code:	6201
Operator:	RAEFLO REALTY INC
Facility Phone:	(212) 662-0600
Facility Addr2:	556 W 156 ST
Facility Type:	APARTMENT BUILDING
Emergency:	STEPHEN WEINTRAUB
Emergency Tel:	(212) 662-0600
Old PBSNO:	Not reported
Date Inspected:	Not reported
Inspector:	Not reported
Result of Inspection:	Not reported
Owner Name:	RAEFLO REALTY INC
Owner Address:	229 WEST 105TH ST. SUITE 1
Owner City,St,Zip:	NY, NY 10025
Federal ID:	Not reported
Owner Tel:	(212) 662-0600
Owner Type:	Corporate/Commercial
Owner Subtype:	Not reported
Mailing Contact:	LESLIE KAUFMAN
Mailing Name:	RAEFLO REALTY INC
Mailing Address:	229 WEST 105TH ST. SUITE 1
Mailing Address 2:	Not reported
Mailing City,St,Zip:	NY, NY 10025

556 W 156 ST (Continued) **U003389296**

Mailing Telephone:	(212) 662-0600
Owner Mark:	First Owner
Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Certification Flag:	False
Certification Date:	07/10/1997
Expiration:	07/14/2002
Renew Flag:	False
Renew Date:	Not reported
Total Capacity:	3000
FAMT:	True
Facility Screen:	No Missing Data
Owner Screen:	No Missing Data
Tank Screen:	No Missing Data
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	62
Town or City Code:	01
Region:	2

Tank ID:	001
Tank Location:	ABOVEGROUND
Tank Status:	In Service
Install Date:	Not reported
Capacity (Gal):	3000
Product Stored:	NOS 1,2, OR 4 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	0
Tank External:	0
Pipe Location:	Aboveground
Pipe Type:	GALVANIZED STEEL
Pipe Internal:	None
Pipe External:	0
Tank Containment:	Diking
Leak Detection:	0
Overfill Protection:	4
Dispenser Method:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	No Missing Data
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	True
SPDES Number:	Not reported
Lat/Long:	Not reported

AM160 **556 WEST 156TH ST-APT A** **LTANKS** **S102662838**
NW **556 WEST 156TH ST-APT A** **HIST LTANKS** **N/A**
1/8-1/4 **NEW YORK, NY**
1217 ft.

Site 3 of 4 in cluster AM

Relative:
Higher

Actual:
131 ft.

LTANKS:

Site ID:	78355
Spill Date:	02/03/97
Facility Addr2:	Not reported
Facility ID:	9613009
Program Number:	9613009
SWIS:	3101
Region of Spill:	2
Investigator:	TOMASELLO
Referred To:	Not reported
Reported to Dept:	02/03/97
CID:	199
Spill Cause:	Tank Overfill
Water Affected:	Not reported
Spill Source:	Commercial/Industrial
Spill Notifier:	Affected Persons
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	02/24/03
Remediation Phase:	0
Date Entered In Computer:	02/03/97
Spill Record Last Update:	02/24/03
Spille Namer:	Not reported
Spiller Company:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
Spiller Address:	Not reported
Spiller City,St,Zip:	***Update***, ZZ
Spiller County:	001
Spiller Contact:	MARY MIDDLETON
Spiller Phone:	(212) 281-9480
Spiller Extention:	Not reported
DEC Region:	2
Program Number:	9613009
DER Facility ID:	72921
Site ID:	78355
Operable Unit ID:	1044554
Operable Unit:	01
Material ID:	341659
Material Code:	0001
Material Name:	#2 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	0.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False

556 WEST 156TH ST-APT A (Continued) **S102662838**

Site ID:	Not reported
Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported
DEC Memo:	Not reported
Remarks:	Start CallerRemark - 9613009 BUILDING IS OWNED RAFELLO REALITY COMPANY - TENNANT HAS HAD NO LUCK WITH LANDLORD - CALLER STATES THAT EACH TIME THE TANK IS FILLED THERE IS SOME SPILLAGE - IT HAS GOTTEN TO THE POINT THAT THE APTS ARE STARTING TO SMELL LIKE FUEL OIL - RAFELLO REALITY IS AT 229 WEST 105TH STREET 10025 END CallerRemark - 9613009

HIST LTANKS:

Region of Spill:	2
Spill Number:	9613009
Investigator:	TOMASELLO
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Caller Extension:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Notifier Extension:	Not reported
Spill Date:	02/03/1997
Spill Time:	14:39
Reported to Department Date:	02/03/97
Reported to Department Time:	14:39
SWIS:	62
Spiller Contact:	MARY MIDDLETON
Spiller Phone:	(212) 281-9480
Spiller Extention:	Not reported
Spiller Name:	Not reported
Spiller Address:	Not reported
Spiller City,St,Zip:	Not reported
Facility Contact:	Not reported
Facility Phone:	Not reported
Facility Extention:	Not reported
Spill Cause:	Tank Overfill
Resource Affectd:	On Land
Water Affected:	Not reported
Spill Source:	Other Commercial/Industrial
Spill Notifier:	Affected Persons
PBS Number:	Not reported
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Date:	/ /
Enforcement Date:	/ /
Investigation Complete:	/ /
UST Involvement:	False

556 WEST 156TH ST-APT A (Continued) **S102662838**

Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	/ /
Date Region Sent Summary to Central Office:	/ /
Corrective Action Plan Submitted:	/ /
Date Spill Entered In Computer Data File:	02/03/97
Time Spill Entered In Computer Data File:	Not reported
Spill Record Last Update:	02/04/97
Is Updated:	False
PBS Number:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate Failed Tank:	Not reported
Gross Leak Rate:	Not reported
Material Class Type:	Petroleum
Quantity Spilled:	0
Unkonwn Quantity Spilled:	True
Units:	Gallons
Quantity Recovered:	0
Unkonwn Quantity Recovered:	True
Material:	#2 FUEL OIL
Class Type:	#2 FUEL OIL
Times Material Entry In File:	24464
CAS Number:	Not reported
Last Date:	19941207
DEC Remarks:	Not reported
Spill Cause:	BUILDING IS OWNED RAFELLO REALITY COMPANY - TENNANT HAS HAD NO LUCK WITH LANDLORD - CALLER STATES THAT EACH TIME THE TANK IS FILLED THERE IS SOME SPILLAGE - IT HAS GOTTEN TO THE POINT THAT THE APTS ARE STARTING TO SMELL LIKE FUEL OIL - RAFELLO REALITY IS AT 229 WEST 105TH STREET 10025

AN161
NNE
1/8-1/4
1220 ft.

555 EDGELANDS AVE
555 EDGECOMBE AVE
NEW YORK, NY 10032

AST **U000401541**
HIST UST **N/A**

Site 1 of 2 in cluster AN

Relative:
Higher

Actual:
136 ft.

AST:

AST:

Region:	STATE
Facility Id:	2-294799
UTM X:	589506.18117
UTM Y:	4520828.49693
Expiration Date:	07/14/12
Renewal Date:	03/06/02
Total Capacity:	10000
Facility Type:	Not reported
Site Type Name:	Apartment Building/Office Building
Site Type Status:	Active
Mailing Company:	GOLSON REALTY CORP
Mailing Title:	Not reported
Mailing Contact:	Not reported
Mailing Address:	1841 BROADWAY
Mailing Address 2:	SUITE 1206
Mailing City:	NEW YORK
Mailing State:	NY

555 EDGELANDS AVE (Continued) **U000401541**

Mailing Zip Code:	10023
Mailing Phone No:	(212) 246-6525
Mailing Email:	Not reported
Owner Title:	VP
Owner Name:	GOLSON REALTY
Owner Address:	1841 BROADWAY
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	10023
Owner Phone:	(212) 246-6525
Owner Company:	GOLSON REALTY CORP
Emergency Contact:	COASTAL PETROLEUM TANK CORP
Emergency Phone:	(212) 475-4263
Operator:	GOLSONREALTY CORP
Operator Phone:	(212) 781-4138
Owner City:	NEW YORK
Owner Sub Type:	Corporate or Commercial
Program Type:	PBS

Tank Number:	001
Tank Location Name:	Aboveground on crib, rack, or cradle
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	06/01/58
Capacity Gallons:	10000
Material Name:	#6 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Vault (w/o access)
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	None
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Product Level Gauge (A/G)
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

HIST UST:

PBS Number:	2-294799
SPDES Number:	Not reported
Emergency Contact:	COASTAL PETROLEUM TANK CORP

555 EDGELANDS AVE (Continued) **U000401541**

Emergency Telephone:	(212) 475-4263
Operator:	GOLDSWAN REALTY CORP
Operator Telephone:	(212) 781-4138
Owner Name:	GOLSWAN REALTY CORP
Owner Address:	1841 BROADWAY
Owner City,St,Zip:	NEW YORK, NY 10023
Owner Telephone:	(212) 246-6525
Owner Type:	Corporate/Commercial
Owner Subtype:	Not reported
Mailing Name:	GOLSWAN REALTY CORP
Mailing Address:	1841 BROADWAY
Mailing Address 2:	SUITE 1206
Mailing City,St,Zip:	NEW YORK, NY 10023
Mailing Contact:	Not reported
Mailing Telephone:	(212) 246-6525
Owner Mark:	First Owner
Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Facility Addr2:	555 EDGECOMBE AVE
SWIS ID:	6201
Old PBS Number:	Not reported
Facility Type:	APARTMENT BUILDING
Inspected Date:	Not reported
Inspector:	Not reported
Inspection Result:	Not reported
Federal ID:	Not reported
Certification Flag:	False
Certification Date:	07/18/1997
Expiration Date:	07/14/2002
Renew Flag:	False
Renewal Date:	Not reported
Total Capacity:	10000
FAMT:	True
Facility Screen:	No Missing Data
Owner Screen:	No Missing Data
Tank Screen:	Minor Data Missing
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	62
Town or City:	01
Region:	2

Tank Id:	001
Tank Location:	UNDERGROUND, VAULTED, WITH ACCESS
Tank Status:	In Service
Install Date:	Not reported
Capacity (gals):	10000
Product Stored:	NOS 5 OR 6 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	STEEL/IRON
Pipe Internal:	Not reported
Pipe External:	Not reported

555 EDGELANDS AVE (Continued) **U000401541**

Second Containment:	Diking
Leak Detection:	None
Overfill Prot:	Product Level Gauge
Dispenser:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	False
Lat/long:	Not reported

AN162 **555 EDGECOMBE AVE** **LTANKS** **S100493543**
NNE **555 EDGECOMBE AVE** **HIST LTANKS** **N/A**
1/8-1/4 **NYC, NY**
1220 ft.

Site 2 of 2 in cluster AN

Relative:
Higher

Actual:
136 ft.

LTANKS:

Site ID:	99809
Spill Date:	05/16/92
Facility Addr2:	Not reported
Facility ID:	9201956
Program Number:	9201956
SWIS:	3101
Region of Spill:	2
Investigator:	O'DOWD
Referred To:	Not reported
Reported to Dept:	05/18/92
CID:	15
Spill Cause:	Tank Failure
Water Affected:	Not reported
Spill Source:	Commercial/Industrial
Spill Notifier:	Responsible Party
Cleanup Ceased:	05/29/92
Cleanup Meets Standard:	True
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	05/29/92
Remediation Phase:	0
Date Entered In Computer:	05/20/92
Spill Record Last Update:	04/23/93
Spille Namer:	Not reported
Spiller Company:	GOLSWAN REALTY
Spiller Phone:	Not reported
Spiller Extention:	Not reported
Spiller Address:	Not reported
Spiller City,St,Zip:	ZZ
Spiller County:	001
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
DEC Region:	2
Program Number:	9201956

555 EDGECOMBE AVE (Continued) **S100493543**

DER Facility ID:	88666
Site ID:	99809
Operable Unit ID:	966049
Operable Unit:	01
Material ID:	413240
Material Code:	0003
Material Name:	#6 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	6000.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
Site ID:	Not reported
Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported
DEC Memo:	Not reported
Remarks:	Start CallerRemark - 9201956 FUEL ON FLOOR; A L EASTMON CLEANING & REPAIRING. END CallerRemark - 9201956

HIST LTANKS:

Region of Spill:	2
Spill Number:	9201956
Investigator:	O'DOWD
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Caller Extension:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Notifier Extension:	Not reported
Spill Date:	05/16/1992
Spill Time:	24:00
Reported to Department Date:	05/18/92
Reported to Department Time:	11:22
SWIS:	62
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
Spiller Name:	GOLSWAN REALTY
Spiller Address:	Not reported
Spiller City,St,Zip:	Not reported
Facility Contact:	Not reported
Facility Phone:	Not reported
Facility Extention:	Not reported
Spill Cause:	Tank Failure
Resource Affectd:	On Land
Water Affected:	Not reported

555 EDGECOMBE AVE (Continued) **S100493543**

Spill Source:	Other Commercial/Industrial
Spill Notifier:	Responsible Party
PBS Number:	Not reported
Cleanup Ceased:	05/29/92
Cleanup Meets Standard:	True
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Date:	/ /
Enforcement Date:	/ /
Investigation Complete:	/ /
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	05/29/92
Date Region Sent Summary to Central Office:	/ /
Corrective Action Plan Submitted:	/ /
Date Spill Entered In Computer Data File:	05/20/92
Time Spill Entered In Computer Data File:	Not reported
Spill Record Last Update:	04/23/93
Is Updated:	False
PBS Number:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate Failed Tank:	Not reported
Gross Leak Rate:	Not reported
Material Class Type:	Petroleum
Quantity Spilled:	6000
Unkonwn Quantity Spilled:	False
Units:	Gallons
Quantity Recovered:	0
Unkonwn Quantity Recovered:	False
Material:	#6 FUEL OIL
Class Type:	#6 FUEL OIL
Times Material Entry In File:	2190
CAS Number:	Not reported
Last Date:	19940728
DEC Remarks:	Not reported
Spill Cause:	FUEL ON FLOOR; A L EASTMON CLEANING REPAIRING.

AJ163 **530 WEST 157TH STREET** **AST** **U003392367**
NW **530 WEST 157TH STREET** **HIST AST** **N/A**
1/8-1/4 **NEW YORK, NY 10032**
1223 ft.

Site 3 of 3 in cluster AJ

Relative:
Higher

AST:

Actual:
132 ft.

AST:

Region:	STATE
Facility Id:	2-365130
UTM X:	589158.44266
UTM Y:	4520790.53986
Expiration Date:	06/30/08
Renewal Date:	/ /
Total Capacity:	4000
Facility Type:	Not reported
Site Type Name:	Apartment Building/Office Building

530 WEST 157TH STREET (Continued) **U003392367**

Site Type Status:	Active
Mailing Company:	VENTURA LAND CORP.
Mailing Title:	Not reported
Mailing Contact:	STEVEN LAVELLE
Mailing Address:	149-45 NORTHERN BOULEVARD
Mailing Address 2:	SUITE 6V
Mailing City:	FLUSHING
Mailing State:	NY
Mailing Zip Code:	11354
Mailing Phone No:	Not reported
Mailing Email:	Not reported
Owner Title:	Not reported
Owner Name:	Not reported
Owner Address:	149-45 NORTHERN BOULEVARD
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	11354
Owner Phone:	Not reported
Owner Company:	WESTSIDE VENTURA LLC
Emergency Contact:	JOSEPH SBIROLI
Emergency Phone:	Not reported
Operator:	JOSE CABRERA
Operator Phone:	Not reported
Owner City:	FLUSHING
Owner Sub Type:	Private Resident
Program Type:	PBS
Tank Number:	1
Tank Location Name:	Aboveground - in contact with soil
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	/ /
Capacity Gallons:	4000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping
Pipe Type Name:	Galvanized Steel
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Double-Walled (Underground)
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Exempt Suction Piping
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Product Level Gauge (A/G)
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required

530 WEST 157TH STREET (Continued) **U003392367**

Date Tested: / /
Next Test Date: / /
Date Tank Closed: / /

HIST AST:

PBS Number:	2-365130
SWIS Code:	6201
Operator:	JOSE
Facility Phone:	(212) 281-4245
Facility Addr2:	530 WEST 157TH STREET
Facility Type:	APARTMENT BUILDING
Emergency:	EDUARDO DELACRUZ
Emergency Tel:	(718) 796-9595
Old PBSNO:	Not reported
Date Inspected:	Not reported
Inspector:	Not reported
Result of Inspection:	Not reported
Owner Name:	PRANA ASSOCIATES NINETEEN, LP
Owner Address:	3154 ALBANY CRESCENT, 2ND FLOOR
Owner City,St,Zip:	BRONX, NY 10763
Federal ID:	Not reported
Owner Tel:	(718) 796-9595
Owner Type:	Corporate/Commercial
Owner Subtype:	Not reported
Mailing Contact:	JONAHTAN HOCHHAUSER
Mailing Name:	PRANA ASSOCIATES NINETEEN, LP
Mailing Address:	3154 ALBANY CRESCENT
Mailing Address 2:	2ND FLOOR
Mailing City,St,Zip:	BRONX, NY 10763
Mailing Telephone:	(718) 796-9595
Owner Mark:	Second Owner
Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Certification Flag:	False
Certification Date:	02/23/2001
Expiration:	02/22/2006
Renew Flag:	False
Renew Date:	Not reported
Total Capacity:	4000
FAMT:	True
Facility Screen:	No Missing Data
Owner Screen:	No Missing Data
Tank Screen:	Minor Data Missing
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	62
Town or City Code:	01
Region:	2

Tank ID:	1
Tank Location:	ABOVEGROUND ON SADDLES LEGS, STILTS, RACK, OR CRADLE
Tank Status:	In Service
Install Date:	Not reported
Capacity (Gal):	4000
Product Stored:	NOS 1,2, OR 4 FUEL OIL

530 WEST 157TH STREET (Continued) **U003392367**

Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	GALVANIZED STEEL
Pipe Internal:	Not reported
Pipe External:	Not reported
Tank Containment:	Vault (w/access)
Leak Detection:	0
Overfill Protection:	4
Dispenser Method:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	True
SPDES Number:	Not reported
Lat/Long:	Not reported

AK164 **529 WEST 152ND STREET HDFC (T.A)** **AST** **U003395083**
West **529 WEST 152ND STREET** **HIST AST** **N/A**
1/8-1/4 **NEW YORK, NY 10031**
1226 ft.

Site 6 of 9 in cluster AK

Relative:
Higher

AST:

Actual:
136 ft.

AST:

Region:	STATE
Facility Id:	2-471488
UTM X:	588971.84998
UTM Y:	4520437.90042
Expiration Date:	03/28/94
Renewal Date:	/ /
Total Capacity:	2500
Facility Type:	Not reported
Site Type Name:	Unknown
Site Type Status:	Active
Mailing Company:	529 WEST 152ND STREET HDFC (T.A.)
Mailing Title:	Not reported
Mailing Contact:	SUPER/FACILITY MANAGER
Mailing Address:	529 WEST 152ND STREET
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip Code:	10031
Mailing Phone No:	(212) 283-6451
Mailing Email:	Not reported
Owner Title:	Not reported
Owner Name:	Not reported
Owner Address:	2089-2091 ARTHUR AVENUE
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	10457
Owner Phone:	(718) 295-2178
Owner Company:	NYC HOUSING PRESERV & DEVEL

529 WEST 152ND STREET HDFC (T.A) (Continued) **U003395083**

Emergency Contact:	NYC
Emergency Phone:	Not reported
Operator:	NYC HOUSING PRESERV & DEVEL
Operator Phone:	(212) 283-6451
Owner City:	BRONX
Owner Sub Type:	Corporate or Commercial
Program Type:	PBS

Tank Number:	001
Tank Location Name:	Aboveground - in contact with soil
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	/ /
Capacity Gallons:	2500
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Double-Walled (Underground)
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Exempt Suction Piping
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Product Level Gauge (A/G)
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

HIST AST:

PBS Number:	2-471488
SWIS Code:	6201
Operator:	NYC HOUSING PRESERV & DEVEL
Facility Phone:	(212) 283-6451
Facility Addr2:	529 WEST 152ND STREET
Facility Type:	Not reported
Emergency:	NYC
Emergency Tel:	(000) 000-0000
Old PBSNO:	Not reported
Date Inspected:	Not reported
Inspector:	Not reported
Result of Inspection:	Not reported
Owner Name:	NYC HOUSING PRESERV & DEVEL
Owner Address:	75 MAIDEN LANE

529 WEST 152ND STREET HDFC (T.A) (Continued) **U003395083**

Owner City,St,Zip:	NEW YORK, NY 10038
Federal ID:	Not reported
Owner Tel:	(212) 283-6451
Owner Type:	Corporate/Commercial
Owner Subtype:	Not reported
Mailing Contact:	SUPER/FACILITY MANAGER
Mailing Name:	529 WEST 152ND STREET HDFC (T.A.)
Mailing Address:	529 WEST 152ND STREET
Mailing Address 2:	Not reported
Mailing City,St,Zip:	NEW YORK, NY 10031
Mailing Telephone:	(212) 283-6451
Owner Mark:	First Owner
Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Certification Flag:	False
Certification Date:	Not reported
Expiration:	03/28/1994
Renew Flag:	False
Renew Date:	Not reported
Total Capacity:	2500
FAMT:	True
Facility Screen:	Minor Data Missing
Owner Screen:	Minor Data Missing
Tank Screen:	Minor Data Missing
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	62
Town or City Code:	01
Region:	2

Tank ID:	001
Tank Location:	ABOVEGROUND
Tank Status:	In Service
Install Date:	Not reported
Capacity (Gal):	2500
Product Stored:	NOS 1,2, OR 4 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	STEEL/IRON
Pipe Internal:	Not reported
Pipe External:	Not reported
Tank Containment:	Vault (w/access)
Leak Detection:	0
Overfill Protection:	4
Dispenser Method:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	False
SPDES Number:	Not reported

529 WEST 152ND STREET HDFC (T.A) (Continued) **U003395083**

Lat/Long: Not reported

AK165 **528 WEST 152ND STREET** **UST** **U004076991**
West **528 WEST 152ND STREET** **N/A**
1/8-1/4 **NEW YORK, NY 10031**
1226 ft.

Site 7 of 9 in cluster AK

Relative: Higher

UST:

Actual: 136 ft.

UST:

Facility Id:	2-207926
Expiration Date:	06/30/92
Renewal Date:	/ /
Total Capacity:	2500
Facility Type:	Not reported
Mailing Company:	KI, PROPERTIES INC
Mailing Title:	Not reported
Mailing Contact:	Not reported
Mailing Address:	528 WEST 152ND STREET
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip Code:	10031
Mailing Phone No:	(212) 234-6006
Mailing Email:	Not reported
Owner Title:	Not reported
Owner Name:	Not reported
Owner Address:	528 WEST 152ND STREET
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	10031
Owner Phone:	(212) 234-6006
Owner Company:	KI, PROPERTIES INC
Emergency Contact:	COASTAL PETROLEUM TANK CORP
Emergency Phone:	(212) 475-4263
Operator:	MR HEZEKIAH CARR
Operator Phone:	(212) 234-6006
Owner City:	NEW YORK
Owner Sub Type:	Not reported
UTM X:	588967.17862
UTM Y:	4520426.63082
Site Type Name:	Unknown
Site Type Status:	Active
Comments:	Not reported
Program Type:	PBS
Tank Number:	001
Tank Location Name:	Underground, vaulted, with access
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	/ /
Capacity Gallons:	2500
Material Name:	#2 Fuel Oil
Percentage:	100.00

528 WEST 152ND STREET (Continued) **U004076991**

Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Vault (w/o access)
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Exempt Suction Piping
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Product Level Gauge (A/G)
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

AK166 **528 WEST 152ND STREET** **HIST UST** **U000397673**
West **528 WEST 152ND STREET** **N/A**
1/8-1/4 **NEW YORK, NY 10031**
1226 ft.

Site 8 of 9 in cluster AK

Relative: Higher

Actual: 136 ft.

HIST UST:

PBS Number:	2-207926
SPDES Number:	Not reported
Emergency Contact:	COASTAL PETROLEUM TANK CORP
Emergency Telephone:	(212) 475-4263
Operator:	MR HEZEKIAH CARR
Operator Telephone:	(212) 234-6006
Owner Name:	KI, PROPERTIES INC
Owner Address:	528 WEST 152ND STREET
Owner City,St,Zip:	NEW YORK, NY 10031
Owner Telephone:	(212) 234-6006
Owner Type:	Not reported
Owner Subtype:	Not reported
Mailing Name:	KI, PROPERTIES INC
Mailing Address:	528 WEST 152ND STREET
Mailing Address 2:	Not reported
Mailing City,St,Zip:	NEW YORK, NY 10031
Mailing Contact:	Not reported
Mailing Telephone:	(212) 234-6006
Owner Mark:	First Owner
Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Facility Addr2:	528 WEST 152ND STREET
SWIS ID:	6201
Old PBS Number:	Not reported
Facility Type:	Not reported
Inspected Date:	Not reported

528 WEST 152ND STREET (Continued) **U000397673**

Inspector:	Not reported
Inspection Result:	Not reported
Federal ID:	Not reported
Certification Flag:	False
Certification Date:	06/30/1987
Expiration Date:	06/30/1992
Renew Flag:	False
Renewal Date:	Not reported
Total Capacity:	2500
FAMT:	True
Facility Screen:	Minor Data Missing
Owner Screen:	Minor Data Missing
Tank Screen:	Minor Data Missing
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	62
Town or City:	01
Region:	2

Tank Id:	001
Tank Location:	UNDERGROUND, VAULTED, WITH ACCESS
Tank Status:	In Service
Install Date:	Not reported
Capacity (gals):	2500
Product Stored:	NOS 1,2, OR 4 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	STEEL/IRON
Pipe Internal:	Not reported
Pipe External:	Not reported
Second Containment:	Diking
Leak Detection:	None
Overfill Prot:	Product Level Gauge
Dispenser:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	False
Lat/long:	Not reported

AM167 **559 WEST 156TH ST NEW YORK NY** **AST** **U003386366**
NW **559 WEST 156TH ST** **HIST AST** **N/A**
1/8-1/4 **NEW YORK, NY 10032**
1235 ft.

Site 4 of 4 in cluster AM

Relative:
Higher

AST:

Actual:
130 ft.

AST:

Region:	STATE
Facility Id:	2-213683
UTM X:	589059.24093

559 WEST 156TH ST NEW YORK NY (Continued) **U003386366**

UTM Y:	4520765.02890
Expiration Date:	06/30/07
Renewal Date:	02/05/02
Total Capacity:	5000
Facility Type:	Not reported
Site Type Name:	Apartment Building/Office Building
Site Type Status:	Active
Mailing Company:	559 WEST 156TH STREET
Mailing Title:	Not reported
Mailing Contact:	SUPER FACILITY MANAGER
Mailing Address:	559 WEST 156TH STREET
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip Code:	10032
Mailing Phone No:	(212) 234-8242
Mailing Email:	Not reported
Owner Title:	Not reported
Owner Name:	Not reported
Owner Address:	452 75TH STREET
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	11209
Owner Phone:	(718) 745-2870
Owner Company:	PETER KOKOLIS AND TERRY TSAFATINOS
Emergency Contact:	P KOKOLIS
Emergency Phone:	(718) 745-2870
Operator:	CECILIA BARREIROS
Operator Phone:	(212) 234-8242
Owner City:	BROOKLYN
Owner Sub Type:	Corporate or Commercial
Program Type:	PBS
Tank Number:	001
Tank Location Name:	Aboveground - in contact with soil
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	/ /
Capacity Gallons:	5000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported

559 WEST 156TH ST NEW YORK NY (Continued) **U003386366**

Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Product Level Gauge (A/G)
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Not reported
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

HIST AST:

PBS Number:	2-213683
SWIS Code:	6201
Operator:	CECILIA BARREIROS
Facility Phone:	(212) 234-8242
Facility Addr2:	559 WEST 156TH ST
Facility Type:	APARTMENT BUILDING
Emergency:	P KOKOLIS
Emergency Tel:	(718) 745-2870
Old PBSNO:	Not reported
Date Inspected:	Not reported
Inspector:	Not reported
Result of Inspection:	Not reported
Owner Name:	PETER KOKOLIS AND TERRY TSAFATINOS
Owner Address:	452 75TH STREET
Owner City,St,Zip:	BROOKLYN, NY 11209
Federal ID:	Not reported
Owner Tel:	(718) 745-2870
Owner Type:	Corporate/Commercial
Owner Subtype:	Not reported
Mailing Contact:	SUPER FACILITY MANAGER
Mailing Name:	559 WEST 156TH STREET
Mailing Address:	559 WEST 156TH STREET
Mailing Address 2:	Not reported
Mailing City,St,Zip:	NEW YORK, NY 10032
Mailing Telephone:	(212) 234-8242
Owner Mark:	First Owner
Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Certification Flag:	False
Certification Date:	05/07/1998
Expiration:	06/30/2002
Renew Flag:	False
Renew Date:	Not reported
Total Capacity:	5000
FAMT:	True
Facility Screen:	No Missing Data
Owner Screen:	No Missing Data
Tank Screen:	Minor Data Missing
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	62
Town or City Code:	01
Region:	2

559 WEST 156TH ST NEW YORK NY (Continued) **U003386366**

Tank ID:	001
Tank Location:	ABOVEGROUND
Tank Status:	In Service
Install Date:	Not reported
Capacity (Gal):	5000
Product Stored:	NOS 1,2, OR 4 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	STEEL/IRON
Pipe Internal:	Not reported
Pipe External:	Not reported
Tank Containment:	None
Leak Detection:	0
Overfill Protection:	4
Dispenser Method:	Gravity
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	False
SPDES Number:	Not reported
Lat/Long:	Not reported

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168 **307 W. 153RD ST** **LTANKS** **S102672694**
SE **301 153RD ST** **HIST LTANKS** **N/A**
1/8-1/4 **MANHATTAN, NY**
1236 ft.

Relative:
Lower

Actual:
16 ft.

LTANKS:

Site ID:	135661
Spill Date:	11/25/94
Facility Addr2:	Not reported
Facility ID:	9411344
Program Number:	9411344
SWIS:	3101
Region of Spill:	2
Investigator:	SMMARTIN
Referred To:	Not reported
Reported to Dept:	11/25/94
CID:	15
Spill Cause:	Tank Overfill
Water Affected:	Not reported
Spill Source:	Tank Truck
Spill Notifier:	Responsible Party
Cleanup Ceased:	11/25/94
Cleanup Meets Standard:	True
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	11/25/94
Remediation Phase:	0
Date Entered In Computer:	01/05/95

307 W. 153RD ST (Continued) **S102672694**

Spill Record Last Update:	06/19/06
Spille Namer:	Not reported
Spiller Company:	307 W. 153RD ST CORP
Spiller Phone:	Not reported
Spiller Extention:	Not reported
Spiller Address:	Not reported
Spiller City,St,Zip:	ZZ
Spiller County:	001
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
DEC Region:	2
Program Number:	9411344
DER Facility ID:	116487
Site ID:	135661
Operable Unit ID:	1009224
Operable Unit:	01
Material ID:	377202
Material Code:	0001
Material Name:	#2 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	1.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
Site ID:	Not reported
Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported
DEC Memo:	Start DECRemark - 9411344 Prior to Sept, 2004 data translation this spill Lead DEC Field was "MARTINKAT" END DECRemark - 9411344
Remarks:	Start CallerRemark - 9411344 DEFFECTIVE PETROMETER TANK OVERFILL- SIDEWALK CLEANUP. END CallerRemark - 9411344

HIST LTANKS:

Region of Spill:	2
Spill Number:	9411344
Investigator:	MARTINKAT
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Caller Extension:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Notifier Extension:	Not reported
Spill Date:	11/25/1994
Spill Time:	11:00
Reported to Department Date:	11/25/94

307 W. 153RD ST (Continued) **S102672694**

Reported to Department Time: 11:44
SWIS: 62
Spiller Contact: Not reported
Spiller Phone: Not reported
Spiller Extention: Not reported
Spiller Name: 307 W. 153RD ST CORP
Spiller Address: Not reported
Spiller City,St,Zip: Not reported
Facility Contact: Not reported
Facility Phone: Not reported
Facility Extention: Not reported
Spill Cause: Tank Overfill
Resource Affectd: On Land
Water Affected: Not reported
Spill Source: Tank Truck
Spill Notifier: Responsible Party
PBS Number: Not reported
Cleanup Ceased: 11/25/94
Cleanup Meets Standard: True
Last Inspection: / /
Recommended Penalty: Penalty Not Recommended
Spiller Cleanup Date: / /
Enforcement Date: / /
Investigation Complete: / /
UST Involvement: False
Spill Class: Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: 11/25/94
Date Region Sent Summary to Central Office: / /
Corrective Action Plan Submitted: / /
Date Spill Entered In Computer Data File: 01/05/95
Time Spill Entered In Computer Data File: Not reported
Spill Record Last Update: / /
Is Updated: False
PBS Number: Not reported
Tank Number: Not reported
Tank Size: Not reported
Test Method: Not reported
Leak Rate Failed Tank: Not reported
Gross Leak Rate: Not reported
Material Class Type: Petroleum
Quantity Spilled: 1
Unkonwn Quantity Spilled: False
Units: Gallons
Quantity Recovered: 0
Unkonwn Quantity Recovered: False
Material: #2 FUEL OIL
Class Type: #2 FUEL OIL
Times Material Entry In File: 24464
CAS Number: Not reported
Last Date: 19941207
DEC Remarks: Not reported
Spill Cause: DEFFECTIVE PETROMETER TANK OVERFILL- SIDEWALK CLEANUP.

AL169 **529 WEST 158TH ST. INC.** **AST** **A100153918**
NNW **529 WEST 158TH STREET** **N/A**
1/8-1/4 **NEW YORK, NY 10032**
1237 ft.

Site 4 of 4 in cluster AL

Relative:
Higher

AST:

Actual:
137 ft.

AST:

Region:	STATE
Facility Id:	2-290920
UTM X:	589203.57682
UTM Y:	4520865.91458
Expiration Date:	08/20/04
Renewal Date:	/ /
Total Capacity:	3000
Facility Type:	Not reported
Site Type Name:	Apartment Building/Office Building
Site Type Status:	Active
Mailing Company:	529 WEST 158TH STREET, INC.
Mailing Title:	Not reported
Mailing Contact:	Not reported
Mailing Address:	1801 WEEKS AVENUE
Mailing Address 2:	Not reported
Mailing City:	BRONX
Mailing State:	NY
Mailing Zip Code:	10457
Mailing Phone No:	(718) 583-2300
Mailing Email:	Not reported
Owner Title:	Not reported
Owner Name:	Not reported
Owner Address:	1801 WEEKS AVE.
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	10457
Owner Phone:	(718) 583-2300
Owner Company:	529 WEST 158TH STREET INC.
Emergency Contact:	LEZE GAZIVODA
Emergency Phone:	(718) 583-2300
Operator:	LEZE GAZIVODA
Operator Phone:	(718) 583-2300
Owner City:	BRONX
Owner Sub Type:	Corporate or Commercial
Program Type:	PBS
Tank Number:	001
Tank Location Name:	Aboveground - in contact with soil
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	/ /
Capacity Gallons:	3000
Material Name:	#6 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping

529 WEST 158TH ST. INC. (Continued) **A100153918**

Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Vault (w/o access)
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Exempt Suction Piping
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Product Level Gauge (A/G)
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

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170 West 1/8-1/4 1243 ft.

550 WEST 153RD STREET **AST** **U003395086**
550 WEST 153RD STREET **HIST AST** **N/A**
NEW YORK, NY 10031

Relative: Higher

Actual: 147 ft.

AST:

AST:

Region:	STATE
Facility Id:	2-471518
UTM X:	588954.79598
UTM Y:	4520523.51597
Expiration Date:	03/28/94
Renewal Date:	/ /
Total Capacity:	2500
Facility Type:	Not reported
Site Type Name:	Unknown
Site Type Status:	Active
Mailing Company:	NYC HOUSING PRESERV & DEVEL
Mailing Title:	Not reported
Mailing Contact:	Not reported
Mailing Address:	2089-2091 ARTHUR AVENUE
Mailing Address 2:	Not reported
Mailing City:	BRONX
Mailing State:	NY
Mailing Zip Code:	10457
Mailing Phone No:	(718) 295-2178
Mailing Email:	Not reported
Owner Title:	Not reported
Owner Name:	Not reported
Owner Address:	2089-2091 ARTHUR AVENUE
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	10457
Owner Phone:	(718) 295-2178
Owner Company:	NYC HOUSING PRESERV & DEVEL
Emergency Contact:	JUANITA ARSENEC
Emergency Phone:	(212) 360-7900
Operator:	NYC HOUSING PRSERV & DEVEL

550 WEST 153RD STREET (Continued) **U003395086**

Operator Phone:	(212) 806-8565
Owner City:	BRONX
Owner Sub Type:	Not reported
Program Type:	PBS
Tank Number:	001
Tank Location Name:	Aboveground - in contact with soil
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	/ /
Capacity Gallons:	2500
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Double-Walled (Underground)
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Exempt Suction Piping
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Product Level Gauge (A/G)
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

HIST AST:

PBS Number:	2-471518
SWIS Code:	6201
Operator:	NYC HOUSING PRSERV & DEVEL
Facility Phone:	(212) 806-8565
Facility Addr2:	550 WEST 153RD STREET
Facility Type:	Not reported
Emergency:	JUANITA ARSENEC
Emergency Tel:	(212) 360-7900
Old PBSNO:	Not reported
Date Inspected:	Not reported
Inspector:	Not reported
Result of Inspection:	Not reported
Owner Name:	NYC HOUSING PRESERV & DEVEL
Owner Address:	75 MAIDEN LANE
Owner City,St,Zip:	NEW YORK, NY 10038
Federal ID:	Not reported
Owner Tel:	(212) 806-8565

550 WEST 153RD STREET (Continued) **U003395086**

Owner Type:	Not reported
Owner Subtype:	Not reported
Mailing Contact:	Not reported
Mailing Name:	NYC HOUSING PRESERV & DEVEL
Mailing Address:	75 MAIDEN LANE
Mailing Address 2:	Not reported
Mailing City,St,Zip:	NEW YORK, NY 10038
Mailing Telephone:	(212) 806-8565
Owner Mark:	First Owner
Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Certification Flag:	False
Certification Date:	03/28/1989
Expiration:	03/28/1994
Renew Flag:	False
Renew Date:	Not reported
Total Capacity:	2500
FAMT:	True
Facility Screen:	Minor Data Missing
Owner Screen:	Minor Data Missing
Tank Screen:	Minor Data Missing
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	62
Town or City Code:	01
Region:	2

Tank ID:	001
Tank Location:	ABOVEGROUND
Tank Status:	In Service
Install Date:	Not reported
Capacity (Gal):	2500
Product Stored:	NOS 1,2, OR 4 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	STEEL/IRON
Pipe Internal:	Not reported
Pipe External:	Not reported
Tank Containment:	Vault (w/access)
Leak Detection:	0
Overfill Protection:	4
Dispenser Method:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	False
SPDES Number:	Not reported
Lat/Long:	Not reported

AK171 **532 WEST 152 ST** **AST** **A100183248**
West **532 WEST 152ND STREET** **N/A**
1/8-1/4 **NEW YORK, NY 10031**
1255 ft.

Site 9 of 9 in cluster AK

Relative:
Higher

AST:

Actual:
136 ft.

AST:

Region:	STATE
Facility Id:	2-606652
UTM X:	588928.71873
UTM Y:	4520419.79090
Expiration Date:	08/07/11
Renewal Date:	/ /
Total Capacity:	1500
Facility Type:	Not reported
Site Type Name:	Apartment Building/Office Building
Site Type Status:	Active
Mailing Company:	532 CORP.
Mailing Title:	Not reported
Mailing Contact:	PRITPAL KOCHHAR
Mailing Address:	P.O. BOX 1075
Mailing Address 2:	COOPER STATION
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip Code:	10276-1075
Mailing Phone No:	(212) 979-2246
Mailing Email:	PSKOCHHAR@MSN.COM
Owner Title:	PRESIDENT
Owner Name:	PRITPAL S. KOCHHAR
Owner Address:	P.O. BOX 1075, COOPER STN.
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	10276
Owner Phone:	(212) 979-2246
Owner Company:	532 CORP.
Emergency Contact:	PRITPAL KOCHHAR
Emergency Phone:	(917) 998-2244
Operator:	PRITPAL KOCHHAR
Operator Phone:	(212) 979-2246
Owner City:	NEW YORK
Owner Sub Type:	Corporate or Commercial
Program Type:	PBS
Tank Number:	001
Tank Location Name:	Aboveground - in contact with soil
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	/ /
Capacity Gallons:	1500
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping

532 WEST 152 ST (Continued) **A100183248**

Pipe Type Name:	No Piping
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	None
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	None
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

AO172 **FOUR SEASONS CLEANERS** **RCRA-SQG** **1000351723**
WSW **1838 AMSTERDAM AVE** **FINDS** **NYD981176878**
1/8-1/4 **NEW YORK, NY 10032** **NY MANIFEST**
1256 ft.

Site 1 of 6 in cluster AO

Relative:
Higher

Actual:
130 ft.

RCRAInfo:

Owner:	SUNG-CHUL OH (212) 555-1212
EPA ID:	NYD981176878
Contact:	Not reported
Classification:	Small Quantity Generator
TSDF Activities:	Not reported
Violation Status:	No violations found

FINDS:

Other Pertinent Environmental Activity Identified at Site

AFS (Aerometric Information Retrieval System (AIRS) Facility Subsystem) replaces the former Compliance Data System (CDS), the National Emission Data System (NEDS), and the Storage and Retrieval of Aerometric Data (SAROAD). AIRS is the national repository for information concerning airborne pollution in the United States. AFS is used to track emissions and compliance data from industrial plants. AFS data are utilized by states to prepare State Implementation Plans to comply with regulatory programs and by EPA as an input for the estimation of total national emissions. AFS is undergoing a major redesign to support facility operating permits required under Title V of the Clean Air Act.

NJ-NJEMS (New Jersey - New Jersey Environmental Management System). The Department of Environmental Protection (NJDEP) manages large databases of environmental information in this integrated system.

FIS (New York - Facility Information System) is New York's Department of Environmental Conservation (DEC) information system for tracking environmental facility information found across the State.

FOUR SEASONS CLEANERS (Continued) **1000351723**

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

NY MANIFEST:

Document ID:	NJA1421075
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	920602
Trans1 Recv Date:	920602
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	920602
Part A Recv Date:	Not reported
Part B Recv Date:	920616
Generator EPA ID:	NYD981176878
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NJD000768093
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00060
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	92
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD981176878
Facility Name:	FOUR SEASONS CLEANERS
Facility Address:	1838 AMSTERDAM AVENUE
Facility City:	NEW YORK
Facility Address 2:	Not reported
Country:	USA
County:	NE
Mailing Name:	FOUR SEASONS CLEANERS
Mailing Contact:	FOUR SEASONS CLEANERS
Mailing Address:	1838 AMSTERDAM AVENUE
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported

FOUR SEASONS CLEANERS (Continued) **1000351723**

Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-281-7622

Document ID:	NJA1444358
Manifest Status:	Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	920504
Trans1 Recv Date:	920504
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	920504
Part A Recv Date:	Not reported
Part B Recv Date:	920602
Generator EPA ID:	NYD981176878
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NJD000768093
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00060
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	92
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD981176878
Facility Name:	FOUR SEASONS CLEANERS
Facility Address:	1838 AMSTERDAM AVENUE
Facility City:	NEW YORK
Facility Address 2:	Not reported
Country:	USA
County:	NE
Mailing Name:	FOUR SEASONS CLEANERS
Mailing Contact:	FOUR SEASONS CLEANERS
Mailing Address:	1838 AMSTERDAM AVENUE
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-281-7622

Document ID:	NJA1463278

FOUR SEASONS CLEANERS (Continued) **1000351723**

Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	920630
Trans1 Recv Date:	920630
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	920630
Part A Recv Date:	920715
Part B Recv Date:	920710
Generator EPA ID:	NYD981176878
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NJD000768093
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00060
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	92
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD981176878
Facility Name:	FOUR SEASONS CLEANERS
Facility Address:	1838 AMSTERDAM AVENUE
Facility City:	NEW YORK
Facility Address 2:	Not reported
Country:	USA
County:	NE
Mailing Name:	FOUR SEASONS CLEANERS
Mailing Contact:	FOUR SEASONS CLEANERS
Mailing Address:	1838 AMSTERDAM AVENUE
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-281-7622
Document ID:	NJA1416323
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	920409
Trans1 Recv Date:	920409

FOUR SEASONS CLEANERS (Continued) **1000351723**

Trans2 Recv Date:	Not reported
TSD Site Recv Date:	920409
Part A Recv Date:	920423
Part B Recv Date:	920422
Generator EPA ID:	NYD981176878
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NJD000768093
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00060
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	92
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD981176878
Facility Name:	FOUR SEASONS CLEANERS
Facility Address:	1838 AMSTERDAM AVENUE
Facility City:	NEW YORK
Facility Address 2:	Not reported
Country:	USA
County:	NE
Mailing Name:	FOUR SEASONS CLEANERS
Mailing Contact:	FOUR SEASONS CLEANERS
Mailing Address:	1838 AMSTERDAM AVENUE
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-281-7622
Document ID:	NJA0254892
Manifest Status:	Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	870105
Trans1 Recv Date:	870105
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	870105
Part A Recv Date:	870123
Part B Recv Date:	870202
Generator EPA ID:	NYD981176878

FOUR SEASONS CLEANERS (Continued) **1000351723**

Trans1 EPA ID:	ILD000805911
Trans2 EPA ID:	Not reported
TSDF ID:	NJD000768093
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00060
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Year:	87
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD981176878
Facility Name:	FOUR SEASONS CLEANERS
Facility Address:	1838 AMSTERDAM AVENUE
Facility City:	NEW YORK
Facility Address 2:	Not reported
Country:	USA
County:	NE
Mailing Name:	FOUR SEASONS CLEANERS
Mailing Contact:	FOUR SEASONS CLEANERS
Mailing Address:	1838 AMSTERDAM AVENUE
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-281-7622
Document ID:	NJA0364146
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	871113
Trans1 Recv Date:	871113
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	871113
Part A Recv Date:	871120
Part B Recv Date:	871124
Generator EPA ID:	NYD981176878
Trans1 EPA ID:	NJD000768093
Trans2 EPA ID:	Not reported
TSDF ID:	NJD000768093
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00195

FOUR SEASONS CLEANERS (Continued) **1000351723**

Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	00080
Units:	P - Pounds
Number of Containers:	001
Container Type:	CF - Fiber or plastic boxes, cartons
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Year:	87
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD981176878
Facility Name:	FOUR SEASONS CLEANERS
Facility Address:	1838 AMSTERDAM AVENUE
Facility City:	NEW YORK
Facility Address 2:	Not reported
Country:	USA
County:	NE
Mailing Name:	FOUR SEASONS CLEANERS
Mailing Contact:	FOUR SEASONS CLEANERS
Mailing Address:	1838 AMSTERDAM AVENUE
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-281-7622
Document ID:	NJA1349816
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	921201
Trans1 Recv Date:	921201
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	921201
Part A Recv Date:	921214
Part B Recv Date:	921215
Generator EPA ID:	NYD981176878
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NJD000768093

FOUR SEASONS CLEANERS (Continued) **1000351723**

Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00060
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	92
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD981176878
Facility Name:	FOUR SEASONS CLEANERS
Facility Address:	1838 AMSTERDAM AVENUE
Facility City:	NEW YORK
Facility Address 2:	Not reported
Country:	USA
County:	NE
Mailing Name:	FOUR SEASONS CLEANERS
Mailing Contact:	FOUR SEASONS CLEANERS
Mailing Address:	1838 AMSTERDAM AVENUE
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-281-7622
Document ID:	NYG0075348
Manifest Status:	Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID:	XZ90GR501
Trans2 State ID:	Not reported
Generator Ship Date:	970915
Trans1 Recv Date:	970915
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	970926
Part A Recv Date:	971020
Part B Recv Date:	971014
Generator EPA ID:	NYD981176878
Trans1 EPA ID:	NJD000564906
Trans2 EPA ID:	Not reported
TSDF ID:	NYD082785429
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00100
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels

FOUR SEASONS CLEANERS (Continued) **1000351723**

Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	97
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD981176878
Facility Name:	FOUR SEASONS CLEANERS
Facility Address:	1838 AMSTERDAM AVENUE
Facility City:	NEW YORK
Facility Address 2:	Not reported
Country:	USA
County:	NE
Mailing Name:	FOUR SEASONS CLEANERS
Mailing Contact:	FOUR SEASONS CLEANERS
Mailing Address:	1838 AMSTERDAM AVENUE
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-281-7622
Document ID:	NYB8528337
Manifest Status:	Completed copy
Trans1 State ID:	XZ90GR501
Trans2 State ID:	Not reported
Generator Ship Date:	970409
Trans1 Recv Date:	970409
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	970414
Part A Recv Date:	970424
Part B Recv Date:	970428
Generator EPA ID:	NYD981176878
Trans1 EPA ID:	NJD000564906
Trans2 EPA ID:	Not reported
TSDF ID:	NYD082785429
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00060
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	97
Manifest Tracking Num:	Not reported
Import Ind:	Not reported

FOUR SEASONS CLEANERS (Continued) **1000351723**

Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD981176878
Facility Name:	FOUR SEASONS CLEANERS
Facility Address:	1838 AMSTERDAM AVENUE
Facility City:	NEW YORK
Facility Address 2:	Not reported
Country:	USA
County:	NE
Mailing Name:	FOUR SEASONS CLEANERS
Mailing Contact:	FOUR SEASONS CLEANERS
Mailing Address:	1838 AMSTERDAM AVENUE
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-281-7622
Document ID:	NYG0159921
Manifest Status:	Completed copy
Trans1 State ID:	XZ90GR501
Trans2 State ID:	Not reported
Generator Ship Date:	970619
Trans1 Recv Date:	970619
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	970620
Part A Recv Date:	970716
Part B Recv Date:	970714
Generator EPA ID:	NYD981176878
Trans1 EPA ID:	NJD000564906
Trans2 EPA ID:	Not reported
TSDF ID:	NYD082785429
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00060
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	97
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported

FOUR SEASONS CLEANERS (Continued) **1000351723**

Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD981176878
Facility Name:	FOUR SEASONS CLEANERS
Facility Address:	1838 AMSTERDAM AVENUE
Facility City:	NEW YORK
Facility Address 2:	Not reported
Country:	USA
County:	NE
Mailing Name:	FOUR SEASONS CLEANERS
Mailing Contact:	FOUR SEASONS CLEANERS
Mailing Address:	1838 AMSTERDAM AVENUE
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-281-7622

Document ID:	NJA0433934
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	880527
Trans1 Recv Date:	880527
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	880527
Part A Recv Date:	880606
Part B Recv Date:	880608
Generator EPA ID:	NYD981176878
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NJD000768093
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00195
Units:	P - Pounds
Number of Containers:	001
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Year:	88
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported

FOUR SEASONS CLEANERS (Continued) **1000351723**

EPA ID:	NYD981176878
Facility Name:	FOUR SEASONS CLEANERS
Facility Address:	1838 AMSTERDAM AVENUE
Facility City:	NEW YORK
Facility Address 2:	Not reported
Country:	USA
County:	NE
Mailing Name:	FOUR SEASONS CLEANERS
Mailing Contact:	FOUR SEASONS CLEANERS
Mailing Address:	1838 AMSTERDAM AVENUE
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-281-7622
Document ID:	NJA1415969
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	921006
Trans1 Recv Date:	921006
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	921006
Part A Recv Date:	Not reported
Part B Recv Date:	921023
Generator EPA ID:	NYD981176878
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NJD000768093
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00060
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	92
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD981176878
Facility Name:	FOUR SEASONS CLEANERS
Facility Address:	1838 AMSTERDAM AVENUE
Facility City:	NEW YORK
Facility Address 2:	Not reported

FOUR SEASONS CLEANERS (Continued) **1000351723**

Country:	USA
County:	NE
Mailing Name:	FOUR SEASONS CLEANERS
Mailing Contact:	FOUR SEASONS CLEANERS
Mailing Address:	1838 AMSTERDAM AVENUE
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-281-7622
Document ID:	NJA1647290
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	930106
Trans1 Recv Date:	930106
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	930106
Part A Recv Date:	930115
Part B Recv Date:	930120
Generator EPA ID:	NYD981176878
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NJD000768093
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00060
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	93
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD981176878
Facility Name:	FOUR SEASONS CLEANERS
Facility Address:	1838 AMSTERDAM AVENUE
Facility City:	NEW YORK
Facility Address 2:	Not reported
Country:	USA
County:	NE
Mailing Name:	FOUR SEASONS CLEANERS
Mailing Contact:	FOUR SEASONS CLEANERS
Mailing Address:	1838 AMSTERDAM AVENUE

FOUR SEASONS CLEANERS (Continued) **1000351723**

Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-281-7622

Document ID:	NJA1413800
Manifest Status:	Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	920730
Trans1 Recv Date:	920730
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	920730
Part A Recv Date:	Not reported
Part B Recv Date:	920929
Generator EPA ID:	NYD981176878
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NJD000768093
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00195
Units:	P - Pounds
Number of Containers:	001
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	92
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD981176878
Facility Name:	FOUR SEASONS CLEANERS
Facility Address:	1838 AMSTERDAM AVENUE
Facility City:	NEW YORK
Facility Address 2:	Not reported
Country:	USA
County:	NE
Mailing Name:	FOUR SEASONS CLEANERS
Mailing Contact:	FOUR SEASONS CLEANERS
Mailing Address:	1838 AMSTERDAM AVENUE
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported

FOUR SEASONS CLEANERS (Continued) **1000351723**

Mailing Country:	USA
Mailing Phone:	212-281-7622
Document ID:	NJA1420119
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	920824
Trans1 Recv Date:	920824
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	920824
Part A Recv Date:	920908
Part B Recv Date:	920903
Generator EPA ID:	NYD981176878
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NJD000768093
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00060
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	92
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD981176878
Facility Name:	FOUR SEASONS CLEANERS
Facility Address:	1838 AMSTERDAM AVENUE
Facility City:	NEW YORK
Facility Address 2:	Not reported
Country:	USA
County:	NE
Mailing Name:	FOUR SEASONS CLEANERS
Mailing Contact:	FOUR SEASONS CLEANERS
Mailing Address:	1838 AMSTERDAM AVENUE
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-281-7622
Document ID:	NJA0503561
Manifest Status:	Completed copy

FOUR SEASONS CLEANERS (Continued) **1000351723**

Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	880802
Trans1 Recv Date:	880802
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	880802
Part A Recv Date:	880804
Part B Recv Date:	880819
Generator EPA ID:	NYD981176878
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NJD000768093
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00080
Units:	P - Pounds
Number of Containers:	001
Container Type:	CF - Fiber or plastic boxes, cartons
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Year:	88
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD981176878
Facility Name:	FOUR SEASONS CLEANERS
Facility Address:	1838 AMSTERDAM AVENUE
Facility City:	NEW YORK
Facility Address 2:	Not reported
Country:	USA
County:	NE
Mailing Name:	FOUR SEASONS CLEANERS
Mailing Contact:	FOUR SEASONS CLEANERS
Mailing Address:	1838 AMSTERDAM AVENUE
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-281-7622
Document ID:	NJA0441212
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	880414
Trans1 Recv Date:	880414
Trans2 Recv Date:	Not reported

FOUR SEASONS CLEANERS (Continued) **1000351723**

TSD Site Recv Date:	880414
Part A Recv Date:	880419
Part B Recv Date:	880426
Generator EPA ID:	NYD981176878
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NJD000768093
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00080
Units:	P - Pounds
Number of Containers:	001
Container Type:	CF - Fiber or plastic boxes, cartons
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Year:	88
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD981176878
Facility Name:	FOUR SEASONS CLEANERS
Facility Address:	1838 AMSTERDAM AVENUE
Facility City:	NEW YORK
Facility Address 2:	Not reported
Country:	USA
County:	NE
Mailing Name:	FOUR SEASONS CLEANERS
Mailing Contact:	FOUR SEASONS CLEANERS
Mailing Address:	1838 AMSTERDAM AVENUE
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-281-7622
Document ID:	NYA8634262
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	880201
Trans1 Recv Date:	880201
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	880201
Part A Recv Date:	880208
Part B Recv Date:	880208
Generator EPA ID:	NYD981176878
Trans1 EPA ID:	ILD051060408

FOUR SEASONS CLEANERS (Continued) **1000351723**

Trans2 EPA ID:	Not reported
TSDF ID:	NJD000768093
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00080
Units:	P - Pounds
Number of Containers:	001
Container Type:	CF - Fiber or plastic boxes, cartons
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Year:	88
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD981176878
Facility Name:	FOUR SEASONS CLEANERS
Facility Address:	1838 AMSTERDAM AVENUE
Facility City:	NEW YORK
Facility Address 2:	Not reported
Country:	USA
County:	NE
Mailing Name:	FOUR SEASONS CLEANERS
Mailing Contact:	FOUR SEASONS CLEANERS
Mailing Address:	1838 AMSTERDAM AVENUE
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-281-7622
Document ID:	NJA0506227
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	881003
Trans1 Recv Date:	881003
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	881003
Part A Recv Date:	881006
Part B Recv Date:	881007
Generator EPA ID:	NYD981176878
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NJD000768093
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00080
Units:	P - Pounds

FOUR SEASONS CLEANERS (Continued) **1000351723**

Number of Containers:	001
Container Type:	CF - Fiber or plastic boxes, cartons
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Year:	88
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD981176878
Facility Name:	FOUR SEASONS CLEANERS
Facility Address:	1838 AMSTERDAM AVENUE
Facility City:	NEW YORK
Facility Address 2:	Not reported
Country:	USA
County:	NE
Mailing Name:	FOUR SEASONS CLEANERS
Mailing Contact:	FOUR SEASONS CLEANERS
Mailing Address:	1838 AMSTERDAM AVENUE
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-281-7622
Document ID:	NJA1545798
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	930419
Trans1 Recv Date:	930419
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	930419
Part A Recv Date:	930504
Part B Recv Date:	930503
Generator EPA ID:	NYD981176878
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NJD000768093
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00060
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	93

FOUR SEASONS CLEANERS (Continued) **1000351723**

Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD981176878
Facility Name:	FOUR SEASONS CLEANERS
Facility Address:	1838 AMSTERDAM AVENUE
Facility City:	NEW YORK
Facility Address 2:	Not reported
Country:	USA
County:	NE
Mailing Name:	FOUR SEASONS CLEANERS
Mailing Contact:	FOUR SEASONS CLEANERS
Mailing Address:	1838 AMSTERDAM AVENUE
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-281-7622

Click this hyperlink while viewing on your computer to access
73 additional NY_MANIFEST: record(s) in the EDR Site Report.

AO173 **FOUR SEASONS/PINETREE FRNCH CLNRS** **DRYCLEANERS** **S106436112**
WSW **1838 AMSTERDAM AVENUE** **N/A**
1/8-1/4 **NEW YORK, NY**
1256 ft.

Site 2 of 6 in cluster AO

Relative: Higher

DRYCLEANERS:
Facility ID: 2-6201-00070
Region: NY

Actual: 130 ft.

AO174 **PINE TREE FRENCH CLEANERS** **RCRA-SQG** **1000994334**
WSW **1838 AMSTERDAM AVE** **NYD981875214**
1/8-1/4 **NEW YORK, NY 10031**
1262 ft.

Site 3 of 6 in cluster AO

Relative: Higher

Actual: 130 ft.

PINE TREE FRENCH CLEANERS (Continued) **1000994334**

RCRAInfo:

Owner:	PINE TREE FRENCH CLEANERS (212) 555-1212
EPA ID:	NYD981875214
Contact:	EI BOO LEE (212) 555-1212
Classification:	Small Quantity Generator
TSDF Activities:	Not reported
Violation Status:	No violations found

AP175 **498 W 159TH ST** **LTANKS** **S102662860**
North **498 W 159TH ST** **HIST LTANKS** **N/A**
1/8-1/4 **NEW YORK CITY, NY**
1267 ft.

Site 1 of 5 in cluster AP

Relative:
Higher

Actual:
153 ft.

LTANKS:

Site ID:	164403
Spill Date:	02/18/97
Facility Addr2:	Not reported
Facility ID:	9613555
Program Number:	9613555
SWIS:	3101
Region of Spill:	2
Investigator:	GUTIERREZ
Referred To:	Not reported
Reported to Dept:	02/18/97
CID:	15
Spill Cause:	Tank Overfill
Water Affected:	Not reported
Spill Source:	Private Dwelling
Spill Notifier:	Local Agency
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	03/10/03
Remediation Phase:	0
Date Entered In Computer:	02/18/97
Spill Record Last Update:	03/10/03
Spille Namer:	Not reported
Spiller Company:	JTF MANAGEMENT
Spiller Phone:	(914) 686-1424
Spiller Extention:	Not reported
Spiller Address:	Not reported
Spiller City,St,Zip:	ZZ
Spiller County:	001
Spiller Contact:	JIM CAREY
Spiller Phone:	(718) 579-3414
Spiller Extention:	Not reported
DEC Region:	2
Program Number:	9613555
DER Facility ID:	138627

498 W 159TH ST (Continued) **S102662860**

Site ID:	164403
Operable Unit ID:	1041124
Operable Unit:	01
Material ID:	338662
Material Code:	0002
Material Name:	#4 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	20.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
Site ID:	Not reported
Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported
DEC Memo:	Not reported
Remarks:	Not reported

HIST LTANKS:

Region of Spill:	2
Spill Number:	9613555
Investigator:	GUTIERREZ
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Caller Extension:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Notifier Extension:	Not reported
Spill Date:	02/18/1997
Spill Time:	20:00
Reported to Department Date:	02/18/97
Reported to Department Time:	20:27
SWIS:	62
Spiller Contact:	JIM CAREY
Spiller Phone:	(718) 579-3414
Spiller Extention:	Not reported
Spiller Name:	JTF MANAGEMENT
Spiller Address:	Not reported
Spiller City,St,Zip:	Not reported
Facility Contact:	Not reported
Facility Phone:	(914) 686-1424
Facility Extention:	Not reported
Spill Cause:	Tank Overfill
Resource Affectd:	On Land
Water Affected:	Not reported
Spill Source:	Private Dwelling
Spill Notifier:	Local Agency

498 W 159TH ST (Continued) **S102662860**

PBS Number:	Not reported
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Date:	/ /
Enforcement Date:	/ /
Investigation Complete:	/ /
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	/ /
Date Region Sent Summary to Central Office:	/ /
Corrective Action Plan Submitted:	/ /
Date Spill Entered In Computer Data File:	02/18/97
Time Spill Entered In Computer Data File:	Not reported
Spill Record Last Update:	02/21/97
Is Updated:	False
PBS Number:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate Failed Tank:	Not reported
Gross Leak Rate:	Not reported
Material Class Type:	Petroleum
Quantity Spilled:	20
Unkonwn Quantity Spilled:	False
Units:	Gallons
Quantity Recovered:	0
Unkonwn Quantity Recovered:	False
Material:	#4 FUEL OIL
Class Type:	#4 FUEL OIL
Times Material Entry In File:	1751
CAS Number:	Not reported
Last Date:	19941205
DEC Remarks:	Not reported
Spill Cause:	Not reported

AP176 **MARIPOSA PROPERTIES** **AST** **U003395791**
North **498 WEST 159TH STREET** **HIST AST** **N/A**
1/8-1/4 **NEW YORK, NY 10032**
1267 ft.

Site 2 of 5 in cluster AP

Relative: Higher

AST:

Actual: 153 ft.

AST:

Region:	STATE
Facility Id:	2-600907
UTM X:	589314.01519
UTM Y:	4520882.57051
Expiration Date:	10/07/07
Renewal Date:	06/04/02
Total Capacity:	1500
Facility Type:	Not reported
Site Type Name:	Apartment Building/Office Building
Site Type Status:	Active
Mailing Company:	JTF MANAGEMENT ASSOCIATES,LTD.

MARIPOSA PROPERTIES (Continued) **U003395791**

Mailing Title:	Not reported
Mailing Contact:	PHYLLIS WELSH
Mailing Address:	P.O. BOX 722
Mailing Address 2:	Not reported
Mailing City:	HARTSDALE
Mailing State:	NY
Mailing Zip Code:	10530-0722
Mailing Phone No:	(718) 365-1739
Mailing Email:	Not reported
Owner Title:	Not reported
Owner Name:	Not reported
Owner Address:	P.O. BOX 722
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	10530
Owner Phone:	(718) 365-1439
Owner Company:	MARIPOSA PROPERTIES INC
Emergency Contact:	PHYLLIS WALSH
Emergency Phone:	(718) 365-1439
Operator:	MCX GOMEZ
Operator Phone:	(718) 367-1761
Owner City:	HARTSDALE
Owner Sub Type:	Corporate or Commercial
Program Type:	PBS

Tank Number:	001
Tank Location Name:	Aboveground - in contact with soil
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	/ /
Capacity Gallons:	1500
Material Name:	#6 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Aboveground/Underground Combination
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	Original Impressed Current
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Exempt Suction Piping
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Float Vent Valve
Type Of Overfill Prevention 2:	Automatic Shut-Off
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /

MARIPOSA PROPERTIES (Continued) **U003395791**

Date Tank Closed: / /

HIST AST:

PBS Number:	2-600907
SWIS Code:	6201
Operator:	MEX GOMEZ
Facility Phone:	(718) 367-1761
Facility Addr2:	498 WEST 159TH STREET
Facility Type:	APARTMENT BUILDING
Emergency:	PHYLLIS WALSH
Emergency Tel:	(718) 365-1439
Old PBSNO:	Not reported
Date Inspected:	Not reported
Inspector:	Not reported
Result of Inspection:	Not reported
Owner Name:	MARIPOSA PROPERTIES
Owner Address:	P.O. BOX 722
Owner City,St,Zip:	HARTSDALE, NY 10530
Federal ID:	Not reported
Owner Tel:	(718) 365-1439
Owner Type:	Corporate/Commercial
Owner Subtype:	Not reported
Mailing Contact:	PHYLLIS WALCH
Mailing Name:	JTF MANAGEMENT ASSOCIATES,LTD.
Mailing Address:	P.O. BOX 722
Mailing Address 2:	Not reported
Mailing City,St,Zip:	HARTSDALE, NY 10530-0722
Mailing Telephone:	(718) 365-1739
Owner Mark:	First Owner
Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Certification Flag:	False
Certification Date:	10/07/1997
Expiration:	10/07/2002
Renew Flag:	False
Renew Date:	Not reported
Total Capacity:	1500
FAMT:	True
Facility Screen:	No Missing Data
Owner Screen:	Minor Data Missing
Tank Screen:	Minor Data Missing
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	62
Town or City Code:	01
Region:	2

Tank ID:	001
Tank Location:	ABOVEGROUND
Tank Status:	In Service
Install Date:	Not reported
Capacity (Gal):	1500
Product Stored:	NOS 5 OR 6 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported

MARIPOSA PROPERTIES (Continued) **U003395791**

Tank External:	Not reported
Pipe Location:	Aboveground/Underground Combination
Pipe Type:	STEEL/IRON
Pipe Internal:	Fiberglass Liner (FRP)
Pipe External:	3
Tank Containment:	Not reported
Leak Detection:	Not reported
Overfill Protection:	13
Dispenser Method:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	True
SPDES Number:	Not reported
Lat/Long:	Not reported

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177 **534-536 WEST 152ND STREET** **AST** **U003395085**
West **534-536 WEST 152ND STREET** **HIST AST** **N/A**
1/8-1/4 **NEW YORK, NY 10031**
1268 ft.

Relative:
Higher

Actual:
136 ft.

AST:

AST:

Region:	STATE
Facility Id:	2-471496
UTM X:	588915.63501
UTM Y:	4520427.11854
Expiration Date:	04/20/08
Renewal Date:	01/08/03
Total Capacity:	3000
Facility Type:	Not reported
Site Type Name:	Unknown
Site Type Status:	Active
Mailing Company:	534-536 WEST 152ND STREET
Mailing Title:	Not reported
Mailing Contact:	SUPER FACILITY MANAGER
Mailing Address:	534-536 WEST 152ND STREET #23
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip Code:	10031
Mailing Phone No:	(212) 491-6501
Mailing Email:	Not reported
Owner Title:	Not reported
Owner Name:	Not reported
Owner Address:	534 WEST 152ND STREET #23
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	10031
Owner Phone:	(212) 491-6501
Owner Company:	534 WEST 152ND STREET H D F C
Emergency Contact:	KIM COLEMAN
Emergency Phone:	(212) 491-6501
Operator:	534 W.152ND ST. HDFC

534-536 WEST 152ND STREET (Continued) **U003395085**

Operator Phone:	(212) 491-6501
Owner City:	NEW YORK
Owner Sub Type:	Corporate or Commercial
Program Type:	PBS
Tank Number:	001
Tank Location Name:	Aboveground - in contact with soil
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	/ /
Capacity Gallons:	3000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Vault (w/o access)
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Exempt Suction Piping
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Product Level Gauge (A/G)
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

HIST AST:

PBS Number:	2-471496
SWIS Code:	6201
Operator:	534 W.152ND ST. HDFC
Facility Phone:	(212) 491-6501
Facility Addr2:	534 WEST 152ND STREET
Facility Type:	Not reported
Emergency:	KIM COLEMAN
Emergency Tel:	(212) 491-6501
Old PBSNO:	Not reported
Date Inspected:	Not reported
Inspector:	Not reported
Result of Inspection:	Not reported
Owner Name:	534 WEST 152ND STREET H D F C
Owner Address:	534 WEST 152ND STREET #23
Owner City,St,Zip:	NEW YORK, NY 10031
Federal ID:	Not reported
Owner Tel:	(212) 491-6501

534-536 WEST 152ND STREET (Continued) **U003395085**

Owner Type:	Corporate/Commercial
Owner Subtype:	Not reported
Mailing Contact:	SUPER FACILITY MANAGER
Mailing Name:	534-536 WEST 152ND STREET
Mailing Address:	534-536 WEST 152ND STREET #23
Mailing Address 2:	Not reported
Mailing City,St,Zip:	NEW YORK, NY 10031
Mailing Telephone:	(212) 491-6501
Owner Mark:	Second Owner
Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Certification Flag:	False
Certification Date:	04/21/1998
Expiration:	04/20/2003
Renew Flag:	False
Renew Date:	Not reported
Total Capacity:	3000
FAMT:	True
Facility Screen:	Minor Data Missing
Owner Screen:	No Missing Data
Tank Screen:	Minor Data Missing
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	62
Town or City Code:	01
Region:	2

Tank ID:	001
Tank Location:	ABOVEGROUND
Tank Status:	In Service
Install Date:	Not reported
Capacity (Gal):	3000
Product Stored:	NOS 1,2, OR 4 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	STEEL/IRON
Pipe Internal:	Not reported
Pipe External:	Not reported
Tank Containment:	Diking
Leak Detection:	0
Overfill Protection:	4
Dispenser Method:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	False
SPDES Number:	Not reported
Lat/Long:	Not reported

178 South 1/8-1/4 1277 ft. | **192/196/200 BRADHURST AVE**
196 BRADHURST AVE
NEW YORK, NY 10039 | **AST** | **U003391251**
HIST AST | **N/A**

Relative: Lower

Actual: 20 ft.

AST:

AST:

Region:	STATE
Facility Id:	2-336130
UTM X:	589418.06895
UTM Y:	4520123.54132
Expiration Date:	10/02/07
Renewal Date:	06/04/02
Total Capacity:	7500
Facility Type:	Not reported
Site Type Name:	Apartment Building/Office Building
Site Type Status:	Active
Mailing Company:	TRYAX REALTY MANAGEMENT, INC
Mailing Title:	Not reported
Mailing Contact:	JAMES H. WICKLINE
Mailing Address:	PO BOX 222118
Mailing Address 2:	Not reported
Mailing City:	GREAT NECK
Mailing State:	NY
Mailing Zip Code:	11022-2118
Mailing Phone No:	(516) 829-5400
Mailing Email:	Not reported
Owner Title:	Not reported
Owner Name:	Not reported
Owner Address:	P.O. BOX 222118
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	11022-2118
Owner Phone:	(516) 829-5400
Owner Company:	BRADHURST ASSOCIATES, L.L.C.
Emergency Contact:	TRYAX MGMT. INC.
Emergency Phone:	(718) 590-4311
Operator:	ALLEN RHODES
Operator Phone:	(212) 926-3271
Owner City:	GREAT NECK
Owner Sub Type:	Corporate or Commercial
Program Type:	PBS
Tank Number:	001
Tank Location Name:	Aboveground - in contact with soil
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	/ /
Capacity Gallons:	7500
Material Name:	#6 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	Painted/Asphalt Coating
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Aboveground
Pipe Type Name:	Steel/Carbon Steel/Iron

192/196/200 BRADHURST AVE (Continued) **U003391251**

Pipe External Protection 1:	Wrapped
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Other
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Exempt Suction Piping
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Product Level Gauge (A/G)
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

HIST AST:

PBS Number:	2-336130
SWIS Code:	6201
Operator:	LEGENT MCFARLAND
Facility Phone:	(212) 281-1496
Facility Addr2:	Not reported
Facility Type:	APARTMENT BUILDING
Emergency:	TRYAX MGMT. INC.
Emergency Tel:	(718) 590-4311
Old PBSNO:	Not reported
Date Inspected:	Not reported
Inspector:	Not reported
Result of Inspection:	Not reported
Owner Name:	BRADHURST ASSOCIATES, L.L.C.
Owner Address:	P.O. BOX 222118
Owner City,St,Zip:	GREAY NECK, NY 11022-2118
Federal ID:	Not reported
Owner Tel:	(516) 819-5400
Owner Type:	Corporate/Commercial
Owner Subtype:	Not reported
Mailing Contact:	MARVIN GOLDBERG
Mailing Name:	TRYAX REALTY MANAGEMENT, INC
Mailing Address:	PO BOX 222118
Mailing Address 2:	Not reported
Mailing City,St,Zip:	GREAT NECK, NY 11022-2118
Mailing Telephone:	(516) 829-5400
Owner Mark:	First Owner
Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Certification Flag:	False
Certification Date:	11/18/1997
Expiration:	10/02/2002
Renew Flag:	False
Renew Date:	Not reported
Total Capacity:	7500
FAMT:	True
Facility Screen:	No Missing Data
Owner Screen:	No Missing Data

192/196/200 BRADHURST AVE (Continued) **U003391251**

Tank Screen:	No Missing Data
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	62
Town or City Code:	01
Region:	2

Tank ID:	001
Tank Location:	ABOVEGROUND
Tank Status:	In Service
Install Date:	Not reported
Capacity (Gal):	7500
Product Stored:	NOS 5 OR 6 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	0
Tank External:	01
Pipe Location:	Aboveground
Pipe Type:	STEEL/IRON
Pipe Internal:	None
Pipe External:	6
Tank Containment:	Double-Walled
Leak Detection:	0
Overfill Protection:	4
Dispenser Method:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	No Missing Data
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	True
SPDES Number:	Not reported
Lat/Long:	Not reported

AQ179 **537 WEST 158TH ST.** **AST** **A100300198**
NNW **537 WEST 158TH ST.** **N/A**
1/8-1/4 **NEW YORK, NY 10033**
1291 ft.

Site 1 of 2 in cluster AQ

Relative:
Higher

AST:

Actual:
136 ft.

AST:

Region:	STATE
Facility Id:	2-610366
UTM X:	589155.00931
UTM Y:	4520864.62045
Expiration Date:	08/29/10
Renewal Date:	/ /
Total Capacity:	3000
Facility Type:	Not reported
Site Type Name:	Apartment Building/Office Building
Site Type Status:	Active
Mailing Company:	VIGOR REALTY, LLC
Mailing Title:	Not reported
Mailing Contact:	JOE HAIM
Mailing Address:	2002 SECOND AVE.

537 WEST 158TH ST. (Continued) **A100300198**

Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip Code:	10029
Mailing Phone No:	(212) 996-8975
Mailing Email:	Not reported
Owner Title:	MANAGER
Owner Name:	JOE HAIM
Owner Address:	2002 SECOND AVE
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	10029
Owner Phone:	(212) 996-8975
Owner Company:	VIGOR REALTY, LLC
Emergency Contact:	JUAN QUEZADA
Emergency Phone:	(917) 578--7436
Operator:	JUAN QUEZADA
Operator Phone:	(917) 578-7436
Owner City:	NEW YORK
Owner Sub Type:	Corporate or Commercial
Program Type:	PBS
Tank Number:	001
Tank Location Name:	Aboveground - in contact with soil
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	09/01/70
Capacity Gallons:	3000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	Painted/Asphalt Coating
Tank Internal Protection 2:	Jacketed
Pipe Location Name:	Aboveground
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Double-Walled (Underground)
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Exempt Suction Piping
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Product Level Gauge (A/G)
Type Of Overfill Prevention 2:	Vent Whistle
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

AP180 **507 W 159TH ST** **AST** **U003390074**
North **507 W 159TH ST** **HIST AST** **N/A**
1/8-1/4 **NEW YORK, NY 10032**
1297 ft.

Site 3 of 5 in cluster AP

Relative:
Higher

AST:

Actual:
151 ft.

AST:

Region:	STATE
Facility Id:	2-267473
UTM X:	589291.43904
UTM Y:	4520908.49906
Expiration Date:	12/30/08
Renewal Date:	04/04/02
Total Capacity:	2500
Facility Type:	Not reported
Site Type Name:	Apartment Building/Office Building
Site Type Status:	Active
Mailing Company:	AMSTERDAM 159 LLC
Mailing Title:	Not reported
Mailing Contact:	M. SAJAD (MANAGER)
Mailing Address:	511 WEST 159TH STREET
Mailing Address 2:	BSMT
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip Code:	10032
Mailing Phone No:	(212) 543-4766
Mailing Email:	Not reported
Owner Title:	Not reported
Owner Name:	Not reported
Owner Address:	511 WEST 159 ST
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	10032
Owner Phone:	(212) 543-4766
Owner Company:	AMSTERDAM 159 LLC
Emergency Contact:	FELTHON ROSARIO
Emergency Phone:	(212) 795-1850
Operator:	FELTHON ROSARIO
Operator Phone:	(212) 795-1850
Owner City:	NEW YORK
Owner Sub Type:	Corporate or Commercial
Program Type:	PBS
Tank Number:	001
Tank Location Name:	Aboveground - in contact with soil
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	/ /
Capacity Gallons:	2500
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Aboveground

507 W 159TH ST (Continued) **U003390074**

Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Vault (w/o access)
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	Impervious Barrier/Concrete Pad (A/G)
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Exempt Suction Piping
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Product Level Gauge (A/G)
Type Of Overfill Prevention 2:	Vent Whistle
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

HIST AST:

PBS Number:	2-267473
SWIS Code:	6201
Operator:	STEVE SFIKAS
Facility Phone:	(212) 740-2476
Facility Addr2:	507 W 159TH ST
Facility Type:	APARTMENT BUILDING
Emergency:	STEVE SFIKAS
Emergency Tel:	(212) 740-2476
Old PBSNO:	Not reported
Date Inspected:	Not reported
Inspector:	Not reported
Result of Inspection:	Not reported
Owner Name:	S.S 507 W 159TH STREET REALTY ASSOCIATES
Owner Address:	511 WEST 159TH STREET # 17
Owner City,St,Zip:	MANHATTAN, NY 10032
Federal ID:	Not reported
Owner Tel:	(212) 740-2476
Owner Type:	Corporate/Commercial
Owner Subtype:	Not reported
Mailing Contact:	SUPER FACILITY MANGER
Mailing Name:	507 WEST 159TH STREET
Mailing Address:	507 WEST 159TH STREET
Mailing Address 2:	Not reported
Mailing City,St,Zip:	NEW YORK, NY 10032
Mailing Telephone:	(212) 740-2476
Owner Mark:	First Owner
Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Certification Flag:	False
Certification Date:	04/21/1998
Expiration:	08/17/2002
Renew Flag:	False
Renew Date:	Not reported
Total Capacity:	4000
FAMT:	True
Facility Screen:	No Missing Data

507 W 159TH ST (Continued) **U003390074**

Owner Screen:	No Missing Data
Tank Screen:	Minor Data Missing
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	62
Town or City Code:	01
Region:	2

Tank ID:	001
Tank Location:	ABOVEGROUND
Tank Status:	In Service
Install Date:	Not reported
Capacity (Gal):	4000
Product Stored:	UNLEADED GASOLINE
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	Not reported
Pipe Internal:	Not reported
Pipe External:	Not reported
Tank Containment:	None
Leak Detection:	0
Overfill Protection:	4
Dispenser Method:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	False
SPDES Number:	Not reported
Lat/Long:	Not reported

AR181 **GLASGALL ROOFING SHEET METAL** **UST** **U004076148**
SSW **415 WEST 150TH ST** **N/A**
1/8-1/4 **NEW YORK, NY 10031**
1300 ft.

Site 1 of 5 in cluster AR

Relative:
Lower

UST:

Actual:
103 ft.

UST:

Facility Id:	2-055204
Expiration Date:	12/02/06
Renewal Date:	/ /
Total Capacity:	1500
Facility Type:	Not reported
Mailing Company:	415 WEST 150 STREET INC
Mailing Title:	Not reported
Mailing Contact:	MARTIN WEISE
Mailing Address:	415 WEST 150TH STREET
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip Code:	10031

GLASGALL ROOFING SHEET METAL (Continued) **U004076148**

Mailing Phone No:	(917) 566-1255
Mailing Email:	Not reported
Owner Title:	Not reported
Owner Name:	Not reported
Owner Address:	415 WEST 150TH ST
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	10031
Owner Phone:	(212) 862-5400
Owner Company:	415 WEST 150 STREET INC
Emergency Contact:	NEIL GLASGALL
Emergency Phone:	(914) 937-5692
Operator:	GLASGALL ROOFING SHEET METAL
Operator Phone:	(212) 862-5400
Owner City:	NEW YORK
Owner Sub Type:	Corporate or Commercial
UTM X:	589239.32907
UTM Y:	4520111.94300
Site Type Name:	Other
Site Type Status:	Active
Comments:	Not reported
Program Type:	PBS
Tank Number:	001
Tank Location Name:	Underground, vaulted, with access
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	12/01/56
Capacity Gallons:	1500
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Vault (w/o access)
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	Other
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Product Level Gauge (A/G)
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Not reported
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

AR182 **GLASGALL ROOFING SHEET METAL** **HIST UST** **U000393915**
SSW **415 WEST 150TH ST** **N/A**
1/8-1/4 **NEW YORK, NY 10031**
1300 ft.

Site 2 of 5 in cluster AR

Relative:
Lower

Actual:
103 ft.

HIST UST:

PBS Number:	2-055204
SPDES Number:	Not reported
Emergency Contact:	NEIL GLASGALL
Emergency Telephone:	(914) 937-5692
Operator:	GLASGALL ROOFING SHEET METAL
Operator Telephone:	(212) 862-5400
Owner Name:	415 WEST 150 STREET INC
Owner Address:	415 WEST 150TH ST
Owner City,St,Zip:	NEW YORK, NY 10031
Owner Telephone:	(212) 862-5400
Owner Type:	Corporate/Commercial
Owner Subtype:	Not reported
Mailing Name:	415 WEST 150 STREET INC
Mailing Address:	415 WEST 150TH STREET
Mailing Address 2:	Not reported
Mailing City,St,Zip:	NEW YORK, NY 10031
Mailing Contact:	Not reported
Mailing Telephone:	(212) 862-5400
Owner Mark:	First Owner
Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Facility Addr2:	415 WEST 150TH ST
SWIS ID:	6201
Old PBS Number:	Not reported
Facility Type:	OTHER
Inspected Date:	Not reported
Inspector:	Not reported
Inspection Result:	Not reported
Federal ID:	Not reported
Certification Flag:	False
Certification Date:	10/18/2001
Expiration Date:	12/02/2006
Renew Flag:	False
Renewal Date:	Not reported
Total Capacity:	1500
FAMT:	True
Facility Screen:	No Missing Data
Owner Screen:	No Missing Data
Tank Screen:	Minor Data Missing
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	62
Town or City:	01
Region:	2
Tank Id:	001
Tank Location:	UNDERGROUND, VAULTED, WITH ACCESS
Tank Status:	In Service
Install Date:	19561201
Capacity (gals):	1500

GLASGALL ROOFING SHEET METAL (Continued) **U000393915**

Product Stored:	NOS 1,2, OR 4 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	STEEL/IRON
Pipe Internal:	Not reported
Pipe External:	Not reported
Second Containment:	Diking
Leak Detection:	Other
Overfill Prot:	Product Level Gauge
Dispenser:	Gravity
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	False
Lat/long:	Not reported

AO183 **WEST BRIDGE ASSOCIATES, L.P.** **AST** **A100169071**
WSW **508 WEST 151ST STREET** **N/A**
1/8-1/4 **NEW YORK, NY 10031**
1303 ft.

Site 4 of 6 in cluster AO

Relative: Higher

AST:

Actual: 131 ft.

AST:

Region:	STATE
Facility Id:	2-604691
UTM X:	588977.60741
UTM Y:	4520330.94341
Expiration Date:	09/14/10
Renewal Date:	/ /
Total Capacity:	4000
Facility Type:	Not reported
Site Type Name:	Apartment Building/Office Building
Site Type Status:	Active
Mailing Company:	WEST REALTY GROUP
Mailing Title:	Not reported
Mailing Contact:	CHRIS CALHOUN
Mailing Address:	875 ST. NICHOLAS AVE
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip Code:	10032
Mailing Phone No:	(212) 694-3303
Mailing Email:	Not reported
Owner Title:	V.P.
Owner Name:	CHRIS CALHOUN
Owner Address:	875 ST. NICHOLAS AVE
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	10032
Owner Phone:	(212) 694-3303
Owner Company:	WEST BRIDGE REALTY CORP.

WEST BRIDGE ASSOCIATES, L.P. (Continued) **A100169071**

Emergency Contact:	CHRIS CALHOUN
Emergency Phone:	(718) 562-4363
Operator:	ORLANDO TAVARES
Operator Phone:	(917) 578-2156
Owner City:	NEW YORK
Owner Sub Type:	Corporate or Commercial
Program Type:	PBS

Tank Number:	001
Tank Location Name:	Aboveground - in contact with soil
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	/ /
Capacity Gallons:	4000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	Painted/Asphalt Coating
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Aboveground
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Vault (w/o access)
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Vent Whistle
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Not reported
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

AP184 **509 WEST 159TH ST.** **AST** **A100166508**
North **509 W 159 ST** **N/A**
1/8-1/4 **NEW YORK, NY 10032**
1307 ft.

Site 4 of 5 in cluster AP

Relative:
Higher

AST:

Actual:
150 ft.

AST:

Region:	STATE
Facility Id:	2-272078
UTM X:	589286.77080
UTM Y:	4520910.99616
Expiration Date:	01/30/08
Renewal Date:	/ /
Total Capacity:	6000

509 WEST 159TH ST. (Continued) **A100166508**

Facility Type:	Not reported
Site Type Name:	Apartment Building/Office Building
Site Type Status:	Active
Mailing Company:	AMSTERDAM 159 LLC
Mailing Title:	Not reported
Mailing Contact:	M. SAJAD
Mailing Address:	511 WEST 159 STREET 'BSMT'
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip Code:	10032
Mailing Phone No:	(212) 543-4766
Mailing Email:	Not reported
Owner Title:	MEMBER
Owner Name:	AMSTERDAM 159 LLC
Owner Address:	511 WEST 159 STREET 'BSMT'
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	10032
Owner Phone:	(212) 543-4766
Owner Company:	AMSTERDAM 159 LLC
Emergency Contact:	M. SAJAD
Emergency Phone:	(212) 543-4766
Operator:	M. SAJAD
Operator Phone:	(212) 543-4766
Owner City:	NEW YORK
Owner Sub Type:	Corporate or Commercial
Program Type:	PBS

Tank Number:	001
Tank Location Name:	Aboveground - in contact with soil
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	/ /
Capacity Gallons:	3000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping
Pipe Type Name:	No Piping
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Exempt Suction Piping
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Product Level Gauge (A/G)
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction

509 WEST 159TH ST. (Continued) **A100166508**

Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

Tank Number:	002
Tank Location Name:	Aboveground - in contact with soil
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	/ /
Capacity Gallons:	3000
Material Name:	#6 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping
Pipe Type Name:	No Piping
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Exempt Suction Piping
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Product Level Gauge (A/G)
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

AP185 **504-517 WEST 159TH ST** **AST** **A100153912**
North **504 W 159TH ST** **N/A**
1/8-1/4 **NEW YORK, NY 10032**
1308 ft.

Site 5 of 5 in cluster AP

Relative:
Higher

AST:

Actual:
149 ft.

AST:

Region:	STATE
Facility Id:	2-267503
UTM X:	589291.43675
UTM Y:	4520894.73213
Expiration Date:	09/01/09
Renewal Date:	/ /
Total Capacity:	2000
Facility Type:	Not reported

504-517 WEST 159TH ST (Continued) **A100153912**

Site Type Name:	Apartment Building/Office Building
Site Type Status:	Active
Mailing Company:	504-517 WEST 159TH STREET CORP.
Mailing Title:	Not reported
Mailing Contact:	Not reported
Mailing Address:	3200 CRUGEE AVE.
Mailing Address 2:	SUITE: 203
Mailing City:	BRONX
Mailing State:	NY
Mailing Zip Code:	10467
Mailing Phone No:	(718) 231-2211
Mailing Email:	Not reported
Owner Title:	PRES.
Owner Name:	LEZE GAZIVODA
Owner Address:	1801 WEEKS AVE
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	10457
Owner Phone:	(718) 583-2300
Owner Company:	504-517 WEST 159TH STREET CORP.
Emergency Contact:	LEZE GAZIVODA
Emergency Phone:	(718) 583-2300
Operator:	LEZE GAZIVODA
Operator Phone:	(718) 583-2300
Owner City:	BRONX
Owner Sub Type:	Corporate or Commercial
Program Type:	PBS
Tank Number:	001
Tank Location Name:	Aboveground - in contact with soil
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	/ /
Capacity Gallons:	2000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping
Pipe Type Name:	No Piping
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Product Level Gauge (A/G)
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported

504-517 WEST 159TH ST (Continued) **A100153912**

Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

AR186 **ST. NICHOLAS AMANA, INC.** **UST** **U000414037**
SSW **800 ST NICHOLAS AVE** **HIST UST** **N/A**
1/8-1/4 **NEW YORK, NY 10031**
1312 ft.

Site 3 of 5 in cluster AR

Relative:
Lower

Actual:
103 ft.

UST:

UST:

Facility Id:	2-600647
Expiration Date:	08/17/09
Renewal Date:	/ /
Total Capacity:	12000
Facility Type:	Not reported
Mailing Company:	ST. NICHOLAS AMANA, INC.
Mailing Title:	Not reported
Mailing Contact:	FADY ISA
Mailing Address:	800 ST. NICHOLAS AVE.
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip Code:	10031
Mailing Phone No:	(212) 694-2320
Mailing Email:	Not reported
Owner Title:	PRESIDENT
Owner Name:	FADY ISA
Owner Address:	191 BROADWAY, APT. 6C
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	10522
Owner Phone:	(917) 567-3167
Owner Company:	FADY ISA
Emergency Contact:	FADY ISA
Emergency Phone:	(917) 567-3167
Operator:	FADY ISA
Operator Phone:	(212) 694-2320
Owner City:	DOBBS FERRY
Owner Sub Type:	Corporate or Commercial
UTM X:	589182.10821
UTM Y:	4520122.24330
Site Type Name:	Retail Gasoline Sales
Site Type Status:	Active
Comments:	Not reported
Program Type:	PBS
Tank Number:	001
Tank Location Name:	Underground
Tank Status:	In Service
Tank Model:	103
Pipe Model:	C
Active Status:	Active
Install Date:	02/01/86

ST. NICHOLAS AMANA, INC. (Continued) **U000414037**

Capacity Gallons:	4000
Material Name:	Gasoline
Percentage:	100.00
Tank Type Name:	Fiberglass Reinforced Plastic (FRP)
Tank Internal Protection:	Fiberglass Liner (FRP)
Tank Internal Protection 1:	Fiberglass
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Underground/On-ground
Pipe Type Name:	Fiberglass Reinforced Plastic (FRP)
Pipe External Protection 1:	Fiberglass
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	None
Tank Leak Detection 1:	In-Tank System (ATG)
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Pressurized Piping Leak Detector
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	High Level Alarm
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Submersible
Spill Prevention:	Catch Basin
Tightness Test Method:	VacuTest
Date Tested:	04/27/04
Next Test Date:	/ /
Date Tank Closed:	/ /

Tank Number:	002
Tank Location Name:	Underground
Tank Status:	In Service
Tank Model:	103
Pipe Model:	C
Active Status:	Active
Install Date:	02/01/86
Capacity Gallons:	4000
Material Name:	Gasoline
Percentage:	100.00
Tank Type Name:	Fiberglass Reinforced Plastic (FRP)
Tank Internal Protection:	Fiberglass Liner (FRP)
Tank Internal Protection 1:	Fiberglass
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Underground/On-ground
Pipe Type Name:	Fiberglass Reinforced Plastic (FRP)
Pipe External Protection 1:	Fiberglass
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	None
Tank Leak Detection 1:	In-Tank System (ATG)
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Pressurized Piping Leak Detector
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	High Level Alarm
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Submersible
Spill Prevention:	Catch Basin

ST. NICHOLAS AMANA, INC. (Continued) **U000414037**

Tightness Test Method:	VacuTest
Date Tested:	04/27/04
Next Test Date:	/ /
Date Tank Closed:	/ /

Tank Number:	003
Tank Location Name:	Underground
Tank Status:	In Service
Tank Model:	103
Pipe Model:	C
Active Status:	Active
Install Date:	02/01/86
Capacity Gallons:	4000
Material Name:	Gasoline
Percentage:	100.00
Tank Type Name:	Fiberglass Reinforced Plastic (FRP)
Tank Internal Protection:	Fiberglass Liner (FRP)
Tank Internal Protection 1:	Fiberglass
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Underground/On-ground
Pipe Type Name:	Fiberglass Reinforced Plastic (FRP)
Pipe External Protection 1:	Fiberglass
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	None
Tank Leak Detection 1:	In-Tank System (ATG)
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Pressurized Piping Leak Detector
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	High Level Alarm
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Submersible
Spill Prevention:	Catch Basin
Tightness Test Method:	VacuTest
Date Tested:	04/27/04
Next Test Date:	/ /
Date Tank Closed:	/ /

Tank Number:	1
Tank Location Name:	Underground
Tank Status:	Closed - In Place
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	/ /
Capacity Gallons:	550
Material Name:	Gasoline
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Underground/On-ground
Pipe Type Name:	Galvanized Steel

ST. NICHOLAS AMANA, INC. (Continued) **U000414037**

Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	None
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	None
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	06/01/00

Tank Number:	2
Tank Location Name:	Underground
Tank Status:	Closed - In Place
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	06/01/00
Capacity Gallons:	550
Material Name:	Gasoline
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Underground/On-ground
Pipe Type Name:	Galvanized Steel
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	None
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	None
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	06/01/00

Tank Number:	3
Tank Location Name:	Underground
Tank Status:	Closed - In Place

ST. NICHOLAS AMANA, INC. (Continued) **U000414037**

Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	06/01/00
Capacity Gallons:	550
Material Name:	Gasoline
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Underground/On-ground
Pipe Type Name:	Galvanized Steel
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	None
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	None
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	06/01/00

Tank Number:	4
Tank Location Name:	Underground
Tank Status:	Closed - In Place
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	06/01/00
Capacity Gallons:	550
Material Name:	Gasoline
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Underground/On-ground
Pipe Type Name:	Galvanized Steel
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported

ST. NICHOLAS AMANA, INC. (Continued) **U000414037**

Type Of Overfill Prevention 1:	None
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	None
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	06/01/00

Tank Number:	5
Tank Location Name:	Underground
Tank Status:	Closed - In Place
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	06/01/00
Capacity Gallons:	550
Material Name:	Gasoline
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Underground/On-ground
Pipe Type Name:	Galvanized Steel
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	None
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	None
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	06/01/00

Tank Number:	6
Tank Location Name:	Underground
Tank Status:	Closed - In Place
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	06/01/00
Capacity Gallons:	550
Material Name:	Gasoline
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None

ST. NICHOLAS AMANA, INC. (Continued) **U000414037**

Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Underground/On-ground
Pipe Type Name:	Galvanized Steel
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	None
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	None
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	06/01/00

Tank Number:	7
Tank Location Name:	Underground
Tank Status:	Closed - In Place
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	06/01/00
Capacity Gallons:	550
Material Name:	Gasoline
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Underground/On-ground
Pipe Type Name:	Galvanized Steel
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	None
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	None
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	06/01/00

ST. NICHOLAS AMANA, INC. (Continued) **U000414037**

HIST UST:

PBS Number:	2-600647
SPDES Number:	Not reported
Emergency Contact:	FADY ISA
Emergency Telephone:	(917) 567-2080
Operator:	FADY ISA
Operator Telephone:	(212) 694-2320
Owner Name:	STEADY REALTY, LLC.
Owner Address:	459 COLUMBUS AVE #606
Owner City,St,Zip:	NEW YORK, NY 10025
Owner Telephone:	(212) 749-7151
Owner Type:	Corporate/Commercial
Owner Subtype:	Not reported
Mailing Name:	ST. NICHOLAS AMANA
Mailing Address:	800 ST. NICHOLAS AVE.
Mailing Address 2:	Not reported
Mailing City,St,Zip:	NEW YORK, NY 10031
Mailing Contact:	FADY ISA
Mailing Telephone:	(212) 694-2320
Owner Mark:	Second Owner
Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Facility Addr2:	800 ST NICHOLAS AVE
SWIS ID:	6201
Old PBS Number:	Not reported
Facility Type:	RETAIL GASOLINE SALES
Inspected Date:	Not reported
Inspector:	Not reported
Inspection Result:	Not reported
Federal ID:	Not reported
Certification Flag:	False
Certification Date:	10/14/1999
Expiration Date:	10/05/2004
Renew Flag:	False
Renewal Date:	Not reported
Total Capacity:	12000
FAMT:	True
Facility Screen:	No Missing Data
Owner Screen:	No Missing Data
Tank Screen:	Minor Data Missing
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	62
Town or City:	01
Region:	2
Tank Id:	001
Tank Location:	UNDERGROUND
Tank Status:	In Service
Install Date:	19860201
Capacity (gals):	4000
Product Stored:	UNLEADED GASOLINE
Tank Type:	Fiberglass reinforced plastic [FRP]
Tank Internal:	Fiberglass Liner (FRP)
Tank External:	Fiberglass

ST. NICHOLAS AMANA, INC. (Continued) **U000414037**

Pipe Location:	Underground
Pipe Type:	STAINLESS STEEL ALLOY
Pipe Internal:	Fiberglass Liner (FRP)
Pipe External:	Fiberglass
Second Containment:	Vault (w/access)
Leak Detection:	Electronic
Overfill Prot:	Vent Whistle
Dispenser:	Not reported
Date Tested:	11/01/1999
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	Not reported
Test Method:	Tankology [Vacutect]
Deleted:	False
Updated:	True
Lat/long:	40|82|73 / 73|94|30

Tank Id:	002
Tank Location:	UNDERGROUND
Tank Status:	In Service
Install Date:	19860201
Capacity (gals):	4000
Product Stored:	UNLEADED GASOLINE
Tank Type:	Fiberglass reinforced plastic [FRP]
Tank Internal:	Fiberglass Liner (FRP)
Tank External:	Fiberglass
Pipe Location:	Underground
Pipe Type:	STAINLESS STEEL ALLOY
Pipe Internal:	Fiberglass Liner (FRP)
Pipe External:	Fiberglass
Second Containment:	Vault (w/access)
Leak Detection:	Electronic
Overfill Prot:	Vent Whistle
Dispenser:	Not reported
Date Tested:	11/01/1999
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	Not reported
Test Method:	Tankology [Vacutect]
Deleted:	False
Updated:	True
Lat/long:	40|82|73 / 73|94|30

Tank Id:	003
Tank Location:	UNDERGROUND
Tank Status:	In Service
Install Date:	19860201
Capacity (gals):	4000
Product Stored:	UNLEADED GASOLINE
Tank Type:	Fiberglass reinforced plastic [FRP]
Tank Internal:	Fiberglass Liner (FRP)
Tank External:	Fiberglass
Pipe Location:	Underground
Pipe Type:	STAINLESS STEEL ALLOY
Pipe Internal:	Fiberglass Liner (FRP)

ST. NICHOLAS AMANA, INC. (Continued) **U000414037**

Pipe External:	Fiberglass
Second Containment:	Vault (w/access)
Leak Detection:	Electronic
Overfill Prot:	Vent Whistle
Dispenser:	Not reported
Date Tested:	11/01/1999
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	Not reported
Test Method:	Tankology [Vacutect]
Deleted:	False
Updated:	True
Lat/long:	40|82|73 / 73|94|30

Tank Id:	1
Tank Location:	UNDERGROUND
Tank Status:	Closed-In Place
Install Date:	Not reported
Capacity (gals):	550
Product Stored:	UNLEADED GASOLINE
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Underground
Pipe Type:	GALVANIZED STEEL
Pipe Internal:	Not reported
Pipe External:	Not reported
Second Containment:	Not reported
Leak Detection:	Not reported
Overfill Prot:	Not reported
Dispenser:	Not reported
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	06/01/2000
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	40|82|73 / 73|94|30

Tank Id:	2
Tank Location:	UNDERGROUND
Tank Status:	Closed-In Place
Install Date:	20000601
Capacity (gals):	550
Product Stored:	UNLEADED GASOLINE
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Underground
Pipe Type:	GALVANIZED STEEL
Pipe Internal:	Not reported
Pipe External:	Not reported
Second Containment:	Not reported
Leak Detection:	Not reported

ST. NICHOLAS AMANA, INC. (Continued) **U000414037**

Overfill Prot:	Not reported
Dispenser:	Not reported
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	06/01/2000
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	40|82|73 / 73|94|30

Tank Id:	3
Tank Location:	UNDERGROUND
Tank Status:	Closed-In Place
Install Date:	20000601
Capacity (gals):	550
Product Stored:	UNLEADED GASOLINE
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Underground
Pipe Type:	GALVANIZED STEEL
Pipe Internal:	Not reported
Pipe External:	Not reported
Second Containment:	Not reported
Leak Detection:	Not reported
Overfill Prot:	Not reported
Dispenser:	Not reported
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	06/01/2000
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	40|82|73 / 73|94|30

Tank Id:	4
Tank Location:	UNDERGROUND
Tank Status:	Closed-In Place
Install Date:	20000601
Capacity (gals):	550
Product Stored:	UNLEADED GASOLINE
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Underground
Pipe Type:	GALVANIZED STEEL
Pipe Internal:	Not reported
Pipe External:	Not reported
Second Containment:	Not reported
Leak Detection:	Not reported
Overfill Prot:	Not reported
Dispenser:	Not reported
Date Tested:	Not reported

ST. NICHOLAS AMANA, INC. (Continued) **U000414037**

Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	06/01/2000
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	40|82|73 / 73|94|30

Tank Id:	5
Tank Location:	UNDERGROUND
Tank Status:	Closed-In Place
Install Date:	20000601
Capacity (gals):	550
Product Stored:	UNLEADED GASOLINE
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Underground
Pipe Type:	GALVANIZED STEEL
Pipe Internal:	Not reported
Pipe External:	Not reported
Second Containment:	Not reported
Leak Detection:	Not reported
Overfill Prot:	Not reported
Dispenser:	Not reported
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	06/01/2000
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	40|82|73 / 73|94|30

Tank Id:	6
Tank Location:	UNDERGROUND
Tank Status:	Closed-In Place
Install Date:	20000601
Capacity (gals):	550
Product Stored:	UNLEADED GASOLINE
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Underground
Pipe Type:	GALVANIZED STEEL
Pipe Internal:	Not reported
Pipe External:	Not reported
Second Containment:	Not reported
Leak Detection:	Not reported
Overfill Prot:	Not reported
Dispenser:	Not reported
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	06/01/2000

ST. NICHOLAS AMANA, INC. (Continued) **U000414037**

Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	40|82|73 / 73|94|30

Tank Id:	7
Tank Location:	UNDERGROUND
Tank Status:	Closed-In Place
Install Date:	20000601
Capacity (gals):	550
Product Stored:	UNLEADED GASOLINE
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Underground
Pipe Type:	GALVANIZED STEEL
Pipe Internal:	Not reported
Pipe External:	Not reported
Second Containment:	Not reported
Leak Detection:	Not reported
Overfill Prot:	Not reported
Dispenser:	Not reported
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	06/01/2000
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	40|82|73 / 73|94|30

AR187 **AMOCO GASOLINE #60030** **LTANKS** **S102145072**
SSW **800 ST. NICHOLAS AVE** **HIST LTANKS** **N/A**
1/8-1/4 **MANHATTAN, NY**
1312 ft.

Site 4 of 5 in cluster AR

Relative:
Lower

Actual:
103 ft.

LTANKS:

Site ID:	137053
Spill Date:	05/21/97
Facility Addr2:	Not reported
Facility ID:	9702241
Program Number:	9702241
SWIS:	3101
Region of Spill:	2
Investigator:	JBVOUGHT
Referred To:	Not reported
Reported to Dept:	05/21/97
CID:	15
Spill Cause:	Tank Test Failure
Water Affected:	Not reported
Spill Source:	Gasoline Station
Spill Notifier:	Tank Tester
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Last Inspection:	11/04/97
Recommended Penalty:	Penalty Not Recommended

AMOCO GASOLINE #60030 (Continued) **S102145072**

UST Involvement:	True
Spill Class:	Known release that creates potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	03/03/03
Remediation Phase:	0
Date Entered In Computer:	05/21/97
Spill Record Last Update:	03/17/03
Spille Namer:	SAME
Spiller Company:	AMOCO GASOLINE
Spiller Phone:	Not reported
Spiller Extention:	Not reported
Spiller Address:	800 ST NICHOLAS AVE
Spiller City,St,Zip:	MANHATTAN, NY 10021-
Spiller County:	001
Spiller Contact:	JIM LIGAS
Spiller Phone:	(212) 690-8575
Spiller Extention:	Not reported
DEC Region:	2
Program Number:	9702241
DER Facility ID:	117251
Site ID:	137053
Operable Unit ID:	1044974
Operable Unit:	01
Material ID:	335184
Material Code:	0009
Material Name:	Gasoline
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	0.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
Site ID:	137053
Spill Tank Test:	1545127
Tank Number:	WEST TANK
Tank Size:	4000
Test Method:	00
Leak Rate:	0.00
Gross Fail:	Not reported
Modified By:	Spills
Last Modified:	10/01/04
Test Method:	Unknown
DEC Memo:	Start DECRemark - 9702241 Prior to Sept, 2004 data translation this spill Lead DEC Field was "VOUGHT" SPILL LOCATION IS THE SITE OF AN ACTIVE PIN PROJECT # SP93510, AND IS ACTIVE UNDER SPILL # 93-07222. AS OF OCT. '97, THERE WAS INQUERIES BY POTENTIAL OPERATORS OF THE SITE. 11/04/97 mmm:INSPECTED STATION - OPERATOR WAS NOT AROUND. STATION DIRECTLY OVER SUBWAY TUNNELS, AND TANKS & PUMPS ARE OUT OF SERVICE. SVE SYSTEM LOCATED ON SOUTHERN END OF PARCEL AND IS OPERATING. 11/12/97 mmm:RE-ASSIGNED TO TOMASELLO FOR FOLLOW UP. 03/03/2003- AUSTIN As per directive to close out spills with no recent history, close out. 3/17/03 REASSIGNED FROM TOMASELLO. END DECRemark - 9702241
Remarks:	Start CallerRemark - 9702241 CALLER STATES THERE WAS A TANK FAILURE AFTER A TEST. NO PBS NUMBER AVAILABLE. TEST WAS AN AIR TEST ON PRODUCT. END CallerRemark - 9702241

AMOCO GASOLINE #60030 (Continued) **S102145072**

HIST LTANKS:

Region of Spill:	2
Spill Number:	9702241
Investigator:	TOMASELLO
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Caller Extension:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Notifier Extension:	Not reported
Spill Date:	05/21/1997
Spill Time:	12:00
Reported to Department Date:	05/21/97
Reported to Department Time:	13:38
SWIS:	62
Spiller Contact:	JIM LIGAS
Spiller Phone:	(212) 690-8575
Spiller Extention:	Not reported
Spiller Name:	AMOCO GASOLINE
Spiller Address:	800 ST NICHOLAS AVE
Spiller City,St,Zip:	MANHATTAN, NY 10021-
Facility Contact:	SAME
Facility Phone:	Not reported
Facility Extention:	Not reported
Spill Cause:	Tank Test Failure
Resource Affectd:	On Land
Water Affected:	Not reported
Spill Source:	Gas Station
Spill Notifier:	Tank Tester
PBS Number:	2-600647
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Last Inspection:	11/04/97
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Date:	/ /
Enforcement Date:	/ /
Investigation Complete:	/ /
UST Involvement:	True
Spill Class:	Known release that creates potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	/ /
Date Region Sent Summary to Central Office:	/ /
Corrective Action Plan Submitted:	/ /
Date Spill Entered In Computer Data File:	05/21/97
Time Spill Entered In Computer Data File:	Not reported
Spill Record Last Update:	11/12/97
Is Updated:	False
PBS Number:	Not reported
Tank Number:	WEST TANK
Tank Size:	4000
Test Method:	Unknown
Leak Rate Failed Tank:	0.00
Gross Leak Rate:	Not reported
Material Class Type:	Petroleum
Quantity Spilled:	0

AMOCO GASOLINE #60030 (Continued) **S102145072**

Unkonwn Quantity Spilled: True
Units: Gallons
Quantity Recovered: 0
Unkonwn Quantity Recovered: True
Material: GASOLINE
Class Type: GASOLINE
Times Material Entry In File: 21329
CAS Number: Not reported
Last Date: 19940929
DEC Remarks: SPILL LOCATION IS THE SITE OF AN ACTIVE PIN PROJECT SP93510, AND IS ACTIVE UNDER SPILL 93-07222. AS OF OCT. 97, THERE WAS INQUERIES BY POTENTIAL OPERATORS OF THE SITE. 11/04/97 mmm:INSPECTED STATION - OPERATOR WAS NOT AROUND. STATION DIRECTLY OVERSUBWAY TUNNELS, AND TANKS PUMPS ARE OUT OF SERVICE. SVE SYSTEM LOCATED ON SOUTHERN END OF PARCEL AND IS OPERATING. 11/12/97 mmm:RE-ASSIGNED TO TOMASELLO FOR FOLLOW UP.
Spill Cause: CALLER STATES THERE WAS A TANK FAILURE AFTER A TEST. NO PBS NUMBER AVAILABLE. TEST WAS AN AIR TEST ON PRODUCT.

AO188 **CITY OF NY DEPARTMENT OF H.P.D** **AST** **U003395940**
WSW **510 W 151 ST** **HIST AST** **N/A**
1/8-1/4 **MANHATTAN, NY 10031**
1314 ft.

Site 5 of 6 in cluster AO

Relative: Higher

AST:

Actual: 132 ft.

AST:

Region: STATE
Facility Id: 2-601065
UTM X: 588972.93891
UTM Y: 4520333.44072
Expiration Date: 10/21/97
Renewal Date: / /
Total Capacity: 3000
Facility Type: Not reported
Site Type Name: Apartment Building/Office Building
Site Type Status: Active
Mailing Company: CITY OF N.Y DEPARTMENT OF H.P.D
Mailing Title: Not reported
Mailing Contact: IVAN SCHWARTZ
Mailing Address: 75 MAIDEN LANE
Mailing Address 2: 4TH FL- RM 42
Mailing City: NEW YORK
Mailing State: NY
Mailing Zip Code: 10038
Mailing Phone No: (212) 806-8038
Mailing Email: Not reported
Owner Title: Not reported
Owner Name: Not reported
Owner Address: 75 MAIDEN LANE
Owner Address 2: Not reported
Owner State: NY
Owner Zip Code: 10038
Owner Phone: (212) 806-8306
Owner Company: CITY OF N.Y DEPARTMENT OF H.P.D
Emergency Contact: LOUISE BECTON
Emergency Phone: (212) 234-3656
Operator: JOHN PRASEK

CITY OF NY DEPARTMENT OF H.P.D (Continued) **U003395940**

Operator Phone:	(212) 234-1175
Owner City:	NEW YORK
Owner Sub Type:	Local Government
Program Type:	PBS
Tank Number:	1
Tank Location Name:	Aboveground - in contact with soil
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	/ /
Capacity Gallons:	3000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	Painted/Asphalt Coating
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Aboveground/Underground Combination
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	Painted/Asphalt Coating
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Vault (w/o access)
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Exempt Suction Piping
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Vent Whistle
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

HIST AST:

PBS Number:	2-601065
SWIS Code:	6201
Operator:	JOHN PRASEK
Facility Phone:	(212) 234-1175
Facility Addr2:	510 W 151 ST
Facility Type:	APARTMENT BUILDING
Emergency:	LOUISE BECTON
Emergency Tel:	(212) 234-3656
Old PBSNO:	Not reported
Date Inspected:	Not reported
Inspector:	Not reported
Result of Inspection:	Not reported
Owner Name:	CITY OF N.Y DEPARTMENT OF H.P.D
Owner Address:	75 MAIDEN LANE
Owner City,St,Zip:	NEW YORK, NY 10038
Federal ID:	Not reported
Owner Tel:	(212) 806-8306

CITY OF NY DEPARTMENT OF H.P.D (Continued) **U003395940**

Owner Type:	Local Government
Owner Subtype:	Not reported
Mailing Contact:	IVAN SCHWARTZ
Mailing Name:	CITY OF N.Y DEPARTMENT OF H.P.D
Mailing Address:	75 MAIDEN LANE
Mailing Address 2:	4TH FL- RM 42
Mailing City,St,Zip:	NEW YORK, NY 10038
Mailing Telephone:	(212) 806-8038
Owner Mark:	First Owner
Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Certification Flag:	False
Certification Date:	10/23/1992
Expiration:	10/21/1997
Renew Flag:	False
Renew Date:	Not reported
Total Capacity:	3000
FAMT:	True
Facility Screen:	No Missing Data
Owner Screen:	Minor Data Missing
Tank Screen:	No Missing Data
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	62
Town or City Code:	01
Region:	2

Tank ID:	1
Tank Location:	ABOVEGROUND
Tank Status:	In Service
Install Date:	Not reported
Capacity (Gal):	3000
Product Stored:	NOS 1,2, OR 4 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	0
Tank External:	01
Pipe Location:	Aboveground/Underground Combination
Pipe Type:	STEEL/IRON
Pipe Internal:	None
Pipe External:	01
Tank Containment:	Diking
Leak Detection:	00
Overfill Protection:	06
Dispenser Method:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	No Missing Data
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	True
SPDES Number:	Not reported
Lat/Long:	Not reported

AR189 **408 W 150 ST** **AST** **A100175228**
SSW **408 WEST 150TH STREET** **N/A**
1/8-1/4 **NEW YORK, NY 10031**
1314 ft.

Site 5 of 5 in cluster AR

Relative:
Lower

AST:

Actual:
103 ft.

AST:

Region:	STATE
Facility Id:	2-601066
UTM X:	589251.55260
UTM Y:	4520091.44035
Expiration Date:	12/30/08
Renewal Date:	05/31/02
Total Capacity:	4000
Facility Type:	Not reported
Site Type Name:	Apartment Building/Office Building
Site Type Status:	Active
Mailing Company:	WEST NICHOLAS REALTY CORP.
Mailing Title:	Not reported
Mailing Contact:	CHRIS CALHOUN
Mailing Address:	611 WEST 148TH STREET
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip Code:	10031
Mailing Phone No:	Not reported
Mailing Email:	Not reported
Owner Title:	Not reported
Owner Name:	Not reported
Owner Address:	611 W 148 ST
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	10031
Owner Phone:	Not reported
Owner Company:	NEIGHBORHOOD PARTNERSHIP HDFC % W NICHOLAS REALTY
Emergency Contact:	CHRIS CALHOUN
Emergency Phone:	Not reported
Operator:	CHRIS CALHOUN
Operator Phone:	Not reported
Owner City:	NEW YORK
Owner Sub Type:	Private Resident
Program Type:	PBS
Tank Number:	1
Tank Location Name:	Aboveground - in contact with soil
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	/ /
Capacity Gallons:	4000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	Painted/Asphalt Coating
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Aboveground/Underground Combination

408 W 150 ST (Continued) **A100175228**

Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Vault (w/o access)
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Exempt Suction Piping
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Vent Whistle
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

AO190 **512 WEST 151ST STREET** **AST** **U004045616**
WSW **512 WEST 151ST STREET** **N/A**
1/8-1/4 **NEW YORK, NY 10031**
1318 ft.

Site 6 of 6 in cluster AO

Relative:
Higher

AST:

Actual:
132 ft.

AST:

Region:	STATE
Facility Id:	2-472700
UTM X:	588968.27043
UTM Y:	4520335.93802
Expiration Date:	03/27/08
Renewal Date:	/ /
Total Capacity:	0
Facility Type:	Not reported
Site Type Name:	Apartment Building/Office Building
Site Type Status:	Unregulated
Mailing Company:	512 EQUITIS LLC
Mailing Title:	Not reported
Mailing Contact:	512 EQUITIES LLC
Mailing Address:	207 EAST 94 STREET
Mailing Address 2:	SUITE 403
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip Code:	10128
Mailing Phone No:	(212) 996-5100
Mailing Email:	Not reported
Owner Title:	Not reported
Owner Name:	Not reported
Owner Address:	207 EAST 94 STREET, SUITE 403
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	10128
Owner Phone:	(212) 996-5100
Owner Company:	512 EQUITIES INC
Emergency Contact:	YOAV HARON
Emergency Phone:	(212) 996-5100

512 WEST 151ST STREET (Continued) **U004045616**

Operator:	YOAV HARON
Operator Phone:	(212) 996-5100
Owner City:	NEW YORK
Owner Sub Type:	Corporate or Commercial
Program Type:	PBS
Tank Number:	001
Tank Location Name:	Aboveground - in contact with soil
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	/ /
Capacity Gallons:	3000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Vault (w/o access)
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Product Level Gauge (A/G)
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	06/01/94

AQ191 **W-158 ST HARLEM HOLDING CORP** **AST** **U003393667**
NNW **540 W 158 ST** **HIST AST** **N/A**
1/8-1/4 **NEW YORK, NY 10032**
1319 ft.

Site 2 of 2 in cluster AQ

Relative:
Higher

AST:

Actual:
135 ft.

AST:

Region:	STATE
Facility Id:	2-341177
UTM X:	589171.48557
UTM Y:	4520869.74595
Expiration Date:	04/23/12
Renewal Date:	/ /
Total Capacity:	5000
Facility Type:	Not reported
Site Type Name:	Apartment Building/Office Building

W-158 ST HARLEM HOLDING CORP (Continued) **U003393667**

Site Type Status:	Active
Mailing Company:	Not reported
Mailing Title:	Not reported
Mailing Contact:	YURI GEYLIK
Mailing Address:	56 WILLOUGHBY STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip Code:	11201
Mailing Phone No:	(718) 855-6110
Mailing Email:	Not reported
Owner Title:	OFFICER
Owner Name:	JACK JAFFA
Owner Address:	56 WILLOUGHBY STREET
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	11201
Owner Phone:	(718) 855-6110
Owner Company:	536-540 WEST 158 STREET OWNER, LLC
Emergency Contact:	JACK JAFFA
Emergency Phone:	(718) 781-6806
Operator:	ISRAEL FRANKEL
Operator Phone:	(718) 258-4288
Owner City:	BROOKLYN
Owner Sub Type:	Corporate or Commercial
Program Type:	PBS
Tank Number:	001
Tank Location Name:	Aboveground - in contact with soil
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	07/11/58
Capacity Gallons:	5000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Vault (w/o access)
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Exempt Suction Piping
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Product Level Gauge (A/G)
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required

W-158 ST HARLEM HOLDING CORP (Continued) **U003393667**

Date Tested: / /
Next Test Date: / /
Date Tank Closed: / /

HIST AST:

PBS Number:	2-341177
SWIS Code:	6201
Operator:	W 158 ST HARLEM HOLDING CORP
Facility Phone:	(718) 978-7951
Facility Addr2:	540 W 158 ST
Facility Type:	APARTMENT BUILDING
Emergency:	WILLIAM J HODGES
Emergency Tel:	(718) 978-7951
Old PBSNO:	Not reported
Date Inspected:	Not reported
Inspector:	Not reported
Result of Inspection:	Not reported
Owner Name:	W-158 ST HARLEM HOLDING CORP
Owner Address:	163-35 130 AVE #6D
Owner City,St,Zip:	JAMAICA, NY 11434
Federal ID:	Not reported
Owner Tel:	(718) 978-7951
Owner Type:	Corporate/Commercial
Owner Subtype:	Not reported
Mailing Contact:	Not reported
Mailing Name:	W-158 ST HARLEM HOLDING CORP
Mailing Address:	163-35 130 AVE #6D
Mailing Address 2:	Not reported
Mailing City,St,Zip:	JAMAICA, NY 11434
Mailing Telephone:	(718) 978-7951
Owner Mark:	First Owner
Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Certification Flag:	False
Certification Date:	07/11/1994
Expiration:	11/16/1997
Renew Flag:	False
Renew Date:	Not reported
Total Capacity:	5000
FAMT:	True
Facility Screen:	No Missing Data
Owner Screen:	No Missing Data
Tank Screen:	Minor Data Missing
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	62
Town or City Code:	01
Region:	2

Tank ID:	001
Tank Location:	ABOVEGROUND
Tank Status:	In Service
Install Date:	Not reported
Capacity (Gal):	5000
Product Stored:	NOS 1,2, OR 4 FUEL OIL

W-158 ST HARLEM HOLDING CORP (Continued) **U003393667**

Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	STEEL/IRON
Pipe Internal:	Not reported
Pipe External:	Not reported
Tank Containment:	Diking
Leak Detection:	0
Overfill Protection:	4
Dispenser Method:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	True
SPDES Number:	Not reported
Lat/Long:	Not reported

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192 **518 WEST 151ST STREET** **LTANKS** **S103517643**
WSW **518 WEST 151ST STREET** **HIST AST** **N/A**
1/4-1/2 **MANHATTAN, NY** **HIST LTANKS**
1351 ft.

Relative:
Higher

Actual:
133 ft.

LTANKS:

Site ID:	115036
Spill Date:	10/29/92
Facility Addr2:	Not reported
Facility ID:	9208762
Program Number:	9208762
SWIS:	3101
Region of Spill:	2
Investigator:	KSTANG
Referred To:	Not reported
Reported to Dept:	10/29/92
CID:	15
Spill Cause:	Tank Overfill
Water Affected:	Not reported
Spill Source:	Commercial/Industrial
Spill Notifier:	Other
Cleanup Ceased:	10/29/92
Cleanup Meets Standard:	True
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	10/29/92
Remediation Phase:	0
Date Entered In Computer:	10/30/92
Spill Record Last Update:	09/30/04
Spille Namer:	Not reported
Spiller Company:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
Spiller Address:	Not reported

518 WEST 151ST STREET (Continued) **S103517643**

Spiller City,St,Zip:	***Update***, ZZ
Spiller County:	001
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
DEC Region:	2
Program Number:	9208762
DER Facility ID:	100253
Site ID:	115036
Operable Unit ID:	975523
Operable Unit:	01
Material ID:	405842
Material Code:	0002
Material Name:	#4 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	30.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
Site ID:	Not reported
Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported
DEC Memo:	Start DECRemark - 9208762 Prior to Sept, 2004 data translation this spill Lead DEC Field was "TANG" END DECRemark - 9208762
Remarks:	Start CallerRemark - 9208762 OIL LEAKED OUT TANK TOP ONTO CONCRETE BASEMENT FLOOR-SPILL TEAM ENROUTE TO CLEAN SPILL-DRIVER STICK RDG PRE-DELIV=1070 OIL LEAKED AT METER RDG. OF2501=TOTAL 3571 GALS IN 5K TANK. END CallerRemark - 9208762

HIST AST:

PBS Number:	2-472530
SWIS Code:	6201
Operator:	MANUEL RIVERA
Facility Phone:	(212) 304-9300
Facility Addr2:	518 WEST 151ST STREET
Facility Type:	Not reported
Emergency:	EMANUEL OSTROVSKY
Emergency Tel:	(212) 304-9300
Old PBSNO:	Not reported
Date Inspected:	Not reported
Inspector:	Not reported
Result of Inspection:	Not reported
Owner Name:	ARTHA MANAGEMENT INC
Owner Address:	21 NAGLE AVENUE
Owner City,St,Zip:	NEW YORK, NY 10040
Federal ID:	Not reported
Owner Tel:	(212) 304-9300
Owner Type:	Not reported

518 WEST 151ST STREET (Continued) **S103517643**

Owner Subtype:	Not reported
Mailing Contact:	Not reported
Mailing Name:	ARTHA MANAGEMENT INC
Mailing Address:	21 NAGLE AVENUE
Mailing Address 2:	Not reported
Mailing City,St,Zip:	NEW YORK, NY 10040
Mailing Telephone:	(212) 304-9300
Owner Mark:	First Owner
Facility Status:	3 - Administratively closed (reasons include business is closed and/or mail is undeliverable, and staff cannot check if tanks were removed; or a duplicate registration was generated).
Certification Flag:	False
Certification Date:	03/06/1989
Expiration:	03/06/1994
Renew Flag:	False
Renew Date:	Not reported
Total Capacity:	0
FAMT:	True
Facility Screen:	Minor Data Missing
Owner Screen:	Minor Data Missing
Tank Screen:	Minor Data Missing
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	62
Town or City Code:	01
Region:	2

Tank ID:	001
Tank Location:	ABOVEGROUND
Tank Status:	Undefined
Install Date:	Not reported
Capacity (Gal):	5000
Product Stored:	NOS 1,2, OR 4 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	STEEL/IRON
Pipe Internal:	Not reported
Pipe External:	Not reported
Tank Containment:	Diking
Leak Detection:	0
Overfill Protection:	4
Dispenser Method:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	10/23/2000
Test Method:	Not reported
Deleted:	False
Updated:	False
SPDES Number:	Not reported
Lat/Long:	Not reported

HIST LTANKS:

Region of Spill:	2

518 WEST 151ST STREET (Continued) **S103517643**

Spill Number:	9208762
Investigator:	TANG
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Caller Extension:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Notifier Extension:	Not reported
Spill Date:	10/29/1992
Spill Time:	14:25
Reported to Department Date:	10/29/92
Reported to Department Time:	14:40
SWIS:	62
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
Spiller Name:	Not reported
Spiller Address:	Not reported
Spiller City,St,Zip:	Not reported
Facility Contact:	Not reported
Facility Phone:	Not reported
Facility Extention:	Not reported
Spill Cause:	Tank Overfill
Resource Affectd:	On Land
Water Affected:	Not reported
Spill Source:	Other Commercial/Industrial
Spill Notifier:	Other
PBS Number:	Not reported
Cleanup Ceased:	10/29/92
Cleanup Meets Standard:	True
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Date:	/ /
Enforcement Date:	/ /
Investigation Complete:	/ /
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	10/29/92
Date Region Sent Summary to Central Office:	/ /
Corrective Action Plan Submitted:	/ /
Date Spill Entered In Computer Data File:	10/30/92
Time Spill Entered In Computer Data File:	Not reported
Spill Record Last Update:	/ /
Is Updated:	False
PBS Number:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate Failed Tank:	Not reported
Gross Leak Rate:	Not reported
Material Class Type:	Petroleum
Quantity Spilled:	30
Unkonwn Quantity Spilled:	False
Units:	Gallons

518 WEST 151ST STREET (Continued) **S103517643**

Quantity Recovered: 0
Unkonwn Quantity Recovered: False
Material: #4 FUEL OIL
Class Type: #4 FUEL OIL
Times Material Entry In File: 1751
CAS Number: Not reported
Last Date: 19941205
DEC Remarks: Not reported
Spill Cause: OIL LEAKED OUT TANK TOP ONTO CONCRETE BASEMENT FLOOR-SPILL TEAM ENROUTE TO CLEAN SPILL-DRIVER STICK RDG PRE-DELIV=1070 OIL LEAKED AT METER RDG. OF2501=TOTAL 3571 GALS IN 5K TANK.

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193 NNE 1/4-1/2 1361 ft. **APT BLDG** **425 W 160TH ST** **MANHATTAN, NY** **LTANKS** **S103238490** **HIST LTANKS** **N/A**

Relative: Higher

Actual: 165 ft.

LTANKS:
Site ID: 150759
Spill Date: 06/26/98
Facility Addr2: Not reported
Facility ID: 9803880
Program Number: 9803880
SWIS: 3101
Region of Spill: 2
Investigator: GWHEITZM
Referred To: Not reported
Reported to Dept: 06/26/98
CID: 15
Spill Cause: Tank Test Failure
Water Affected: Not reported
Spill Source: Commercial/Industrial
Spill Notifier: Tank Tester
Cleanup Ceased: / /
Cleanup Meets Standard: False
Last Inspection: / /
Recommended Penalty: Penalty Not Recommended
UST Involvement: False
Spill Class: Known release that creates potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: 06/13/05
Remediation Phase: 0
Date Entered In Computer: 06/26/98
Spill Record Last Update: 06/13/05
Spille Namer: SAL PASCALE
Spiller Company: APT BLDG
Spiller Phone: (212) 736-6888
Spiller Extention: Not reported
Spiller Address: 425 W 160TH ST
Spiller City,St,Zip: MANHATTAN, NY -
Spiller County: 001
Spiller Contact: SAL PASCALE
Spiller Phone: (212) 736-6888
Spiller Extention: Not reported
DEC Region: 2
Program Number: 9803880
DER Facility ID: 128160
Site ID: 150759

APT BLDG (Continued) **S103238490**

Operable Unit ID:	1064613
Operable Unit:	01
Material ID:	322202
Material Code:	0002
Material Name:	#4 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	0.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
Site ID:	150759
Spill Tank Test:	1546034
Tank Number:	001
Tank Size:	5000
Test Method:	03
Leak Rate:	0.00
Gross Fail:	Not reported
Modified By:	Spills
Last Modified:	10/01/04
Test Method:	Horner EZ Check I or II
DEC Memo:	Start DECRemark - 9803880 6/13/05 Heitzman - See PBS 2-253367, Jumal Terrace Realty. Old 5000-gallon tank was closed and replaced with new tank 5/1/99, approximately 11 months after reported spill. No contamination reported in PBS file. Spill closed. END DECRemark - 9803880
Remarks:	Start CallerRemark - 9803880 OWNER TO BE CONTACTED WITH RESULTS OF TANK TEST-WILL ISOLATE AND RE-TEST. END CallerRemark - 9803880

HIST LTANKS:

Region of Spill:	2
Spill Number:	9803880
Investigator:	O'DOWD
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Caller Extension:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Notifier Extension:	Not reported
Spill Date:	06/26/1998
Spill Time:	14:20
Reported to Department Date:	06/26/98
Reported to Department Time:	14:24
SWIS:	62
Spiller Contact:	SAL PASCALE
Spiller Phone:	(212) 736-6888
Spiller Extention:	Not reported
Spiller Name:	APT BLDG
Spiller Address:	425 W 160TH ST
Spiller City,St,Zip:	MANHATTAN, NY -
Facility Contact:	SAL PASCALE
Facility Phone:	(212) 736-6888
Facility Extention:	Not reported
Spill Cause:	Tank Test Failure
Resource Affectd:	On Land

APT BLDG (Continued) **S103238490**

Water Affected:	Not reported
Spill Source:	Other Commercial/Industrial
Spill Notifier:	Tank Tester
PBS Number:	0-000000
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Date:	/ /
Enforcement Date:	/ /
Investigation Complete:	/ /
UST Involvement:	False
Spill Class:	Known release that creates potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	/ /
Date Region Sent Summary to Central Office:	/ /
Corrective Action Plan Submitted:	/ /
Date Spill Entered In Computer Data File:	06/26/98
Time Spill Entered In Computer Data File:	Not reported
Spill Record Last Update:	06/29/98
Is Updated:	False
PBS Number:	Not reported
Tank Number:	001
Tank Size:	5000
Test Method:	Horner EZ Check
Leak Rate Failed Tank:	0.00
Gross Leak Rate:	Not reported
Material Class Type:	Petroleum
Quantity Spilled:	0
Unkonwn Quantity Spilled:	True
Units:	Gallons
Quantity Recovered:	0
Unkonwn Quantity Recovered:	True
Material:	#4 FUEL OIL
Class Type:	#4 FUEL OIL
Times Material Entry In File:	1751
CAS Number:	Not reported
Last Date:	19941205
DEC Remarks:	Not reported
Spill Cause:	OWNER TO BE CONTACTED WITH RESULTS OF TANK TEST- WILL ISOLATE AND RE-TEST.

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194 South 1/4-1/2 1403 ft. **EDGECOMB BUILDINGS** **345 EDGECOMB AVE** **NEW YORK, NY** **AST LTANKS HIST AST HIST LTANKS** **U001840967 N/A**

Relative: Lower

Actual: 76 ft.

AST:

AST:

Region:	STATE
Facility Id:	2-480061
UTM X:	589379.12364
UTM Y:	4520247.52717
Expiration Date:	03/13/10
Renewal Date:	/ /
Total Capacity:	1500
Facility Type:	Not reported
Site Type Name:	Apartment Building/Office Building

EDGECOMB BUILDINGS (Continued) **U001840967**

Site Type Status:	Active
Mailing Company:	BROADWAY HOUSING DEVELOPMENT FUND
Mailing Title:	Not reported
Mailing Contact:	HAILE GHEBRE
Mailing Address:	10 FORT WASHINGTON AVENUE
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip Code:	10032
Mailing Phone No:	(212) 568-2030
Mailing Email:	Not reported
Owner Title:	FACILITIES DIRECTOR
Owner Name:	FRANK WILSON
Owner Address:	10 FORT WASHINGTON AVENUE
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	10032
Owner Phone:	(212) 568-2030
Owner Company:	BROADWAY HOUSING DEVELOPMENT FUND
Emergency Contact:	HAILE GHEBRE
Emergency Phone:	(212) 368-5199
Operator:	HAILE GHEBRE
Operator Phone:	(212) 234-4303
Owner City:	NEW YORK
Owner Sub Type:	Corporate or Commercial
Program Type:	PBS
Tank Number:	001
Tank Location Name:	Aboveground on crib, rack, or cradle
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	/ /
Capacity Gallons:	1500
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	Painted/Asphalt Coating
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Aboveground
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	Painted/Asphalt Coating
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Diking (Aboveground)
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	Impervious Barrier/Concrete Pad (A/G)
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Exempt Suction Piping
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Vent Whistle
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required

EDGECOMB BUILDINGS (Continued) **U001840967**

Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

LTANKS:

Site ID:	99602
Spill Date:	07/14/98
Facility Addr2:	Not reported
Facility ID:	9804675
Program Number:	9804675
SWIS:	3101
Region of Spill:	2
Investigator:	SIGONA
Referred To:	Not reported
Reported to Dept:	07/14/98
CID:	15
Spill Cause:	Tank Test Failure
Water Affected:	Not reported
Spill Source:	Private Dwelling
Spill Notifier:	Tank Tester
Cleanup Ceased:	/ /
Cleanup Meets Standard:	True
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	02/09/99
Remediation Phase:	0
Date Entered In Computer:	07/14/98
Spill Record Last Update:	02/09/99
Spille Namer:	GAYLORD SEAMON
Spiller Company:	EDGECOMB BUILDINGS
Spiller Phone:	(212) 568-8507
Spiller Extention:	Not reported
Spiller Address:	345 EDGECOMB AVE
Spiller City,St,Zip:	NEW YORK, NY 10031-
Spiller County:	001
Spiller Contact:	GAYLORD SEAMON
Spiller Phone:	(212) 568-8507
Spiller Extention:	Not reported
DEC Region:	2
Program Number:	9804675
DER Facility ID:	88491
Site ID:	99602
Operable Unit ID:	1065545
Operable Unit:	01
Material ID:	319445
Material Code:	0001
Material Name:	#2 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	0.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False

EDGECOMB BUILDINGS (Continued) **U001840967**

Site ID:	99602
Spill Tank Test:	1546070
Tank Number:	1
Tank Size:	1500
Test Method:	03
Leak Rate:	63.60
Gross Fail:	Not reported
Modified By:	Spills
Last Modified:	10/01/04
Test Method:	Horner EZ Check I or II
DEC Memo:	Not reported
Remarks:	Start CallerRemark - 9804675 TANK TEST AT ABOVE LOCATION. PROPERTY OWNER ADVISED OF RESULTS AND TANK WILL BE PUMPED OUT AND FURTHER TESTING TO BE DONE. END CallerRemark - 9804675

HIST AST:

PBS Number:	2-480061
SWIS Code:	6201
Operator:	GAILARD SEAMON
Facility Phone:	(212) 234-4303
Facility Addr2:	345 EDGECOMBE AVE
Facility Type:	APARTMENT BUILDING
Emergency:	GAILARD SEAMON
Emergency Tel:	(212) 368-5199
Old PBSNO:	092770
Date Inspected:	Not reported
Inspector:	Not reported
Result of Inspection:	Not reported
Owner Name:	BROADWAY HOUSING DEVELOPMENT FUND
Owner Address:	10 FORT WASHINGTON AVENUE
Owner City,St,Zip:	NEW YORK, NY 10032
Federal ID:	Not reported
Owner Tel:	(212) 568-2030
Owner Type:	Corporate/Commercial
Owner Subtype:	Not reported
Mailing Contact:	GAILAND SEAMON
Mailing Name:	BROADWAY HOUSING DEVELOPMENT FUND
Mailing Address:	10 FORT WASHINGTON AVENUE
Mailing Address 2:	Not reported
Mailing City,St,Zip:	NEW YORK, NY 10032
Mailing Telephone:	(212) 568-2030
Owner Mark:	Second Owner
Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Certification Flag:	False
Certification Date:	02/29/2000
Expiration:	03/13/2005
Renew Flag:	False
Renew Date:	Not reported
Total Capacity:	1500
FAMT:	True
Facility Screen:	No Missing Data
Owner Screen:	No Missing Data
Tank Screen:	No Missing Data
Dead Letter:	False
CBS Number:	Not reported

EDGECOMB BUILDINGS (Continued) **U001840967**

Town or City:	NEW YORK CITY
County Code:	62
Town or City Code:	01
Region:	2

Tank ID:	001
Tank Location:	ABOVEGROUND ON SADDLES LEGS, STILTS, RACK, OR CRADLE
Tank Status:	In Service
Install Date:	Not reported
Capacity (Gal):	1500
Product Stored:	NOS 1,2, OR 4 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	0
Tank External:	01
Pipe Location:	Aboveground
Pipe Type:	STEEL/IRON
Pipe Internal:	None
Pipe External:	01
Tank Containment:	08
Leak Detection:	05
Overfill Protection:	06
Dispenser Method:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	No Missing Data
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	True
SPDES Number:	Not reported
Lat/Long:	Not reported

HIST LTANKS:

Region of Spill:	2
Spill Number:	9804675
Investigator:	SIGONA
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Caller Extension:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Notifier Extension:	Not reported
Spill Date:	07/14/1998
Spill Time:	12:00
Reported to Department Date:	07/14/98
Reported to Department Time:	15:53
SWIS:	62
Spiller Contact:	GAYLORD SEAMON
Spiller Phone:	(212) 568-8507
Spiller Extention:	Not reported
Spiller Name:	EDGECOMB BUILDINGS
Spiller Address:	345 EDGECOMB AVE
Spiller City,St,Zip:	NEW YORK, NY 10031-
Facility Contact:	GAYLORD SEAMON
Facility Phone:	(212) 568-8507

EDGECOMB BUILDINGS (Continued) **U001840967**

Facility Extention:	Not reported
Spill Cause:	Tank Test Failure
Resource Affectd:	On Land
Water Affected:	Not reported
Spill Source:	Private Dwelling
Spill Notifier:	Tank Tester
PBS Number:	2-480061
Cleanup Ceased:	/ /
Cleanup Meets Standard:	True
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Date:	/ /
Enforcement Date:	/ /
Investigation Complete:	/ /
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	02/09/99
Date Region Sent Summary to Central Office:	/ /
Corrective Action Plan Submitted:	/ /
Date Spill Entered In Computer Data File:	07/14/98
Time Spill Entered In Computer Data File:	Not reported
Spill Record Last Update:	02/09/99
Is Updated:	False
PBS Number:	Not reported
Tank Number:	1
Tank Size:	1500
Test Method:	Horner EZ Check
Leak Rate Failed Tank:	63.60
Gross Leak Rate:	Not reported
Material Class Type:	Petroleum
Quantity Spilled:	0
Unkonwn Quantity Spilled:	False
Units:	Gallons
Quantity Recovered:	0
Unkonwn Quantity Recovered:	False
Material:	#2 FUEL OIL
Class Type:	#2 FUEL OIL
Times Material Entry In File:	24464
CAS Number:	Not reported
Last Date:	19941207

DEC Remarks: DEC Sigona) arranged an on-site meeting with tank owner. The tank may be AST mounded 1300 gals. Inspection scheduled for 2/8/1999 at 1 P.M. DEC Sigona) inspected on 2/8/99 at 1 P.M. met with superintendent Mr. Seamons. Found 1500 gallon aboveground tank in basement with jacket cement) along with 3 large weep holes along the base. The top of the tank was removed by State Environmental, exposing an opening which was secured with screws, an signs of minor leakage. They plan to hire a contractor to re-weld the tank top after the tank is cleaned. DEC Sigona) recommended the closure of the extension for the fill fipe which can be disconnected at the side of the building to create a direct fill only. DEC Sigona) contacted Jack Aversato advise that the violation for tank testing should be removed, and the tank will be revised on the PBS data base. An application was sent to the owner on 2/9/99.

Spill Cause: TANK TEST AT ABOVE LOCATION. PROPERTY OWNER ADVISED OF RESULTS AND TANK WILL BE PUMPED OUT AND FURTHER TESTING TO BE DONE.

195 West 1/4-1/2 1413 ft.

RESIDENCE
555 WEST 152ND ST
MANHATTAN, NY

LTANKS **S104877193**
HIST LTANKS **N/A**

Relative: Higher

Actual: 137 ft.

LTANKS:

Site ID:	222855
Spill Date:	11/10/00
Facility Addr2:	Not reported
Facility ID:	0009259
Program Number:	0009259
SWIS:	3101
Region of Spill:	2
Investigator:	MCTIBBE
Referred To:	Not reported
Reported to Dept:	11/10/00
CID:	15
Spill Cause:	Tank Overfill
Water Affected:	Not reported
Spill Source:	Private Dwelling
Spill Notifier:	Local Agency
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	02/05/04
Remediation Phase:	0
Date Entered In Computer:	11/10/00
Spill Record Last Update:	02/05/04
Spille Namer:	UNKNOWN
Spiller Company:	UNKNOWN
Spiller Phone:	Not reported
Spiller Extention:	Not reported
Spiller Address:	UNKNOWN
Spiller City,St,Zip:	UNKNOWN, ZZ
Spiller County:	001
Spiller Contact:	UNK
Spiller Phone:	(000) 000-0000
Spiller Extention:	Not reported
DEC Region:	2
Program Number:	0009259
DER Facility ID:	184277
Site ID:	222855
Operable Unit ID:	830065
Operable Unit:	01
Material ID:	543215
Material Code:	0001
Material Name:	#2 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	0.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Sewer
Oxygenate:	False
Site ID:	Not reported

RESIDENCE (Continued) **S104877193**

Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported
DEC Memo:	Start DECRemark - 0009259 Prior to Sept, 2004 data translation this spill Lead DEC Field was "TIBBE" handled by fdny & nycdep. END DECRemark - 0009259
Remarks:	Start CallerRemark - 0009259 CALLER STATES FD NOTIFIED HIM OF POSSIBLE SPILL INTO SEWERS. UNK NAME OF DELIVERY COMPANY. END CallerRemark - 0009259

HIST LTANKS:

Region of Spill:	2
Spill Number:	0009259
Investigator:	TIBBE
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Caller Extension:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Notifier Extension:	Not reported
Spill Date:	11/10/2000
Spill Time:	12:00
Reported to Department Date:	11/10/00
Reported to Department Time:	18:43
SWIS:	62
Spiller Contact:	UNK
Spiller Phone:	(000) 000-0000
Spiller Extention:	Not reported
Spiller Name:	UNK
Spiller Address:	UNK
Spiller City,St,Zip:	UNK, UN
Facility Contact:	UNK
Facility Phone:	(000) 000-0000
Facility Extention:	Not reported
Spill Cause:	Tank Overfill
Resource Affectd:	In Sewer
Water Affected:	Not reported
Spill Source:	Private Dwelling
Spill Notifier:	Local Agency
PBS Number:	Not reported
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Date:	/ /
Enforcement Date:	/ /
Investigation Complete:	/ /
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	/ /

RESIDENCE (Continued) **S104877193**

Date Region Sent Summary to Central Office: / /
Corrective Action Plan Submitted: / /
Date Spill Entered In Computer Data File: 11/10/00
Time Spill Entered In Computer Data File: Not reported
Spill Record Last Update: 11/13/00
Is Updated: False
PBS Number: Not reported
Tank Number: Not reported
Tank Size: Not reported
Test Method: Not reported
Leak Rate Failed Tank: Not reported
Gross Leak Rate: Not reported
Material Class Type: Petroleum
Quantity Spilled: 0
Unkonwn Quantity Spilled: True
Units: Gallons
Quantity Recovered: 0
Unkonwn Quantity Recovered: True
Material: #2 FUEL OIL
Class Type: #2 FUEL OIL
Times Material Entry In File: 24464
CAS Number: Not reported
Last Date: 19941207
DEC Remarks: Not reported
Spill Cause: CALLER STATES FD NOTIFIED HIM OF POSSIBLE SPILL INTO SEWERS. UNK NAME OF DELIVERY COMPANY.

196
North
1/4-1/2
1422 ft.

1003 SAINT NICHOLAS AVE
NEW YORK, NY

LTANKS **S105995893**
N/A

Relative:
Higher

Actual:
164 ft.

LTANKS:
Site ID: 214389
Spill Date: 05/17/02
Facility Addr2: Not reported
Facility ID: 0201769
Program Number: 0201769
SWIS: 3101
Region of Spill: 2
Investigator: SMSANGES
Referred To: Not reported
Reported to Dept: 05/17/02
CID: 15
Spill Cause: Tank Failure
Water Affected: Not reported
Spill Source: Commercial/Industrial
Spill Notifier: Other
Cleanup Ceased: / /
Cleanup Meets Standard: False
Last Inspection: / /
Recommended Penalty: Penalty Not Recommended
UST Involvement: False
Spill Class: Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: 07/29/04
Remediation Phase: 0
Date Entered In Computer: 05/17/02

(Continued) **S105995893**

Spill Record Last Update:	07/29/04
Spille Namer:	MR RAM
Spiller Company:	CHATMAN MANAGMENT CO
Spiller Phone:	(718) 824-5001
Spiller Extention:	Not reported
Spiller Address:	2123 WILLIAMS BRIDGE RD
Spiller City,St,Zip:	BRONX, NY 10461-
Spiller County:	001
Spiller Contact:	RAY LARA
Spiller Phone:	(718) 624-4842
Spiller Extention:	Not reported
DEC Region:	2
Program Number:	0201769
DER Facility ID:	177630
Site ID:	Not reported
Operable Unit ID:	Not reported
Operable Unit:	Not reported
Material ID:	Not reported
Material Code:	Not reported
Material Name:	Not reported
Case No.:	Not reported
Material FA:	Not reported
Quantity:	Not reported
Units:	Not reported
Recovered:	Not reported
Resource Affected:	Not reported
Oxygenate:	Not reported
Site ID:	Not reported
Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported
DEC Memo:	Start DECRemark - 0201769 Prior to Sept, 2004 data translation this spill Lead DEC Field was "SANGESLAND" 5/17/2002 Sangesland responded to the scene of a tank failure. Property manager Mr. Ram hired a welding company to make welded patch repairs to a 5,000 gal tank in a tankroom of an apartment building. After the welding was finished, the property manager ordered 3,000 gallons of #6 (?) fuel oil. Within 1 hour the tank let go and started pouring the oil into the tank vault room floor. Eventually it overflowed into the boiler room floor and filled up several inches thick. Petroleum Tank Cleaners was called to the scene with a vac truck and clean up crew. 5/28/2002 Ray Lara at PTC stated that his crew was back cleaning up on Saturday May 18th and then several times during the week of May 20 to 24th. Apparently the Boilerroom was cleaned by PTC 3 times, but oil keeps coming up through the cracks in the floor. 6/3/2002 Sangesland left a message with Mr. Ram (Property Manager) that the DEC needs to do a site inspection. Major question is how much (if any) oil is under the slab floor. 6/20/2002 Sangesland spoke with Mr. Ram and requested an appointment to do an inspection of the basement floor. As part of thisinspection, several 1" diameter drill holes will be required to investigate the condition of the soil under the slab floor. DEC has reason to believe there continues to be oil rising up out of floor cracks in the boiler room. 7/2/2002 - Sangesland left a message for Mr. Ram 7/16/2002 - Sangesland left

(Continued) **S105995893**

a message for Mr. Ram requesting Mr. Ram to provide someone to drill the floor on Friday 7/19 at 9AM Sangesland will be at the site. 7/17/2002 - Sangesland left another message to findout if Mr. Ram received the message from 7/16. 7/17/2002 - Mr. Ram returned the call. The super is on vacation, Mr. Ram does not know if he can have someone on site for Friday morning. 7/17/2002 - Mr. Bernie Bauer (718-731-7011) - contractorfor Mr. Ram made an appointment to do borings on site Thurs Aug 1 -3PM 8/2/2002 - Sangesland met on site with Abraham Wachsler- employee of Mr. Bernie Bauer of New York City Tank Testing Inc. (1624 Webster Ave, Bronx) 718-731-7011. Upon arrival, Mr. Wachsler had already made several borings and a few open trenches around the basement (boiler room, tank room and connecting hallways). In each room there were locations with significant soil contamination under the cement slab floor. Sangesland prepared a letter to Mr. Ram outlining the need for contamination delineation, the preparation of a "Site Remediation Plan" and the review/approval process with the NYSDEC before work is done. The letter gives the following deadlines: 1)Owner must select an environmental contractor by Sept 5, 2002. 2)Submittal of a Delineation/Remediation Work Plan by Oct 20,2002 This letter was mailed registered to Mr. Gupta on 8/2/02. 8/7/2002 - Sangesland received the return receipt for the registered letter. 8/29/2002 - Sangesland spoke with Todd Sarett of Key Environmental (973-347-9430). Mr. Sarett is bidding on doing the environmental work on the site and asked for a description of what the DEC was looking for. Sangesland said a 2 phase project: Phase 1 - Delineation - several soil borings around the basement to determine the vertical and horizontal extent of the contamination. Phase 2 - Excavation with possible biological applications at the end. 3/17/2003 - Sangesland spoke with Dwayne Monaco of Northeast Environmental (914-777-1930). He said his company conducted a soil boring survey of the basement and determined that bedrock is very shallow and most of the contaminated soil is near the surface.He has a report ready for submittal as soon as Mr. Bernie Bauer pays for it. 5/12/2003 - Sangesland reviewed a "Sub-Surface Investigation Report". This report confirmed that there is contamination throughout the basement. The report also pointsout that bedrock is within 1 to 3 feet depth and excavation is probably the best way to address the contamination problem. Sangesland sent an e-mail response to Dwayne Monaco at: DM@northeastenvironmental.com confirming their results and requesting a "Remediation Plan". Now that the contamination is defined, a remediation plan is needed. 5/29/2003 - Sangesland forwarded a letter to Mr. Gupta stating that a Remediation Plan needs to be submitted to the DEC by July 15, 2003 7/29/2003 John Savatino from AB Environmental faxed a short work plan for the site. Sangesland reviewed it and said it looked OK. Work Plans says: 1) Remove standing product and water from floor drain and hole in boiler room via vacuum truck. 2) Break upall concrete that is located all over the contaminated areas and dispose the material. 3) Remove all contaminated sand ans soil from the impacted areas, down to the bedrock and dispose the material. This will require removal of approximately 54 yards of impacted concrete, soils and sand. 4) The locations of where the impacted material will be removed from are in the tank room, the boiler room, and the hallways adjacent to the boiler room and the tank room. 5) Transport and dispose all impacted materials. 6/23/2004 Sangesland made a site visit and found that all of the rooms on that side of the basement had been dug down to bedrock outcropping. Eastmond submitted copies of the disposal manifests. Sangesland asked for 10-15 photos of all of these rooms for the file. 7/29/2004 Sangesland received the photographs requested of the site. All work required by the NYSDEC for this site has been completed. As much contaminated soil as possible has been removed and the siteis not impacting any off site neighbor. Once the excavations are properly backfilled and a new cement floor is poured, the environmental impacts of the remaining contamination will be minimal.

(Continued) **S105995893**

Remarks: Spill Closed END DECRemark - 0201769
Start CallerRemark - 0201769 TANK FAILURE AT ABOVE LOCATION. TANK TO BE DRAINED AND REMOVED AND REPLACED. END CallerRemark - 0201769

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197 SSE 1/4-1/2 1446 ft. **HARLEM RIVER II HOUSES (HARLEM RIVER I)** **UST** **U001840722**
2850 8TH AVENUE **LTANKS** **N/A**
NEW YORK, NY 10039 **NY Spills**
HIST UST
NY Hist Spills
HIST LTANKS

Relative: Lower

Actual: 17 ft.

UST:

UST:

Facility Id:	2-475009
Expiration Date:	03/28/09
Renewal Date:	/ /
Total Capacity:	25000
Facility Type:	Not reported
Mailing Company:	NYC HOUSING AUTHORITY
Mailing Title:	FUEL OIL REMEDIATION COORDINATOR
Mailing Contact:	FUEL OIL REMEDIATION COORDINATOR
Mailing Address:	23-02 49TH AVENUE
Mailing Address 2:	Not reported
Mailing City:	LONG ISLAND CITY
Mailing State:	NY
Mailing Zip Code:	11101
Mailing Phone No:	(718) 707-5725
Mailing Email:	Not reported
Owner Title:	FUEL OIL REMEDIATION COORDINATOR
Owner Name:	FUEL OIL REMEDIATION COORDINATOR
Owner Address:	23-02 49TH AVENUE
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	11101
Owner Phone:	(718) 707-5725
Owner Company:	NYC HOUSING AUTHORITY
Emergency Contact:	EMERGENCY SERVICE DEPT.
Emergency Phone:	(212) 289-3940
Operator:	FUEL OIL REM. COORD.
Operator Phone:	(718) 707-5725
Owner City:	LONG ISLAND CITY
Owner Sub Type:	NYC Housing Authority (Local Government)
UTM X:	589511.54717
UTM Y:	4520093.03172
Site Type Name:	Apartment Building/Office Building
Site Type Status:	Active
Comments:	Not reported
Program Type:	PBS
Tank Number:	1
Tank Location Name:	Underground
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	10/01/00

HARLEM RIVER II HOUSES (HARLEM RIVER I) (Continued) **U001840722**

Capacity Gallons:	25000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Fiberglass Coated Steel
Tank Internal Protection:	None
Tank Internal Protection 1:	Fiberglass
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Underground/On-ground
Pipe Type Name:	Other
Pipe External Protection 1:	Other
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Double-Walled (Underground)
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	Interstitial - Electronic Monitoring
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Exempt Suction Piping
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	High Level Alarm
Type Of Overfill Prevention 2:	Automatic Shut-Off
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Unknown
Date Tested:	/ /
Next Test Date:	10/01/10
Date Tank Closed:	/ /

Tank Number:	OLD 1
Tank Location Name:	Underground
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	10/01/77
Capacity Gallons:	32000
Material Name:	Empty
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Underground/On-ground
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	Wrapped
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Product Level Gauge (A/G)
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported

HARLEM RIVER II HOUSES (HARLEM RIVER I) (Continued) **U001840722**

Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	07/01/00

LTANKS:

Site ID:	165770
Spill Date:	04/17/92
Facility Addr2:	Not reported
Facility ID:	9200682
Program Number:	9200682
SWIS:	3101
Region of Spill:	2
Investigator:	SWKRASZE
Referred To:	Not reported
Reported to Dept:	04/17/92
CID:	15
Spill Cause:	Tank Test Failure
Water Affected:	Not reported
Spill Source:	Institutional, Educational, Gov., Other
Spill Notifier:	Tank Tester
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	10/24/05
Remediation Phase:	0
Date Entered In Computer:	04/22/92
Spill Record Last Update:	01/03/06
Spille Namer:	Not reported
Spiller Company:	NYCHA
Spiller Phone:	Not reported
Spiller Extention:	Not reported
Spiller Address:	Not reported
Spiller City,St,Zip:	ZZ
Spiller County:	001
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
DEC Region:	2
Program Number:	9200682
DER Facility ID:	95757
Site ID:	165770
Operable Unit ID:	964533
Operable Unit:	01
Material ID:	415460
Material Code:	0002
Material Name:	#4 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	-1.00
Units:	Not reported
Recovered:	0.00
Resource Affected:	Soil

HARLEM RIVER II HOUSES (HARLEM RIVER I) (Continued) **U001840722**

Oxygenate:	False
Site ID:	165770
Spill Tank Test:	1539882
Tank Number:	001
Tank Size:	0
Test Method:	00
Leak Rate:	0.00
Gross Fail:	Not reported
Modified By:	Spills
Last Modified:	10/01/04
Test Method:	Unknown
DEC Memo:	Start DECRemark - 9200682 10/24/05: This spill closed to consolidate with open spill #0001489. S.Kraszewski END DECRemark - 9200682
Remarks:	Start CallerRemark - 9200682 E I & R 30K END CallerRemark - 9200682

Site ID:	108973
Spill Date:	04/23/91
Facility Addr2:	Not reported
Facility ID:	9100897
Program Number:	9100897
SWIS:	3101
Region of Spill:	2
Investigator:	HEALY
Referred To:	Not reported
Reported to Dept:	04/23/91
CID:	15
Spill Cause:	Tank Test Failure
Water Affected:	Not reported
Spill Source:	Institutional, Educational, Gov., Other
Spill Notifier:	Tank Tester
Cleanup Ceased:	04/26/95
Cleanup Meets Standard:	True
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	False
Spill Class:	Known release that creates potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	04/26/95
Remediation Phase:	0
Date Entered In Computer:	04/25/91
Spill Record Last Update:	01/03/06
Spille Namer:	Not reported
Spiller Company:	NYCHA
Spiller Phone:	(212) 306-3142
Spiller Extention:	Not reported
Spiller Address:	250 BROADWAY
Spiller City,St,Zip:	NEW YORK, NY
Spiller County:	001
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
DEC Region:	2
Program Number:	9100897
DER Facility ID:	95757
Site ID:	108973
Operable Unit ID:	954425
Operable Unit:	01

HARLEM RIVER II HOUSES (HARLEM RIVER I) (Continued) **U001840722**

Material ID:	427063
Material Code:	0002
Material Name:	#4 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	-1.00
Units:	Not reported
Recovered:	0.00
Resource Affected:	Groundwater
Oxygenate:	False
Site ID:	108973
Spill Tank Test:	1538483
Tank Number:	001
Tank Size:	0
Test Method:	00
Leak Rate:	0.00
Gross Fail:	Not reported
Modified By:	Spills
Last Modified:	10/01/04
Test Method:	Unknown
DEC Memo:	Not reported
Remarks:	Start CallerRemark - 9100897 30K TANK FAILED HORNER EZY CHECK,VISUAL LEAK, TO REPAIR & RETEST. SEE SPILL # 9200682 END CallerRemark - 9100897

NY Spills:

Site ID:	127707
Facility Addr2:	Not reported
Facility ID:	0001489
Spill Number:	0001489
Facility Type:	ER
SWIS:	3101
Region of Spill:	2
Investigator:	jkkann
Referred To:	NYCHA RQST DEC REVIEW
Spill Date:	05/05/00
Reported to Dept:	05/05/00
CID:	15
Spill Cause:	Equipment Failure
Water Affected:	Not reported
Spill Source:	Institutional, Educational, Gov., Other
Spill Notifier:	Responsible Party
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Trust:	False
Spill Class:	Known release that creates potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	/ /
Remediation Phase:	1
Date Entered In Computer:	05/05/00
Spill Record Last Update:	02/08/07
Spiller Name:	LOUIS PONCE
Spiller Company:	NYC HOUSING AUTHORITY
Spiller Address:	123 WILLIAM ST
Spiller City,St,Zip:	MANHATTAN, NY
Spiller Company:	001

HARLEM RIVER II HOUSES (HARLEM RIVER I) (Continued) **U001840722**

Spiller Phone:	(212) 306-8894
Contact Name:	LOUIS PONCE
Contact Phone:	(212) 306-8894
DEC Region:	2
Program Number:	0001489
DER Facility ID:	95757
Site ID:	127707
Operable Unit ID:	823376
Operable Unit:	01
Material ID:	289709
Material Code:	0001
Material Name:	#2 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	0.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
DEC Memo:	Start DECRemark - 0001489 11/22/05: This spill transferred from J.Kolleeny to S.Kraszewski. 01/03/06: Site Assessment said to be complete by Sept. 2000, by Yellowstone Industries. No record of report on file. Need site assessment report. - SK07/10/06: NYCHA update summary states that one 32K UST installed in 1977 and stored #4 and #6 oil was replaced by a 25K UST that currently stores #2 oil. Contaminated soil was encountered during the tank replacement, no product recovery system and no MWs. A site assessment is available and NYCHA recommends DEC review it. - SK 02/08/07 : DEC lead changed from S. Kraszewski to J. Kann. J.Kann END DECRemark - 0001489
Remarks:	Start CallerRemark - 0001489 SOIL CONTAMINATION DISCOVERED AT ABOVE LOCATION DURING TANK REPLACEMENT. SOIL EXCAVATED FURTHER TESTING TO BE DONE. NO CALL BACK REQUESTED. END CallerRemark - 0001489

HIST UST:

PBS Number:	2-475009
SPDES Number:	Not reported
Emergency Contact:	EMERGENCY SERVICE DEPT.
Emergency Telephone:	(718) 289-3940
Operator:	LUIS PONCE
Operator Telephone:	(718) 707-5725
Owner Name:	NYC HOUSING AUTHORITY
Owner Address:	23-02 49TH AVENUE
Owner City,St,Zip:	LONG ISLAND CITY, NY 11101
Owner Telephone:	(718) 707-5725
Owner Type:	Local Government
Owner Subtype:	51
Mailing Name:	NYC HOUSING AUTHORITY
Mailing Address:	23-02 49TH AVENUE
Mailing Address 2:	Not reported
Mailing City,St,Zip:	LONG ISLAND CITY, NY 11101
Mailing Contact:	LUIS PONCE
Mailing Telephone:	(718) 707-5725
Owner Mark:	First Owner
Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Facility Addr2:	211-D-1 WEST 151ST STREET (MGMT OFFICE)
SWIS ID:	6201

HARLEM RIVER II HOUSES (HARLEM RIVER I) (Continued) **U001840722**

Old PBS Number:	Not reported
Facility Type:	APARTMENT BUILDING
Inspected Date:	Not reported
Inspector:	Not reported
Inspection Result:	Not reported
Federal ID:	Not reported
Certification Flag:	False
Certification Date:	01/05/2001
Expiration Date:	03/28/2004
Renew Flag:	False
Renewal Date:	Not reported
Total Capacity:	25000
FAMT:	True
Facility Screen:	No Missing Data
Owner Screen:	Minor Data Missing
Tank Screen:	Minor Data Missing
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	62
Town or City:	01
Region:	2

Tank Id:	NEW TK#1
Tank Location:	UNDERGROUND
Tank Status:	In Service
Install Date:	20001001
Capacity (gals):	25000
Product Stored:	NOS 1,2, OR 4 FUEL OIL
Tank Type:	Fiberglass coated steel
Tank Internal:	Not reported
Tank External:	Fiberglass
Pipe Location:	Underground
Pipe Type:	OTHER
Pipe Internal:	Other
Pipe External:	Other
Second Containment:	Vault (w/access)
Leak Detection:	Electronic
Overfill Prot:	High Level Alarm
Dispenser:	Suction
Date Tested:	Not reported
Next Test Date:	10/01/2015
Missing Data for Tank:	Minor Data Missing
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	OLD TK#1
Tank Location:	UNDERGROUND
Tank Status:	Closed-Removed
Install Date:	19771001
Capacity (gals):	32000
Product Stored:	EMPTY
Tank Type:	Steel/carbon steel

HARLEM RIVER II HOUSES (HARLEM RIVER I) (Continued) **U001840722**

Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Underground
Pipe Type:	STEEL/IRON
Pipe Internal:	Not reported
Pipe External:	Wrapped (Piping)
Second Containment:	Not reported
Leak Detection:	Not reported
Overfill Prot:	Product Level Gauge
Dispenser:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	07/01/2000
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	Not reported

NY Hist Spills:

Region of Spill:	2
Spill Number:	0001489
Investigator:	SACCACIO
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Spill Date/Time:	05/05/2000 15:00
Reported to Dept Date/Time:	05/05/00 15:52
SWIS:	62
Spiller Name:	NYC HOUSING AUTHORITY
Spiller Contact:	LOUIS PONCE
Spiller Phone:	(212) 306-8894
Spiller Contact:	LOUIS PONCE
Spiller Phone:	(212) 306-8894
Spiller Address:	123 WILLIAM ST
Spiller City,St,Zip:	MANHATTAN, NY
Spill Cause:	Equipment Failure
Reported to Dept:	On Land
Water Affected:	Not reported
Spill Source:	02
Spill Notifier:	Responsible Party
PBS Number:	Not reported
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Dt:	/ /
Enforcement Date:	/ /
Invstgn Complete:	/ /
UST Involvement:	False
Spill Class:	Known release that creates potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	/ /
Corrective Action Plan Submitted:	/ /

HARLEM RIVER II HOUSES (HARLEM RIVER I) (Continued) **U001840722**

Date Region Sent Summary to Central Office: / /
Date Spill Entered In Computer Data File: 05/05/00
Date Spill Entered In Computer Data File: Not reported
Update Date: 05/08/00
Is Updated: False
PBS Number: Not reported
Tank Number: Not reported
Tank Size: Not reported
Test Method: Not reported
Leak Rate Failed Tank: Not reported
Gross Leak Rate: Not reported
Material Class Type: Petroleum
Quantity Spilled: 0
Unkonwn Quantity Spilled: True
Units: Gallons
Quantity Recovered: 0
Unkonwn Quantity Recovered: True
Material: #2 FUEL OIL
Class Type: #2 FUEL OIL
Times Material Entry In File: 24464
CAS Number: Not reported
Last Date: 19941207
DEC Remarks: Not reported
Remark: SOIL CONTAMINATION DISCOVERED AT ABOVE LOCATION DURING TANK REPLACEMENT. SOIL EXCAVATED FURTHER TESTING TO BE DONE. NO CALL BACK REQUESTED.

HIST LTANKS:
Region of Spill: 2
Spill Number: 9200682
Investigator: SACCACIO
Caller Name: Not reported
Caller Agency: Not reported
Caller Phone: Not reported
Caller Extension: Not reported
Notifier Name: Not reported
Notifier Agency: Not reported
Notifier Phone: Not reported
Notifier Extension: Not reported
Spill Date: 04/17/1992
Spill Time: 11:00
Reported to Department Date: 04/17/92
Reported to Department Time: 12:31
SWIS: 62
Spiller Contact: Not reported
Spiller Phone: Not reported
Spiller Extention: Not reported
Spiller Name: NYCHA
Spiller Address: Not reported
Spiller City,St,Zip: Not reported
Facility Contact: Not reported
Facility Phone: Not reported
Facility Extention: Not reported
Spill Cause: Tank Test Failure
Resource Affectd: On Land
Water Affected: Not reported
Spill Source: Other Non Commercial/Industrial
Spill Notifier: Tank Tester

HARLEM RIVER II HOUSES (HARLEM RIVER I) (Continued) **U001840722**

PBS Number: 2-475009
Cleanup Ceased: / /
Cleanup Meets Standard: False
Last Inspection: / /
Recommended Penalty: Penalty Not Recommended
Spiller Cleanup Date: / /
Enforcement Date: / /
Investigation Complete: / /
UST Involvement: False
Spill Class: Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: / /
Date Region Sent Summary to Central Office: / /
Corrective Action Plan Submitted: / /
Date Spill Entered In Computer Data File: 04/22/92
Time Spill Entered In Computer Data File: Not reported
Spill Record Last Update: 11/10/94
Is Updated: False
PBS Number: Not reported
Tank Number: 001
Tank Size: 0
Test Method: Not reported
Leak Rate Failed Tank: 0.00
Gross Leak Rate: Not reported
Material Class Type: Petroleum
Quantity Spilled: -1
Unkonwn Quantity Spilled: False
Units: Not reported
Quantity Recovered: 0
Unkonwn Quantity Recovered: False
Material: #4 FUEL OIL
Class Type: #4 FUEL OIL
Times Material Entry In File: 1751
CAS Number: Not reported
Last Date: 19941205
DEC Remarks: Not reported
Spill Cause: E I R 30K

Region of Spill: 2
Spill Number: 9100897
Investigator: HEALY
Caller Name: Not reported
Caller Agency: Not reported
Caller Phone: Not reported
Caller Extension: Not reported
Notifier Name: Not reported
Notifier Agency: Not reported
Notifier Phone: Not reported
Notifier Extension: Not reported
Spill Date: 04/23/1991
Spill Time: 10:00
Reported to Department Date: 04/23/91
Reported to Department Time: 14:58
SWIS: 62
Spiller Contact: Not reported
Spiller Phone: Not reported
Spiller Extention: Not reported

HARLEM RIVER II HOUSES (HARLEM RIVER I) (Continued) **U001840722**

Spiller Name:	NYCHA
Spiller Address:	250 BROADWAY
Spiller City,St,Zip:	NEW YORK, N.Y.
Facility Contact:	Not reported
Facility Phone:	(212) 306-3142
Facility Extention:	Not reported
Spill Cause:	Tank Test Failure
Resource Affectd:	Groundwater
Water Affected:	Not reported
Spill Source:	Other Non Commercial/Industrial
Spill Notifier:	Tank Tester
PBS Number:	2-475009
Cleanup Ceased:	04/26/95
Cleanup Meets Standard:	True
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Date:	/ /
Enforcement Date:	/ /
Investigation Complete:	/ /
UST Involvement:	False
Spill Class:	Known release that creates potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	04/26/95
Date Region Sent Summary to Central Office:	/ /
Corrective Action Plan Submitted:	/ /
Date Spill Entered In Computer Data File:	04/25/91
Time Spill Entered In Computer Data File:	Not reported
Spill Record Last Update:	04/26/95
Is Updated:	False
PBS Number:	Not reported
Tank Number:	001
Tank Size:	0
Test Method:	Not reported
Leak Rate Failed Tank:	0.00
Gross Leak Rate:	Not reported
Material Class Type:	Petroleum
Quantity Spilled:	-1
Unkonwn Quantity Spilled:	False
Units:	Not reported
Quantity Recovered:	0
Unkonwn Quantity Recovered:	False
Material:	#4 FUEL OIL
Class Type:	#4 FUEL OIL
Times Material Entry In File:	1751
CAS Number:	Not reported
Last Date:	19941205
DEC Remarks:	Not reported
Spill Cause:	30K TANK FAILED HORNER EZY CHECK,VISUAL LEAK, TO REPAIR RETEST. SEE SPILL 9200682

198
WSW
1/4-1/2
1479 ft.

501 W 150 ST.
501 W 150 ST.
MAN., NY

LTANKS **S106703611**
HIST LTANKS **N/A**

Relative:
Higher

Actual:
130 ft.

LTANKS:

Site ID:	60752
Spill Date:	03/29/92
Facility Addr2:	Not reported
Facility ID:	9113196
Program Number:	9113196
SWIS:	3101
Region of Spill:	2
Investigator:	KSTANG
Referred To:	Not reported
Reported to Dept:	03/29/92
CID:	15
Spill Cause:	Tank Overfill
Water Affected:	Not reported
Spill Source:	Private Dwelling
Spill Notifier:	Responsible Party
Cleanup Ceased:	03/29/92
Cleanup Meets Standard:	True
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	03/29/92
Remediation Phase:	0
Date Entered In Computer:	04/07/92
Spill Record Last Update:	01/21/04
Spille Namer:	Not reported
Spiller Company:	BAERENKLAU OIL
Spiller Phone:	Not reported
Spiller Extention:	Not reported
Spiller Address:	Not reported
Spiller City,St,Zip:	ZZ
Spiller County:	001
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
DEC Region:	2
Program Number:	9113196
DER Facility ID:	59248
Site ID:	60752
Operable Unit ID:	966789
Operable Unit:	01
Material ID:	414717
Material Code:	0001
Material Name:	#2 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	0.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
Site ID:	Not reported

501 W 150 ST. (Continued) **S106703611**

Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported
DEC Memo:	Start DECRemark - 9113196 Prior to Sept, 2004 data translation this spill Lead DEC Field was "TANG" END DECRemark - 9113196
Remarks:	Start CallerRemark - 9113196 CUSTOMER ORDERED TOO MUCH, OIL OVERFILLED, USE DRI-SOL TO CLEAN & PICK UP. END CallerRemark - 9113196

HIST LTANKS:

Region of Spill:	2
Spill Number:	9113196
Investigator:	TANG
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Caller Extension:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Notifier Extension:	Not reported
Spill Date:	03/29/1992
Spill Time:	08:30
Reported to Department Date:	03/29/92
Reported to Department Time:	09:40
SWIS:	62
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
Spiller Name:	BAERENKLAU OIL
Spiller Address:	Not reported
Spiller City,St,Zip:	Not reported
Facility Contact:	Not reported
Facility Phone:	Not reported
Facility Extention:	Not reported
Spill Cause:	Tank Overfill
Resource Affectd:	On Land
Water Affected:	Not reported
Spill Source:	Private Dwelling
Spill Notifier:	Responsible Party
PBS Number:	Not reported
Cleanup Ceased:	03/29/92
Cleanup Meets Standard:	True
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Date:	/ /
Enforcement Date:	/ /
Investigation Complete:	/ /
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	03/29/92

501 W 150 ST. (Continued) **S106703611**

Date Region Sent Summary to Central Office: / /
Corrective Action Plan Submitted: / /
Date Spill Entered In Computer Data File: 04/07/92
Time Spill Entered In Computer Data File: Not reported
Spill Record Last Update: / /
Is Updated: False
PBS Number: Not reported
Tank Number: Not reported
Tank Size: Not reported
Test Method: Not reported
Leak Rate Failed Tank: Not reported
Gross Leak Rate: Not reported
Material Class Type: Petroleum
Quantity Spilled: 0
Unkonwn Quantity Spilled: False
Units: Gallons
Quantity Recovered: 0
Unkonwn Quantity Recovered: False
Material: #2 FUEL OIL
Class Type: #2 FUEL OIL
Times Material Entry In File: 24464
CAS Number: Not reported
Last Date: 19941207
DEC Remarks: Not reported
Spill Cause: CUSTOMER ORDERED TOO MUCH, OIL OVERFILLED, USE DRI-SOL TO CLEAN PICK UP.

AS199 **POLO GROUNDS** **LTANKS** **S101102888**
ENE **2994 8TH AVENUE** **HIST LTANKS** **N/A**
1/4-1/2 **NEW YORK, NY**
1521 ft.

Site 1 of 4 in cluster AS

Relative:
Lower

Actual:
7 ft.

LTANKS:
Site ID: 76600
Spill Date: 08/28/91
Facility Addr2: Not reported
Facility ID: 9315381
Program Number: 9315381
SWIS: 3101
Region of Spill: 2
Investigator: SWKRASZE
Referred To: Not reported
Reported to Dept: 03/29/94
CID: 15
Spill Cause: Tank Test Failure
Water Affected: Not reported
Spill Source: Institutional, Educational, Gov., Other
Spill Notifier: DEC
Cleanup Ceased: / /
Cleanup Meets Standard: False
Last Inspection: / /
Recommended Penalty: Penalty Not Recommended
UST Involvement: False
Spill Class: Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: 12/21/05
Remediation Phase: 0
Date Entered In Computer: 03/30/94

POLO GROUNDS (Continued) **S101102888**

Spill Record Last Update:	12/21/05
Spille Namer:	Not reported
Spiller Company:	NYCHA - JOE MONTELLA
Spiller Phone:	(212) 306-3142
Spiller Extention:	Not reported
Spiller Address:	2975 8TH AVE
Spiller City,St,Zip:	ZZ
Spiller County:	001
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
DEC Region:	2
Program Number:	9315381
DER Facility ID:	71591
Site ID:	76600
Operable Unit ID:	997441
Operable Unit:	01
Material ID:	387138
Material Code:	0002
Material Name:	#4 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	-1.00
Units:	Pounds
Recovered:	0.00
Resource Affected:	Groundwater
Oxygenate:	False
Site ID:	76600
Spill Tank Test:	1542548
Tank Number:	003
Tank Size:	0
Test Method:	00
Leak Rate:	0.00
Gross Fail:	Not reported
Modified By:	Spills
Last Modified:	10/01/04
Test Method:	Unknown
DEC Memo:	Start DECRemark - 9315381 11/28/05: This spill transferred from J.Kolleeny to S.Kraszewski. 12/21/05: This spill closed to consolidate with open spill #9911207. - SK END DECRemark - 9315381
Remarks:	Start CallerRemark - 9315381 LEAK RATE -0.1 GPH REPORTED AS PASSED BY TESTER. END CallerRemark - 9315381

HIST LTANKS:

Region of Spill:	2
Spill Number:	9315381
Investigator:	SACCACIO
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Caller Extension:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Notifier Extension:	Not reported
Spill Date:	08/28/1991
Spill Time:	12:00

POLO GROUNDS (Continued) **S101102888**

Reported to Department Date: 03/29/94
Reported to Department Time: 12:30
SWIS: 62
Spiller Contact: Not reported
Spiller Phone: Not reported
Spiller Extention: Not reported
Spiller Name: NYCHA - JOE MONTELLA
Spiller Address: Not reported
Spiller City,St,Zip: Not reported
Facility Contact: Not reported
Facility Phone: (212) 306-3142
Facility Extention: Not reported
Spill Cause: Tank Test Failure
Resource Affectd: Groundwater
Water Affected: Not reported
Spill Source: Other Non Commercial/Industrial
Spill Notifier: DEC
PBS Number: 2-474932
Cleanup Ceased: / /
Cleanup Meets Standard: False
Last Inspection: / /
Recommended Penalty: Penalty Not Recommended
Spiller Cleanup Date: / /
Enforcement Date: / /
Investigation Complete: / /
UST Involvement: False
Spill Class: Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: / /
Date Region Sent Summary to Central Office: / /
Corrective Action Plan Submitted: / /
Date Spill Entered In Computer Data File: 03/30/94
Time Spill Entered In Computer Data File: Not reported
Spill Record Last Update: 11/10/94
Is Updated: False
PBS Number: Not reported
Tank Number: 003
Tank Size: 0
Test Method: Not reported
Leak Rate Failed Tank: 0.00
Gross Leak Rate: Not reported
Material Class Type: Petroleum
Quantity Spilled: -1
Unkonwn Quantity Spilled: False
Units: Not reported
Quantity Recovered: 0
Unkonwn Quantity Recovered: False
Material: #4 FUEL OIL
Class Type: #4 FUEL OIL
Times Material Entry In File: 1751
CAS Number: Not reported
Last Date: 19941205
DEC Remarks: Not reported
Spill Cause: LEAK RATE -0.1 GPH REPORTED AS PASSED BY TESTER.

AS200 **APT HOUSE** **LTANKS** **S104516523**
ENE **2999 8TH AVE** **HIST LTANKS** **N/A**
1/4-1/2 **MANHATTEN, NY**
1550 ft.

Site 2 of 4 in cluster AS

Relative:
Lower

Actual:
5 ft.

LTANKS:

Site ID:	216413
Spill Date:	02/11/00
Facility Addr2:	Not reported
Facility ID:	9912887
Program Number:	9912887
SWIS:	3101
Region of Spill:	2
Investigator:	KSTANG
Referred To:	Not reported
Reported to Dept:	02/11/00
CID:	15
Spill Cause:	Tank Overfill
Water Affected:	Not reported
Spill Source:	Commercial Vehicle
Spill Notifier:	Fire Department
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	/ /
Remediation Phase:	1
Date Entered In Computer:	02/11/00
Spill Record Last Update:	07/17/06
Spille Namer:	UNK
Spiller Company:	NYC HOUSING
Spiller Phone:	Not reported
Spiller Extention:	Not reported
Spiller Address:	Not reported
Spiller City,St,Zip:	ZZ
Spiller County:	001
Spiller Contact:	PHILIP MCARDLE
Spiller Phone:	(718) 476-6288
Spiller Extention:	Not reported
DEC Region:	2
Program Number:	9912887
DER Facility ID:	71591
Site ID:	216413
Operable Unit ID:	1091591
Operable Unit:	01
Material ID:	294750
Material Code:	0008
Material Name:	Diesel
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	55.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Sewer
Oxygenate:	False

APT HOUSE (Continued) **S104516523**

Site ID:	Not reported
Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported
DEC Memo:	Start DECRemark - 9912887 11/22/05: This spill transferred from J.Kolleeny to S.Kraszewski. 01/30/06: This spill transferred from S.Kraszewaski to Q.Abidi. 04/03/06: This spill transferred from Q. Abidi to Koon Tang. 07/17/06: NYCHA Updatesummary states three 35K USTs that stored #4 and #6 oil and installed in 1968 were closed in 1968 (???) and replaced by a 25K UST in July 2000 and currently stores #2 oil. NYCHA will have a Site Assessment completed and forwarded to the Department.- SK END DECRemark - 9912887
Remarks:	Start CallerRemark - 9912887 FIRE DEPT ON SCENE OF SPILL-APPROX 20 GALLONS WENT INTO SEWER- DISPATCH IS TRYING TO CONTACT PERSON FROM NYC HOUSING TO FIND OUT WHO OIL DELIVERY COMPANY IS. END CallerRemark - 9912887

HIST LTANKS:

Region of Spill:	2
Spill Number:	9912887
Investigator:	SACCACIO
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Caller Extension:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Notifier Extension:	Not reported
Spill Date:	02/11/2000
Spill Time:	19:44
Reported to Department Date:	02/11/00
Reported to Department Time:	20:20
SWIS:	62
Spiller Contact:	PHILIP MCARDLE
Spiller Phone:	(718) 476-6288
Spiller Extention:	Not reported
Spiller Name:	NYC HOUSING
Spiller Address:	Not reported
Spiller City,St,Zip:	Not reported
Facility Contact:	UNK
Facility Phone:	(000) 000-0000
Facility Extention:	Not reported
Spill Cause:	Tank Overfill
Resource Affectd:	In Sewer
Water Affected:	Not reported
Spill Source:	Commercial Vehicle
Spill Notifier:	Fire Department
PBS Number:	Not reported
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended

APT HOUSE (Continued) **S104516523**

Spiller Cleanup Date: / /
Enforcement Date: / /
Investigation Complete: / /
UST Involvement: False
Spill Class: Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: / /
Date Region Sent Summary to Central Office: / /
Corrective Action Plan Submitted: / /
Date Spill Entered In Computer Data File: 02/11/00
Time Spill Entered In Computer Data File: Not reported
Spill Record Last Update: 03/08/00
Is Updated: False
PBS Number: Not reported
Tank Number: Not reported
Tank Size: Not reported
Test Method: Not reported
Leak Rate Failed Tank: Not reported
Gross Leak Rate: Not reported
Material Class Type: Petroleum
Quantity Spilled: 55
Unkonwn Quantity Spilled: False
Units: Gallons
Quantity Recovered: 0
Unkonwn Quantity Recovered: True
Material: DIESEL
Class Type: DIESEL
Times Material Entry In File: 10625
CAS Number: Not reported
Last Date: 19940728
DEC Remarks: On 2/11/00 Spills Staff Saccacio) responded to a 80 gallon No. 2 fuel oil spill located at NYCHA s Polo Grounds Housing Project. It a appears that the spill was caused by a leaky ball valve which allowed oil to be sucked from one tank and returnedinto another. the latter tank eventually overflowed spilling the product onto the parking lot and into the storm sewer. Most of the spill was cleaned up that night by the NYCHA and the rest was cleaned up several days later by PTC who pressure washed the area and cleaned out the catch. Since ther was oil that could not be cleaned underneath the tank, the spill will remain open until the temp tanks are removed and the are is re-washed.
Spill Cause: FIRE DEPT ON SCENE OF SPILL-APPROX 20 GALLONS WENT INTO SEWER- DISPATCH IS TRYING TO CONTACT PERSON FROM NYC HOUSING TO FIND OUT WHO OIL DELIVERY COMPANY IS.

AS201 **POLO GROUNDS HOUSING** **LTANKS** **S104279094**
ENE **2999 8TH AVENUE** **HIST LTANKS** **N/A**
1/4-1/2 **HARLEM, NY**
1550 ft.

Site 3 of 4 in cluster AS

Relative:
Lower

Actual:
5 ft.

LTANKS:
Site ID: 76603
Spill Date: 12/22/99
Facility Addr2: Not reported
Facility ID: 9911207
Program Number: 9911207
SWIS: 3101
Region of Spill: 2
Investigator: jkkann

POLO GROUNDS HOUSING (Continued) **S104279094**

Referred To:	NYCHA WILL SUBMIT ASSMT
Reported to Dept:	12/22/99
CID:	15
Spill Cause:	Tank Failure
Water Affected:	Not reported
Spill Source:	Commercial/Industrial
Spill Notifier:	Other
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	/ /
Remediation Phase:	1
Date Entered In Computer:	12/22/99
Spill Record Last Update:	02/08/07
Spille Namer:	Not reported
Spiller Company:	NYC HOUSING AUTHORITY
Spiller Phone:	Not reported
Spiller Extention:	Not reported
Spiller Address:	250 BROADWAY
Spiller City,St,Zip:	NEW YORK, NY
Spiller County:	001
Spiller Contact:	CALLER
Spiller Phone:	Not reported
Spiller Extention:	Not reported
DEC Region:	2
Program Number:	9911207
DER Facility ID:	71591
Site ID:	76603
Operable Unit ID:	1085888
Operable Unit:	01
Material ID:	296673
Material Code:	0002
Material Name:	#4 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	0.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
Site ID:	Not reported
Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported
DEC Memo:	Start DECRemark - 9911207 11/28/05: This spill transferred from J.Kolleeny to S.Kraszewski. 07/17/06: NYCHA Update summary states three 35K USTs that stored #4 and #6 oil and installed in 1968 were closed in 1968 (???) and

POLO GROUNDS HOUSING (Continued) **S104279094**

Remarks: replaced by a 25K UST in July 2000 and currently stores #2 oil. NYCHA will have a Site Assessment completed and forwarded to the Department. - SK 02/08/07 : DEC lead changed from S. Kraszewski to J. Kann. J.Kann END DECRemark - 9911207 Start CallerRemark - 9911207 caller reporting a spill of material from a leaking oil tank and no clean up as of yet no callback necessary END CallerRemark - 9911207

HIST LTANKS:

Region of Spill:	2
Spill Number:	9911207
Investigator:	SACCACIO
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Caller Extension:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Notifier Extension:	Not reported
Spill Date:	12/22/1999
Spill Time:	14:15
Reported to Department Date:	12/22/99
Reported to Department Time:	14:28
SWIS:	62
Spiller Contact:	CALLER
Spiller Phone:	( ) -
Spiller Extention:	Not reported
Spiller Name:	NYC HOUSING AUTHORITY
Spiller Address:	250 BROADWAY
Spiller City,St,Zip:	MANHATTAN, NY
Facility Contact:	Not reported
Facility Phone:	( ) -
Facility Extention:	Not reported
Spill Cause:	Tank Failure
Resource Affectd:	On Land
Water Affected:	Not reported
Spill Source:	Other Commercial/Industrial
Spill Notifier:	Other
PBS Number:	Not reported
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Date:	/ /
Enforcement Date:	/ /
Investigation Complete:	/ /
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	/ /
Date Region Sent Summary to Central Office:	/ /
Corrective Action Plan Submitted:	/ /
Date Spill Entered In Computer Data File:	12/22/99
Time Spill Entered In Computer Data File:	Not reported
Spill Record Last Update:	02/17/00
Is Updated:	False
PBS Number:	Not reported

POLO GROUNDS HOUSING (Continued) **S104279094**

Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate Failed Tank:	Not reported
Gross Leak Rate:	Not reported
Material Class Type:	Petroleum
Quantity Spilled:	0
Unkonwn Quantity Spilled:	True
Units:	Gallons
Quantity Recovered:	0
Unkonwn Quantity Recovered:	False
Material:	#4 FUEL OIL
Class Type:	#4 FUEL OIL
Times Material Entry In File:	1751
CAS Number:	Not reported
Last Date:	19941205
DEC Remarks:	Not reported
Spill Cause:	caller reporting a spill of material from a leaking oil tank and no clean up as of yet no callback necessary

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AS202 **POLO GROUNDS (POLO GROUNDS TOWERS)** **UST** **U001840717**
ENE **2999 EIGHTH AVENUE** **LTANKS** **N/A**
1/4-1/2 **NEW YORK, NY 10039** **NY Spills**
1550 ft. **HIST UST**
Site 4 of 4 in cluster AS **NY Hist Spills**
Relative: **HIST LTANKS**
Lower

Actual:
5 ft.

UST:

UST:

Facility Id:	2-474932
Expiration Date:	03/28/09
Renewal Date:	/ /
Total Capacity:	50000
Facility Type:	Not reported
Mailing Company:	NYC HOUSING AUTHORITY
Mailing Title:	FUEL OIL REMEDIATION COORDINATOR
Mailing Contact:	FUEL OIL REMEDIATION COORDINATOR
Mailing Address:	23-02 49TH AVENUE
Mailing Address 2:	Not reported
Mailing City:	LONG ISLAND CITY
Mailing State:	NY
Mailing Zip Code:	11101
Mailing Phone No:	(718) 707-5725
Mailing Email:	Not reported
Owner Title:	FUEL OIL REMEDIATION COORDINATOR
Owner Name:	FUEL OIL REMEDIATION COORD.
Owner Address:	23-02 49TH AVENUE
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	11101
Owner Phone:	(718) 707-5725
Owner Company:	NYC HOUSING AUTHORITY
Emergency Contact:	EMERGENCY SERVICE DEPT.
Emergency Phone:	(718) 707-5725
Operator:	FUEL OIL REM. COORD.
Operator Phone:	(718) 707-5725
Owner City:	LONG ISLAND CITY

POLO GROUNDS (POLO GROUNDS TOWERS) (Continued) **U001840717**

Owner Sub Type:	NYC Housing Authority (Local Government)
UTM X:	589717.97328
UTM Y:	4520505.65658
Site Type Name:	Apartment Building/Office Building
Site Type Status:	Active
Comments:	Not reported
Program Type:	PBS
Tank Number:	1
Tank Location Name:	Underground
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	07/01/00
Capacity Gallons:	25000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Fiberglass Coated Steel
Tank Internal Protection:	None
Tank Internal Protection 1:	Fiberglass
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Underground/On-ground
Pipe Type Name:	Equivalent Technology
Pipe External Protection 1:	Other
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Double-Walled (Underground)
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	Interstitial - Electronic Monitoring
Tank Leak Detection 2:	In-Tank System (ATG)
Pipe Leak Detection 1:	Exempt Suction Piping
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	High Level Alarm
Type Of Overfill Prevention 2:	Automatic Shut-Off
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /
Tank Number:	2
Tank Location Name:	Underground
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	07/01/00
Capacity Gallons:	25000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Fiberglass Coated Steel
Tank Internal Protection:	None
Tank Internal Protection 1:	Fiberglass

POLO GROUNDS (POLO GROUNDS TOWERS) (Continued) **U001840717**

Tank Internal Protection 2:	Not reported
Pipe Location Name:	Underground/On-ground
Pipe Type Name:	Equivalent Technology
Pipe External Protection 1:	Other
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Double-Walled (Underground)
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	Interstitial - Electronic Monitoring
Tank Leak Detection 2:	In-Tank System (ATG)
Pipe Leak Detection 1:	Exempt Suction Piping
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	High Level Alarm
Type Of Overfill Prevention 2:	Automatic Shut-Off
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

Tank Number:	OLD 1
Tank Location Name:	Underground
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	03/01/68
Capacity Gallons:	35000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Underground/On-ground
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	Wrapped
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Product Level Gauge (A/G)
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	03/01/00

POLO GROUNDS (POLO GROUNDS TOWERS) (Continued) **U001840717**

Tank Number:	OLD 2
Tank Location Name:	Underground
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	03/01/68
Capacity Gallons:	35000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Underground/On-ground
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	Wrapped
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Product Level Gauge (A/G)
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Horner EZ Check I or II
Date Tested:	12/01/96
Next Test Date:	/ /
Date Tank Closed:	03/01/00

Tank Number:	OLD 3
Tank Location Name:	Underground
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	03/01/68
Capacity Gallons:	35000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Underground/On-ground
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	Wrapped
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None

POLO GROUNDS (POLO GROUNDS TOWERS) (Continued) **U001840717**

Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Product Level Gauge (A/G)
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	03/01/00

LTANKS:

Site ID:	76597
Spill Date:	02/05/90
Facility Addr2:	Not reported
Facility ID:	8910568
Program Number:	8910568
SWIS:	3101
Region of Spill:	2
Investigator:	HEALY
Referred To:	Not reported
Reported to Dept:	02/05/90
CID:	15
Spill Cause:	Tank Overfill
Water Affected:	Not reported
Spill Source:	Non Major Facility > 1,100 gal
Spill Notifier:	Affected Persons
Cleanup Ceased:	02/05/90
Cleanup Meets Standard:	True
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	False
Spill Class:	Not reported
Spill Closed Dt:	02/05/90
Remediation Phase:	0
Date Entered In Computer:	02/07/90
Spill Record Last Update:	12/27/93
Spille Namer:	Not reported
Spiller Company:	HUNTS POINT
Spiller Phone:	(212) 378-5939
Spiller Extention:	Not reported
Spiller Address:	1281 BONIELEN AVENUE
Spiller City,St,Zip:	BRONX, NY
Spiller County:	001
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
DEC Region:	2
Program Number:	8910568
DER Facility ID:	71591
Site ID:	76597
Operable Unit ID:	935945
Operable Unit:	01
Material ID:	559361
Material Code:	0002
Material Name:	#4 Fuel Oil

POLO GROUNDS (POLO GROUNDS TOWERS) (Continued) **U001840717**

Case No.:	Not reported
Material FA:	Petroleum
Quantity:	100.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
Site ID:	Not reported
Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported
DEC Memo:	Not reported
Remarks:	Start CallerRemark - 8910568 UPON DELIVERY FUEL PUMPED TOO FAST & SPILLED, NO AGENCIES NOTIFIED, HUNTS POINT CLEANED UP, REMOVED CONTAMINANTS, USED SORBENTS. END CallerRemark - 8910568

Site ID:	76598
Spill Date:	08/06/91
Facility Addr2:	Not reported
Facility ID:	9104892
Program Number:	9104892
SWIS:	3101
Region of Spill:	2
Investigator:	HEALY
Referred To:	Not reported
Reported to Dept:	08/06/91
CID:	15
Spill Cause:	Tank Test Failure
Water Affected:	Not reported
Spill Source:	Institutional, Educational, Gov., Other
Spill Notifier:	Tank Tester
Cleanup Ceased:	04/26/95
Cleanup Meets Standard:	True
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	04/26/95
Remediation Phase:	0
Date Entered In Computer:	08/07/91
Spill Record Last Update:	04/26/95
Spille Namer:	Not reported
Spiller Company:	NYCHA
Spiller Phone:	(212) 306-3142
Spiller Extention:	Not reported
Spiller Address:	250 BROADWAY
Spiller City,St,Zip:	NEW YORK, NY
Spiller County:	001
Spiller Contact:	Not reported
Spiller Phone:	Not reported

POLO GROUNDS (POLO GROUNDS TOWERS) (Continued) **U001840717**

Spiller Extention:	Not reported
DEC Region:	2
Program Number:	9104892
DER Facility ID:	71591
Site ID:	76598
Operable Unit ID:	955638
Operable Unit:	01
Material ID:	423943
Material Code:	0002
Material Name:	#4 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	-1.00
Units:	Not reported
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
Site ID:	76598
Spill Tank Test:	1538856
Tank Number:	003
Tank Size:	0
Test Method:	00
Leak Rate:	0.00
Gross Fail:	Not reported
Modified By:	Spills
Last Modified:	10/01/04
Test Method:	Unknown
DEC Memo:	Not reported
Remarks:	Start CallerRemark - 9104892 35K TANK, FAILED HORNER EZY CHECK,GROSS LEAK,SYSTEM TEST,STICK LINE BROKE BY EXCAVATING,WILL REPAIR & RETEST. SEE SPILL # 9315381 END CallerRemark - 9104892

Site ID:	76599
Spill Date:	06/20/91
Facility Addr2:	Not reported
Facility ID:	9315380
Program Number:	9315380
SWIS:	3101
Region of Spill:	2
Investigator:	HEALY
Referred To:	Not reported
Reported to Dept:	03/29/94
CID:	15
Spill Cause:	Tank Test Failure
Water Affected:	Not reported
Spill Source:	Institutional, Educational, Gov., Other
Spill Notifier:	DEC
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	04/03/97
Remediation Phase:	0
Date Entered In Computer:	03/30/94

POLO GROUNDS (POLO GROUNDS TOWERS) (Continued) **U001840717**

Spill Record Last Update:	04/03/97
Spille Namer:	Not reported
Spiller Company:	NYCHA - JOE MONTELLA
Spiller Phone:	(212) 306-3142
Spiller Extention:	Not reported
Spiller Address:	Not reported
Spiller City,St,Zip:	ZZ
Spiller County:	001
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
DEC Region:	2
Program Number:	9315380
DER Facility ID:	71591
Site ID:	76599
Operable Unit ID:	993521
Operable Unit:	01
Material ID:	387137
Material Code:	0002
Material Name:	#4 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	-1.00
Units:	Pounds
Recovered:	0.00
Resource Affected:	Groundwater
Oxygenate:	False
Site ID:	76599
Spill Tank Test:	1542547
Tank Number:	001
Tank Size:	0
Test Method:	00
Leak Rate:	0.00
Gross Fail:	Not reported
Modified By:	Spills
Last Modified:	10/01/04
Test Method:	Unknown
DEC Memo:	Not reported
Remarks:	Start CallerRemark - 9315380 LEAK RATE -0.09 GPH REPORTED AS PASSED BY TESTER. END CallerRemark - 9315380

Site ID:	76602
Spill Date:	04/03/97
Facility Addr2:	Not reported
Facility ID:	9700182
Program Number:	9700182
SWIS:	3101
Region of Spill:	2
Investigator:	SWKRASZE
Referred To:	Not reported
Reported to Dept:	04/03/97
CID:	15
Spill Cause:	Tank Test Failure
Water Affected:	Not reported
Spill Source:	Private Dwelling
Spill Notifier:	Responsible Party
Cleanup Ceased:	/ /

POLO GROUNDS (POLO GROUNDS TOWERS) (Continued) **U001840717**

Cleanup Meets Standard:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	12/29/05
Remediation Phase:	0
Date Entered In Computer:	04/03/97
Spill Record Last Update:	12/29/05
Spille Namer:	SEBASTIAN LOREFICE
Spiller Company:	NYC HOUSING AUTHORITY
Spiller Phone:	(212) 306-3229
Spiller Extention:	Not reported
Spiller Address:	250 BROADWAY
Spiller City,St,Zip:	NEW YORK, NY
Spiller County:	001
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
DEC Region:	2
Program Number:	9700182
DER Facility ID:	71591
Site ID:	76602
Operable Unit ID:	1042900
Operable Unit:	01
Material ID:	336792
Material Code:	0001
Material Name:	#2 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	0.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
Site ID:	76602
Spill Tank Test:	1545060
Tank Number:	1
Tank Size:	35000
Test Method:	03
Leak Rate:	0.00
Gross Fail:	F
Modified By:	Spills
Last Modified:	10/01/04
Test Method:	Horner EZ Check I or II
DEC Memo:	Start DECRemark - 9700182 11/28/05: This spill transferred from J.Kolleeny to S.Kraszewski. 12/29/05: This spill closed to consolidate with open spill #9911207. - SK END DECRemark - 9700182
Remarks:	Start CallerRemark - 9700182 TANK TO BE ISOLATED AND RETESTED. END CallerRemark - 9700182
Site ID:	216410
Spill Date:	05/10/95
Facility Addr2:	Not reported
Facility ID:	9501718
Program Number:	9501718

POLO GROUNDS (POLO GROUNDS TOWERS) (Continued) **U001840717**

SWIS:	3101
Region of Spill:	2
Investigator:	HEALY
Referred To:	Not reported
Reported to Dept:	05/10/95
CID:	15
Spill Cause:	Tank Overfill
Water Affected:	Not reported
Spill Source:	Institutional, Educational, Gov., Other
Spill Notifier:	Affected Persons
Cleanup Ceased:	05/11/95
Cleanup Meets Standard:	True
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	05/11/95
Remediation Phase:	0
Date Entered In Computer:	05/11/95
Spill Record Last Update:	09/30/04
Spille Namer:	Not reported
Spiller Company:	BROOK FUEL
Spiller Phone:	(718) 665-7070
Spiller Extention:	Not reported
Spiller Address:	Not reported
Spiller City,St,Zip:	ZZ
Spiller County:	001
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
DEC Region:	2
Program Number:	9501718
DER Facility ID:	179171
Site ID:	216410
Operable Unit ID:	1012736
Operable Unit:	01
Material ID:	366791
Material Code:	0001
Material Name:	#2 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	30.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
Site ID:	Not reported
Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported

POLO GROUNDS (POLO GROUNDS TOWERS) (Continued) **U001840717**

DEC Memo:	Not reported
Remarks:	Start CallerRemark - 9501718 DUPLICATE REPORT OF SPILL # 9501714 - TANK OVERFILL ONTO SOIL END CallerRemark - 9501718
Site ID:	216411
Spill Date:	09/04/96
Facility Addr2:	Not reported
Facility ID:	9607082
Program Number:	9607082
SWIS:	3101
Region of Spill:	2
Investigator:	HEALY
Referred To:	Not reported
Reported to Dept:	09/04/96
CID:	15
Spill Cause:	Tank Test Failure
Water Affected:	Not reported
Spill Source:	Commercial/Industrial
Spill Notifier:	Responsible Party
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	10/28/96
Remediation Phase:	0
Date Entered In Computer:	09/04/96
Spill Record Last Update:	11/28/05
Spille Namer:	FRANK OCELLO
Spiller Company:	NYC HOUSING AUTHORITY
Spiller Phone:	(212) 306-3229
Spiller Extention:	Not reported
Spiller Address:	250 BROADWAY
Spiller City,St,Zip:	NEW YORK, NY 10007-
Spiller County:	001
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
DEC Region:	2
Program Number:	9607082
DER Facility ID:	71591
Site ID:	216411
Operable Unit ID:	1038226
Operable Unit:	01
Material ID:	346348
Material Code:	0001
Material Name:	#2 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	0.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
Site ID:	216411

POLO GROUNDS (POLO GROUNDS TOWERS) (Continued) **U001840717**

Spill Tank Test:	1544727
Tank Number:	2
Tank Size:	35000
Test Method:	03
Leak Rate:	0.00
Gross Fail:	Not reported
Modified By:	Spills
Last Modified:	10/01/04
Test Method:	Horner EZ Check I or II
DEC Memo:	Not reported
Remarks:	Start CallerRemark - 9607082 tank failed retest to be performed END CallerRemark - 9607082
Site ID:	216412
Spill Date:	10/23/96
Facility Addr2:	Not reported
Facility ID:	9609218
Program Number:	9609218
SWIS:	3101
Region of Spill:	2
Investigator:	SWKRASZE
Referred To:	Not reported
Reported to Dept:	10/23/96
CID:	15
Spill Cause:	Tank Test Failure
Water Affected:	Not reported
Spill Source:	Private Dwelling
Spill Notifier:	Responsible Party
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	12/29/05
Remediation Phase:	0
Date Entered In Computer:	10/23/96
Spill Record Last Update:	12/29/05
Spille Namer:	FRANK OCELLO
Spiller Company:	NYC HOUSING AUTHORITY
Spiller Phone:	(212) 306-3229
Spiller Extention:	Not reported
Spiller Address:	Not reported
Spiller City,St,Zip:	ZZ
Spiller County:	001
Spiller Contact:	CALLER
Spiller Phone:	(212) 306-3233
Spiller Extention:	Not reported
DEC Region:	2
Program Number:	9609218
DER Facility ID:	71591
Site ID:	216412
Operable Unit ID:	1037306
Operable Unit:	01
Material ID:	344945
Material Code:	0001

POLO GROUNDS (POLO GROUNDS TOWERS) (Continued) **U001840717**

Material Name:	#2 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	0.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
Site ID:	216412
Spill Tank Test:	1544838
Tank Number:	2
Tank Size:	35127
Test Method:	99
Leak Rate:	0.00
Gross Fail:	Not reported
Modified By:	Spills
Last Modified:	10/01/04
Test Method:	Alternate Test per 613.5a2v
DEC Memo:	Start DECRemark - 9609218 11/22/05: This spill transferred from J.Kolleeny to S.Kraszewski. 12/29/05: This spill closed to consolidate with open spill #9911207. - SK END DECRemark - 9609218
Remarks:	Start CallerRemark - 9609218 horner III test method - failed END CallerRemark - 9609218

Site ID:	76601
Spill Date:	05/10/95
Facility Addr2:	Not reported
Facility ID:	9501714
Program Number:	9501714
SWIS:	3101
Region of Spill:	2
Investigator:	HEALY
Referred To:	Not reported
Reported to Dept:	05/10/95
CID:	15
Spill Cause:	Tank Overfill
Water Affected:	Not reported
Spill Source:	Institutional, Educational, Gov., Other
Spill Notifier:	Other
Cleanup Ceased:	05/19/95
Cleanup Meets Standard:	True
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	05/19/95
Remediation Phase:	0
Date Entered In Computer:	05/11/95
Spill Record Last Update:	05/19/95
Spille Namer:	Not reported
Spiller Company:	BROOK FUEL
Spiller Phone:	(718) 665-7070
Spiller Extention:	Not reported
Spiller Address:	490 EAST 163RD STREET
Spiller City,St,Zip:	BRONX, ZZ
Spiller County:	001

POLO GROUNDS (POLO GROUNDS TOWERS) (Continued) **U001840717**

Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
DEC Region:	2
Program Number:	9501714
DER Facility ID:	71591
Site ID:	76601
Operable Unit ID:	1016075
Operable Unit:	01
Material ID:	366787
Material Code:	0001
Material Name:	#2 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	50.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
Site ID:	Not reported
Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported
DEC Memo:	Not reported
Remarks:	Start CallerRemark - 9501714 PROJECT ORDERED THREE 6600 GALLON LOADS-TANK COULDN'T HOLD IT. SPILL CAME OUT STICK LINE ONTO SOIL. PROJECT APPLIED SORBENT, IS DRUMMING SOIL. END CallerRemark - 9501714

NY Spills:

Site ID:	216414
Facility Addr2:	Not reported
Facility ID:	9913306
Spill Number:	9913306
Facility Type:	ER
SWIS:	3101
Region of Spill:	2
Investigator:	jkkann
Referred To:	CLOSED PER NYCHA INFO
Spill Date:	02/24/00
Reported to Dept:	02/24/00
CID:	15
Spill Cause:	Equipment Failure
Water Affected:	Not reported
Spill Source:	Institutional, Educational, Gov., Other
Spill Notifier:	Affected Persons
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Trust:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response.

POLO GROUNDS (POLO GROUNDS TOWERS) (Continued) **U001840717**

Willing Responsible Party. Corrective action taken.
Spill Closed Dt: 01/26/07
Remediation Phase: 0
Date Entered In Computer: 02/24/00
Spill Record Last Update: 01/26/07
Spiller Name: Not reported
Spiller Company: CRESENT CONSTRUCTION
Spiller Address: 2800 WEBSTER AV
Spiller City,St,Zip: BRONX, NY 10458-
Spiller Company: 001
Spiller Phone: (718) 220-4200
Contact Name: MARIO MANDALONE
Contact Phone: (718) 649-7017
DEC Region: 2
Program Number: 9913306
DER Facility ID: 179171
Site ID: 216414
Operable Unit ID: 1091957
Operable Unit: 01
Material ID: 295165
Material Code: 0001
Material Name: #2 Fuel Oil
Case No.: Not reported
Material FA: Petroleum
Quantity: 40.00
Units: Gallons
Recovered: 0.00
Resource Affected: Soil
Oxygenate: False
DEC Memo: Start DECRemark - 9913306 11/22/05: This spill transferred from J.Kolleeny to S.Kraszewski. 01/30/06: This spill transferred from S.Kraszewaski to Q.Abidi. 04/03/06: This spill transferred from Q. Abidi to Koon Tang. 1/26/07 - Spill transferred to J. Kann. Spill closed as per information on clean up provided by NYCHA. - J.Kann END DECRemark - 9913306
Remarks: Start CallerRemark - 9913306 over flowing portable tank - 2 tanks one lower than the other - cleanup is in progress END CallerRemark - 9913306

HIST UST:
PBS Number: 2-474932
SPDES Number: Not reported
Emergency Contact: EMERGENCY SERVICE DEPT.
Emergency Telephone: (718) 289-3940
Operator: LUIS PONCE
Operator Telephone: (718) 707-5725
Owner Name: NYC HOUSING AUTHORITY
Owner Address: 23-02 49TH AVENUE
Owner City,St,Zip: LONG ISLAND CITY, NY 11101
Owner Telephone: (718) 707-5725
Owner Type: Local Government
Owner Subtype: 51
Mailing Name: NYC HOUSING AUTHORITY
Mailing Address: 23-02 49TH AVENUE
Mailing Address 2: Not reported
Mailing City,St,Zip: LONG ISLAND CITY, NY 11101
Mailing Contact: LUIS PONCE
Mailing Telephone: (718) 707-5725
Owner Mark: First Owner

POLO GROUNDS (POLO GROUNDS TOWERS) (Continued) **U001840717**

Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Facility Addr2:	2975 8TH AVENUE (MANAGEMENT OFFICE)
SWIS ID:	6201
Old PBS Number:	Not reported
Facility Type:	APARTMENT BUILDING
Inspected Date:	Not reported
Inspector:	Not reported
Inspection Result:	Not reported
Federal ID:	Not reported
Certification Flag:	False
Certification Date:	10/13/2000
Expiration Date:	03/28/2004
Renew Flag:	False
Renewal Date:	Not reported
Total Capacity:	50000
FAMT:	True
Facility Screen:	No Missing Data
Owner Screen:	Minor Data Missing
Tank Screen:	Minor Data Missing
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	62
Town or City:	01
Region:	2

Tank Id:	#1
Tank Location:	UNDERGROUND
Tank Status:	In Service
Install Date:	20000301
Capacity (gals):	25000
Product Stored:	NOS 1,2, OR 4 FUEL OIL
Tank Type:	Fiberglass coated steel
Tank Internal:	Not reported
Tank External:	Fiberglass
Pipe Location:	Underground
Pipe Type:	FIBERGLASS REINFORCED PLASTIC
Pipe Internal:	Other
Pipe External:	Other
Second Containment:	Vault (w/access)
Leak Detection:	14
Overfill Prot:	High Level Alarm, Automatic Shut-Off
Dispenser:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	#2
Tank Location:	UNDERGROUND

POLO GROUNDS (POLO GROUNDS TOWERS) (Continued) **U001840717**

Tank Status:	In Service
Install Date:	20000701
Capacity (gals):	25000
Product Stored:	NOS 1,2, OR 4 FUEL OIL
Tank Type:	Fiberglass coated steel
Tank Internal:	Not reported
Tank External:	Fiberglass
Pipe Location:	Underground
Pipe Type:	FIBERGLASS REINFORCED PLASTIC
Pipe Internal:	Other
Pipe External:	Other
Second Containment:	Vault (w/access)
Leak Detection:	14
Overfill Prot:	High Level Alarm, Automatic Shut-Off
Dispenser:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	001
Tank Location:	UNDERGROUND
Tank Status:	Closed-Removed
Install Date:	19680301
Capacity (gals):	35000
Product Stored:	NOS 1,2, OR 4 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	None
Tank External:	None
Pipe Location:	Underground
Pipe Type:	STEEL/IRON
Pipe Internal:	None
Pipe External:	Wrapped (Piping)
Second Containment:	None
Leak Detection:	None
Overfill Prot:	Product Level Gauge
Dispenser:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	No Missing Data
Date Closed:	03/01/2000
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	002
Tank Location:	UNDERGROUND
Tank Status:	Closed-Removed
Install Date:	19680301
Capacity (gals):	35000

POLO GROUNDS (POLO GROUNDS TOWERS) (Continued) **U001840717**

Product Stored:	NOS 1,2, OR 4 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	None
Tank External:	None
Pipe Location:	Underground
Pipe Type:	STEEL/IRON
Pipe Internal:	None
Pipe External:	Wrapped (Piping)
Second Containment:	None
Leak Detection:	None
Overfill Prot:	Product Level Gauge
Dispenser:	Suction
Date Tested:	12/01/1996
Next Test Date:	Not reported
Missing Data for Tank:	No Missing Data
Date Closed:	03/01/2000
Test Method:	Horner EZ Check
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	003
Tank Location:	UNDERGROUND
Tank Status:	Closed-Removed
Install Date:	19680301
Capacity (gals):	35000
Product Stored:	NOS 1,2, OR 4 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	None
Tank External:	None
Pipe Location:	Underground
Pipe Type:	STEEL/IRON
Pipe Internal:	None
Pipe External:	Wrapped (Piping)
Second Containment:	None
Leak Detection:	None
Overfill Prot:	Product Level Gauge
Dispenser:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	No Missing Data
Date Closed:	03/01/2000
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	Not reported

NY Hist Spills:

Region of Spill:	2
Spill Number:	9913306
Investigator:	SACCACIO
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported

POLO GROUNDS (POLO GROUNDS TOWERS) (Continued) **U001840717**

Notifier Phone: Not reported
Spill Date/Time: 02/24/2000 05:20
Reported to Dept Date/Time: 02/24/00 07:09
SWIS: 62
Spiller Name: CRESENT CONSTRUCTION
Spiller Contact: Not reported
Spiller Phone: (718) 220-4200
Spiller Contact: MARIO MANDALONE
Spiller Phone: (718) 649-7017
Spiller Address: 2800 WEBSTER AV
Spiller City,St,Zip: BRONX, NY 10458-
Spill Cause: Equipment Failure
Reported to Dept: On Land
Water Affected: Not reported
Spill Source: 02
Spill Notifier: Affected Persons
PBS Number: Not reported
Cleanup Ceased: / /
Cleanup Meets Std: False
Last Inspection: / /
Recommended Penalty: Penalty Not Recommended
Spiller Cleanup Dt: / /
Enforcement Date: / /
Invstgn Complete: / /
UST Involvement: False
Spill Class: Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: / /
Corrective Action Plan Submitted: / /
Date Region Sent Summary to Central Office: / /
Date Spill Entered In Computer Data File: 02/24/00
Date Spill Entered In Computer Data File: Not reported
Update Date: 02/24/00
Is Updated: False
PBS Number: Not reported
Tank Number: Not reported
Tank Size: Not reported
Test Method: Not reported
Leak Rate Failed Tank: Not reported
Gross Leak Rate: Not reported
Material Class Type: Petroleum
Quantity Spilled: 40
Unkonwn Quantity Spilled: False
Units: Gallons
Quantity Recovered: 0
Unkonwn Quantity Recovered: False
Material: #2 FUEL OIL
Class Type: #2 FUEL OIL
Times Material Entry In File: 24464
CAS Number: Not reported
Last Date: 19941207
DEC Remarks: Not reported
Remark: over flowing portable tank - 2 tanks one lower than the other - cleanup is in progress

HIST LTANKS:
Region of Spill: 2

POLO GROUNDS (POLO GROUNDS TOWERS) (Continued) **U001840717**

Spill Number:	8910568
Investigator:	HEALY
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Caller Extension:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Notifier Extension:	Not reported
Spill Date:	02/05/1990
Spill Time:	14:40
Reported to Department Date:	02/05/90
Reported to Department Time:	16:43
SWIS:	62
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
Spiller Name:	HUNTS POINT
Spiller Address:	1281 BONIELEN AVENUE
Spiller City,St,Zip:	BRONX, NY
Facility Contact:	Not reported
Facility Phone:	(212) 378-5939
Facility Extention:	Not reported
Spill Cause:	Tank Overfill
Resource Affectd:	On Land
Water Affected:	Not reported
Spill Source:	Non Major Facility > 1,100 gallons
Spill Notifier:	Affected Persons
PBS Number:	Not reported
Cleanup Ceased:	02/05/90
Cleanup Meets Standard:	True
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Date:	/ /
Enforcement Date:	/ /
Investigation Complete:	/ /
UST Involvement:	False
Spill Class:	Not reported
Spill Closed Dt:	02/05/90
Date Region Sent Summary to Central Office:	/ /
Corrective Action Plan Submitted:	/ /
Date Spill Entered In Computer Data File:	02/07/90
Time Spill Entered In Computer Data File:	Not reported
Spill Record Last Update:	12/27/93
Is Updated:	False
PBS Number:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate Failed Tank:	Not reported
Gross Leak Rate:	Not reported
Material Class Type:	Petroleum
Quantity Spilled:	100
Unkonwn Quantity Spilled:	False
Units:	Gallons
Quantity Recovered:	0

POLO GROUNDS (POLO GROUNDS TOWERS) (Continued) **U001840717**

Unkonwn Quantity Recovered: False
Material: #4 FUEL OIL
Class Type: #4 FUEL OIL
Times Material Entry In File: 1751
CAS Number: Not reported
Last Date: 19941205
DEC Remarks: Not reported
Spill Cause: UPON DELIVERY FUEL PUMPED TOO FAST SPILLED, NO AGENCIES NOTIFIED, HUNTS POINT CLEANED UP, REMOVED CONTAMINANTS, USED SORBENTS.

Region of Spill: 2
Spill Number: 9104892
Investigator: HEALY
Caller Name: Not reported
Caller Agency: Not reported
Caller Phone: Not reported
Caller Extension: Not reported
Notifier Name: Not reported
Notifier Agency: Not reported
Notifier Phone: Not reported
Notifier Extension: Not reported
Spill Date: 08/06/1991
Spill Time: 11:00
Reported to Department Date: 08/06/91
Reported to Department Time: 13:35
SWIS: 62
Spiller Contact: Not reported
Spiller Phone: Not reported
Spiller Extention: Not reported
Spiller Name: NYCHA
Spiller Address: 250 BROADWAY
Spiller City,St,Zip: NEW YORK, N.Y.
Facility Contact: Not reported
Facility Phone: (212) 306-3142
Facility Extention: Not reported
Spill Cause: Tank Test Failure
Resource Affectd: On Land
Water Affected: Not reported
Spill Source: Other Non Commercial/Industrial
Spill Notifier: Tank Tester
PBS Number: 2-474932
Cleanup Ceased: 04/26/95
Cleanup Meets Standard: True
Last Inspection: / /
Recommended Penalty: Penalty Not Recommended
Spiller Cleanup Date: / /
Enforcement Date: / /
Investigation Complete: / /
UST Involvement: False
Spill Class: Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: 04/26/95
Date Region Sent Summary to Central Office: / /
Corrective Action Plan Submitted: / /
Date Spill Entered In Computer Data File: 08/07/91
Time Spill Entered In Computer Data File: Not reported
Spill Record Last Update: 04/26/95

POLO GROUNDS (POLO GROUNDS TOWERS) (Continued) **U001840717**

Is Updated:	False
PBS Number:	Not reported
Tank Number:	003
Tank Size:	0
Test Method:	Not reported
Leak Rate Failed Tank:	0.00
Gross Leak Rate:	Not reported
Material Class Type:	Petroleum
Quantity Spilled:	-1
Unkonwn Quantity Spilled:	False
Units:	Not reported
Quantity Recovered:	0
Unkonwn Quantity Recovered:	False
Material:	#4 FUEL OIL
Class Type:	#4 FUEL OIL
Times Material Entry In File:	1751
CAS Number:	Not reported
Last Date:	19941205
DEC Remarks:	Not reported
Spill Cause:	35K TANK, FAILED HORNER EZY CHECK,GROSS LEAK,SYSTEM TEST,STICK LINE BROKE BY EXCAVATING,WILL REPAIR RETEST. SEE SPILL 9315381

Region of Spill:	2
Spill Number:	9315380
Investigator:	HEALY
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Caller Extension:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Notifier Extension:	Not reported
Spill Date:	06/20/1991
Spill Time:	12:00
Reported to Department Date:	03/29/94
Reported to Department Time:	12:30
SWIS:	62
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
Spiller Name:	NYCHA - JOE MONTELLA
Spiller Address:	Not reported
Spiller City,St,Zip:	Not reported
Facility Contact:	Not reported
Facility Phone:	(212) 306-3142
Facility Extention:	Not reported
Spill Cause:	Tank Test Failure
Resource Affectd:	Groundwater
Water Affected:	Not reported
Spill Source:	Other Non Commercial/Industrial
Spill Notifier:	DEC
PBS Number:	2-474932
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended

POLO GROUNDS (POLO GROUNDS TOWERS) (Continued) **U001840717**

Spiller Cleanup Date: / /
Enforcement Date: / /
Investigation Complete: / /
UST Involvement: False
Spill Class: Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: 04/03/97
Date Region Sent Summary to Central Office: / /
Corrective Action Plan Submitted: / /
Date Spill Entered In Computer Data File: 03/30/94
Time Spill Entered In Computer Data File: Not reported
Spill Record Last Update: 04/03/97
Is Updated: False
PBS Number: Not reported
Tank Number: 001
Tank Size: 0
Test Method: Not reported
Leak Rate Failed Tank: 0.00
Gross Leak Rate: Not reported
Material Class Type: Petroleum
Quantity Spilled: -1
Unkonwn Quantity Spilled: False
Units: Pounds
Quantity Recovered: 0
Unkonwn Quantity Recovered: False
Material: #4 FUEL OIL
Class Type: #4 FUEL OIL
Times Material Entry In File: 1751
CAS Number: Not reported
Last Date: 19941205
DEC Remarks: SEE SPILL 9700182, SUBSEQUENT TANK TEST FAILURE.
Spill Cause: LEAK RATE -0.09 GPH REPORTED AS PASSED BY TESTER.

Region of Spill: 2
Spill Number: 9700182
Investigator: SACCACIO
Caller Name: Not reported
Caller Agency: Not reported
Caller Phone: Not reported
Caller Extension: Not reported
Notifier Name: Not reported
Notifier Agency: Not reported
Notifier Phone: Not reported
Notifier Extension: Not reported
Spill Date: 04/03/1997
Spill Time: 13:30
Reported to Department Date: 04/03/97
Reported to Department Time: 14:58
SWIS: 62
Spiller Contact: Not reported
Spiller Phone: Not reported
Spiller Extention: Not reported
Spiller Name: NYC HOUSING AUTHORITY
Spiller Address: 250 BROADWAY
Spiller City,St,Zip: NEW YORK, NY
Facility Contact: SEBASTIAN LOREFICE
Facility Phone: (212) 306-3229

POLO GROUNDS (POLO GROUNDS TOWERS) (Continued) **U001840717**

Facility Extention: Not reported
Spill Cause: Tank Test Failure
Resource Affectd: On Land
Water Affected: Not reported
Spill Source: Private Dwelling
Spill Notifier: Responsible Party
PBS Number: 2-474932
Cleanup Ceased: / /
Cleanup Meets Standard: False
Last Inspection: / /
Recommended Penalty: Penalty Not Recommended
Spiller Cleanup Date: / /
Enforcement Date: / /
Investigation Complete: / /
UST Involvement: False
Spill Class: Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: / /
Date Region Sent Summary to Central Office: / /
Corrective Action Plan Submitted: / /
Date Spill Entered In Computer Data File: 04/03/97
Time Spill Entered In Computer Data File: Not reported
Spill Record Last Update: 04/04/97
Is Updated: False
PBS Number: Not reported
Tank Number: 1
Tank Size: 35000
Test Method: Horner EZ Check
Leak Rate Failed Tank: 0.00
Gross Leak Rate: Talk Test Failures only pass or fail
Material Class Type: Petroleum
Quantity Spilled: 0
Unkonwn Quantity Spilled: True
Units: Gallons
Quantity Recovered: 0
Unkonwn Quantity Recovered: True
Material: #2 FUEL OIL
Class Type: #2 FUEL OIL
Times Material Entry In File: 24464
CAS Number: Not reported
Last Date: 19941207
DEC Remarks: Not reported
Spill Cause: TANK TO BE ISOLATED AND RETESTED.

Region of Spill: 2
Spill Number: 9501718
Investigator: HEALY
Caller Name: Not reported
Caller Agency: Not reported
Caller Phone: Not reported
Caller Extension: Not reported
Notifier Name: Not reported
Notifier Agency: Not reported
Notifier Phone: Not reported
Notifier Extension: Not reported
Spill Date: 05/10/1995
Spill Time: 14:45

POLO GROUNDS (POLO GROUNDS TOWERS) (Continued) **U001840717**

Reported to Department Date: 05/10/95
Reported to Department Time: 15:09
SWIS: 62
Spiller Contact: Not reported
Spiller Phone: Not reported
Spiller Extention: Not reported
Spiller Name: BROOK FUEL
Spiller Address: Not reported
Spiller City,St,Zip: Not reported
Facility Contact: Not reported
Facility Phone: (718) 665-7070
Facility Extention: Not reported
Spill Cause: Tank Overfill
Resource Affectd: On Land
Water Affected: Not reported
Spill Source: Other Non Commercial/Industrial
Spill Notifier: Affected Persons
PBS Number: Not reported
Cleanup Ceased: 05/11/95
Cleanup Meets Standard: True
Last Inspection: / /
Recommended Penalty: Penalty Not Recommended
Spiller Cleanup Date: / /
Enforcement Date: / /
Investigation Complete: / /
UST Involvement: False
Spill Class: Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: 05/11/95
Date Region Sent Summary to Central Office: / /
Corrective Action Plan Submitted: / /
Date Spill Entered In Computer Data File: 05/11/95
Time Spill Entered In Computer Data File: Not reported
Spill Record Last Update: / /
Is Updated: False
PBS Number: Not reported
Tank Number: Not reported
Tank Size: Not reported
Test Method: Not reported
Leak Rate Failed Tank: Not reported
Gross Leak Rate: Not reported
Material Class Type: Petroleum
Quantity Spilled: 30
Unkonwn Quantity Spilled: False
Units: Gallons
Quantity Recovered: 0
Unkonwn Quantity Recovered: False
Material: #2 FUEL OIL
Class Type: #2 FUEL OIL
Times Material Entry In File: 24464
CAS Number: Not reported
Last Date: 19941207
DEC Remarks: Not reported
Spill Cause: DUPLICATE REPORT OF SPILL 9501714 - TANK OVERFILL ONTO SOIL

POLO GROUNDS (POLO GROUNDS TOWERS) (Continued) **U001840717**

Click this hyperlink while viewing on your computer to access additional NY_HIST_LTANK: detail in the EDR Site Report.

AT203 **MOBIL S/S** **LTANKS** **S100168131**
WNW **3740 BROADWAY** **HIST LTANKS** **N/A**
1/4-1/2 **NEW YORK, NY**
1555 ft.

Site 1 of 3 in cluster AT

Relative:
Higher

Actual:
123 ft.

LTANKS:

Site ID:	59282
Spill Date:	12/03/90
Facility Addr2:	Not reported
Facility ID:	9009562
Program Number:	9009562
SWIS:	3101
Region of Spill:	2
Investigator:	JXGRECO
Referred To:	Not reported
Reported to Dept:	12/03/90
CID:	15
Spill Cause:	Tank Test Failure
Water Affected:	Not reported
Spill Source:	Gasoline Station
Spill Notifier:	Responsible Party
Cleanup Ceased:	09/21/94
Cleanup Meets Standard:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	True
Spill Class:	Known release that creates a file or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	09/21/94
Remediation Phase:	0
Date Entered In Computer:	12/11/90
Spill Record Last Update:	09/11/03
Spille Namer:	MIKE MEOLA
Spiller Company:	EXXONMOBIL CORPORATION
Spiller Phone:	(212) 283-8774
Spiller Extention:	Not reported
Spiller Address:	464 DOUGHTY BLVD.
Spiller City,St,Zip:	INWOOD, NY 11096
Spiller County:	001
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
DEC Region:	2
Program Number:	9009562
DER Facility ID:	56716
Site ID:	59282
Operable Unit ID:	949968
Operable Unit:	01
Material ID:	429775
Material Code:	0009
Material Name:	Gasoline
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	0.00

MOBIL S/S (Continued) **S100168131**

Units:	Gallons
Recovered:	0.00
Resource Affected:	Groundwater
Oxygenate:	False
Site ID:	59282
Spill Tank Test:	1537982
Tank Number:	Not reported
Tank Size:	0
Test Method:	00
Leak Rate:	0.00
Gross Fail:	Not reported
Modified By:	Spills
Last Modified:	10/01/04
Test Method:	Unknown
DEC Memo:	Start DECRemark - 9009562 Prior to Sept, 2004 data translation this spill Lead DEC Field was "GRECO" This spill site has been transferred from DEC Sigona to Remedial Bureau B, on August 4, 2003. 09/21/94: CROSS REFERENCE TO SPILL # 8910288. reassigned from sullivan to sigona on 11/1/00 This spill site has been consolidated under Spill No. 8910288 & 0109628. END DECRemark - 9009562
Remarks:	Start CallerRemark - 9009562 LINE TEST, FAILED PETRO TITE WITH A LEAK RATE OF .0196GPH, GASSERVICE TO REPAIR & RETEST, TONY KHOURY (FIELD ENGINEER) 516-239-0266. END CallerRemark - 9009562

HIST LTANKS:

Region of Spill:	2
Spill Number:	9009562
Investigator:	SIGONA
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Caller Extension:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Notifier Extension:	Not reported
Spill Date:	12/03/1990
Spill Time:	13:45
Reported to Department Date:	12/03/90
Reported to Department Time:	14:37
SWIS:	62
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
Spiller Name:	EXXONMOBIL CORP
Spiller Address:	464 DOUGHTY BLVD.
Spiller City,St,Zip:	INWOOD, NY 11096-
Facility Contact:	MIKE MEOLA
Facility Phone:	(212) 283-8774
Facility Extention:	Not reported
Spill Cause:	Tank Test Failure
Resource Affectd:	Groundwater
Water Affected:	Not reported
Spill Source:	Gas Station
Spill Notifier:	Responsible Party
PBS Number:	2-157805
Cleanup Ceased:	09/21/94

MOBIL S/S (Continued) **S100168131**

Cleanup Meets Standard: False
Last Inspection: / /
Recommended Penalty: Penalty Not Recommended
Spiller Cleanup Date: / /
Enforcement Date: / /
Investigation Complete: / /
UST Involvement: True
Spill Class: Known release that creates a file or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: 09/21/94
Date Region Sent Summary to Central Office: / /
Corrective Action Plan Submitted: / /
Date Spill Entered In Computer Data File: 12/11/90
Time Spill Entered In Computer Data File: Not reported
Spill Record Last Update: 11/01/00
Is Updated: False
PBS Number: Not reported
Tank Number: Not reported
Tank Size: 0
Test Method: Not reported
Leak Rate Failed Tank: 0.00
Gross Leak Rate: Not reported
Material Class Type: Petroleum
Quantity Spilled: 0
Unkonwn Quantity Spilled: True
Units: Gallons
Quantity Recovered: 0
Unkonwn Quantity Recovered: True
Material: GASOLINE
Class Type: GASOLINE
Times Material Entry In File: 21329
CAS Number: Not reported
Last Date: 19940929
DEC Remarks: 09/21/94: CROSS REFERENCE TO SPILL 8910288. reassigned from sullivan to sigona on 11/1/00
Spill Cause: LINE TEST, FAILED PETRO TITE WITH A LEAK RATE OF .0196GPH, GASSERVICE TO REPAIR RETEST, TONY KHOURY FIELD ENGINEER) 516-239-0266.

AT204 **MOBIL S/S** **LTANKS** **S100145825**
WNW **3740 BROADWAY** **NY Spills** **N/A**
1/4-1/2 **NEW YORK, NY** **HIST LTANKS**
1555 ft.

Site 2 of 3 in cluster AT

Relative:
Higher

Actual:
123 ft.

LTANKS:
Site ID: 59281
Spill Date: 01/26/90
Facility Addr2: Not reported
Facility ID: 8910288
Program Number: 8910288
SWIS: 3101
Region of Spill: 2
Investigator: JXGRECO
Referred To: P1
Reported to Dept: 01/26/90
CID: 15
Spill Cause: Tank Test Failure
Water Affected: Not reported

MOBIL S/S (Continued) **S100145825**

Spill Source:	Gasoline Station
Spill Notifier:	Tank Tester
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	True
Spill Class:	Known release that creates a file or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	/ /
Remediation Phase:	1
Date Entered In Computer:	01/31/90
Spill Record Last Update:	06/25/07
Spille Namer:	MIKE MEOLA
Spiller Company:	EXXONMOBIL CORPORATION
Spiller Phone:	(212) 368-2785
Spiller Extention:	Not reported
Spiller Address:	464 DOUGHTY BLVD.
Spiller City,St,Zip:	INWOOD, NY 11096
Spiller County:	001
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
DEC Region:	2
Program Number:	8910288
DER Facility ID:	56716
Site ID:	59281
Operable Unit ID:	935369
Operable Unit:	01
Material ID:	443396
Material Code:	0009
Material Name:	Gasoline
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	0.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
Site ID:	59281
Spill Tank Test:	1536728
Tank Number:	Not reported
Tank Size:	0
Test Method:	00
Leak Rate:	0.00
Gross Fail:	Not reported
Modified By:	Spills
Last Modified:	10/01/04
Test Method:	Unknown
DEC Memo:	Start DECRemark - 8910288 Prior to Sept, 2004 data translation this spill Lead DEC Field was "GRECO" This spill site has been transferred from DEC Sigona to Remedial Bureau B, on August 4, 2003. REASSIGNED from Sullivan to Sigonaon 11/1/00 This spill site has been consolidated under Spill No. 8910288 & 0109628. NOTE: Spill 0109628 is for 3750 Broadway, an apartment building affected by the release at 3740 Broadway. The spill number at 3750 is being kept openso a search of the data base will reveal an ongoing activity is taking place at the site. There is an SVE/Vapor

MOBIL S/S (Continued) **S100145825**

depressurization unit installed at 3750 Broadway that is being managed under 8910288, as are all investigative activities. Reassigned to Greco in 2003: An RI/FS was completed in January 2006. ExxonMobil is proceeding with a pilot study/pre-design work for dual phase extraction (i.e., groundwater and soil vapor). This work should be complete in June, 2006. END DECRemark- 8910288

Remarks: Start CallerRemark - 8910288 TANK FAILED PETRO TITE TEST WITH A GROSS LEAK, 3 LINES FAILED, ALL 3 PRODUCT LINES FAILED. END CallerRemark - 8910288

NY Spills:

Site ID:	59276
Facility Addr2:	Not reported
Facility ID:	0206077
Spill Number:	0206077
Facility Type:	ER
SWIS:	3101
Region of Spill:	2
Investigator:	JXGRECO
Referred To:	Not reported
Spill Date:	09/12/02
Reported to Dept:	09/12/02
CID:	15
Spill Cause:	Equipment Failure
Water Affected:	Not reported
Spill Source:	Gasoline Station
Spill Notifier:	Responsible Party
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Trust:	True
Spill Class:	Known release that creates a file or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	09/11/03
Remediation Phase:	0
Date Entered In Computer:	09/12/02
Spill Record Last Update:	09/11/03
Spiller Name:	DON ENGLERT
Spiller Company:	EXXONMOBIL
Spiller Address:	464 DOUGHTY BLVD
Spiller City,St,Zip:	INWOOD, NY
Spiller Company:	001
Spiller Phone:	(516) 371-1527
Contact Name:	JOANNE WALLACH
Contact Phone:	(908) 474-2745
DEC Region:	2
Program Number:	0206077
DER Facility ID:	56716
Site ID:	59276
Operable Unit ID:	858560
Operable Unit:	01
Material ID:	516688
Material Code:	0009
Material Name:	Gasoline
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	0.00
Units:	Gallons

MOBIL S/S (Continued) **S100145825**

Recovered: 0.00
Resource Affected: Groundwater
Oxygenate: False
DEC Memo: Start DECRemark - 0206077 Prior to Sept, 2004 data translation this spill Lead DEC Field was "GRECO" This spill site has been transferred from DEC Sigona to Remedial Bureau B, on August 4, 2003. This spill site has been consolidated under SpillNo. 8910288 & 0109628. See also Spill Nos. 0109628, 0109955, 9009562, 8910288, 8903673 & 8801733. DEC Sigona requested through DEC Conlon on Friday September 6, 2002, ordering ExxonMobil to empty tanks and replace fill piping after receiving results of Tracer Tightness Testing conducted by DEC under PIN for 3750 Broadway. GSC and Fenely & Nicol removed the fill catch basins and found free product underneath the piping and overfill protection systems. MEG (Wilson) responded andcollected two samples with DEC Sigona on September 12, 2002 at 2:30 to 3:30 P.M. One sample was collected under the fill boxes at 4 feet below grade, which consisted of gasoline saturated pea gravel mixed with sand. The second sample was collectedat 4.5 feet below grade on the top of Tank No. 1, adjacent to the fill lines. The sample taken from the top of the Tank was gasoline saturated. Both samples will be sent to ECO test by MEG for fingerprint and BTEX and MTBE analysis. While at the station digital photos were taken by DEC Sigona of sampling locations. DEC Sigona observed natural gas vapors in the office and notified Con Edison CIG (212)580-6763. A gas operations crew is being dispatched to the site for investigation of theodors in the gas station office. On October 7, 2002, DEC Sigona issued Exxon-Mobil Corporation with an executed copy of a Stipulation Agreement to address pipeline replacement work, at the above referenced site. END DECRemark - 0206077
Remarks: Start CallerRemark - 0206077 Caller replacing spill buckets and found impacted soil. END CallerRemark - 0206077

Site ID: 59275
Facility Addr2: Not reported
Facility ID: 0109955
Spill Number: 0109955
Facility Type: ER
SWIS: 3101
Region of Spill: 2
Investigator: JXGRECO
Referred To: Not reported
Spill Date: 01/15/02
Reported to Dept: 01/15/02
CID: 15
Spill Cause: Equipment Failure
Water Affected: Not reported
Spill Source: Gasoline Station
Spill Notifier: Responsible Party
Cleanup Ceased: / /
Cleanup Meets Std: False
Last Inspection: / /
Recommended Penalty: Penalty Not Recommended
UST Trust: False
Spill Class: Known release that creates a file or hazard. DEC Response. Unknown Responsible Party. Corrective action taken. (ISR)
Spill Closed Dt: 09/11/03
Remediation Phase: 0
Date Entered In Computer: 01/15/02
Spill Record Last Update: 09/11/03
Spiller Name: JOANNE WALLACH

MOBIL S/S (Continued) **S100145825**

Spiller Company:	EXXONMOBIL
Spiller Address:	3225 GALLOWS ROAD
Spiller City,St,Zip:	FAIRFAX, VA 22037-
Spiller Company:	001
Spiller Phone:	(908) 474-2745
Contact Name:	Not reported
Contact Phone:	Not reported
DEC Region:	2
Program Number:	0109955
DER Facility ID:	56716
Site ID:	59275
Operable Unit ID:	847076
Operable Unit:	01
Material ID:	527593
Material Code:	0022
Material Name:	Waste Oil/Used Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	0.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Surface Water
Oxygenate:	False

DEC Memo: Start DECRemark - 0109955 Prior to Sept, 2004 data translation this spill Lead DEC Field was "GRECO" This spill site has been transferred from DEC Sigona to Remedial Bureau B, on August 4, 2003. This spill site has been consolidated under SpillNo. 8910288 & 0109628. END DECRemark - 0109955

Remarks: Start CallerRemark - 0109955 Caller was installing a spill bucket on an exsisting i/g waste oil tank contaminated gravel was encountered material has been removed and will be disposed of spill seems to have been caused by tank overfills in the past or spills during the filling process c/r spill number 90-07288 END CallerRemark - 0109955

Click this hyperlink while viewing on your computer to access additional NY_SPILL: detail in the EDR Site Report.

HIST LTANKS:

Region of Spill:	2
Spill Number:	8910288
Investigator:	SIGONA
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Caller Extension:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Notifier Extension:	Not reported
Spill Date:	01/26/1990
Spill Time:	14:30
Reported to Department Date:	01/26/90
Reported to Department Time:	14:52
SWIS:	62
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
Spiller Name:	EXXONMOBIL CORP.

MOBIL S/S (Continued) **S100145825**

Spiller Address:	464 DOUGHTY BLVD.
Spiller City,St,Zip:	INWOOD, NY 11096-
Facility Contact:	MIKE MEOLA
Facility Phone:	(212) 368-2785
Facility Extention:	Not reported
Spill Cause:	Tank Test Failure
Resource Affectd:	On Land
Water Affected:	Not reported
Spill Source:	Gas Station
Spill Notifier:	Tank Tester
PBS Number:	2-157805
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Date:	/ /
Enforcement Date:	/ /
Investigation Complete:	/ /
UST Involvement:	True
Spill Class:	Known release that creates a file or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	/ /
Date Region Sent Summary to Central Office:	/ /
Corrective Action Plan Submitted:	/ /
Date Spill Entered In Computer Data File:	01/31/90
Time Spill Entered In Computer Data File:	Not reported
Spill Record Last Update:	11/01/00
Is Updated:	False
PBS Number:	Not reported
Tank Number:	Not reported
Tank Size:	0
Test Method:	Not reported
Leak Rate Failed Tank:	0.00
Gross Leak Rate:	Not reported
Material Class Type:	Petroleum
Quantity Spilled:	0
Unkonwn Quantity Spilled:	True
Units:	Gallons
Quantity Recovered:	0
Unkonwn Quantity Recovered:	True
Material:	GASOLINE
Class Type:	GASOLINE
Times Material Entry In File:	21329
CAS Number:	Not reported
Last Date:	19940929
DEC Remarks:	REASSIGNED from Sullivan to Sigona on 11/1/00
Spill Cause:	TANK FAILED PETRO TITE TEST WITH A GROSS LEAK, 3 LINES FAILED, ALL 3 PRODUCT LINES FAILED.

AT205
WNW
1/4-1/2
1555 ft.

Relative:
Higher

Actual:
123 ft.

MOBIL S/S
3740 BROADWAY
NEW YORK, NY

LTANKS **S103560302**
NY Hist Spills **N/A**

Site 3 of 3 in cluster AT

LTANKS:

Site ID:	59280
Spill Date:	07/12/89
Facility Addr2:	Not reported
Facility ID:	8903673
Program Number:	8903673
SWIS:	3101
Region of Spill:	2
Investigator:	JXGRECO
Referred To:	Not reported
Reported to Dept:	07/12/89
CID:	15
Spill Cause:	Tank Failure
Water Affected:	Not reported
Spill Source:	Gasoline Station
Spill Notifier:	Responsible Party
Cleanup Ceased:	09/21/94
Cleanup Meets Standard:	True
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	False
Spill Class:	Known release that creates potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	09/21/94
Remediation Phase:	0
Date Entered In Computer:	07/14/89
Spill Record Last Update:	09/11/03
Spille Namer:	MIKE MEOLA
Spiller Company:	EXXONMOBIL CORPORATION
Spiller Phone:	(703) 849-5384
Spiller Extention:	Not reported
Spiller Address:	3225 GALLOWS RD
Spiller City,St,Zip:	FAIRFAX, VA 22037-
Spiller County:	001
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
DEC Region:	2
Program Number:	8903673
DER Facility ID:	56716
Site ID:	59280
Operable Unit ID:	931185
Operable Unit:	01
Material ID:	447754
Material Code:	0022
Material Name:	Waste Oil/Used Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	0.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Groundwater
Oxygenate:	False

MOBIL S/S (Continued) **S103560302**

Site ID:	Not reported
Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported
DEC Memo:	Start DECRemark - 8903673 Prior to Sept, 2004 data translation this spill Lead DEC Field was "GRECO" This spill site has been transferred from DEC Sigona to Remedial Bureau B, on August 4, 2003. 09/21/94: CROSS REFERENCE TO SPILL # 8910288. This spill site has been consolidated under Spill No. 8910288 & 0109628. END DECRemark - 8903673
Remarks:	Start CallerRemark - 8903673 WHILE REPLACING TANK DISCOVERED OIL & WATER MIXTURE. END CallerRemark - 8903673

NY Hist Spills:

Region of Spill:	2
Spill Number:	8903673
Investigator:	SIGONA
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Spill Date/Time:	07/12/1989 12:00
Reported to Dept Date/Time:	07/12/89 15:23
SWIS:	62
Spiller Name:	EXXONMOBIL CORP.
Spiller Contact:	MIKE MEOLA
Spiller Phone:	(703) 849-5384
Spiller Address:	3225 GALLOWS RD
Spiller City,St,Zip:	FAIRFAX, VA 22037-
Spill Cause:	Housekeeping
Reported to Dept:	Groundwater
Water Affected:	Not reported
Spill Source:	05
Spill Notifier:	Responsible Party
PBS Number:	2-157805
Cleanup Ceased:	09/21/94
Cleanup Meets Std:	True
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Dt:	/ /
Enforcement Date:	/ /
Invstgn Complete:	/ /
UST Involvement:	False
Spill Class:	Known release that creates potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	09/21/94
Corrective Action Plan Submitted:	/ /
Date Region Sent Summary to Central Office:	/ /
Date Spill Entered In Computer Data File:	07/14/89
Date Spill Entered In Computer Data File:	Not reported

MOBIL S/S (Continued) **S103560302**

Update Date:	11/01/00
Is Updated:	False
PBS Number:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate Failed Tank:	Not reported
Gross Leak Rate:	Not reported
Material Class Type:	Petroleum
Quantity Spilled:	0
Unkonwn Quantity Spilled:	True
Units:	Gallons
Quantity Recovered:	0
Unkonwn Quantity Recovered:	True
Material:	WASTE OIL
Class Type:	WASTE OIL
Times Material Entry In File:	9509
CAS Number:	Not reported
Last Date:	19940927
DEC Remarks:	09/21/94: CROSS REFERENCE TO SPILL 8910288.
Remark:	WHILE REPLACING TANK DISCOVERED OIL WATER MIXTURE.

AU206 **CHURCH** **LTANKS** **S106737584**
SW **444 EAST 149TH STREET** **N/A**
1/4-1/2 **MANHATTAN, NY**
1587 ft.

Site 1 of 2 in cluster AU

Relative:
Equal

Actual:
111 ft.

LTANKS:

Site ID:	335168
Spill Date:	12/15/04
Facility Addr2:	Not reported
Facility ID:	0410246
Program Number:	0410246
SWIS:	3101
Region of Spill:	2
Investigator:	rmpiper
Referred To:	Not reported
Reported to Dept:	12/15/04
CID:	15
Spill Cause:	Tank Overfill
Water Affected:	Not reported
Spill Source:	Institutional, Educational, Gov., Other
Spill Notifier:	Other
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	11/14/05
Remediation Phase:	0
Date Entered In Computer:	12/15/04
Spill Record Last Update:	11/14/05
Spille Namer:	JOHN
Spiller Company:	T & S TRUCKING
Spiller Phone:	(718) 499-2900

CHURCH (Continued) **S106737584**

Spiller Extention:	Not reported
Spiller Address:	53 2ND AVE
Spiller City,St,Zip:	BROOKLYN, NY
Spiller County:	001
Spiller Contact:	CARMEN
Spiller Phone:	(212) 534-0740
Spiller Extention:	Not reported
DEC Region:	2
Program Number:	0410246
DER Facility ID:	270394
Site ID:	335168
Operable Unit ID:	1097271
Operable Unit:	01
Material ID:	577244
Material Code:	0001
Material Name:	#2 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	7.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
Site ID:	Not reported
Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported
DEC Memo:	Not reported
Remarks:	Start CallerRemark - 0410246 5-6 GALLONS CAME OUT OF VENT: IN PROCESS OF CLEANING UP: END CallerRemark - 0410246

AU207 **LTANKS** **S104877161**
SW **435 CONVENT AVE** **HIST LTANKS** **N/A**
1/4-1/2 **MANHATTAN, NY**
1649 ft.

Site 2 of 2 in cluster AU

Relative:
Higher

Actual:
112 ft.

LTANKS:

Site ID:	296284
Spill Date:	11/07/00
Facility Addr2:	Not reported
Facility ID:	0009114
Program Number:	0009114
SWIS:	3101
Region of Spill:	2
Investigator:	MXTIPPLE
Referred To:	Not reported
Reported to Dept:	11/07/00
CID:	15
Spill Cause:	Tank Failure
Water Affected:	Not reported
Spill Source:	Private Dwelling

(Continued) **S104877161**

Spill Notifier:	Other
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	False
Spill Class:	Known release that creates potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	02/06/02
Remediation Phase:	0
Date Entered In Computer:	11/07/00
Spill Record Last Update:	02/06/02
Spille Namer:	ANTHONY
Spiller Company:	Not reported
Spiller Phone:	(212) 283-1113
Spiller Extention:	Not reported
Spiller Address:	435 CONVENT AVE
Spiller City,St,Zip:	MANHATTAN, NY
Spiller County:	001
Spiller Contact:	ANTHONY
Spiller Phone:	(212) 283-1113
Spiller Extention:	Not reported
DEC Region:	2
Program Number:	0009114
DER Facility ID:	239758
Site ID:	296284
Operable Unit ID:	829699
Operable Unit:	01
Material ID:	546610
Material Code:	0002
Material Name:	#4 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	1000.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
Site ID:	Not reported
Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported
DEC Memo:	Start DECRemark - 0009114 Prior to Sept, 2004 data translation this spill Lead DEC Field was "TIPPLE" CLEANUP COMPLETE END DECRemark - 0009114
Remarks:	Start CallerRemark - 0009114 spiller stated that spill was caused by leaking boiler line. only 100 gals on floor rest went into sump pump. al eastman enroute END CallerRemark - 0009114

HIST LTANKS:

Region of Spill:	2
Spill Number:	0009114

(Continued) **S104877161**

Investigator:	TIPPLE
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Caller Extension:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Notifier Extension:	Not reported
Spill Date:	11/07/2000
Spill Time:	11:00
Reported to Department Date:	11/07/00
Reported to Department Time:	11:05
SWIS:	62
Spiller Contact:	ANTHONY
Spiller Phone:	(212) 283-1113
Spiller Extention:	Not reported
Spiller Name:	Not reported
Spiller Address:	435 CONVENT AVE
Spiller City,St,Zip:	MANHATTAN, NY
Facility Contact:	ANTHONY
Facility Phone:	(212) 283-1113
Facility Extention:	Not reported
Spill Cause:	Tank Failure
Resource Affectd:	On Land
Water Affected:	Not reported
Spill Source:	Private Dwelling
Spill Notifier:	Other
PBS Number:	Not reported
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Date:	/ /
Enforcement Date:	/ /
Investigation Complete:	/ /
UST Involvement:	False
Spill Class:	Known release that creates potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	/ /
Date Region Sent Summary to Central Office:	/ /
Corrective Action Plan Submitted:	/ /
Date Spill Entered In Computer Data File:	11/07/00
Time Spill Entered In Computer Data File:	Not reported
Spill Record Last Update:	11/07/00
Is Updated:	False
PBS Number:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate Failed Tank:	Not reported
Gross Leak Rate:	Not reported
Material Class Type:	Petroleum
Quantity Spilled:	1000
Unkonwn Quantity Spilled:	False
Units:	Gallons
Quantity Recovered:	0

(Continued) **S104877161**

Unkonwn Quantity Recovered: True
Material: #4 FUEL OIL
Class Type: #4 FUEL OIL
Times Material Entry In File: 1751
CAS Number: Not reported
Last Date: 19941205
DEC Remarks: Not reported
Spill Cause: spiller stated that spill was caused by leaking boiler line. only 100 gals on floor rest went into sump pump. al eastman enroute

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208 WSW 1/4-1/2 1685 ft. | **MULTI DWELLING 542 WEST 150TH ST MANHATTAN, NY** | **LTANKS NY Hist Spills** | **S104502653 N/A**

Relative: Higher

Actual: 129 ft.

LTANKS:
Site ID: 129254
Spill Date: 01/03/97
Facility Addr2: Not reported
Facility ID: 9611957
Program Number: 9611957
SWIS: 3101
Region of Spill: 2
Investigator: EXHAMPST
Referred To: Not reported
Reported to Dept: 01/03/97
CID: 15
Spill Cause: Tank Overfill
Water Affected: Not reported
Spill Source: Tank Truck
Spill Notifier: Responsible Party
Cleanup Ceased: / /
Cleanup Meets Standard: False
Last Inspection: / /
Recommended Penalty: Penalty Not Recommended
UST Involvement: False
Spill Class: Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: 12/28/05
Remediation Phase: 0
Date Entered In Computer: 01/03/97
Spill Record Last Update: 12/28/05
Spille Namer: MRS MIRIAM BANTHAM
Spiller Company: MULTI DWELLING
Spiller Phone: (212) 664-8501
Spiller Extention: Not reported
Spiller Address: 542 WEST 150TH ST
Spiller City,St,Zip: MANHATTAN, NY
Spiller County: 001
Spiller Contact: MRS MIRIAM BANTHAM
Spiller Phone: (212) 664-8501
Spiller Extention: Not reported
DEC Region: 2
Program Number: 9611957
DER Facility ID: 111435
Site ID: 129254
Operable Unit ID: 1039818
Operable Unit: 01

MULTI DWELLING (Continued) **S104502653**

Material ID:	340604
Material Code:	0001
Material Name:	#2 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	30.00
Units:	Gallons
Recovered:	30.00
Resource Affected:	Soil
Oxygenate:	False
Site ID:	Not reported
Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported
DEC Memo:	Start DECRemark - 9611957 12/28/05 Transferred to E. Hampston via Spill Initiative. Owner at time of spill deceased and property transferred to new ownership in 1998. No complaints or reports of problems at or since transfer. Report notes spill cleaned. Spill greater than 9 years old and approximately 30 gallons fits closeout strategy. Close spill. END DECRemark - 9611957
Remarks:	Start CallerRemark - 9611957 OIL CO MADE DELIVERY TO DWELLING OF #2 OIL-OIL CAME BACK OUT OF VENT ON TOP OF THE TANK-HAS BEEN CLEANED UP END CallerRemark - 9611957

NY Hist Spills:

Region of Spill:	2
Spill Number:	9611957
Investigator:	SIGONA
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Spill Date/Time:	01/03/1997 13:00
Reported to Dept Date/Time:	01/03/97 16:30
SWIS:	62
Spiller Name:	MULTI DWELLING
Spiller Contact:	MRS MIRIAM BANTHAM
Spiller Phone:	(212) 664-8501
Spiller Contact:	MRS MIRIAM BANTHAM
Spiller Phone:	(212) 664-8501
Spiller Address:	542 WEST 150TH ST
Spiller City,St,Zip:	MANHATTAN
Spill Cause:	Other
Reported to Dept:	On Land
Water Affected:	Not reported
Spill Source:	12
Spill Notifier:	Other
PBS Number:	Not reported
Cleanup Ceased:	/ /
Cleanup Meets Std:	False

MULTI DWELLING (Continued) **S104502653**

Last Inspection: / /
Recommended Penalty: Penalty Not Recommended
Spiller Cleanup Dt: / /
Enforcement Date: / /
Invstgn Complete: / /
UST Involvement: False
Spill Class: Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: / /
Corrective Action Plan Submitted: / /
Date Region Sent Summary to Central Office: / /
Date Spill Entered In Computer Data File: 01/03/97
Date Spill Entered In Computer Data File: Not reported
Update Date: 03/13/97
Is Updated: False
PBS Number: Not reported
Tank Number: Not reported
Tank Size: Not reported
Test Method: Not reported
Leak Rate Failed Tank: Not reported
Gross Leak Rate: Not reported
Material Class Type: Petroleum
Quantity Spilled: 30
Unkonwn Quantity Spilled: False
Units: Gallons
Quantity Recovered: 30
Unkonwn Quantity Recovered: False
Material: #2 FUEL OIL
Class Type: #2 FUEL OIL
Times Material Entry In File: 24464
CAS Number: Not reported
Last Date: 19941207
DEC Remarks: 2/24/97: >MRS. BANTHAM CONTACTED CONTACTED DEC INDICATING THAT A CLEANUP WAS NOT COMPLETED AS REPORTED ON 1/03/97. MRS. BANTHAM COMPLAINED OF VERY STRONG PETROLEUM ODORS IN HER RESIDENCE PRESENTLY VACANT) AND HER NEIGHBORS. 2/24/97: >DEC, KATZ CONTACTED JAY CENTO OF WHALECO, THE SPILLER WHO INDICATED THE REASON FOR THE OVERFLOW INTO THE BASEMENT WAS CAUSED BY THE VENT NOT EXTENDING OUTSIDE THE BUILDING. WHALECO CONTENDS THEY CLEANED UP THE SPILL AND CLAIMS THERE IS ALSO ANOTHER SOURCE. 2/28/97: >DEC, KATZ AND SIGONA MEET MRS. BANTHAM AND TWO REPS ANTHONY AL) FROM WHALECO AND INFORMED THEM THAT THEY MUST COMPLETE THE CLEANUP. SIGONA EXPLAINED THE REQUIREMENTS FOR ADEQUATE CLEANUP AND WHALECO S REPS INDICATED THAT THEY WOULD HAVE TO CONTACT THEIR INSURANCE COMPANY AND HIRE A CLEANUP CONTRACTOR. >INFORMED MRS.BANTHAM THAT SHE IS RESPONSIBLE FOR EXTENDING THE VENT LINE AND MAINTANENCE OF THE 550 GALLON TANK AND FILL. 3/13/97: >TRANSFERRED FROM KATZ TO SIGONA. >RECIEVED CALL FROM MRS. BANTHAM. SHE INDICATED THAT SHE MET WITH CONTRACTORS ON 3/6/97 BUT HAVE NOT RETURNED TO COMPLETE THE WORK. SHE ASKED DEC TO INTERVENE ON HER BEHALF AND FIND OUT THE STATUS OF THE PROJECT. >SIGONA CONTACTED WHALECO. CONTRACTOR TO SUBMIT WORKPLAN FOR REVIEW PRIOR TO COMMENCEMENT OF WORK. SIGONA WILL RETURN TO SITE FOR FOLLOWUP INSPECTION WHEN CLEANUP IS COMPLETED.
Remark: OIL CO MADE DELIVERY TO DWELLING OF 2 OIL-OIL CAME BACK OUT OF VENT ON TOP OF THE TANK-HAS BEEN CLEANED UP

209 NNW 1/4-1/2 1713 ft. | **575 W 159TH ST 575 W 159TH ST NEW YORK, NY** | **LTANKS** | **S105998072 N/A**

Relative: Higher

Actual: 127 ft.

LTANKS:

Site ID:	87747
Spill Date:	02/03/03
Facility Addr2:	Not reported
Facility ID:	0211009
Program Number:	0211009
SWIS:	3101
Region of Spill:	2
Investigator:	Needs Reassignment
Referred To:	Not reported
Reported to Dept:	02/03/03
CID:	15
Spill Cause:	Tank Failure
Water Affected:	Not reported
Spill Source:	Commercial/Industrial
Spill Notifier:	Local Agency
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	False
Spill Class:	Known release that creates potential for fire or hazard. DEC Response. Unknown Responsible Party. Corrective action taken. (ISR)
Spill Closed Dt:	/ /
Remediation Phase:	1
Date Entered In Computer:	02/03/03
Spill Record Last Update:	03/14/06
Spille Namer:	MARY REBINO
Spiller Company:	Not reported
Spiller Phone:	(212) 923-4103
Spiller Extention:	Not reported
Spiller Address:	575 W 159TH ST
Spiller City,St,Zip:	NEW YORK, ZZ
Spiller County:	001
Spiller Contact:	MARY REBINO
Spiller Phone:	(212) 923-4103
Spiller Extention:	Not reported
DEC Region:	2
Program Number:	0211009
DER Facility ID:	80364
Site ID:	87747
Operable Unit ID:	864221
Operable Unit:	01
Material ID:	514374
Material Code:	0003
Material Name:	#6 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	75.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
Site ID:	Not reported

575 W 159TH ST (Continued) **S105998072**

Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported
DEC Memo:	Start DECRemark - 0211009 Prior to Sept, 2004 data translation this spill Lead DEC Field was "SAWYER" DEC Sigona could not locate PBS registration for this site. 1/7/04-Vought-Spill transferred from Vought to Austin. 01/27/04 - Sawyer - Spilltransferred from Austin to Sawyer. 8/2/05- temperary transferred lead to Woodward 8/26/05- reviewed of file-contain notes implying work may have been already done but verification is needed. Tried calling and leaving message but no return calls. 2/06 Sent letter to Mary Rodino asking for information on the spill to verify that work was truly done. 3/14/06 no responce to letter has been recieved. END DECRemark - 0211009
Remarks:	Start CallerRemark - 0211009 Tank failure causing spill to basement - caller is having a hard time getting a hold of anyone to approve work to be done for clean up END CallerRemark - 0211009

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210 SW 1/4-1/2 1744 ft. | **APARTMENT BLDG AT 428 CONVENT AVE MANHATTAN, NY** | **LTANKS** **S103558423** | **HIST LTANKS** **N/A**

Relative: Higher

Actual: 112 ft.

LTANKS:

Site ID:	76157
Spill Date:	11/14/98
Facility Addr2:	Not reported
Facility ID:	9810289
Program Number:	9810289
SWIS:	3101
Region of Spill:	2
Investigator:	MMMULQUE
Referred To:	Not reported
Reported to Dept:	11/14/98
CID:	15
Spill Cause:	Tank Overfill
Water Affected:	Not reported
Spill Source:	Private Dwelling
Spill Notifier:	Affected Persons
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	False
Spill Class:	Known release that creates potential for fire or hazard. DEC Response. Unable/unwilling Responsible Party. Corrective action taken. (ISR)
Spill Closed Dt:	11/30/98
Remediation Phase:	0
Date Entered In Computer:	11/14/98
Spill Record Last Update:	12/02/98
Spille Namer:	KONATA S. RAGIN
Spiller Company:	MEE-I-ENERGY, INC
Spiller Phone:	(718) 991-3002
Spiller Extention:	Not reported

APARTMENT BLDG AT (Continued) **S103558423**

Spiller Address:	433-37 BARRETTO STREET
Spiller City,St,Zip:	BRONX, NY
Spiller County:	001
Spiller Contact:	ANNIE JONES
Spiller Phone:	(212) 283-0750
Spiller Extention:	Not reported
DEC Region:	2
Program Number:	9810289
DER Facility ID:	71236
Site ID:	76157
Operable Unit ID:	1071207
Operable Unit:	01
Material ID:	314152
Material Code:	0001
Material Name:	#2 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	0.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
Site ID:	Not reported
Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported
DEC Memo:	Start DECRemark - 9810289 Prior to Sept, 2004 data translation this spill Lead DEC Field was "MULQUEEN" MULQUEEN RESPONDED TO SPILL AND FOUND STRONG FUEL OIL ODOR IN BUILDING AND OIL IN BASEMENT, ON FLOOR, OIL AND SPEEDI DRY BY FILL PIPE AND VENT.1ST FLOOR RESIDENT HAS EMPHYZEMA AND SMALL CHILDREN IN HOUSE. MULQUEEN CONTACTED SPILLER (MEE-I-ENERGY). SPILLER, KONATA RAGIN WHO TOLD MULQUEEN THAT HIS NAME WAS STEVEN JONES, PROVIDING FALSE INFORMATION TO STATE INSPECTOR. KONATA RAGIN AND OTHERDRIVER RETURNED TO SPILL SITE, REMOVED SATURATED SPEEDI DRY, RE-APPLIED, SWEPT, REMOVED OIL SATURATED INSULATION FROM SPACE ABOVE TANK AND WAS TO REPLACE. ALLIED WASTE SVC REMOVED CONTAMINATED MAT'LS. MEE-I-ENERGY GIVEN STRICT WARNING FOR FAILURE TO NOTIFY, FAILURE TO CONTAIN AND CLEAN UP SPILL IN A TIMELY FASHION. MR. RAGIN WAS TOLD THAT IF HE DOES THIS AGAIN, THEN FULL AND POSSIBLY CRIMINAL CHARGES WILL BE LEVIED. END DECRemark - 9810289
Remarks:	Start CallerRemark - 9810289 oil company spilled oil onto gate and into basement of location there is also a drain which may go into sewer - comp states it is a significant quantity and no cleanup has occured - sand has been spread but odor has madedwelling uninhabitable END CallerRemark - 9810289

HIST LTANKS:

Region of Spill:	2
Spill Number:	9810289
Investigator:	MULQUEEN
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported

APARTMENT BLDG AT (Continued) **S103558423**

Caller Extension:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Notifier Extension:	Not reported
Spill Date:	11/14/1998
Spill Time:	12:00
Reported to Department Date:	11/14/98
Reported to Department Time:	18:29
SWIS:	62
Spiller Contact:	ANNIE JONES
Spiller Phone:	(212) 283-0750
Spiller Extention:	Not reported
Spiller Name:	MEE-I-ENERGY, INC
Spiller Address:	433-37 BARRETTO STREET
Spiller City,St,Zip:	BRONX, NY
Facility Contact:	KONATA S. RAGIN
Facility Phone:	(718) 991-3002
Facility Extention:	Not reported
Spill Cause:	Tank Overfill
Resource Affectd:	On Land
Water Affected:	Not reported
Spill Source:	Private Dwelling
Spill Notifier:	Affected Persons
PBS Number:	Not reported
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Date:	/ /
Enforcement Date:	/ /
Investigation Complete:	/ /
UST Involvement:	False
Spill Class:	Known release that creates potential for fire or hazard. DEC Response. Unable/unwilling Responsible Party. Corrective action taken. (ISR)
Spill Closed Dt:	11/30/98
Date Region Sent Summary to Central Office:	/ /
Corrective Action Plan Submitted:	/ /
Date Spill Entered In Computer Data File:	11/14/98
Time Spill Entered In Computer Data File:	Not reported
Spill Record Last Update:	12/02/98
Is Updated:	False
PBS Number:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate Failed Tank:	Not reported
Gross Leak Rate:	Not reported
Material Class Type:	Petroleum
Quantity Spilled:	0
Unkonwn Quantity Spilled:	True
Units:	Gallons
Quantity Recovered:	0
Unkonwn Quantity Recovered:	False
Material:	#2 FUEL OIL
Class Type:	#2 FUEL OIL
Times Material Entry In File:	24464

APARTMENT BLDG AT (Continued) **S103558423**

CAS Number: Not reported
Last Date: 19941207
DEC Remarks: MULQUEEN RESPONDED TO SPILL AND FOUND STRONG FUEL OIL ODOR IN BUILDING AND OIL IN BASEMENT, ON FLOOR, OIL AND SPEEDI DRY BY FILL PIPE AND VENT. 1ST FLOOR RESIDENT HAS EMPHYZEMA AND SMALL CHILDREN IN HOUSE. MULQUEEN CONTACTED SPILLER MEE-I-ENERGY).SPILLER, KONATA RAGIN WHO TOLD MULQUEEN THAT HIS NAME WAS STEVEN JONES, PROVIDING FALSE INFORMATION TO STATE INSPECTOR. KONATA RAGIN AND OTHER DRIVER RETURNED TO SPILL SITE, REMOVED SATURATED SPEEDI DRY, RE-APPLIED, SWEPT, REMOVED OIL SATURATED INSULATION FROM SPACE ABOVE TANK AND WAS TO REPLACE. ALLIED WASTE SVC REMOVED CONTAMINATED MAT LS. MEE-I-ENERGY GIVEN STRICT WARNING FOR FAILURE TO NOTIFY, FAILURE TO CONTAIN AND CLEAN UP SPILL IN A TIMELY FASHION. MR. RAGIN WAS TOLD THAT IF HE DOESTHIS AGAIN, THEN FULL AND POSSIBLY CRIMINAL CHARGES WILL BE LEVIED.
Spill Cause: oil company spilled oil onto gate and into basement of location there is also a drain which may go into sewer - comp states it is a significant quantity and no cleanup has occured - sand has been spread but odor has made dwelling uninhabitable

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AV211 **99 MACOMBS PL/MANH/USPS** **LTANKS** **S100167764**
SE **99 MACOMBS PLACE** **HIST LTANKS** **N/A**
1/4-1/2 **NEW YORK CITY, NY**
1754 ft.

Site 1 of 2 in cluster AV

Relative:
Lower

Actual:
31 ft.

LTANKS:

Site ID:	281144
Spill Date:	06/23/89
Facility Addr2:	Not reported
Facility ID:	8907091
Program Number:	8907091
SWIS:	3101
Region of Spill:	2
Investigator:	BATTISTA
Referred To:	Not reported
Reported to Dept:	10/18/89
CID:	15
Spill Cause:	Tank Test Failure
Water Affected:	Not reported
Spill Source:	Commercial/Industrial
Spill Notifier:	Responsible Party
Cleanup Ceased:	10/07/92
Cleanup Meets Standard:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	10/07/92
Remediation Phase:	0
Date Entered In Computer:	10/20/89
Spill Record Last Update:	02/15/94
Spille Namer:	Not reported
Spiller Company:	U S POSTAL SERVICE
Spiller Phone:	(212) 330-3125
Spiller Extention:	Not reported
Spiller Address:	Not reported
Spiller City,St,Zip:	ZZ
Spiller County:	001

99 MACOMBS PL/MANH/USPS (Continued) **S100167764**

Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
DEC Region:	2
Program Number:	8907091
DER Facility ID:	228280
Site ID:	281144
Operable Unit ID:	934837
Operable Unit:	01
Material ID:	443890
Material Code:	0066A
Material Name:	UNKNOWN PETROLEUM
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	-1.00
Units:	Not reported
Recovered:	0.00
Resource Affected:	Groundwater
Oxygenate:	False
Site ID:	281144
Spill Tank Test:	1536264
Tank Number:	Not reported
Tank Size:	0
Test Method:	00
Leak Rate:	0.00
Gross Fail:	Not reported
Modified By:	Spills
Last Modified:	10/01/04
Test Method:	Unknown
DEC Memo:	Not reported
Remarks:	Start CallerRemark - 8907091 1.5K TANK FAILED WITH A LEAK RATE OF .588GPH, TEST METHOD (VPLT). END CallerRemark - 8907091

HIST LTANKS:

Region of Spill:	2
Spill Number:	8907091
Investigator:	BATTISTA
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Caller Extension:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Notifier Extension:	Not reported
Spill Date:	06/23/1989
Spill Time:	15:30
Reported to Department Date:	10/18/89
Reported to Department Time:	17:09
SWIS:	62
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
Spiller Name:	U S POSTAL SERVICE
Spiller Address:	Not reported
Spiller City,St,Zip:	Not reported
Facility Contact:	Not reported

99 MACOMBS PL/MANH/USPS (Continued) **S100167764**

Facility Phone:	(212) 330-3125
Facility Extention:	Not reported
Spill Cause:	Tank Test Failure
Resource Affectd:	Groundwater
Water Affected:	Not reported
Spill Source:	Other Commercial/Industrial
Spill Notifier:	Responsible Party
PBS Number:	2-476099
Cleanup Ceased:	10/07/92
Cleanup Meets Standard:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Date:	/ /
Enforcement Date:	/ /
Investigation Complete:	/ /
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	10/07/92
Date Region Sent Summary to Central Office:	/ /
Corrective Action Plan Submitted:	/ /
Date Spill Entered In Computer Data File:	10/20/89
Time Spill Entered In Computer Data File:	Not reported
Spill Record Last Update:	02/15/94
Is Updated:	False
PBS Number:	Not reported
Tank Number:	Not reported
Tank Size:	0
Test Method:	Not reported
Leak Rate Failed Tank:	0.00
Gross Leak Rate:	Not reported
Material Class Type:	Petroleum
Quantity Spilled:	-1
Unkonwn Quantity Spilled:	False
Units:	Not reported
Quantity Recovered:	0
Unkonwn Quantity Recovered:	False
Material:	UNKNOWN PETROLEUM
Class Type:	UNKNOWN PETROLEUM
Times Material Entry In File:	16414
CAS Number:	Not reported
Last Date:	19940929
DEC Remarks:	Not reported
Spill Cause:	1.5K TANK FAILED WITH A LEAK RATE OF .588GPH, TEST METHOD VPLT).

AV212 **99 MACCOMBS PL/MANH/USPS** **LTANKS** **S104275541**
SE **99 MACCOMBS PLACE** **HIST LTANKS** **N/A**
1/4-1/2 **NEW YORK CITY, NY**
1754 ft.

Site 2 of 2 in cluster AV

Relative:
Lower

Actual:
31 ft.

LTANKS:

Site ID:	188977
Spill Date:	06/23/89
Facility Addr2:	Not reported
Facility ID:	8903078
Program Number:	8903078
SWIS:	3101

99 MACCOMBS PL/MANH/USPS (Continued) **S104275541**

Region of Spill:	2
Investigator:	BATTISTA
Referred To:	Not reported
Reported to Dept:	06/23/89
CID:	15
Spill Cause:	Tank Test Failure
Water Affected:	Not reported
Spill Source:	Commercial/Industrial
Spill Notifier:	Other
Cleanup Ceased:	10/07/92
Cleanup Meets Standard:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	True
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	10/07/92
Remediation Phase:	0
Date Entered In Computer:	10/16/89
Spill Record Last Update:	02/15/94
Spille Namer:	Not reported
Spiller Company:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
Spiller Address:	Not reported
Spiller City,St,Zip:	***Update***, ZZ
Spiller County:	001
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
DEC Region:	2
Program Number:	8903078
DER Facility ID:	157813
Site ID:	188977
Operable Unit ID:	930565
Operable Unit:	01
Material ID:	450742
Material Code:	0001
Material Name:	#2 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	-1.00
Units:	Not reported
Recovered:	0.00
Resource Affected:	Groundwater
Oxygenate:	False
Site ID:	188977
Spill Tank Test:	1535635
Tank Number:	Not reported
Tank Size:	0
Test Method:	00
Leak Rate:	0.00
Gross Fail:	Not reported
Modified By:	Spills
Last Modified:	10/01/04
Test Method:	Unknown
DEC Memo:	Not reported

99 MACCOMBS PL/MANH/USPS (Continued) **S104275541**

Remarks: Start CallerRemark - 8903078 1.5K TANK FAILED WITH A LEAK RATE OF .5GPH. END CallerRemark - 8903078

HIST LTANKS:

Region of Spill:	2
Spill Number:	8903078
Investigator:	BATTISTA
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Caller Extension:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Notifier Extension:	Not reported
Spill Date:	06/23/1989
Spill Time:	14:00
Reported to Department Date:	06/23/89
Reported to Department Time:	16:43
SWIS:	62
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
Spiller Name:	Not reported
Spiller Address:	Not reported
Spiller City,St,Zip:	Not reported
Facility Contact:	Not reported
Facility Phone:	( ) -
Facility Extention:	Not reported
Spill Cause:	Tank Test Failure
Resource Affectd:	Groundwater
Water Affected:	Not reported
Spill Source:	Other Commercial/Industrial
Spill Notifier:	Other
PBS Number:	2-476099
Cleanup Ceased:	10/07/92
Cleanup Meets Standard:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Date:	/ /
Enforcement Date:	/ /
Investigation Complete:	/ /
UST Involvement:	True
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	10/07/92
Date Region Sent Summary to Central Office:	/ /
Corrective Action Plan Submitted:	/ /
Date Spill Entered In Computer Data File:	10/16/89
Time Spill Entered In Computer Data File:	Not reported
Spill Record Last Update:	02/15/94
Is Updated:	False
PBS Number:	Not reported
Tank Number:	Not reported
Tank Size:	0
Test Method:	Not reported
Leak Rate Failed Tank:	0.00

99 MACCOMBS PL/MANH/USPS (Continued) **S104275541**

Gross Leak Rate:	Not reported
Material Class Type:	Petroleum
Quantity Spilled:	-1
Unkonwn Quantity Spilled:	False
Units:	Not reported
Quantity Recovered:	0
Unkonwn Quantity Recovered:	False
Material:	#2 FUEL OIL
Class Type:	#2 FUEL OIL
Times Material Entry In File:	24464
CAS Number:	Not reported
Last Date:	19941207
DEC Remarks:	Not reported
Spill Cause:	1.5K TANK FAILED WITH A LEAK RATE OF .5GPH.

213
NNW
1/4-1/2
1764 ft.

APRT BUILDING
555 W. 160TH ST
NEW YORK, NY

LTANKS **S107789192**
N/A

Relative:
Higher

Actual:
146 ft.

LTANKS:

Site ID:	362746
Spill Date:	04/18/06
Facility Addr2:	Not reported
Facility ID:	0600682
Program Number:	0600682
SWIS:	3101
Region of Spill:	2
Investigator:	HRPATEL
Referred To:	Not reported
Reported to Dept:	04/18/06
CID:	15
Spill Cause:	Tank Test Failure
Water Affected:	Not reported
Spill Source:	Private Dwelling
Spill Notifier:	Tank Tester
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	07/12/06
Remediation Phase:	0
Date Entered In Computer:	04/18/06
Spill Record Last Update:	06/12/07
Spille Namer:	MARLIN JOSEPH
Spiller Company:	APRT BUILDING
Spiller Phone:	(646) 772-7949
Spiller Extention:	Not reported
Spiller Address:	555 WEST 160 STREET
Spiller City,St,Zip:	NEW YORK, NY
Spiller County:	001
Spiller Contact:	MARLIN JOSEPH
Spiller Phone:	(646) 772-7949
Spiller Extention:	Not reported
DEC Region:	2

APRT BUILDING (Continued) **S107789192**

Program Number:	0600682
DER Facility ID:	312976
Site ID:	362746
Operable Unit ID:	1120815
Operable Unit:	01
Material ID:	2110311
Material Code:	0002
Material Name:	#4 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	0.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
Site ID:	362746
Spill Tank Test:	1549896
Tank Number:	1
Tank Size:	5000
Test Method:	03
Leak Rate:	0.00
Gross Fail:	Not reported
Modified By:	Watchdog
Last Modified:	04/18/06
Test Method:	Horner EZ Check I or II
DEC Memo:	Start DECRemark - 0600682 04/18/06-Hiralkumar Patel. Spoke with Marlin Joseph (FAX: 718-858-4268) at Petroleum. property has 5000 gal AST in concrete vault. they did test today and waiting to hear from owner. Mr. Joseph was on road, so once he reachoffice, he will call with the information about owner's name and number. 04/19/06-Hiralkumar Patel. spoke with Mr. Joseph at Petroleum. they did tests for Approved Oil Company Of Brooklyn Incorporated (Ph.: 718-238-1050, FAX: 718-238-1053)). Spoke with Mr. Vinny S. at Approved OIl and he gave following information about owner: Jessica Castro Beach Lane Management 555 W 160th Street LLC 280 N Central Park Ave, Suite 210 Hartsdale, NY 10530-1841 Ph. (914) 997-2435 email: jcastro@aptsny.com and Property Manager is: Mark Scharfman (Ph.: 914-997-2435 Ext. 131, FAX: 914-997-2486). 04/20/06-Hiralkumar Patel. Spoke with Mr. Scharfam. TTF letter sent out to Mr. Scharfman. faxed copy to Mr. Scharfman at Beach Lane Management, toMarlin Joseph at Petroleum & to Vinny S. at Approved OIl. 06/06/06-Hiralkumar Patel. Spoke to Vinny S. at approved oil. as per him, petroleum has removed tank and took samples. spoke to Diana at petroleum. they have removed tank but hasn't took any samples. they put proposal for endpoint samples and new tank installation. haven't heard after that. tried property manager's number but it was busy. 07/10/06-Hiralkumar Patel. Left message for Mark. 07/12/06-Hiralkumar Patel. received messagefrom Jessica Castro (914-997-2435 Ext. 118). Left message for Ms. Castro. received call from Ms. Castro. she will talk to person who handles tank at site and will call back. received call from Vincent Theurer (718-238-1050). as per Vincent, tank was aboveground. tank has removed and there is no visible sign of oil on concrete where tank was located. Vincent has submitted required documents to the Department to update PBS records. PBS#: 2-257052 tank was aboveground and had dry leak. haven't found any sign of oil leak after tank removal. based on this information, case closed. 06/12/07-Hiralkumar Patel. received call from Jessica Castro from management office asking for NFA letter. letter emailed to Ms. Castro. END DECRemark - 0600682
Remarks:	Start CallerRemark - 0600682 above liquid leak END CallerRemark - 0600682

214 West 1/4-1/2 1942 ft. | **APT COMPLEX**
610 WEST 152ND ST
MANHATTAN, NY | **LTANKS** | **S105054974**
HIST LTANKS | **N/A**

Relative: Higher

Actual: 124 ft.

LTANKS:

Site ID:	230589
Spill Date:	05/30/01
Facility Addr2:	Not reported
Facility ID:	0102252
Program Number:	0102252
SWIS:	3101
Region of Spill:	2
Investigator:	MXTIPPLE
Referred To:	Not reported
Reported to Dept:	05/30/01
CID:	15
Spill Cause:	Tank Overfill
Water Affected:	Not reported
Spill Source:	Private Dwelling
Spill Notifier:	Fire Department
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	08/07/03
Remediation Phase:	0
Date Entered In Computer:	05/30/01
Spill Record Last Update:	08/07/03
Spille Namer:	Not reported
Spiller Company:	EASTMAN FUEL
Spiller Phone:	Not reported
Spiller Extention:	Not reported
Spiller Address:	Not reported
Spiller City,St,Zip:	ZZ
Spiller County:	001
Spiller Contact:	EASTMAN
Spiller Phone:	Not reported
Spiller Extention:	Not reported
DEC Region:	2
Program Number:	0102252
DER Facility ID:	190033
Site ID:	230589
Operable Unit ID:	839086
Operable Unit:	01
Material ID:	534367
Material Code:	0003
Material Name:	#6 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	50.00
Units:	Gallons
Recovered:	50.00
Resource Affected:	Soil
Oxygenate:	False
Site ID:	Not reported

APT COMPLEX (Continued) **S105054974**

Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported
DEC Memo:	Start DECRemark - 0102252 Prior to Sept, 2004 data translation this spill Lead DEC Field was "TIPPLE" 8/6/03 tipple closing//reference spill # 01-02246// same incident/FDNY called second number in for incident at 3671 Broadway. END DECRemark - 0102252
Remarks:	Start CallerRemark - 0102252 CALLER STATES THERE WAS AN OVERFILL OF A FUEL TANK. IT HAS ALL BEEN CLEANED END CallerRemark - 0102252

HIST LTANKS:

Region of Spill:	2
Spill Number:	0102252
Investigator:	TIPPLE
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Caller Extension:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Notifier Extension:	Not reported
Spill Date:	05/30/2001
Spill Time:	08:30
Reported to Department Date:	05/30/01
Reported to Department Time:	09:41
SWIS:	62
Spiller Contact:	EASTMAN
Spiller Phone:	( ) -
Spiller Extention:	Not reported
Spiller Name:	EASTMAN FUEL
Spiller Address:	Not reported
Spiller City,St,Zip:	Not reported
Facility Contact:	Not reported
Facility Phone:	( ) -
Facility Extention:	Not reported
Spill Cause:	Tank Overfill
Resource Affectd:	On Land
Water Affected:	Not reported
Spill Source:	Private Dwelling
Spill Notifier:	Fire Department
PBS Number:	Not reported
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Date:	/ /
Enforcement Date:	/ /
Investigation Complete:	/ /
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response.

APT COMPLEX (Continued) **S105054974**

Willing Responsible Party. Corrective action taken.
Spill Closed Dt: / /
Date Region Sent Summary to Central Office: / /
Corrective Action Plan Submitted: / /
Date Spill Entered In Computer Data File: 05/30/01
Time Spill Entered In Computer Data File: Not reported
Spill Record Last Update: 05/30/01
Is Updated: False
PBS Number: Not reported
Tank Number: Not reported
Tank Size: Not reported
Test Method: Not reported
Leak Rate Failed Tank: Not reported
Gross Leak Rate: Not reported
Material Class Type: Petroleum
Quantity Spilled: 50
Unkonwn Quantity Spilled: False
Units: Gallons
Quantity Recovered: 50
Unkonwn Quantity Recovered: False
Material: #6 FUEL OIL
Class Type: #6 FUEL OIL
Times Material Entry In File: 2190
CAS Number: Not reported
Last Date: 19940728
DEC Remarks: Not reported
Spill Cause: CALLER STATES THERE WAS AN OVERFILL OF A FUEL TANK. IT HAS ALL BEEN CLEANED

AW215 **APARTMENT** **LTANKS** **S106702855**
NNE **596 EDGECOMBE AVE** **N/A**
1/4-1/2 **MANHATTAN, NY**
1971 ft.

Site 1 of 2 in cluster AW

Relative:
Higher

Actual:
168 ft.

LTANKS:
Site ID: 185349
Spill Date: 09/23/04
Facility Addr2: Not reported
Facility ID: 0406940
Program Number: 0406940
SWIS: 3101
Region of Spill: 2
Investigator: CESAWYER
Referred To: Not reported
Reported to Dept: 09/23/04
CID: 15
Spill Cause: Tank Failure
Water Affected: Not reported
Spill Source: Private Dwelling
Spill Notifier: Fire Department
Cleanup Ceased: / /
Cleanup Meets Standard: False
Last Inspection: / /
Recommended Penalty: Penalty Not Recommended
UST Involvement: False
Spill Class: Possible release with minimal potential for fire or hazard or Known release with no damage. DEC Response. Willing Responsible Party. Corrective action taken.

APARTMENT (Continued) **S106702855**

Spill Closed Dt:	10/08/04
Remediation Phase:	0
Date Entered In Computer:	09/23/04
Spill Record Last Update:	10/08/04
Spille Namer:	DISPATHCHER CALL
Spiller Company:	APARTMENT
Spiller Phone:	(212) 628-2900
Spiller Extention:	Not reported
Spiller Address:	596 EDGECOMBE AVE
Spiller City,St,Zip:	MANHATEEN, NY
Spiller County:	001
Spiller Contact:	DISPATHCHER CALL
Spiller Phone:	(212) 628-2900
Spiller Extention:	Not reported
DEC Region:	2
Program Number:	0406940
DER Facility ID:	155017
Site ID:	185349
Operable Unit ID:	890283
Operable Unit:	01
Material ID:	484757
Material Code:	0001
Material Name:	#2 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	0.00
Units:	Pounds
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
Site ID:	185349
Operable Unit ID:	890283
Operable Unit:	01
Material ID:	484756
Material Code:	0001
Material Name:	#2 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	0.00
Units:	Not reported
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
Site ID:	Not reported
Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported
DEC Memo:	Start DECRemark - 0406940 Prior to Sept, 2004 data translation this spill Lead DEC Field was "SAWYER" 9/23/04 Please refer to spill number #0406051. Closed. END DECRemark - 0406940
Remarks:	Start CallerRemark - 0406940 CROSS STREETS ARE: WEST 162 & WEST 163 STREET:

APARTMENT (Continued) **S106702855**

THEY ARE REMOVING IT FROM A BASEMENT, AND FIRE DEPT. IS ON SCENE , BUT THEY WOULD LIKE YOU TO RESPOND: END CallerRemark - 0406940

AW216
NNE
1/4-1/2
1971 ft.

Relative:
Higher

Actual:
168 ft.

596 EDGECOMBE AVE
596 EDGECOMBE AVE
NEW YORK, NY

LTANKS **S106702669**
N/A

Site 2 of 2 in cluster AW

LTANKS:

Site ID:	203353
Spill Date:	09/01/04
Facility Addr2:	Not reported
Facility ID:	0406051
Program Number:	0406051
SWIS:	3101
Region of Spill:	2
Investigator:	CESAWYER
Referred To:	Not reported
Reported to Dept:	09/01/04
CID:	15
Spill Cause:	Tank Test Failure
Water Affected:	Not reported
Spill Source:	Institutional, Educational, Gov., Other
Spill Notifier:	Tank Tester
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	False
Spill Class:	Possible release with minimal potential for fire or hazard or Known release with no damage. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	10/18/04
Remediation Phase:	0
Date Entered In Computer:	09/01/04
Spill Record Last Update:	10/18/04
Spille Namer:	T. BURCH
Spiller Company:	Not reported
Spiller Phone:	(212) 795-3258
Spiller Extention:	Not reported
Spiller Address:	596 EDGECOMB AVE
Spiller City,St,Zip:	NEW YORK, NY
Spiller County:	001
Spiller Contact:	T. BURCH
Spiller Phone:	(212) 795-3258
Spiller Extention:	Not reported
DEC Region:	2
Program Number:	0406051
DER Facility ID:	169141
Site ID:	203353
Operable Unit ID:	888703
Operable Unit:	01
Material ID:	487007
Material Code:	0002
Material Name:	#4 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum

596 EDGECOMBE AVE (Continued) **S106702669**

Quantity:	0.00
Units:	Pounds
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
Site ID:	203353
Operable Unit ID:	888703
Operable Unit:	01
Material ID:	487006
Material Code:	0002
Material Name:	#4 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	0.00
Units:	Not reported
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
Site ID:	203353
Spill Tank Test:	1529627
Tank Number:	Not reported
Tank Size:	6000
Test Method:	03
Leak Rate:	0.00
Gross Fail:	Not reported
Modified By:	Spills
Last Modified:	10/01/04
Test Method:	Horner EZ Check I or II
DEC Memo:	Start DECRemark - 0406051 Prior to Sept, 2004 data translation this spill Lead DEC Field was "SAWYER" 9/2/2004 Super- Thurman Burch 212-795-3258 Owner: Eugene Zacerous 410-459-7206 P.O. Box 518 New York, NY 10031 ********** ******No PBS Record on file******* ********** 9/3/2004 Sangesland spoke to Mr. Burch. He said the subject tank has been taken out of service and a temp tank has been setup in the courtyard. The tank is being cleaned out and will be repaired/retested. 9/23/2004 Fire Dept called in a new spill number 0406940 from the site. Tank is being removed and FD wants someone from DEC on site. 9/23/04 - Sawyer - Responded to the site to find the FDNY and contract workers for Atlas outside the building. The FDNY chief onsite showed me to a tank grave in the basement. The tank grave was concrete but was covered with #2 Fuel Oil. The work was immediately stopped and the building manger was ordered to get an environmental clean up crew to the asap. PTC was called at 12:15 they arrived about 13:45. Big Anthony at PTC will send clean end-point samples, a diagram and disposal information. 10/18/04 - Sawyer - Received a closure report from Petroleum Tank Cleaners that includes clean end-point samples analysis, a diagram and disposal information. No further action is required. Closed. END DECRemark - 0406051
Remarks:	Start CallerRemark - 0406051 tank test failed. strong feeling that the owner is going to try and use this tank.tank is no good END CallerRemark - 0406051

217 SW 1/4-1/2 1975 ft.

APARMENT COMPLEX
505 W 148TH ST
MANHATTAN, NY

LTANKS **S105055087**
HIST LTANKS **N/A**

Relative: Higher

Actual: 128 ft.

LTANKS:

Site ID:	273825
Spill Date:	06/14/01
Facility Addr2:	Not reported
Facility ID:	0102829
Program Number:	0102829
SWIS:	3101
Region of Spill:	2
Investigator:	jwantoni
Referred To:	Not reported
Reported to Dept:	06/14/01
CID:	15
Spill Cause:	Tank Test Failure
Water Affected:	Not reported
Spill Source:	Private Dwelling
Spill Notifier:	Tank Tester
Cleanup Ceased:	/ /
Cleanup Meets Standard:	True
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	False
Spill Class:	Known release that creates potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	06/07/06
Remediation Phase:	0
Date Entered In Computer:	06/14/01
Spill Record Last Update:	07/11/06
Spille Namer:	SHAWN AARON
Spiller Company:	APARTMENT COMPLEX
Spiller Phone:	(631) 586-4900
Spiller Extention:	Not reported
Spiller Address:	505 W 148TH ST
Spiller City,St,Zip:	MANHATTAN, ZZ
Spiller County:	001
Spiller Contact:	SHAWN AARON
Spiller Phone:	(631) 586-4900
Spiller Extention:	Not reported
DEC Region:	2
Program Number:	0102829
DER Facility ID:	222739
Site ID:	273825
Operable Unit ID:	841522
Operable Unit:	01
Material ID:	534936
Material Code:	0001
Material Name:	#2 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	0.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
Site ID:	273825

APARMENT COMPLEX (Continued) **S105055087**

Spill Tank Test:	1526376
Tank Number:	Not reported
Tank Size:	2000
Test Method:	03
Leak Rate:	0.00
Gross Fail:	Not reported
Modified By:	Spills
Last Modified:	10/01/04
Test Method:	Horner EZ Check I or II
DEC Memo:	Start DECRemark - 0102829 Prior to Sept, 2004 data translation this spill Lead DEC Field was "TIPPLE" 8/4/03 TIPPLE SENT DOCUMENTATION REQUEST June 7, 2006 - 4:00 pm - Received documentation that the failed tank was fixed and passed a second tank test July 20, 2001. Since no spillage or cleanup was necessary, nor further action is needed and the site can be closed. Johnathan Antonizio, NYSDEC, 6/7/2006. END DECRemark - 0102829
Remarks:	Start CallerRemark - 0102829 tank failed test - no product spillage END CallerRemark - 0102829

HIST LTANKS:

Region of Spill:	2
Spill Number:	0102829
Investigator:	TIPPLE
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Caller Extension:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Notifier Extension:	Not reported
Spill Date:	06/14/2001
Spill Time:	08:15
Reported to Department Date:	06/14/01
Reported to Department Time:	08:48
SWIS:	62
Spiller Contact:	SHAWN AARON
Spiller Phone:	(631) 586-4900
Spiller Extention:	Not reported
Spiller Name:	APARMENT COMPLEX
Spiller Address:	505 W 148TH ST
Spiller City,St,Zip:	MANHATTAN
Facility Contact:	SHAWN AARON
Facility Phone:	(631) 586-4900
Facility Extention:	Not reported
Spill Cause:	Tank Test Failure
Resource Affectd:	On Land
Water Affected:	Not reported
Spill Source:	Private Dwelling
Spill Notifier:	Tank Tester
PBS Number:	2-601098
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Date:	/ /
Enforcement Date:	/ /
Investigation Complete:	/ /

APARMENT COMPLEX (Continued) **S105055087**

UST Involvement: False
Spill Class: Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: / /
Date Region Sent Summary to Central Office: / /
Corrective Action Plan Submitted: / /
Date Spill Entered In Computer Data File: 06/14/01
Time Spill Entered In Computer Data File: Not reported
Spill Record Last Update: 06/14/01
Is Updated: False
PBS Number: Not reported
Tank Number: Not reported
Tank Size: 2000
Test Method: Horner EZ Check
Leak Rate Failed Tank: 0.00
Gross Leak Rate: Not reported
Material Class Type: Petroleum
Quantity Spilled: 0
Unkonwn Quantity Spilled: False
Units: Gallons
Quantity Recovered: 0
Unkonwn Quantity Recovered: False
Material: #2 FUEL OIL
Class Type: #2 FUEL OIL
Times Material Entry In File: 24464
CAS Number: Not reported
Last Date: 19941207
DEC Remarks: Not reported
Spill Cause: tank failed test - no product spillage

218
West
1/4-1/2
2071 ft.

625 W 152ND STREET **LTANKS** **S101340963**
625 W. 152ND STREET **HIST LTANKS** **N/A**
MANHATTAN, NY

Relative:
Lower

Actual:
106 ft.

LTANKS:
Site ID: 180723
Spill Date: 07/20/94
Facility Addr2: Not reported
Facility ID: 9405371
Program Number: 9405371
SWIS: 3101
Region of Spill: 2
Investigator: SMMARTIN
Referred To: Not reported
Reported to Dept: 07/20/94
CID: 15
Spill Cause: Tank Failure
Water Affected: Not reported
Spill Source: Institutional, Educational, Gov., Other
Spill Notifier: Other
Cleanup Ceased: 07/21/94
Cleanup Meets Standard: True
Last Inspection: / /
Recommended Penalty: Penalty Not Recommended
UST Involvement: False
Spill Class: Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.

625 W 152ND STREET (Continued) **S101340963**

Spill Closed Dt:	07/21/94
Remediation Phase:	0
Date Entered In Computer:	10/11/94
Spill Record Last Update:	09/30/04
Spille Namer:	Not reported
Spiller Company:	APT. BLDG
Spiller Phone:	Not reported
Spiller Extention:	Not reported
Spiller Address:	625 W. 152ND STREET
Spiller City,St,Zip:	NEW YORK, NY
Spiller County:	001
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
DEC Region:	2
Program Number:	9405371
DER Facility ID:	151578
Site ID:	180723
Operable Unit ID:	1002578
Operable Unit:	01
Material ID:	381960
Material Code:	0002
Material Name:	#4 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	5.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
Site ID:	Not reported
Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported
DEC Memo:	Start DECRemark - 9405371 Prior to Sept, 2004 data translation this spill Lead DEC Field was "MARTINKAT" END DECRemark - 9405371
Remarks:	Start CallerRemark - 9405371 CONTAINED - CLEAN UP CREW ON WAY. END CallerRemark - 9405371

HIST LTANKS:

Region of Spill:	2
Spill Number:	9405371
Investigator:	MARTINKAT
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Caller Extension:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Notifier Extension:	Not reported

625 W 152ND STREET (Continued) **S101340963**

Spill Date:	07/20/1994
Spill Time:	09:30
Reported to Department Date:	07/20/94
Reported to Department Time:	10:00
SWIS:	62
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
Spiller Name:	APT. BLDG
Spiller Address:	625 W. 152ND STREET
Spiller City,St,Zip:	NEW YORK, NEW YORK
Facility Contact:	Not reported
Facility Phone:	Not reported
Facility Extention:	Not reported
Spill Cause:	Tank Failure
Resource Affectd:	On Land
Water Affected:	Not reported
Spill Source:	Other Non Commercial/Industrial
Spill Notifier:	Other
PBS Number:	Not reported
Cleanup Ceased:	07/21/94
Cleanup Meets Standard:	True
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Date:	/ /
Enforcement Date:	/ /
Investigation Complete:	/ /
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	07/21/94
Date Region Sent Summary to Central Office:	/ /
Corrective Action Plan Submitted:	/ /
Date Spill Entered In Computer Data File:	10/11/94
Time Spill Entered In Computer Data File:	Not reported
Spill Record Last Update:	/ /
Is Updated:	False
PBS Number:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate Failed Tank:	Not reported
Gross Leak Rate:	Not reported
Material Class Type:	Petroleum
Quantity Spilled:	5
Unkonwn Quantity Spilled:	False
Units:	Gallons
Quantity Recovered:	0
Unkonwn Quantity Recovered:	False
Material:	#4 FUEL OIL
Class Type:	#4 FUEL OIL
Times Material Entry In File:	1751
CAS Number:	Not reported
Last Date:	19941205
DEC Remarks:	Not reported
Spill Cause:	CONTAINED - CLEAN UP CREW ON WAY.

219 SSW 1/4-1/2 2093 ft. | **PRIVATE RESIDENCE 428 W 147TH ST NEW YORK, NY** | **LTANKS** | **S106702524 N/A**

Relative: Lower

Actual: 99 ft.

LTANKS:

Site ID:	68845
Spill Date:	08/10/04
Facility Addr2:	Not reported
Facility ID:	0405153
Program Number:	0405153
SWIS:	3101
Region of Spill:	2
Investigator:	JMKRIMGO
Referred To:	Not reported
Reported to Dept:	08/10/04
CID:	15
Spill Cause:	Tank Overfill
Water Affected:	Not reported
Spill Source:	Private Dwelling
Spill Notifier:	Local Agency
Cleanup Ceased:	/ /
Cleanup Meets Standard:	True
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	07/22/05
Remediation Phase:	0
Date Entered In Computer:	08/10/04
Spill Record Last Update:	07/22/05
Spille Namer:	OGISTE,JASON
Spiller Company:	PRIVATE RESIDENCE
Spiller Phone:	(212) 281-0119
Spiller Extention:	Not reported
Spiller Address:	428 W 147TH ST
Spiller City,St,Zip:	NEW YORK, NY 10031
Spiller County:	001
Spiller Contact:	OGISTE,JASON
Spiller Phone:	(212) 281-0119
Spiller Extention:	Not reported
DEC Region:	2
Program Number:	0405153
DER Facility ID:	65510
Site ID:	68845
Operable Unit ID:	888565
Operable Unit:	01
Material ID:	489198
Material Code:	0001
Material Name:	#2 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	0.00
Units:	Not reported
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
Site ID:	68845

PRIVATE RESIDENCE (Continued) **S106702524**

Operable Unit ID:	888565
Operable Unit:	01
Material ID:	489199
Material Code:	0001
Material Name:	#2 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	0.00
Units:	Pounds
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
Site ID:	Not reported
Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported
DEC Memo:	Start DECRemark - 0405153 Prior to Sept, 2004 data translation this spill Lead DEC Field was "KRIMGOLD" 8/11/04. Tanks were already full. Stuyvesant Fuel made the delivery. As a result one of two 125 gal tanks developed a leak from the bottom. Oil contained within a tank room. USA Environmental (718-981-5710) was retained by the the homeowner Estella Job (347-351-6695) to perform a clean up. J.Krimgold ordered the RP to pump out the tank and clean up tank room. YK. 7/22/05. J.Krimgold spoke to USA Env. This job was completed the next day. Tank was removed and replaced after spill been cleaned up. NFA. END DECRemark - 0405153
Remarks:	Start CallerRemark - 0405153 WHEN MAKING AN OIL DELIVERY, DRIVER DISCOVERED THAT TANK WAS ALREADY FULL, CAUSING AN OVERFILL. TECHNICIAN IS USING A SPILL KIT TO CONTAIN, BUT IT APPEARS THAT SOME MAY HAVE ENTERED A DRAIN IN THE BASEMENT. END CallerRemark - 0405153

AX220 **LTANKS** **S104619683**
NNW **580 WEST 161ST ST** **HIST LTANKS** **N/A**
1/4-1/2 **MANHATTAN, NY**
2095 ft.

Site 1 of 3 in cluster AX

Relative:
Higher

Actual:
146 ft.

LTANKS:

Site ID:	149669
Spill Date:	09/11/98
Facility Addr2:	Not reported
Facility ID:	9807161
Program Number:	9807161
SWIS:	3101
Region of Spill:	2
Investigator:	HUANG
Referred To:	Not reported
Reported to Dept:	09/11/98
CID:	15
Spill Cause:	Tank Overfill
Water Affected:	Not reported
Spill Source:	Tank Truck
Spill Notifier:	Responsible Party

(Continued) **S104619683**

Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	09/11/98
Remediation Phase:	0
Date Entered In Computer:	09/11/98
Spill Record Last Update:	09/14/98
Spille Namer:	Not reported
Spiller Company:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
Spiller Address:	580 WEST 161ST ST
Spiller City,St,Zip:	MANHATTAN, NY
Spiller County:	001
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
DEC Region:	2
Program Number:	9807161
DER Facility ID:	127285
Site ID:	149669
Operable Unit ID:	1068235
Operable Unit:	01
Material ID:	318275
Material Code:	0002
Material Name:	#4 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	7.00
Units:	Gallons
Recovered:	7.00
Resource Affected:	Soil
Oxygenate:	False
Site ID:	Not reported
Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported
DEC Memo:	Not reported
Remarks:	Start CallerRemark - 9807161 CALLER REPORTING THAT THE DRIVER WAS MAKING A DELIVERY AND THE GAUGE WAS OFF, CAUSING AN OVERFILL. END CallerRemark - 9807161

HIST LTANKS:

Region of Spill:	2
Spill Number:	9807161
Investigator:	HUANG
Caller Name:	Not reported

(Continued) **S104619683**

Caller Agency:	Not reported
Caller Phone:	Not reported
Caller Extension:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Notifier Extension:	Not reported
Spill Date:	09/11/1998
Spill Time:	11:00
Reported to Department Date:	09/11/98
Reported to Department Time:	11:28
SWIS:	62
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
Spiller Name:	Not reported
Spiller Address:	580 WEST 161ST ST
Spiller City,St,Zip:	MANHATTAN, NY
Facility Contact:	Not reported
Facility Phone:	Not reported
Facility Extention:	Not reported
Spill Cause:	Tank Overfill
Resource Affectd:	On Land
Water Affected:	Not reported
Spill Source:	Tank Truck
Spill Notifier:	Responsible Party
PBS Number:	Not reported
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Date:	/ /
Enforcement Date:	/ /
Investigation Complete:	/ /
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	09/11/98
Date Region Sent Summary to Central Office:	/ /
Corrective Action Plan Submitted:	/ /
Date Spill Entered In Computer Data File:	09/11/98
Time Spill Entered In Computer Data File:	Not reported
Spill Record Last Update:	09/14/98
Is Updated:	False
PBS Number:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate Failed Tank:	Not reported
Gross Leak Rate:	Not reported
Material Class Type:	Petroleum
Quantity Spilled:	7
Unkonwn Quantity Spilled:	False
Units:	Gallons
Quantity Recovered:	7
Unkonwn Quantity Recovered:	False
Material:	#4 FUEL OIL

(Continued) **S104619683**

Class Type: #4 FUEL OIL
Times Material Entry In File: 1751
CAS Number: Not reported
Last Date: 19941205
DEC Remarks: 3-4 GALLONS SPILL ON THE PAVED SIDE WAY CONCRETE SURFACE). CLEAN-UP CREW IS ON THE WAY.
Spill Cause: CALLER REPORTING THAT THE DRIVER WAS MAKING A DELIVERY AND THE GAUGE WAS OFF, CAUSING AN OVERFILL.

AX221 **580 WEST 161 ST/MANH** **LTANKS** **S104275620**
NNW **580 WEST 161ST STREET** **HIST LTANKS** **N/A**
1/4-1/2 **NEW YORK CITY, NY**
2095 ft.

Site 2 of 3 in cluster AX

Relative: Higher

Actual: 146 ft.

LTANKS:
Site ID: 154053
Spill Date: 11/16/90
Facility Addr2: Not reported
Facility ID: 9009054
Program Number: 9009054
SWIS: 3101
Region of Spill: 2
Investigator: FINGER
Referred To: Not reported
Reported to Dept: 11/16/90
CID: 15
Spill Cause: Tank Failure
Water Affected: Not reported
Spill Source: Commercial/Industrial
Spill Notifier: Other
Cleanup Ceased: 07/28/95
Cleanup Meets Standard: True
Last Inspection: 07/28/95
Recommended Penalty: Penalty Not Recommended
UST Involvement: False
Spill Class: Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: 07/28/95
Remediation Phase: 0
Date Entered In Computer: 11/19/90
Spill Record Last Update: 07/31/95
Spille Namer: Not reported
Spiller Company: CENTURION ASSOC
Spiller Phone: (718) 454-5001
Spiller Extention: Not reported
Spiller Address: P O 1053
Spiller City,St,Zip: GEAT NECK, NY 11023
Spiller County: 001
Spiller Contact: Not reported
Spiller Phone: Not reported
Spiller Extention: Not reported
DEC Region: 2
Program Number: 9009054
DER Facility ID: 130648
Site ID: 154053
Operable Unit ID: 946246
Operable Unit: 01

580 WEST 161 ST/MANH (Continued) **S104275620**

Material ID:	432832
Material Code:	0003
Material Name:	#6 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	300.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
Site ID:	Not reported
Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported
DEC Memo:	Start DECRemark - 9009054 Prior to Sept, 2004 data translation this spill Lead DEC Field was "FINGER/mulqueen" 07/31/95: MULQUEEN INSPECTED LOCATION, NEW TANK IN BOILER ROOM, NO SIGN OF #6 , NO FURTHER ACTION REQUIRED. END DECRemark - 9009054
Remarks:	Start CallerRemark - 9009054 300 GALS POSSIBLY SPILLED ON FLOOR OR COULD BE IN TANK WHICH WAS PUMPED OUT, REMAINDER ON FLOOR, MR.LEVY WILL CLEAN UP, HOLE IN TANK FOUND IN TANK WHILE CLEANING TANK. END CallerRemark - 9009054

HIST LTANKS:

Region of Spill:	2
Spill Number:	9009054
Investigator:	FINGER/mulqueen
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Caller Extension:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Notifier Extension:	Not reported
Spill Date:	11/16/1990
Spill Time:	14:30
Reported to Department Date:	11/16/90
Reported to Department Time:	15:12
SWIS:	62
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
Spiller Name:	CENTURION ASSOC
Spiller Address:	P O 1053
Spiller City,St,Zip:	GEAT NECK, NY 11023
Facility Contact:	Not reported
Facility Phone:	(718) 454-5001
Facility Extention:	Not reported
Spill Cause:	Tank Failure
Resource Affectd:	On Land
Water Affected:	Not reported

580 WEST 161 ST/MANH (Continued) **S104275620**

Spill Source:	Other Commercial/Industrial
Spill Notifier:	Other
PBS Number:	Not reported
Cleanup Ceased:	07/28/95
Cleanup Meets Standard:	True
Last Inspection:	07/28/95
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Date:	/ /
Enforcement Date:	/ /
Investigation Complete:	/ /
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	07/28/95
Date Region Sent Summary to Central Office:	/ /
Corrective Action Plan Submitted:	/ /
Date Spill Entered In Computer Data File:	11/19/90
Time Spill Entered In Computer Data File:	Not reported
Spill Record Last Update:	07/31/95
Is Updated:	False
PBS Number:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate Failed Tank:	Not reported
Gross Leak Rate:	Not reported
Material Class Type:	Petroleum
Quantity Spilled:	300
Unkonwn Quantity Spilled:	False
Units:	Gallons
Quantity Recovered:	0
Unkonwn Quantity Recovered:	False
Material:	#6 FUEL OIL
Class Type:	#6 FUEL OIL
Times Material Entry In File:	2190
CAS Number:	Not reported
Last Date:	19940728
DEC Remarks:	07/31/95: MULQUEEN INSPECTED LOCATION, NEW TANK IN BOILER ROOM, NO SIGN OF 6 , NO FURTHER ACTION REQUIRED.
Spill Cause:	300 GALS POSSIBLY SPILLED ON FLOOR OR COULD BE IN TANK WHICH WAS PUMPED OUT, REMAINDER ON FLOOR, MR.LEVY WILL CLEAN UP, HOLE IN TANK FOUND IN TANK WHILE CLEANING TANK.

AX222 **580 161ST ST/MANH** **LTANKS** **S104275622**
NNW **580 161ST STREET** **HIST LTANKS** **N/A**
1/4-1/2 **NEW YORK CITY, NY**
2095 ft.

Site 3 of 3 in cluster AX

Relative:
Higher

Actual:
146 ft.

LTANKS:

Site ID:	80562
Spill Date:	11/21/90
Facility Addr2:	Not reported
Facility ID:	9009214
Program Number:	9009214
SWIS:	3101
Region of Spill:	2
Investigator:	KSTANG

580 161ST ST/MANH (Continued) **S104275622**

Referred To:	Not reported
Reported to Dept:	11/23/90
CID:	15
Spill Cause:	Tank Failure
Water Affected:	Not reported
Spill Source:	Commercial/Industrial
Spill Notifier:	Other
Cleanup Ceased:	11/26/90
Cleanup Meets Standard:	True
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	False
Spill Class:	Not reported
Spill Closed Dt:	11/26/90
Remediation Phase:	0
Date Entered In Computer:	11/28/90
Spill Record Last Update:	09/30/04
Spille Namer:	Not reported
Spiller Company:	CLK MGNT CO
Spiller Phone:	(914) 683-8891
Spiller Extention:	Not reported
Spiller Address:	185 GREAT NECK ROAD
Spiller City,St,Zip:	GREAT NECK, NY
Spiller County:	001
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
DEC Region:	2
Program Number:	9009214
DER Facility ID:	74653
Site ID:	80562
Operable Unit ID:	949702
Operable Unit:	01
Material ID:	557383
Material Code:	0002
Material Name:	#4 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	200.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
Site ID:	Not reported
Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported
DEC Memo:	Start DECRemark - 9009214 Prior to Sept, 2004 data translation this spill Lead DEC Field was "TANG" 11/26/90: DEC CONFIRMED CLEAN UP, PETROLEUM TANK CLEANERS TO REPAIR TANK,TANK HAS BAD SEAM NEAR BOTTOM,TANK WILL BE PUT ON SUPPORT. END DECRemark- 9009214

580 161ST ST/MANH (Continued) **S104275622**

Remarks: Start CallerRemark - 9009214 5K TANK IN BASEMENT WAS LEAKING, CALLED PETRO TANK CLEANERS TO PUMP TANK BELOW LEAK LINE, ALSO CLEANED CONCRETE FLOOR WITH VAC TRUCK & SPEEDY DRY. END CallerRemark - 9009214

HIST LTANKS:

Region of Spill:	2
Spill Number:	9009214
Investigator:	TANG
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Caller Extension:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Notifier Extension:	Not reported
Spill Date:	11/21/1990
Spill Time:	21:00
Reported to Department Date:	11/23/90
Reported to Department Time:	08:33
SWIS:	62
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
Spiller Name:	CLK MGNT CO
Spiller Address:	185 GREAT NECK ROAD
Spiller City,St,Zip:	GREAT NECK, NY
Facility Contact:	Not reported
Facility Phone:	(914) 683-8891
Facility Extention:	Not reported
Spill Cause:	Tank Failure
Resource Affectd:	On Land
Water Affected:	Not reported
Spill Source:	Other Commercial/Industrial
Spill Notifier:	Other
PBS Number:	Not reported
Cleanup Ceased:	11/26/90
Cleanup Meets Standard:	True
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Date:	/ /
Enforcement Date:	/ /
Investigation Complete:	/ /
UST Involvement:	False
Spill Class:	Not reported
Spill Closed Dt:	11/26/90
Date Region Sent Summary to Central Office:	/ /
Corrective Action Plan Submitted:	/ /
Date Spill Entered In Computer Data File:	11/28/90
Time Spill Entered In Computer Data File:	Not reported
Spill Record Last Update:	/ /
Is Updated:	False
PBS Number:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate Failed Tank:	Not reported

580 161ST ST/MANH (Continued) **S104275622**

Gross Leak Rate:	Not reported
Material Class Type:	Petroleum
Quantity Spilled:	200
Unkonwn Quantity Spilled:	False
Units:	Gallons
Quantity Recovered:	0
Unkonwn Quantity Recovered:	False
Material:	#4 FUEL OIL
Class Type:	#4 FUEL OIL
Times Material Entry In File:	1751
CAS Number:	Not reported
Last Date:	19941205
DEC Remarks:	11/26/90: DEC CONFIRMED CLEAN UP, PETROLEUM TANK CLEANERS TO REPAIR TANK,TANK HAS BAD SEAM NEAR BOTTOM,TANK WILL BE PUT ON SUPPORT.
Spill Cause:	5K TANK IN BASEMENT WAS LEAKING, CALLED PETRO TANK CLEANERS TO PUMP TANK BELOW LEAK LINE, ALSO CLEANED CONCRETE FLOOR WITH VAC TRUCK SPEEDY DRY.

223
WSW
1/4-1/2
2098 ft.

540 WEST 148TH ST **LTANKS** **S104276717**
540 WEST 148TH S **HIST LTANKS** **N/A**
NEW YORK CITY, NY

Relative:
Higher

Actual:
125 ft.

LTANKS:

Site ID:	234371
Spill Date:	01/26/96
Facility Addr2:	Not reported
Facility ID:	9513605
Program Number:	9513605
SWIS:	3101
Region of Spill:	2
Investigator:	LUCE
Referred To:	Not reported
Reported to Dept:	01/26/96
CID:	15
Spill Cause:	Tank Overfill
Water Affected:	Not reported
Spill Source:	Private Dwelling
Spill Notifier:	Responsible Party
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	01/26/96
Remediation Phase:	0
Date Entered In Computer:	01/26/96
Spill Record Last Update:	11/28/06
Spille Namer:	NICK CHRONOPOULOS
Spiller Company:	PETRO ASTORIA
Spiller Phone:	(718) 545-4500
Spiller Extention:	Not reported
Spiller Address:	636-16 19 AVE
Spiller City,St,Zip:	ASTORIA, NY 11105-
Spiller County:	001
Spiller Contact:	BENJAMIN GRANT
Spiller Phone:	(212) 234-7006

540 WEST 148TH ST (Continued) **S104276717**

Spiller Extention:	Not reported
DEC Region:	2
Program Number:	9513605
DER Facility ID:	193080
Site ID:	234371
Operable Unit ID:	1024490
Operable Unit:	01
Material ID:	357321
Material Code:	0001
Material Name:	#2 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	1.00
Units:	Gallons
Recovered:	1.00
Resource Affected:	Soil
Oxygenate:	False
Site ID:	Not reported
Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported
DEC Memo:	Not reported
Remarks:	Start CallerRemark - 9513605 the driver overfilled the tank causing the spill. actual spill was 1 ounce and all was cleaned up. END CallerRemark - 9513605

HIST LTANKS:

Region of Spill:	2
Spill Number:	9513605
Investigator:	LUCE
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Caller Extension:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Notifier Extension:	Not reported
Spill Date:	01/26/1996
Spill Time:	15:30
Reported to Department Date:	01/26/96
Reported to Department Time:	15:53
SWIS:	62
Spiller Contact:	BENJAMIN GRANT
Spiller Phone:	(212) 234-7006
Spiller Extention:	Not reported
Spiller Name:	PETRO ASTORIA
Spiller Address:	636-16 19 AVE
Spiller City,St,Zip:	ASTORIA, NY 11105-
Facility Contact:	NICK CHRONOPOULOS
Facility Phone:	(718) 545-4500
Facility Extention:	Not reported

540 WEST 148TH ST (Continued) **S104276717**

Spill Cause:	Tank Overfill
Resource Affectd:	On Land
Water Affected:	Not reported
Spill Source:	Private Dwelling
Spill Notifier:	Responsible Party
PBS Number:	Not reported
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Date:	/ /
Enforcement Date:	/ /
Investigation Complete:	/ /
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	01/26/96
Date Region Sent Summary to Central Office:	/ /
Corrective Action Plan Submitted:	/ /
Date Spill Entered In Computer Data File:	01/26/96
Time Spill Entered In Computer Data File:	Not reported
Spill Record Last Update:	02/12/96
Is Updated:	False
PBS Number:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate Failed Tank:	Not reported
Gross Leak Rate:	Not reported
Material Class Type:	Petroleum
Quantity Spilled:	1
Unkonwn Quantity Spilled:	False
Units:	Gallons
Quantity Recovered:	1
Unkonwn Quantity Recovered:	False
Material:	#2 FUEL OIL
Class Type:	#2 FUEL OIL
Times Material Entry In File:	24464
CAS Number:	Not reported
Last Date:	19941207
DEC Remarks:	Not reported
Spill Cause:	the driver overfilled the tank causing the spill. actual spill was 1 ounce and all was cleaned up.

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224 SSW 1/4-1/2 2099 ft. **SANDERS HOME** **LTANKS** **S107489322**
406 WEST 147TH STREET **N/A**
NEW YORK, NY

Relative: Lower

Actual: 95 ft.

LTANKS:

Site ID:	356456
Spill Date:	12/06/05
Facility Addr2:	Not reported
Facility ID:	0510471
Program Number:	0510471
SWIS:	3101
Region of Spill:	2
Investigator:	SFRAHMAN

SANDERS HOME (Continued) **S107489322**

Referred To:	Not reported
Reported to Dept:	12/06/05
CID:	15
Spill Cause:	Tank Failure
Water Affected:	Not reported
Spill Source:	Private Dwelling
Spill Notifier:	Other
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	02/28/07
Remediation Phase:	0
Date Entered In Computer:	12/06/05
Spill Record Last Update:	02/28/07
Spille Namer:	KAREN SANDERS
Spiller Company:	SANDERS HOME
Spiller Phone:	(212) 690-2288
Spiller Extention:	Not reported
Spiller Address:	406 WEST 147TH STREET
Spiller City,St,Zip:	NEW YORK, NY
Spiller County:	001
Spiller Contact:	VINNY LOVRI
Spiller Phone:	(718) 509-5900
Spiller Extention:	CELL
DEC Region:	2
Program Number:	0510471
DER Facility ID:	306514
Site ID:	356456
Operable Unit ID:	1113762
Operable Unit:	01
Material ID:	2103822
Material Code:	0001
Material Name:	#2 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	0.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Groundwater
Oxygenate:	False
Site ID:	Not reported
Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported
DEC Memo:	Start DECRemark - 0510471 12/6/2005 Sangesland spoke to Vinny at Island Tank. He said there was a 275 gal tank in the basement with rot holes in it. The tank has been removed and Island tank has already started digging out a layer

SANDERS HOME (Continued) **S107489322**

of contaminatedsoil. Sharif will visit the site within the next day or two. 03/16/06 Sharif Rahman- Left a messege for Vinny@Island Tank-(718)509-5900. 07/20/06 Rahman- Vinny will send DEC the closure report shortly. 02/28/07 Rahman-Island Tank removed 275 gallon UST,contaminated soil was also removed.End point samples were taken from the tank excavation.Residual contamination within acceptable limit.Waste disposal manifest was provided.NFA required.Report on edocs. END DECRemark - 0510471

Remarks: Start CallerRemark - 0510471 TANK IS LEAKING AND WENT DOWN INTO DIRT: END CallerRemark - 0510471

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225 South 1/4-1/2 2172 ft. | **POLICE SERVICE AREA #6** | **LTANKS** | **S104877480**
2786 8TH AVE | **HIST LTANKS** | **N/A**
MANHATTAN, NY

Relative: Lower

Actual: 25 ft.

LTANKS:

Site ID:	68740
Spill Date:	12/21/00
Facility Addr2:	Not reported
Facility ID:	0010609
Program Number:	0010609
SWIS:	3101
Region of Spill:	2
Investigator:	jkkann
Referred To:	CLOSED BASED ON NYCHA INFO
Reported to Dept:	12/21/00
CID:	15
Spill Cause:	Tank Overfill
Water Affected:	Not reported
Spill Source:	Commercial Vehicle
Spill Notifier:	Responsible Party
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	06/14/07
Remediation Phase:	0
Date Entered In Computer:	12/21/00
Spill Record Last Update:	06/14/07
Spille Namer:	CALLER
Spiller Company:	NYC HOUSING
Spiller Phone:	Not reported
Spiller Extention:	Not reported
Spiller Address:	123 WILLIAMS ST
Spiller City,St,Zip:	NYC, NY 10038-
Spiller County:	001
Spiller Contact:	ED MALONE
Spiller Phone:	(718) 649-7017
Spiller Extention:	Not reported
DEC Region:	2
Program Number:	0010609
DER Facility ID:	65434
Site ID:	68740
Operable Unit ID:	832639
Operable Unit:	01

POLICE SERVICE AREA #6 (Continued) **S104877480**

Material ID:	563269
Material Code:	0008
Material Name:	Diesel
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	20.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
Site ID:	Not reported
Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported
DEC Memo:	Start DECRemark - 0010609 Prior to Sept, 2004 data translation this spill Lead DEC Field was "ROMMEL" 10/15/04- The Spill was reassigned to John Kolleeny. 11/08/05: This spill transferred from J.Kolleeny to S.Kraszewski. 01/27/06: This spilltransferred from S.Kraszewaski to Q.Abidi. 03/31/06: This spill transferred from Q. Abidi to Koon Tang. 06/14/07: Spill transferred to J.Kann. Based on NYCHA info, spill contained to concrete and parking lot, nothing entered the sewer. Areaproperly cleaned, therefore spill is closed. END DECRemark - 0010609
Remarks:	Start CallerRemark - 0010609 tank overfill caused spill - one small drain that goes to a sump in the basement was affected - clean venture enroute to clean up spill END CallerRemark - 0010609

HIST LTANKS:

Region of Spill:	2
Spill Number:	0010609
Investigator:	ROMMEL
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Caller Extension:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Notifier Extension:	Not reported
Spill Date:	12/21/2000
Spill Time:	12:15
Reported to Department Date:	12/21/00
Reported to Department Time:	12:43
SWIS:	62
Spiller Contact:	ED MALONE
Spiller Phone:	(718) 649-7017
Spiller Extention:	Not reported
Spiller Name:	NYC HOUSING
Spiller Address:	123 WILLIAMS ST
Spiller City,St,Zip:	NYC, NY 10038-
Facility Contact:	CALLER
Facility Phone:	( ) -

POLICE SERVICE AREA #6 (Continued) **S104877480**

Facility Extention:	Not reported
Spill Cause:	Tank Overfill
Resource Affectd:	On Land
Water Affected:	Not reported
Spill Source:	Commercial Vehicle
Spill Notifier:	Responsible Party
PBS Number:	Not reported
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Date:	/ /
Enforcement Date:	/ /
Investigation Complete:	/ /
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	/ /
Date Region Sent Summary to Central Office:	/ /
Corrective Action Plan Submitted:	/ /
Date Spill Entered In Computer Data File:	12/21/00
Time Spill Entered In Computer Data File:	Not reported
Spill Record Last Update:	12/21/00
Is Updated:	False
PBS Number:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate Failed Tank:	Not reported
Gross Leak Rate:	Not reported
Material Class Type:	Petroleum
Quantity Spilled:	20
Unkonwn Quantity Spilled:	False
Units:	Gallons
Quantity Recovered:	0
Unkonwn Quantity Recovered:	False
Material:	DIESEL
Class Type:	DIESEL
Times Material Entry In File:	10625
CAS Number:	Not reported
Last Date:	19940728
DEC Remarks:	Not reported
Spill Cause:	tank overfill caused spill - one small drain that goes to a sump in the basement was affected - clean venture enroute to clean up spill

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AY226 **LTANKS** **S105054550**
WSW **601 W 149TH ST** **NY Spills** **N/A**
1/4-1/2 **MANHATTAN, NY** **HIST LTANKS**
2256 ft.

Site 1 of 2 in cluster AY

Relative: Higher

Actual: 113 ft.

LTANKS:

Site ID:	244958
Spill Date:	01/10/01
Facility Addr2:	Not reported
Facility ID:	0011074
Program Number:	0011074
SWIS:	3101

(Continued) **S105054550**

Region of Spill:	2
Investigator:	CESAWYER
Referred To:	Not reported
Reported to Dept:	01/10/01
CID:	15
Spill Cause:	Tank Overfill
Water Affected:	Not reported
Spill Source:	Non Major Facility > 1,100 gal
Spill Notifier:	Responsible Party
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	02/10/04
Remediation Phase:	0
Date Entered In Computer:	01/10/01
Spill Record Last Update:	02/10/04
Spille Namer:	CALLER
Spiller Company:	L B TRANSPORTATION
Spiller Phone:	(718) 401-9130
Spiller Extention:	Not reported
Spiller Address:	401 TARRYTOWN RD
Spiller City,St,Zip:	WHITE PLAINS, NY
Spiller County:	001
Spiller Contact:	MR LOPEZ
Spiller Phone:	(718) 401-9130
Spiller Extention:	Not reported
DEC Region:	2
Program Number:	0011074
DER Facility ID:	201218
Site ID:	244958
Operable Unit ID:	832478
Operable Unit:	01
Material ID:	541400
Material Code:	0002
Material Name:	#4 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	50.00
Units:	Gallons
Recovered:	50.00
Resource Affected:	Soil
Oxygenate:	False
Site ID:	Not reported
Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported
DEC Memo:	Start DECRemark - 0011074 Prior to Sept, 2004 data translation this spill Lead

(Continued) **S105054550**

DEC Field was "SAWYER" No further information available. 02/10/2004
TRANSFERRED FROM SIGONA TO SAWYER/// REFERRED TO SPILL # 03-03476 END DECRemark - 0011074

Remarks: Start CallerRemark - 0011074 Storage tank overfill END CallerRemark - 0011074

NY Spills:

Site ID:	129892
Facility Addr2:	Not reported
Facility ID:	0303476
Spill Number:	0303476
Facility Type:	ER
SWIS:	3101
Region of Spill:	2
Investigator:	CESAWYER
Referred To:	Not reported
Spill Date:	10/01/01
Reported to Dept:	07/02/03
CID:	15
Spill Cause:	Unknown
Water Affected:	Not reported
Spill Source:	Commercial/Industrial
Spill Notifier:	Other
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Trust:	False
Spill Class:	Known release that creates potential for fire or hazard. (Highly Improbable)
Spill Closed Dt:	07/08/04
Remediation Phase:	0
Date Entered In Computer:	07/02/03
Spill Record Last Update:	07/08/04
Spiller Name:	EDWARD KIM
Spiller Company:	B&B DRY CLEANING
Spiller Address:	3621 BROADWAY
Spiller City,St,Zip:	MANHATTAN, NY
Spiller Company:	001
Spiller Phone:	(212) 283-9227
Contact Name:	EDWARD KIM
Contact Phone:	(212) 283-9227
DEC Region:	2
Program Number:	0303476
DER Facility ID:	111942
Site ID:	129892
Operable Unit ID:	871509
Operable Unit:	01
Material ID:	504341
Material Code:	0002
Material Name:	#4 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	0.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False

(Continued) **S105054550**

Site ID: 129892
Operable Unit ID: 871509
Operable Unit: 01
Material ID: 504342
Material Code: 0059A
Material Name: SOLVENTS
Case No.: Not reported
Material FA: Other
Quantity: 0.00
Units: Gallons
Recovered: 0.00
Resource Affected: Soil
Oxygenate: False
DEC Memo: Start DECRemark - 0303476 Prior to Sept, 2004 data translation this spill Lead DEC Field was "SAWYER" 7/3/2003-Vought-Received fax of subsurface investigation report on 7/2. Report summary:A subsurface boring investigation was conducted in Oct 2001in response to an AST overfill in the basement of 601 W.149th Street. Concrete floor was broken resulting in subsurface penetration of petroleum. Ten borings were hand dug to refusal (max boring depth was 4.5' due to construction debris under floor. Five soil samples analyzed for EPA Method 8260/8270 (analyticals provided). Fuel oil and solvent compounds detected in analyticals. 7/3/2003-Vought-NYSDEC requires the following before submittal to NYSDEC Haz Waste Unit (Vadiim Brevdo): 1)property owner information 2)clarification of address of both dry cleaners and fuel oil tank location(are they both on same property?) 3) site plan including streets and surrounding properties, scale, TCE tank and sump pit. Vought spoke with NYSDECRommel and oil delivery company will be repsonsible for cleanup until all fuel oil compounds are removed. The oil company can then bill the dry cleaners for the difference in disposal cost of the Haz waste versus non haz waste. If all petroleum compounds are removed and solvents remain then spill 0013456 will be closed and this spill referred to NYSDEC Brevdo. Vought called Carol Karp (Phoenix) and left message to return call to NYSDEC. 7/3/2003-Vought-Spoke with Carol Karp and managementagency is Manhattan North Mananagment-David DiSilva 212-662-1100x204. Owner of dry cleaning is Edward Kim (212-283-9227). Dry cleaners is on first floor and tank is in basement of the same property. Site plan not necessary after discussion with carol because dry cleaning and oil spill at same site. Excavation will be continued until petroleum consituents are removed. Vought will fax Karp copy of spill report. Vought will contact Brevdo with regard to immediate response to ensure no continued source. 12/24/2003-Vought-See closed spill #0013476 at same location. 02/09/04 As per Austin's request, transferred from Vought to Sawyer (Rommel) 3/18/04 - Sawyer - Paul Sherwood of Phoenix Environmental called to notify the Department that his company has taken 17 borings for analysis. In addition to the hazardous problems, the new samples showed constituents that exceed RSCO in TAGM 4046 for Toluene, Ethyl Benzene, Isopropylbenzene, 1,3,5-Trimethylbenzene, 1,2,4-Trimethylbenzene, M&P Xylenes, Benzos and Chrysene. 4/12/04 - Sawyer - Paul is going to fax over a work plan to review so the work can be started asap. 7/8/04 - Sawyer - Paul sent result and location of smples taken from the end points of the excavation. There were some minor hits for semi volatiles, like the Benzo's and Chrysene in the sw sidewall sample and due to the position of this contamination (near foundation) it is not able to be receovered. No further action needed. Closed. END DECRemark - 0303476
Remarks: Not reported

HIST LTANKS:
Region of Spill: 2
Spill Number: 0011074

(Continued) **S105054550**

Investigator:	SIGONA
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Caller Extension:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Notifier Extension:	Not reported
Spill Date:	01/10/2001
Spill Time:	09:30
Reported to Department Date:	01/10/01
Reported to Department Time:	14:53
SWIS:	62
Spiller Contact:	MR LOPEZ
Spiller Phone:	(718) 401-9130
Spiller Extention:	Not reported
Spiller Name:	L B TRANSPORTATION
Spiller Address:	401 TARRYTOWN RD
Spiller City,St,Zip:	WHITE PLAINS, NY
Facility Contact:	CALLER
Facility Phone:	(718) 401-9130
Facility Extention:	Not reported
Spill Cause:	Tank Overfill
Resource Affectd:	On Land
Water Affected:	Not reported
Spill Source:	Other Non Commercial/Industrial
Spill Notifier:	Affected Persons
PBS Number:	Not reported
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Date:	/ /
Enforcement Date:	/ /
Investigation Complete:	/ /
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	/ /
Date Region Sent Summary to Central Office:	/ /
Corrective Action Plan Submitted:	/ /
Date Spill Entered In Computer Data File:	01/10/01
Time Spill Entered In Computer Data File:	Not reported
Spill Record Last Update:	06/13/01
Is Updated:	False
PBS Number:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate Failed Tank:	Not reported
Gross Leak Rate:	Not reported
Material Class Type:	Petroleum
Quantity Spilled:	50
Unkonwn Quantity Spilled:	False
Units:	Gallons
Quantity Recovered:	50

(Continued) **S105054550**

Unkonwn Quantity Recovered: False
Material: #4 FUEL OIL
Class Type: #4 FUEL OIL
Times Material Entry In File: 1751
CAS Number: Not reported
Last Date: 19941205
DEC Remarks: Not reported
Spill Cause: storage tank overfill

AY227 **DRY CLEANERS BUSINESS** **LTANKS** **S104951115**
WSW **601 W 149TH ST** **HIST LTANKS** **N/A**
1/4-1/2 **MANHATTAN, NY**
2256 ft.

Site 2 of 2 in cluster AY

Relative: Higher

Actual: 113 ft.

LTANKS:
Site ID: 129891
Spill Date: 03/24/01
Facility Addr2: Not reported
Facility ID: 0013456
Program Number: 0013456
SWIS: 3101
Region of Spill: 2
Investigator: JBVOUGHT
Referred To: Not reported
Reported to Dept: 03/24/01
CID: 15
Spill Cause: Tank Overfill
Water Affected: Not reported
Spill Source: Tank Truck
Spill Notifier: Responsible Party
Cleanup Ceased: / /
Cleanup Meets Standard: False
Last Inspection: / /
Recommended Penalty: Penalty Not Recommended
UST Involvement: False
Spill Class: Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: 12/24/03
Remediation Phase: 0
Date Entered In Computer: 03/24/01
Spill Record Last Update: 02/20/04
Spille Namer: Not reported
Spiller Company: CASTLE OIL CORP
Spiller Phone: (718) 579-3414
Spiller Extention: Not reported
Spiller Address: 290 LOCUST AV
Spiller City,St,Zip: BRONX, NY 10454-
Spiller County: 001
Spiller Contact: Not reported
Spiller Phone: Not reported
Spiller Extention: Not reported
DEC Region: 2
Program Number: 0013456
DER Facility ID: 111942
Site ID: 129891
Operable Unit ID: 835397
Operable Unit: 01

DRY CLEANERS BUSINESS (Continued) **S104951115**

Material ID:	540166
Material Code:	0003
Material Name:	#6 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	50.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
Site ID:	Not reported
Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported
DEC Memo:	Start DECRemark - 0013456 Prior to Sept, 2004 data translation this spill Lead DEC Field was "VOUGHT" 10/2/01: On this date K.Goertz inspected the site. Phoenix Environmental was on scene performing hand borings at 9 seperate locations. There wasa large #6 oil stain on the basement wall and some staining in the soils but the odor exhibited more than just a six oil smell. There could have been a chlorinated solvent odor. K.Goertz directed Carrol Karp of Phoenix Environmental to analyze thetwo soil samples with the highest PID readings for both petroleum and chlorinated solvents. (KG) 7/3/2003-Vought-Spill transferred from Tibbe to Vought. 7/3/2003-Vought-See spill #0303476 at same location reported when solvents found in soildisposal sample. 7/3/2003-Vought-Received fax of subsurface investigation report on 7/2. Report summary:A subsurface boring investigation was conducted in Oct 2001 in response to an AST overfill in the basement of 601 W.149th Street. Concrete floor was broken resulting in subsurface penetration of petroleum. Ten borings were hand dug to refusal (max boring depth was 4.5' due to construction debris under floor. Five soil samples analyzed for EPA Method 8260/8270 (analyticals provided).Fuel oil and solvent compounds detected in analyticals. 7/3/2003-Vought- Vought spoke with NYSDEC Rommel and oil delivery company will be repsonsible for cleanup until all fuel oil compounds are removed. The oil company can then bill the dry cleaners for the difference in disposal cost of the Haz waste versus non haz waste. If all petroleum compounds are removed and solvents remain then spill 0013456 will be closed and this spill referred to NYSDEC Brevdo. Vought called Carol Karp (Phoenix) and left message to return call to NYSDEC. 7/16/2003-Vought-Spoke with Karp and faxed her a copy of this spill report. 12/24/2003-Vought-Spill closed due to open spill #0303476 at same location. END DECRemark - 0013456
Remarks:	Start CallerRemark - 0013456 storage tank overfill - petroleum tank cleaners is responding for clean up END CallerRemark - 0013456

HIST LTANKS:

Region of Spill:	2
Spill Number:	0013456
Investigator:	TIBBE
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Caller Extension:	Not reported

DRY CLEANERS BUSINESS (Continued) **S104951115**

Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Notifier Extension:	Not reported
Spill Date:	03/24/2001
Spill Time:	14:00
Reported to Department Date:	03/24/01
Reported to Department Time:	15:47
SWIS:	62
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
Spiller Name:	CASTLE OIL CORP
Spiller Address:	290 LOCUST AV
Spiller City,St,Zip:	BRONX, NY 10454-
Facility Contact:	Not reported
Facility Phone:	(718) 579-3414
Facility Extention:	Not reported
Spill Cause:	Tank Overfill
Resource Affectd:	On Land
Water Affected:	Not reported
Spill Source:	Tank Truck
Spill Notifier:	Responsible Party
PBS Number:	Not reported
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Date:	/ /
Enforcement Date:	/ /
Investigation Complete:	/ /
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	/ /
Date Region Sent Summary to Central Office:	/ /
Corrective Action Plan Submitted:	/ /
Date Spill Entered In Computer Data File:	03/24/01
Time Spill Entered In Computer Data File:	Not reported
Spill Record Last Update:	10/02/01
Is Updated:	False
PBS Number:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate Failed Tank:	Not reported
Gross Leak Rate:	Not reported
Material Class Type:	Petroleum
Quantity Spilled:	50
Unkonwn Quantity Spilled:	False
Units:	Gallons
Quantity Recovered:	0
Unkonwn Quantity Recovered:	True
Material:	#6 FUEL OIL
Class Type:	#6 FUEL OIL
Times Material Entry In File:	2190
CAS Number:	Not reported

DRY CLEANERS BUSINESS (Continued) **S104951115**

Last Date: 19940728
DEC Remarks: 10/2/01: On this date K.Goert inspected the site. Phoenix Environmental was on scene performing hand borings at 9 seperate locations. There was a large 6 oil stain on the basement wall and some staining in the soils but the odor exhibited more than just a six oil smell. There could have been a chlorinated solvent odor. K.Goert directed Carrol Karp of Phoenix Environmental to analy e the two soil samples with the highest PID readings for both petroleum and chlorinated solvents. KG)
Spill Cause: storage tank overfill - petroleum tank cleaners is responding for clean up

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228 NNE 1/4-1/2 2289 ft. | **APARTMENT BUIDLING 2090-92 AMSTERDAMN AVE NEW YORK CITY, NY** | **LTANKS** | **S107658555 N/A**

Relative: Higher

Actual: 159 ft.

LTANKS:

Site ID:	359546
Spill Date:	02/14/06
Facility Addr2:	Not reported
Facility ID:	0513122
Program Number:	0513122
SWIS:	3101
Region of Spill:	2
Investigator:	HRPATEL
Referred To:	Not reported
Reported to Dept:	02/14/06
CID:	15
Spill Cause:	Tank Test Failure
Water Affected:	Not reported
Spill Source:	Private Dwelling
Spill Notifier:	Tank Tester
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	05/05/06
Remediation Phase:	0
Date Entered In Computer:	02/14/06
Spill Record Last Update:	05/05/06
Spille Namer:	MARLON JOESPH
Spiller Company:	APARTMENT BUIDLING
Spiller Phone:	(718) 772-7949
Spiller Extention:	Not reported
Spiller Address:	2090-92 AMSTERDAMN AVE
Spiller City,St,Zip:	NEW YORK CITY, NY
Spiller County:	001
Spiller Contact:	MARLON JOESPH
Spiller Phone:	(718) 772-7949
Spiller Extention:	Not reported
DEC Region:	2
Program Number:	0513122
DER Facility ID:	309634
Site ID:	359546
Operable Unit ID:	1116752
Operable Unit:	01

APARTMENT BUIDLING (Continued) **S107658555**

Material ID:	2107201
Material Code:	0001
Material Name:	#2 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	0.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
Site ID:	Not reported
Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported
DEC Memo:	Start DECRemark - 0513122 02/14/06. Feroze , PBS of this spill is # 2-472883. TTF is sent to : New Realty Management Corp, Inc. 450 Seventh Ave, Suit 907. New York, NY 10123 Attn: 2090 Amsterdam Corp. 02/21/06 Feroze, Mr. Deno of New Realty Management Corp, Inc. 212-643-8117 called and informed that he sold that property 4 yrs ago. Present owner of that property is: Barbary Rose Real Estate 100 Cedarhurst Ave, Suit 202 Cedarhurst, NY 11516 Phone:516-779-0915, Fax 516-374-4068. TTF is sent to them. 04/21/06-Hiralkumar Patel. Left message at 516-779-0915. 05/05/06-Hiralkumar Patel. Spoke to Marlin at Petroleum. as per him, they found problem at vent line. they repaired it and tested again. system passed the test. case closed. END DECRemark - 0513122
Remarks:	Start CallerRemark - 0513122 ABOVE LIQUID LEAK, MIGHT BE THE NET LINE. END CallerRemark - 0513122

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229 WSW 1/4-1/2 2359 ft. | **APARTMENT 3609 BROADWAY NEW YORK, NY** | **LTANKS** | **S107789312 N/A**

Relative: Higher

Actual: 112 ft.

LTANKS:

Site ID:	363453
Spill Date:	05/03/06
Facility Addr2:	Not reported
Facility ID:	0601264
Program Number:	0601264
SWIS:	3101
Region of Spill:	2
Investigator:	KSTANG
Referred To:	Not reported
Reported to Dept:	05/03/06
CID:	15
Spill Cause:	Tank Test Failure
Water Affected:	Not reported
Spill Source:	Private Dwelling
Spill Notifier:	Tank Tester
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Last Inspection:	/ /

APARTMENT (Continued) **S107789312**

Recommended Penalty:	Penalty Not Recommended
UST Involvement:	False
Spill Class:	Not reported
Spill Closed Dt:	/ /
Remediation Phase:	1
Date Entered In Computer:	05/03/06
Spill Record Last Update:	05/22/07
Spille Namer:	NICK
Spiller Company:	APARTMENT
Spiller Phone:	(516) 658-1497
Spiller Extention:	Not reported
Spiller Address:	3609 BROADWAY
Spiller City,St,Zip:	NEW YORK, NY
Spiller County:	001
Spiller Contact:	NICK
Spiller Phone:	(516) 658-1497
Spiller Extention:	Not reported
DEC Region:	2
Program Number:	0601264
DER Facility ID:	313629
Site ID:	363453
Operable Unit ID:	1121507
Operable Unit:	01
Material ID:	2111004
Material Code:	0002
Material Name:	#4 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	0.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
Site ID:	363453
Spill Tank Test:	1549946
Tank Number:	1
Tank Size:	5000
Test Method:	03
Leak Rate:	0.00
Gross Fail:	Not reported
Modified By:	Watchdog
Last Modified:	05/03/06
Test Method:	Horner EZ Check I or II
DEC Memo:	Start DECRemark - 0601264 Initial spill# is 0601179. DEC Piper received call after hours on 5/1/06. DEC Piper contacted Rene Lewis from Eastmond. As per conversation oil seeping up thorough the sumps (3) at 601 w. 149th St. 601 was already dealingwith a water issue which was coming up through these sumps. On Monday, oil appeared and Eastmond was hired to vac out. Upon furhter investigation the oil seems and is believed to be coming from adjecnt building -3609 Broadway. 3609 has a 5,000 gal#4 oil tank which is underlain by a steam line. The steam line has recently been discovered to be leaking. Unknown how long. Because of this steam line leak, the tank is believed to be rotted and comprimised. Eastmond to pump out tank and perform tightness test on 3609 Broadway on Wed. morning. 5/3/06- DEC Piper responded to site. Upon arrival it was noted that there was a recent overfill through the vent line. It appeared to be 50 gal. though in speaking with HESS (Eric Sutton- 908.392.0136), they were told 2 gal by driver and super(646.523.8506) cleaned it up. (Poor Job-

APARTMENT (Continued) **S107789312**

evidence of spill, staining, contaminated soil still on ground). As per conversations w/ super, Eastmond and Job Super of 601, there was a delivery made on Friday Apr.28. 2700 gal was delivered to top off the tank. On monday morning the tank read 22 inches of oil which is 1200. These numbers do not add up. The tightness test revealed six (6) holes in the bottom of the tank. Due to the tanktest failure, Sp #0601179 was closed and this spill opened in lieu of these recent findings. DEC Piper initially told Managing agent to setup tempory tank for heating and hot water. HESS has contracted Eastmond to cleanup overfill on sidewalk and sewer. 5/31/06 -there is no GW or soil samples taken and no RI report to review. Will wait for additional information from RP. - KST OWNERSHIP- BNS Building LLC. C/O Nicholas Conway Alma Realty Corp. 28-18 31st St. Suite 201 Astoria, NY 11102 (718.267.0300) It is estimated by tank capacity and contents on Monday that approximately 3500-3800 gallons missing. This spill referred to Remediation. 5/9/06- As per Sharima of RND Services, they have been contracted to perform the subsurface investigation. 3/8/07- DEC Piper recieved tank closure report. From Fon Carlo. Tank was replaced and 15 drums of soil was removed. however the report mentions nothing about a subsurface investigation for the missing 2800 gallons of oil. Piper psoke withDanny at Don Carlo. Additional investigatin is warranted. This spill is referred to remediation. 4/27/07 - Received call from Ted Yen. I requested subsurface investigation work plan to be submitted to asceratin whether there are any impacts to groundwater. Mr. Yen agreed to prepare and submit work plan for subsurface investigation. V. Brevdo 5/22/07 The following e-mail was sent to Mr. Ted Yen. "May 22, 2007 Dear Mr. Yen, This is in response to your e-mail of 5/2/2007 and letter-report (letter with Don Carlo Environmental Services, undated, received in the DEC Region 2 office on May 7, 2007). In a letter-report you requested that groundwater sampling be waived and that the spill number be closed. Please be informedthat the Department can not close the aforementioned spill. The rationale for this determination is as follows. DEC staff inspected the site on May 21, 2007. DEC Staff performed an inspection of the downgradient building and met with that site's supervisor. Through observation of the sump pits, it was determined that oil is still entering the pits during rainfall events. There is currently oil soaked adsorbents and patches of free phase product in the nearest sump closest to the spill source. An additional sump located towards the back of the property also contained oil staining. Through conversation with the supervisor, the nearest pit is cleaned on a weekly basis as to not fowl up the pumps and discharge to sewer. The Department recommends that Don Carlo investigate this further and make the necessary arrangements to have this pit cleaned by the RP on a weekly basis. Additionally since this pit is not designed as the collection point and only some oil may have collected in it, there is reason to believe that an unknown amount may have passed this pit and is continuing downgradient. Space is very limited between buildings, therefore it is our recommendation that bedrock wells be installed along W 149th St. and Riverside Drive. The affected building's main address is 603 W. 148th St., however the back of property is 608 w 149th St. This latter address will be a church and the pits can be accessed through this "back" entrance. Contact info for the affected building is Greg Baron Riverview West Contracting ph. 212.722.3671 fax 212.534.5021. Please feel free to contact me at (718) 482-4928 or via e-mail if you have any questions. Respectfully, Vadim Brevdo" END DECRemark -0601264

Remarks: Not reported

230 SSE 1/4-1/2 2366 ft.

225 EAST 149TH ST/BX
225 EAST 149TH STREET
NEW YORK CITY, NY

LTANKS **S104275642**
HIST LTANKS **N/A**

Relative: Lower

Actual: 21 ft.

LTANKS:

Site ID:	64449
Spill Date:	02/12/91
Facility Addr2:	Not reported
Facility ID:	9011867
Program Number:	9011867
SWIS:	0301
Region of Spill:	2
Investigator:	WILSON
Referred To:	Not reported
Reported to Dept:	02/12/91
CID:	15
Spill Cause:	Tank Failure
Water Affected:	Not reported
Spill Source:	Commercial/Industrial
Spill Notifier:	Other
Cleanup Ceased:	05/25/95
Cleanup Meets Standard:	True
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	05/25/95
Remediation Phase:	0
Date Entered In Computer:	02/13/91
Spill Record Last Update:	05/25/95
Spille Namer:	Not reported
Spiller Company:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
Spiller Address:	Not reported
Spiller City,St,Zip:	***Update***, ZZ
Spiller County:	001
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
DEC Region:	2
Program Number:	9011867
DER Facility ID:	62110
Site ID:	64449
Operable Unit ID:	951791
Operable Unit:	01
Material ID:	428383
Material Code:	0001
Material Name:	#2 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	40.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
Site ID:	Not reported

225 EAST 149TH ST/BX (Continued) **S104275642**

Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported
DEC Memo:	Not reported
Remarks:	Start CallerRemark - 9011867 MANHOLE COVER GASKET BROKE ON TANK,OIL COMING OUT OF TANK TOP(2K TANK)IN TANK ROOM,A L EASTMOND TO DO CLEAN UP. END CallerRemark - 9011867

HIST LTANKS:

Region of Spill:	2
Spill Number:	9011867
Investigator:	WILSON
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Caller Extension:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Notifier Extension:	Not reported
Spill Date:	02/12/1991
Spill Time:	11:00
Reported to Department Date:	02/12/91
Reported to Department Time:	12:44
SWIS:	60
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
Spiller Name:	Not reported
Spiller Address:	Not reported
Spiller City,St,Zip:	Not reported
Facility Contact:	Not reported
Facility Phone:	Not reported
Facility Extention:	Not reported
Spill Cause:	Tank Failure
Resource Affectd:	On Land
Water Affected:	Not reported
Spill Source:	Other Commercial/Industrial
Spill Notifier:	Other
PBS Number:	Not reported
Cleanup Ceased:	05/25/95
Cleanup Meets Standard:	True
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Date:	/ /
Enforcement Date:	/ /
Investigation Complete:	/ /
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	05/25/95

225 EAST 149TH ST/BX (Continued) **S104275642**

Date Region Sent Summary to Central Office: / /
Corrective Action Plan Submitted: / /
Date Spill Entered In Computer Data File: 02/13/91
Time Spill Entered In Computer Data File: Not reported
Spill Record Last Update: 05/25/95
Is Updated: False
PBS Number: Not reported
Tank Number: Not reported
Tank Size: Not reported
Test Method: Not reported
Leak Rate Failed Tank: Not reported
Gross Leak Rate: Not reported
Material Class Type: Petroleum
Quantity Spilled: 40
Unkonwn Quantity Spilled: False
Units: Gallons
Quantity Recovered: 0
Unkonwn Quantity Recovered: False
Material: #2 FUEL OIL
Class Type: #2 FUEL OIL
Times Material Entry In File: 24464
CAS Number: Not reported
Last Date: 19941207
DEC Remarks: Not reported
Spill Cause: MANHOLE COVER GASKET BROKE ON TANK,OIL COMING OUT OF TANK TOP 2K TANK)IN TANK ROOM,A L EASTMOND TO DO CLEAN UP.

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231 South 1/4-1/2 2393 ft.

JACKIE ROBINSON POOL
88 BRADHURST AV
MANHATTAN, NY

LTANKS **S105054976**
HIST LTANKS **N/A**

Relative: Lower

Actual: 31 ft.

LTANKS:
Site ID: 78327
Spill Date: 05/30/01
Facility Addr2: Not reported
Facility ID: 0102259
Program Number: 0102259
SWIS: 3101
Region of Spill: 2
Investigator: AHMED
Referred To: Not reported
Reported to Dept: 05/30/01
CID: 15
Spill Cause: Tank Test Failure
Water Affected: Not reported
Spill Source: Commercial/Industrial
Spill Notifier: Tank Tester
Cleanup Ceased: / /
Cleanup Meets Standard: False
Last Inspection: / /
Recommended Penalty: Penalty Not Recommended
UST Involvement: False
Spill Class: Known release that creates potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: / /
Remediation Phase: 1
Date Entered In Computer: 05/30/01

JACKIE ROBINSON POOL (Continued) **S105054976**

Spill Record Last Update:	04/30/04
Spille Namer:	SEAN AARON
Spiller Company:	JACKIE ROBINSON POOL
Spiller Phone:	(631) 586-4900
Spiller Extention:	Not reported
Spiller Address:	88 BRADHURST AV
Spiller City,St,Zip:	MANHATTAN, NY
Spiller County:	001
Spiller Contact:	SEAN AARON
Spiller Phone:	(631) 586-4900
Spiller Extention:	Not reported
DEC Region:	2
Program Number:	0102259
DER Facility ID:	72898
Site ID:	78327
Operable Unit ID:	839089
Operable Unit:	01
Material ID:	534374
Material Code:	0001
Material Name:	#2 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	0.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
Site ID:	78327
Spill Tank Test:	1526337
Tank Number:	1
Tank Size:	10000
Test Method:	03
Leak Rate:	0.00
Gross Fail:	F
Modified By:	Spills
Last Modified:	10/01/04
Test Method:	Horner EZ Check I or II
DEC Memo:	Not reported
Remarks:	Start CallerRemark - 0102259 TANK IS IN VAULT SPACE - CONFINED SPACE ENTRY REQUIRED END CallerRemark - 0102259

HIST LTANKS:

Region of Spill:	2
Spill Number:	0102259
Investigator:	TIPPLE
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Caller Extension:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Notifier Extension:	Not reported
Spill Date:	05/30/2001
Spill Time:	11:00
Reported to Department Date:	05/30/01
Reported to Department Time:	11:38

JACKIE ROBINSON POOL (Continued) **S105054976**

SWIS:	62
Spiller Contact:	SEAN AARON
Spiller Phone:	(631) 586-4900
Spiller Extention:	Not reported
Spiller Name:	JACKIE ROBINSON POOL
Spiller Address:	88 BRADHURST AV
Spiller City,St,Zip:	MANHATTAN, NY
Facility Contact:	SEAN AARON
Facility Phone:	(631) 586-4900
Facility Extention:	Not reported
Spill Cause:	Tank Test Failure
Resource Affectd:	On Land
Water Affected:	Not reported
Spill Source:	Other Commercial/Industrial
Spill Notifier:	Tank Tester
PBS Number:	2-604973
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Date:	/ /
Enforcement Date:	/ /
Investigation Complete:	/ /
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	/ /
Date Region Sent Summary to Central Office:	/ /
Corrective Action Plan Submitted:	/ /
Date Spill Entered In Computer Data File:	05/30/01
Time Spill Entered In Computer Data File:	Not reported
Spill Record Last Update:	05/30/01
Is Updated:	False
PBS Number:	Not reported
Tank Number:	1
Tank Size:	10000
Test Method:	Horner EZ Check
Leak Rate Failed Tank:	0.00
Gross Leak Rate:	Talk Test Failures only pass or fail
Material Class Type:	Petroleum
Quantity Spilled:	0
Unkonwn Quantity Spilled:	False
Units:	Gallons
Quantity Recovered:	0
Unkonwn Quantity Recovered:	False
Material:	#2 FUEL OIL
Class Type:	#2 FUEL OIL
Times Material Entry In File:	24464
CAS Number:	Not reported
Last Date:	19941207
DEC Remarks:	Not reported
Spill Cause:	TANK IS IN VAULT SPACE - CONFINED SPACE ENTRY REQUIRED

232 NW 1/4-1/2 2406 ft.

838 RIVERSIDE DR
838 RIVERSIDE DR
NYC, NY

LTANKS **S102671844**
HIST LTANKS **N/A**

Relative: Lower

Actual: 105 ft.

LTANKS:

Site ID:	92210
Spill Date:	03/06/92
Facility Addr2:	Not reported
Facility ID:	9112431
Program Number:	9112431
SWIS:	3101
Region of Spill:	2
Investigator:	KSTANG
Referred To:	Not reported
Reported to Dept:	03/06/92
CID:	15
Spill Cause:	Tank Overfill
Water Affected:	Not reported
Spill Source:	Commercial/Industrial
Spill Notifier:	Other
Cleanup Ceased:	03/06/92
Cleanup Meets Standard:	True
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	False
Spill Class:	Not reported
Spill Closed Dt:	03/06/92
Remediation Phase:	0
Date Entered In Computer:	03/11/92
Spill Record Last Update:	09/30/04
Spille Namer:	Not reported
Spiller Company:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
Spiller Address:	Not reported
Spiller City,St,Zip:	***Update***, ZZ
Spiller County:	001
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
DEC Region:	2
Program Number:	9112431
DER Facility ID:	82818
Site ID:	92210
Operable Unit ID:	966027
Operable Unit:	01
Material ID:	417406
Material Code:	0002
Material Name:	#4 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	15.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
Site ID:	Not reported
Spill Tank Test:	Not reported

838 RIVERSIDE DR (Continued) **S102671844**

Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported
DEC Memo:	Start DECRemark - 9112431 Prior to Sept, 2004 data translation this spill Lead DEC Field was "TANG" END DECRemark - 9112431
Remarks:	Start CallerRemark - 9112431 PETROMETER FAILED. SPEEDY APPLIED, PICKED UP & DISPOSED. END CallerRemark - 9112431

HIST LTANKS:

Region of Spill:	2
Spill Number:	9112431
Investigator:	TANG
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Caller Extension:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Notifier Extension:	Not reported
Spill Date:	03/06/1992
Spill Time:	08:20
Reported to Department Date:	03/06/92
Reported to Department Time:	09:57
SWIS:	62
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
Spiller Name:	Not reported
Spiller Address:	Not reported
Spiller City,St,Zip:	Not reported
Facility Contact:	Not reported
Facility Phone:	Not reported
Facility Extention:	Not reported
Spill Cause:	Tank Overfill
Resource Affectd:	On Land
Water Affected:	Not reported
Spill Source:	Other Commercial/Industrial
Spill Notifier:	Other
PBS Number:	Not reported
Cleanup Ceased:	03/06/92
Cleanup Meets Standard:	True
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Date:	/ /
Enforcement Date:	/ /
Investigation Complete:	/ /
UST Involvement:	False
Spill Class:	Not reported
Spill Closed Dt:	03/06/92
Date Region Sent Summary to Central Office:	/ /
Corrective Action Plan Submitted:	/ /

838 RIVERSIDE DR (Continued) **S102671844**

Date Spill Entered In Computer Data File: 03/11/92
Time Spill Entered In Computer Data File: Not reported
Spill Record Last Update: / /
Is Updated: False
PBS Number: Not reported
Tank Number: Not reported
Tank Size: Not reported
Test Method: Not reported
Leak Rate Failed Tank: Not reported
Gross Leak Rate: Not reported
Material Class Type: Petroleum
Quantity Spilled: 15
Unkonwn Quantity Spilled: False
Units: Gallons
Quantity Recovered: 0
Unkonwn Quantity Recovered: False
Material: #4 FUEL OIL
Class Type: #4 FUEL OIL
Times Material Entry In File: 1751
CAS Number: Not reported
Last Date: 19941205
DEC Remarks: Not reported
Spill Cause: PETROMETER FAILED. SPEEDY APPLIED, PICKED UP DISPOSED.

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233 NNW 1/4-1/2 2412 ft. | **COLUMBIA PRESBYTERIAN HOSPITAL**
630 W 160TH ST
NEW YORK, NY 10032 | **RCRA-SQG** **1000556621**
FINDS **NYD986991941**
LTANKS
NY Spills
NY Hist Spills
HIST LTANKS

Relative: Higher

Actual: 129 ft.

RCRAInfo:
Owner: COLUMBIA PRESBYTERIAN HOSPITAL
(212) 555-1212
EPA ID: NYD986991941

Contact: Not reported

Classification: Small Quantity Generator
TSDF Activities: Not reported

Violation Status: No violations found

FINDS:
Other Pertinent Environmental Activity Identified at Site

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

LTANKS:
Site ID: 81359
Spill Date: 09/12/95
Facility Addr2: Not reported

COLUMBIA PRESBYTERIAN HOSPITAL (Continued) **1000556621**

Facility ID:	9507159
Program Number:	9507159
SWIS:	3101
Region of Spill:	2
Investigator:	ADZHITOM
Referred To:	Not reported
Reported to Dept:	09/12/95
CID:	15
Spill Cause:	Tank Test Failure
Water Affected:	Not reported
Spill Source:	Non Major Facility > 1,100 gal
Spill Notifier:	Tank Tester
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	True
Spill Class:	Known release that creates potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	/ /
Remediation Phase:	1
Date Entered In Computer:	12/27/48
Spill Record Last Update:	04/04/07
Spille Namer:	BRIAN MCSHANE
Spiller Company:	COLUMBIA PRESBYTERIAN
Spiller Phone:	(212) 305-3127
Spiller Extention:	Not reported
Spiller Address:	635 WEST 165TH STREET,B37
Spiller City,St,Zip:	NEW YORK, NY 10032-
Spiller County:	001
Spiller Contact:	BRIAN MCSHANE
Spiller Phone:	(212) 305-3127
Spiller Extention:	Not reported
DEC Region:	2
Program Number:	9507159
DER Facility ID:	75286
Site ID:	81359
Operable Unit ID:	1018021
Operable Unit:	01
Material ID:	361585
Material Code:	0009
Material Name:	Gasoline
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	0.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Groundwater
Oxygenate:	False
Site ID:	Not reported
Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported

COLUMBIA PRESBYTERIAN HOSPITAL (Continued) **1000556621**

Last Modified: Not reported
Test Method: Not reported
DEC Memo: Start DECRemark - 9507159 This spill was reassigned from DEC Sigona to Rommel on January 7,2004. This spill site cleanup has been consolidated under Spill No. 9507159. On December 22, 1995 met with Clayton Environmental representatives John Gavras, Benjamin Alter & Vishal Shah - (908) 225-6040 at 10:00 AM along with Brian McShane Senior Industrial Hygienist (212) 305-3127 Columbia-Presbyterian Medical Center to follow-up Closure Report for the In-Place Abandonment of Gasoline Tanks Presbyterian Hospital Parking Garage by Clayton Environmental Consultants report November 30, 1995. Inspection of the facility found the two abandoned gasoline tanks 1,000 gallon tanks located 2 levels below street in parking garage. Tanks were closed in reponse to pressure tests by fire department. Tanks are older than 15 years. Soil contamination may be a pocket around burried USTs. requesting that the consultant to drill with air rotor to bedrock and any water. need to develop some monitoring wells, and possibly vent the soil. The results of the investigation found the soil to be contaminated with volatile organic hydrocarbons. Informed the reps that I would sent letter and stip in a week. Gave some info on the stipulation process. DEC's executed a Stipulation Agreement, dated January 2, 20001, for the cleanup of historic petroleum contamination at the above referenced site. 1/6/05 Received call from Robert Furguson, Fenley and Nicol. A site visit is planned for 1/12/05. Planned work includes excavation of a 20 by 20' area in the lower level of the parking garage to address the hottest soil area identified during the installation of the mws. The upper level, where the tanks were, is assumed clean and will be confirmed through soil borings. Rommel 1/17/05 Received 1-page faxed workplan from F&N. 20 x 20 to 3 ft bg (wt). GW will be pumped to 55 gallon drums and properly disposed. excavation screened with pid and if all is removed, collect endpoint samples. 3/3/05 - reassigned to Alex Zhitomirsky. - KST 3/17/2005 conversation with Kristin Dillner of F&N. They excavated contaminated soil about 18 tons, took confirmation samples and are sumbitting report to my attention. There wasan SVE and Air Parging system operated by F&N. They requested NFA. A. Zhitomirsky 4/25/2005 A letter was issued by DEC to Gregory Camacho New York Presbyterian Medical Center 635 West 165th Street, EI Room B37 New York, New York 10032. The letter said that a report submitted by Fenley and Nicol and received on March 24, 2005 was reviewed. The report stated that Fenley and Nicol excavated and removed 18 tons of hydrocarbon impacted soil from the lower parking garage area. An analysis of endpoint samples indicated that no significant hydrocarbon impact remains in the excavation area with the exception of the end point sample EP-9. Air sampling data from the existing on the site air sparging system show that the system is not extracting volatile contaminants from groundwater. Nevertheless, groundwater analyses showed very high concentrations of volatile organic compounds in wells FN-1 and FN-3. DEC letter stated that based on the above facts a No Further Action (NFA) letter cannot be issued for this site. The Department recommended that the existing air sparging system should be modified to better address the groundwater contamination, or another remedial approach should be developed for this site.AZ 5/26/2005 KristineDillner (F& N) proposed in a phone converstation to pump out wells weekly for one quarter and then sample. Based on the sampling results they will assess the plume. AZ 10/24/2005 Robert Ferguson (F&N) will fax lab data results. Data from October13, 2005 in FN-3 benzine 1.3 ppb, toluene - 8 ppb and ethylbenzine - 248 ppb. This is the only well with exceedances. F&N shut air sparging system off in September 2005 with the DEC concurrence. They pumped FN-1 and FN-3 out weekly for one quarter.The last pumping event took place about mid September. They pumped the wells dry. I concurred with R. Ferguson proposal to sample for two more quarters and submit their conclusions to DEC. AZ 1/10/2006 I

COLUMBIA PRESBYTERIAN HOSPITAL (Continued) **1000556621**

contacted R. Fergusson (F&N). He will submit the latest monitoring report which was delayed since his client refused to pay. AZ 1/23/2006 Contacted Gregory Camacho(Presbyterian Hospital Industrial Hygenist). We discussed remedial progress. They will follow with Fenley @ Nicol on the siteremediation. AZ 4/4/2006 Left a message for Robert Fergusson (F&N 631-586-4900 Ext. 167). AZ 6/14/2006 Contacted Fenley & Nicol. Robert Fergusson left the company. Brian McCabe will handling the case. Hospital has some outstanding bills and they put the site on hold. He will submit an updated for the site. AZ 8/10/2006 Contacted Gregory Camacho (Presbyterian) @ 212-305-3127. He will try to resolve the issue and contact F& N. A report should be submitted to DEC. AZ 2/1/2007 Reviewed Quarterly Status Report submitted by Fenley & Nicol on October 5, 2006. The report showed that the latest round of gw sampling performed on August 31, 2006, exhibited a significant increase in BTEX concentrations. FN-2 exhibited 13,480 ppb of total VOCs, FN-3 exhibited 10,246 ppb of total VOCs (FN-3 had only 249 ppb in October 2005). FN-1 was not sampled. I left a message for Gregory Camacho (Presbyterian) @ 212-305-3127. I left a message for Brian McCabe (F&N)@631-586-4900. He called me back. He stated that the remedial systems were shot down for over a year, however, the report stated that it is running. He will check out why FN-1 was not sampled. The site was sampled again on December 20, 2006. F& N will forward the latest reportto DEC. In December 2006 total BTEX ranged from ND to 11,626 ppb. I requested that F&N submit proposals for remedial strategy ASAP. AZ 2/2/2007 I contacted Gregory Camacho (Presbyterian).I told him that since the contaminat concentrations increased, the existing contaminant plume must be addressed. Their consultant should submit a remedial plan for the site. AZ 4/4/2007 I contacted Gregory Camacho (Presbyterian. I reiterated to him that since the contaminant concentrations increased, the existing contaminant plume must be addressed. Their consultant should submit a remedial plan for the site. AZ END DECRemark - 9507159

Remarks: Start CallerRemark - 9507159 TANK failure/Equipment failures caused gross release of gasoline to subsurface soils and groundwater at this site. END CallerRemark - 9507159

NY Spills:

Site ID:	81360
Facility Addr2:	Not reported
Facility ID:	9903569
Spill Number:	9903569
Facility Type:	ER
SWIS:	3101
Region of Spill:	2
Investigator:	SIGONA
Referred To:	Not reported
Spill Date:	06/25/99
Reported to Dept:	06/28/99
CID:	15
Spill Cause:	Equipment Failure
Water Affected:	Not reported
Spill Source:	Non Major Facility > 1,100 gal
Spill Notifier:	Responsible Party
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Trust:	False
Spill Class:	Known release that creates potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.

COLUMBIA PRESBYTERIAN HOSPITAL (Continued) **1000556621**

Spill Closed Dt:	11/05/03
Remediation Phase:	0
Date Entered In Computer:	06/28/99
Spill Record Last Update:	07/08/04
Spiller Name:	GREG CAMACHO
Spiller Company:	COLUMBIA PRESBYTERIAN
Spiller Address:	622 WEST 168TH ST
Spiller City,St,Zip:	NEW YORK, NY 10032-
Spiller Company:	001
Spiller Phone:	(212) 305-3127
Contact Name:	GREGORY CAMACHO
Contact Phone:	(212) 305-3127
DEC Region:	2
Program Number:	9903569
DER Facility ID:	75286
Site ID:	81360
Operable Unit ID:	1082502
Operable Unit:	01
Material ID:	303485
Material Code:	0009
Material Name:	Gasoline
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	0.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Groundwater
Oxygenate:	False
DEC Memo:	Not reported
Remarks:	Start CallerRemark - 9903569 A contractor was excavating and repairing floor drains in the parking garage and identified gasoline contaminated soils. The soil is on the lower level. Contractors being interviewed for cleanup/investigation. END CallerRemark - 9903569

NY Hist Spills:

Region of Spill:	2
Spill Number:	9903569
Investigator:	SIGONA
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Spill Date/Time:	06/25/1999 10:30
Reported to Dept Date/Time:	06/28/99 16:01
SWIS:	62
Spiller Name:	COLUMBIA PRESBYTERIAN
Spiller Contact:	GREG CAMACHO
Spiller Phone:	(212) 305-3127
Spiller Contact:	GREGORY CAMACHO
Spiller Phone:	(212) 305-3127
Spiller Address:	622 WEST 168TH ST
Spiller City,St,Zip:	NEW YORK, NY 10032-
Spill Cause:	Housekeeping
Reported to Dept:	On Land
Water Affected:	Not reported

COLUMBIA PRESBYTERIAN HOSPITAL (Continued) **1000556621**

Spill Source: 04
Spill Notifier: Responsible Party
PBS Number: Not reported
Cleanup Ceased: / /
Cleanup Meets Std: False
Last Inspection: / /
Recommended Penalty: Penalty Not Recommended
Spiller Cleanup Dt: / /
Enforcement Date: / /
Invstgn Complete: / /
UST Involvement: False
Spill Class: Known release that creates potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: / /
Corrective Action Plan Submitted: / /
Date Region Sent Summary to Central Office: / /
Date Spill Entered In Computer Data File: 06/28/99
Date Spill Entered In Computer Data File: Not reported
Update Date: 06/30/99
Is Updated: False
PBS Number: Not reported
Tank Number: Not reported
Tank Size: Not reported
Test Method: Not reported
Leak Rate Failed Tank: Not reported
Gross Leak Rate: Not reported
Material Class Type: Petroleum
Quantity Spilled: 0
Unkonwn Quantity Spilled: True
Units: Gallons
Quantity Recovered: 0
Unkonwn Quantity Recovered: True
Material: GASOLINE
Class Type: GASOLINE
Times Material Entry In File: 21329
CAS Number: Not reported
Last Date: 19940929
DEC Remarks: DEC Sigona) responded at 6/29/1999 at 2:00 P.M. met with Gregory Camacho and Project Manager for Parking lot rehabilitation project. Met with proposed consultant BEMK. Investigation of the spill revealed that the contamination is immediately downgradient of two abandoned in-place 550 gallon gasoline USTs identified under spill No. 9507159.) The previous spill report is under a Stipulation Agreement and a case was initiated because the facility owner failed to implement corrective actions. The site was investigated by Winston Contractors who submitted a report to DEC in Sept. 1998. DEC Sigona) requested that the excavation be expanded to expose the subsurface vault which was impacted by gasoline. The impacted area is on the next lower level approximated 25-30 downgradient of the abandoned USTs. It may be seepage or runoff drainage. End point samples should be collected in the area. Greg Camacho has agreed to expidite the investigation and cleanup proposed by Winston,but would not agree on who would be hired.
Remark: A contractor was excavating and repairing flow drains in the parking garage and identified gasoline contaminated soils. The soil is on the lower level. Contractors being interviewed for cleanup/investigation.

HIST LTANKS:
Region of Spill: 2

COLUMBIA PRESBYTERIAN HOSPITAL (Continued) **1000556621**

Spill Number:	9507159
Investigator:	SIGONA
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Caller Extension:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Notifier Extension:	Not reported
Spill Date:	09/12/1995
Spill Time:	12:30
Reported to Department Date:	09/12/95
Reported to Department Time:	12:51
SWIS:	62
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
Spiller Name:	COLUMBIA PRESBYTERIAN
Spiller Address:	Not reported
Spiller City,St,Zip:	Not reported
Facility Contact:	BRIAN MCSHANE
Facility Phone:	Not reported
Facility Extention:	Not reported
Spill Cause:	Tank Test Failure
Resource Affectd:	Groundwater
Water Affected:	Not reported
Spill Source:	Non Major Facility > 1,100 gallons
Spill Notifier:	Tank Tester
PBS Number:	Not reported
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Date:	/ /
Enforcement Date:	/ /
Investigation Complete:	/ /
UST Involvement:	False
Spill Class:	Known release that creates potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	/ /
Date Region Sent Summary to Central Office:	/ /
Corrective Action Plan Submitted:	/ /
Date Spill Entered In Computer Data File:	12/27/48
Time Spill Entered In Computer Data File:	Not reported
Spill Record Last Update:	01/29/96
Is Updated:	False
PBS Number:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate Failed Tank:	Not reported
Gross Leak Rate:	Not reported
Material Class Type:	Petroleum
Quantity Spilled:	0
Unkonwn Quantity Spilled:	False
Units:	Gallons

COLUMBIA PRESBYTERIAN HOSPITAL (Continued) **1000556621**

Quantity Recovered: 0
Unkonwn Quantity Recovered: False
Material: GASOLINE
Class Type: GASOLINE
Times Material Entry In File: 21329
CAS Number: Not reported
Last Date: 19940929
DEC Remarks: On December 22, 1995 met with Clayton Environmental representatives John Gavras, Benjamin Alter Vishal Shah - 908) 225-6040 at 10:00 AM along with Brian McShane Senior Industrial Hygienist 212) 305-3127 Columbia-Presbyterian Mediacal Center to follow-up Closure Report for the In-Place Abandonment of Gasoline Tanks Presbyterian Hospital Parking Garage by Clayton Environmental Consultants report November 30, 1995. Inspection of the facility found the two abandoned gasoline tanks 1,000 gallontanks located 2 levels below street in parking garage. Tanks were closed in reponse to pressure tests by fire department. Tanks are older than 15 years. Soil contamination may be a pocket around burried USTs. requesting that the consultant to drill with air rotor to bed rock and any water. need to develop some monitoring wells, and possibly vent the soil. The results of the investigation found the soil to be contaminated with volatile organic hydrocarbons. Informed the reps that I would sent letter and stip in a week. Gave some info on the stipulation process.
Spill Cause: TANK IS IN GROUND

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234 NW 1/4-1/2 2415 ft. | **APARTMENTS 779 RIVERSIDE DR NEW YORK CITY, NY** | **LTANKS** | **S103238491**
HIST LTANKS | **N/A**

Relative: Lower

Actual: 81 ft.

LTANKS:
Site ID: 140754
Spill Date: 06/26/98
Facility Addr2: Not reported
Facility ID: 9803892
Program Number: 9803892
SWIS: 3101
Region of Spill: 2
Investigator: TJDEMEO
Referred To: Not reported
Reported to Dept: 06/26/98
CID: 15
Spill Cause: Tank Test Failure
Water Affected: Not reported
Spill Source: Commercial/Industrial
Spill Notifier: Tank Tester
Cleanup Ceased: / /
Cleanup Meets Standard: True
Last Inspection: / /
Recommended Penalty: Penalty Not Recommended
UST Involvement: False
Spill Class: Known release that creates potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: 11/26/04
Remediation Phase: 0
Date Entered In Computer: 06/26/98
Spill Record Last Update: 02/09/06
Spille Namer: VICTOR - SUPER.
Spiller Company: APARTMENTS
Spiller Phone: (212) 740-6194

APARTMENTS (Continued) **S103238491**

Spiller Extention:	Not reported
Spiller Address:	Not reported
Spiller City,St,Zip:	ZZ
Spiller County:	001
Spiller Contact:	FANNY GREENBURG
Spiller Phone:	Not reported
Spiller Extention:	Not reported
DEC Region:	2
Program Number:	9803892
DER Facility ID:	120204
Site ID:	140754
Operable Unit ID:	1061635
Operable Unit:	01
Material ID:	322214
Material Code:	0003
Material Name:	#6 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	0.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
Site ID:	140754
Spill Tank Test:	1546035
Tank Number:	1
Tank Size:	5000
Test Method:	03
Leak Rate:	0.00
Gross Fail:	F
Modified By:	Spills
Last Modified:	10/01/04
Test Method:	Horner EZ Check I or II
DEC Memo:	Start DECRemark - 9803892 Prior to Sept, 2004 data translation this spill Lead DEC Field was "M TIBBE" Reviewed a submittal from Grunberg Realty dated Sept 20, 2004. Cover letter states the tank leaked from rust holes along the top of the tank due to a water leak in the ceiling of the basement. In Jan 2000 Tank was removed/replaced. 10 cubic yards of soil was removed from under the tank (manifest included). End point samples taken (clean) for voc & svoc. New tank installed by Eastmond in Feb 2000. Documentation for all of this is included in the file. 2/9/06-Vought-Received call from Frank Farricker (212-529-4444). END DECRemark - 9803892
Remarks:	Start CallerRemark - 9803892 gross failure of horner ez 3 END CallerRemark - 9803892

HIST LTANKS:

Region of Spill:	2
Spill Number:	9803892
Investigator:	TIBBE
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Caller Extension:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Notifier Extension:	Not reported

APARTMENTS (Continued) **S103238491**

Spill Date:	06/26/1998
Spill Time:	13:30
Reported to Department Date:	06/26/98
Reported to Department Time:	16:16
SWIS:	62
Spiller Contact:	FANNY GREENBURG
Spiller Phone:	Not reported
Spiller Extention:	Not reported
Spiller Name:	APARTMENTS
Spiller Address:	Not reported
Spiller City,St,Zip:	Not reported
Facility Contact:	VICTOR - SUPER.
Facility Phone:	(212) 740-6194
Facility Extention:	Not reported
Spill Cause:	Tank Test Failure
Resource Affectd:	On Land
Water Affected:	Not reported
Spill Source:	Other Commercial/Industrial
Spill Notifier:	Tank Tester
PBS Number:	2-148474
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Date:	/ /
Enforcement Date:	/ /
Investigation Complete:	/ /
UST Involvement:	False
Spill Class:	Known release that creates potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	/ /
Date Region Sent Summary to Central Office:	/ /
Corrective Action Plan Submitted:	/ /
Date Spill Entered In Computer Data File:	06/26/98
Time Spill Entered In Computer Data File:	Not reported
Spill Record Last Update:	08/04/98
Is Updated:	False
PBS Number:	Not reported
Tank Number:	1
Tank Size:	5000
Test Method:	Horner EZ Check
Leak Rate Failed Tank:	0.00
Gross Leak Rate:	Talk Test Failures only pass or fail
Material Class Type:	Petroleum
Quantity Spilled:	0
Unkonwn Quantity Spilled:	False
Units:	Gallons
Quantity Recovered:	0
Unkonwn Quantity Recovered:	False
Material:	#6 FUEL OIL
Class Type:	#6 FUEL OIL
Times Material Entry In File:	2190
CAS Number:	Not reported
Last Date:	19940728
DEC Remarks:	Not reported
Spill Cause:	gross failure of horner e 3

AZ235 **1070 ST. NICHOLAS AVENUE** **LTANKS** **S106123776**
North **1070 ST. NICOLAS AVE** **N/A**
1/4-1/2 **MANHATTAN, NY**
2461 ft.

Site 1 of 2 in cluster AZ

Relative:
Higher

Actual:
160 ft.

LTANKS:

Site ID:	94574
Spill Date:	01/27/04
Facility Addr2:	Not reported
Facility ID:	0312046
Program Number:	0312046
SWIS:	3101
Region of Spill:	2
Investigator:	jdjarrat
Referred To:	Not reported
Reported to Dept:	01/27/04
CID:	15
Spill Cause:	Tank Test Failure
Water Affected:	Not reported
Spill Source:	Private Dwelling
Spill Notifier:	Tank Tester
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	/ /
Remediation Phase:	1
Date Entered In Computer:	01/27/04
Spill Record Last Update:	12/29/05
Spille Namer:	Not reported
Spiller Company:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
Spiller Address:	Not reported
Spiller City,St,Zip:	***Update***, ZZ
Spiller County:	001
Spiller Contact:	RAY KAHN
Spiller Phone:	(917) 939-7366
Spiller Extention:	Not reported
DEC Region:	2
Program Number:	0312046
DER Facility ID:	84670
Site ID:	94574
Operable Unit ID:	879546
Operable Unit:	01
Material ID:	497278
Material Code:	0002
Material Name:	#4 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	0.00
Units:	Pounds
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False

1070 ST. NICHOLAS AVENUE (Continued) **S106123776**

Site ID:	94574
Spill Tank Test:	1528945
Tank Number:	1
Tank Size:	5000
Test Method:	03
Leak Rate:	0.00
Gross Fail:	Not reported
Modified By:	Spills
Last Modified:	10/01/04
Test Method:	Horner EZ Check I or II
DEC Memo:	Start DECRemark - 0312046 Prior to Sept, 2004 data translation this spill Lead DEC Field was "SANGESLAND" Sent TTF ltr sent to owner: Ina McCarther 1070 Saint Nicholas Ave NY, NY 10032-3832 file transferred to co (Jarratt), 7/05.NYCDEP Haz. Mats. contacted for more information. 9/1/05: NYCDEP contacted again for information. (718) 595-4650. END DECRemark - 0312046
Remarks:	Not reported

AZ236 **1071 ST NICHOLAS AVE** **LTANKS** **S102660631**
North **1071 ST NICHOLAS AVE** **HIST LTANKS** **N/A**
1/4-1/2 **MANHATTAN, NY**
2472 ft.

Site 2 of 2 in cluster AZ

Relative:
Higher

Actual:
160 ft.

LTANKS:

Site ID:	250495
Spill Date:	12/02/92
Facility Addr2:	Not reported
Facility ID:	9210463
Program Number:	9210463
SWIS:	3101
Region of Spill:	2
Investigator:	jdjarrat
Referred To:	Not reported
Reported to Dept:	12/10/92
CID:	15
Spill Cause:	Tank Failure
Water Affected:	Not reported
Spill Source:	Commercial/Industrial
Spill Notifier:	Affected Persons
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	/ /
Remediation Phase:	1
Date Entered In Computer:	12/15/92
Spill Record Last Update:	12/29/05
Spille Namer:	Not reported
Spiller Company:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
Spiller Address:	Not reported
Spiller City,St,Zip:	***Update***, ZZ
Spiller County:	001
Spiller Contact:	Not reported

1071 ST NICHOLAS AVE (Continued) **S102660631**

Spiller Phone:	Not reported
Spiller Extention:	Not reported
DEC Region:	2
Program Number:	9210463
DER Facility ID:	205322
Site ID:	250495
Operable Unit ID:	977094
Operable Unit:	01
Material ID:	403924
Material Code:	0001
Material Name:	#2 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	-1.00
Units:	Pounds
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
Site ID:	Not reported
Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported
DEC Memo:	Start DECRemark - 9210463 Prior to Sept, 2004 data translation this spill Lead DEC Field was "M TIBBE" 03/05/2003- AUSTIN As per directive to close out spills with no recent history, close out. 02/17/04 - TRANSFERED FROM TOMASELLO TO TIBBE. SPILL REOPENED BECAUSE A FILE EXISTS. 7/05 - (large) file transferred to co (Jarratt). Brian McCabe of Fenley & Nicol contacted for recent data summary: Not collecting dissolved product since it is heating oil, also no ground water samples. Fivewells monitored, 2 periodically came back with a trace. The data will be summarized by Geologist Brian McCabe. END DECRemark - 9210463
Remarks:	Start CallerRemark - 9210463 TANK IN BASEMENT OF APT COMPLEX WAS SEEN TO BE BREAKING BY NYC TRANSIT PERSONNEL OIL LEAKING INTO SUBWAY AREA END CallerRemark - 9210463

HIST LTANKS:

Region of Spill:	2
Spill Number:	9210463
Investigator:	TOMASELLO
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Caller Extension:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Notifier Extension:	Not reported
Spill Date:	12/02/1992
Spill Time:	10:00
Reported to Department Date:	12/10/92
Reported to Department Time:	14:47

1071 ST NICHOLAS AVE (Continued) **S102660631**

SWIS:	62
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
Spiller Name:	Not reported
Spiller Address:	Not reported
Spiller City,St,Zip:	Not reported
Facility Contact:	Not reported
Facility Phone:	Not reported
Facility Extention:	Not reported
Spill Cause:	Tank Failure
Resource Affectd:	On Land
Water Affected:	Not reported
Spill Source:	Other Commercial/Industrial
Spill Notifier:	Affected Persons
PBS Number:	Not reported
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Date:	/ /
Enforcement Date:	/ /
Investigation Complete:	/ /
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	/ /
Date Region Sent Summary to Central Office:	/ /
Corrective Action Plan Submitted:	/ /
Date Spill Entered In Computer Data File:	12/15/92
Time Spill Entered In Computer Data File:	Not reported
Spill Record Last Update:	/ /
Is Updated:	False
PBS Number:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate Failed Tank:	Not reported
Gross Leak Rate:	Not reported
Material Class Type:	Petroleum
Quantity Spilled:	-1
Unkonwn Quantity Spilled:	False
Units:	Not reported
Quantity Recovered:	0
Unkonwn Quantity Recovered:	False
Material:	#2 FUEL OIL
Class Type:	#2 FUEL OIL
Times Material Entry In File:	24464
CAS Number:	Not reported
Last Date:	19941207
DEC Remarks:	Not reported
Spill Cause:	TANK IN BASEMENT OF APT COMPLEX WAS SEEN TO BE BREAKING BY NYC TRANSIT PERSONNEL OIL LEAKING INTO SUBWAY AREA

237 East 1/4-1/2 2495 ft.

950 UNIVERSITY AVE
950 UNIVERSITY AVE
BRONX, NY

LTANKS
NY Spills
NY Hist Spills
HIST LTANKS

S102961872
N/A

Relative: Lower

Actual: 35 ft.

LTANKS:

Site ID:	140968
Spill Date:	04/02/98
Facility Addr2:	Not reported
Facility ID:	9800094
Program Number:	9800094
SWIS:	0301
Region of Spill:	2
Investigator:	KSTANG
Referred To:	Not reported
Reported to Dept:	04/02/98
CID:	16
Spill Cause:	Tank Overfill
Water Affected:	Not reported
Spill Source:	Institutional, Educational, Gov., Other
Spill Notifier:	Local Agency
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	04/02/98
Remediation Phase:	0
Date Entered In Computer:	04/02/98
Spill Record Last Update:	04/03/98
Spille Namer:	Not reported
Spiller Company:	UNKNOWN
Spiller Phone:	Not reported
Spiller Extention:	Not reported
Spiller Address:	Not reported
Spiller City,St,Zip:	NY
Spiller County:	999
Spiller Contact:	ANN MARIE
Spiller Phone:	(212) 374-5500
Spiller Extention:	Not reported
DEC Region:	2
Program Number:	9800094
DER Facility ID:	120391
Site ID:	140968
Operable Unit ID:	1060612
Operable Unit:	01
Material ID:	325648
Material Code:	0001
Material Name:	#2 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	1.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
Site ID:	Not reported

950 UNIVERSITY AVE (Continued) **S102961872**

Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported
DEC Memo:	Start DECRemark - 9800094 Prior to Sept, 2004 data translation this spill Lead DEC Field was "TANG" END DECRemark - 9800094
Remarks:	Start CallerRemark - 9800094 tank overfilled caller not sure if any got into sewers END CallerRemark - 9800094

NY Spills:

Site ID:	140966
Facility Addr2:	Not reported
Facility ID:	9709956
Spill Number:	9709956
Facility Type:	ER
SWIS:	0301
Region of Spill:	2
Investigator:	RWAUSTIN
Referred To:	Not reported
Spill Date:	11/27/97
Reported to Dept:	11/27/97
CID:	16
Spill Cause:	Human Error
Water Affected:	Not reported
Spill Source:	Institutional, Educational, Gov., Other
Spill Notifier:	Other
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Trust:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	02/02/04
Remediation Phase:	0
Date Entered In Computer:	11/27/97
Spill Record Last Update:	02/02/04
Spiller Name:	VICENT - SUPER
Spiller Company:	Not reported
Spiller Address:	950 UNIVERSITY AVE
Spiller City,St,Zip:	BRONX, ZZ
Spiller Company:	001
Spiller Phone:	(718) 588-8400
Contact Name:	VICENT - SUPER
Contact Phone:	(718) 588-8400
DEC Region:	2
Program Number:	9709956
DER Facility ID:	120391
Site ID:	140966
Operable Unit ID:	1052995
Operable Unit:	01
Material ID:	328285

950 UNIVERSITY AVE (Continued) **S102961872**

Material Code:	0003
Material Name:	#6 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	50.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
DEC Memo:	Start DECRemark - 9709956 Prior to Sept, 2004 data translation this spill Lead DEC Field was "AUSTIN" 2/2/04 - AUSTIN - MINOR SURF. SPILL - CLOSED - ORIG. ASSIGNED TO ENGELHARDT - END END DECRemark - 9709956
Remarks:	Start CallerRemark - 9709956 super was transfering oil from one storage tank to another tank and forgot to shut pump off - second tank was overfilled - spill clean up crew on way END CallerRemark - 9709956

Site ID:	140965
Facility Addr2:	Not reported
Facility ID:	0306932
Spill Number:	0306932
Facility Type:	ER
SWIS:	0301
Region of Spill:	2
Investigator:	JHOCONNE
Referred To:	Not reported
Spill Date:	10/01/03
Reported to Dept:	10/01/03
CID:	16
Spill Cause:	Unknown
Water Affected:	Not reported
Spill Source:	Unknown
Spill Notifier:	Affected Persons
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Trust:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	06/28/05
Remediation Phase:	0
Date Entered In Computer:	10/01/03
Spill Record Last Update:	06/28/05
Spiller Name:	Not reported
Spiller Company:	UNKNOWN
Spiller Address:	Not reported
Spiller City,St,Zip:	NY
Spiller Company:	999
Spiller Phone:	Not reported
Contact Name:	SEAN MCKEEVER
Contact Phone:	(212) 580-6763
DEC Region:	2
Program Number:	0306932
DER Facility ID:	120391
Site ID:	140965
Operable Unit ID:	875686
Operable Unit:	01

950 UNIVERSITY AVE (Continued) **S102961872**

Material ID: 500541
Material Code: 0541A
Material Name: DIELECTRIC FLUID
Case No.: Not reported
Material FA: Petroleum
Quantity: 5.00
Units: Gallons
Recovered: 0.00
Resource Affected: Soil
Oxygenate: False
DEC Memo: Start DECRemark - 0306932 Prior to Sept, 2004 data translation this spill Lead DEC Field was "FOLEY" 01-Oct-2003 10:15 hrs I&A mechanic D. Hernandez (18527) while inspecting V-2273, located 950 University Ave (cross st is Sedgwick Ave) reports finding 5 gallons of dielectric fluid on 50 gallons of water. No fire/smoke is/was involved. No sewers/waterways/private property affected. No injuries reported at this time. Oil sample for PCB was taken (cc-15407). Environmental tag (30900) wasplaced. Unit needs to be inspected to determine source of leak. 01-Oct-2003 12:30 hrs ERT A. Meyrowitz issued EPA # (NYP004-115-507) for I&A supervisor Todd Guion to obtain CFS tanker to take liquid out of structure assist with the inspection oftransformer.Tanker ordered. 24-NOV-2003 11:06 Lab Sequence Number: 03-08130-001 TOTAL PCB 12 ppm 02-MAR-2004 09:30 <50 tanker reassigned to higher priority job 152315 by Shift Mgr. Thomas Curley at 06:30 this morning. This location plannedto be worked on the 3-11 shift today 02-Mar-2004. 10-April-2004 19:05 Hrs Flush Mechanic Esham Gafur, 19528, reports cleanup complete, leaking transformer had been drained and removed, new transformer is being installed, structure was double washed and rinsed using 760 detergent, 1 cubic yard of flush debris was removed by flush truck, 125 gallons of nonhazardous oily liquid was removed by CFS Tanker, and environmental tag was removed. END DECRemark - 0306932
Remarks: Start CallerRemark - 0306932 on 50gals of water - ref #150552 END CallerRemark - 0306932

Click this hyperlink while viewing on your computer to access additional NY_SPILL: detail in the EDR Site Report.

NY Hist Spills:
Region of Spill: 2
Spill Number: 9709956
Investigator: ENGELHARDT
Caller Name: Not reported
Caller Agency: Not reported
Caller Phone: Not reported
Notifier Name: Not reported
Notifier Agency: Not reported
Notifier Phone: Not reported
Spill Date/Time: 11/27/1997 06:00
Reported to Dept Date/Time: 11/27/97 08:37
SWIS: 60
Spiller Name: Not reported
Spiller Contact: VICENT - SUPER
Spiller Phone: (718) 588-8400
Spiller Contact: VICENT - SUPER
Spiller Phone: (718) 588-8400
Spiller Address: 950 UNIVERSITY AVE
Spiller City,St,Zip: BRONX
Spill Cause: Human Error
Reported to Dept: On Land

950 UNIVERSITY AVE (Continued) **S102961872**

Water Affected: Not reported
Spill Source: 02
Spill Notifier: Other
PBS Number: Not reported
Cleanup Ceased: / /
Cleanup Meets Std: False
Last Inspection: / /
Recommended Penalty: Penalty Not Recommended
Spiller Cleanup Dt: / /
Enforcement Date: / /
Invstgn Complete: / /
UST Involvement: False
Spill Class: Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: / /
Corrective Action Plan Submitted: / /
Date Region Sent Summary to Central Office: / /
Date Spill Entered In Computer Data File: 11/27/97
Date Spill Entered In Computer Data File: Not reported
Update Date: 12/01/97
Is Updated: False
PBS Number: Not reported
Tank Number: Not reported
Tank Size: Not reported
Test Method: Not reported
Leak Rate Failed Tank: Not reported
Gross Leak Rate: Not reported
Material Class Type: Petroleum
Quantity Spilled: 50
Unkonwn Quantity Spilled: False
Units: Gallons
Quantity Recovered: 0
Unkonwn Quantity Recovered: False
Material: #6 FUEL OIL
Class Type: #6 FUEL OIL
Times Material Entry In File: 2190
CAS Number: Not reported
Last Date: 19940728
DEC Remarks: Not reported
Remark: super was transfering oil from one storage tank to another tank and forgot to shut pump off - second tank was overfilled - spill clean up crew on way

Region of Spill: 2
Spill Number: 9800090
Investigator: MARTINKAT
Caller Name: Not reported
Caller Agency: Not reported
Caller Phone: Not reported
Notifier Name: Not reported
Notifier Agency: Not reported
Notifier Phone: Not reported
Spill Date/Time: 04/02/1998 13:00
Reported to Dept Date/Time: 04/02/98 13:19
SWIS: 60
Spiller Name: H W WILSON PUBLISHING CO.
Spiller Contact: Not reported
Spiller Phone: Not reported

950 UNIVERSITY AVE (Continued) **S102961872**

Spiller Phone: ( ) -
Spiller Address: Not reported
Spiller City,St,Zip: Not reported
Spill Cause: Other
Reported to Dept: In Sewer
Water Affected: Not reported
Spill Source: 01
Spill Notifier: Other
PBS Number: Not reported
Cleanup Ceased: / /
Cleanup Meets Std: False
Last Inspection: / /
Recommended Penalty: Penalty Not Recommended
Spiller Cleanup Dt: / /
Enforcement Date: / /
Invstgn Complete: / /
UST Involvement: False
Spill Class: Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: 04/02/98
Corrective Action Plan Submitted: / /
Date Region Sent Summary to Central Office: / /
Date Spill Entered In Computer Data File: 04/02/98
Date Spill Entered In Computer Data File: Not reported
Update Date: 04/03/98
Is Updated: False
PBS Number: Not reported
Tank Number: Not reported
Tank Size: Not reported
Test Method: Not reported
Leak Rate Failed Tank: Not reported
Gross Leak Rate: Not reported
Material Class Type: Petroleum
Quantity Spilled: 1
Unkonwn Quantity Spilled: False
Units: Gallons
Quantity Recovered: 0
Unkonwn Quantity Recovered: False
Material: #6 FUEL OIL
Class Type: #6 FUEL OIL
Times Material Entry In File: 2190
CAS Number: Not reported
Last Date: 19940728
DEC Remarks: FAX TO ECS.
Remark: INFORMATION IS 3RD PARTY THROUGH CON ED. CALLER BELIEVES THER THERE WAS AN OVERFLOW PROBLEM. NO FURTHER INFORMATION.

HIST LTANKS:
Region of Spill: 2
Spill Number: 9800094
Investigator: TANG
Caller Name: Not reported
Caller Agency: Not reported
Caller Phone: Not reported
Caller Extension: Not reported
Notifier Name: Not reported
Notifier Agency: Not reported

950 UNIVERSITY AVE (Continued) **S102961872**

Notifier Phone:	Not reported
Notifier Extension:	Not reported
Spill Date:	04/02/1998
Spill Time:	13:30
Reported to Department Date:	04/02/98
Reported to Department Time:	13:43
SWIS:	60
Spiller Contact:	ANN MARIE
Spiller Phone:	(212) 374-5500
Spiller Extention:	Not reported
Spiller Name:	UNKNOWN
Spiller Address:	Not reported
Spiller City,St,Zip:	Not reported
Facility Contact:	Not reported
Facility Phone:	Not reported
Facility Extention:	Not reported
Spill Cause:	Tank Overfill
Resource Affectd:	On Land
Water Affected:	Not reported
Spill Source:	Other Non Commercial/Industrial
Spill Notifier:	Local Agency
PBS Number:	Not reported
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Date:	/ /
Enforcement Date:	/ /
Investigation Complete:	/ /
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	04/02/98
Date Region Sent Summary to Central Office:	/ /
Corrective Action Plan Submitted:	/ /
Date Spill Entered In Computer Data File:	04/02/98
Time Spill Entered In Computer Data File:	Not reported
Spill Record Last Update:	04/03/98
Is Updated:	False
PBS Number:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate Failed Tank:	Not reported
Gross Leak Rate:	Not reported
Material Class Type:	Petroleum
Quantity Spilled:	1
Unkonwn Quantity Spilled:	False
Units:	Gallons
Quantity Recovered:	0
Unkonwn Quantity Recovered:	False
Material:	#2 FUEL OIL
Class Type:	#2 FUEL OIL
Times Material Entry In File:	24464
CAS Number:	Not reported
Last Date:	19941207

DEC Remarks: Not reported

950 UNIVERSITY AVE (Continued) **S102961872**

Spill Cause: tank overfilled caller not sure if any got into sewers

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238 NW 1/4-1/2 2628 ft. **APARTMENT BLDG. 853 RIVERSIDE DR MANHATTAN, NY** **LTANKS** **S106471669 N/A**

Relative: Lower

Actual: 95 ft.

LTANKS:

Site ID:	320467
Spill Date:	05/17/04
Facility Addr2:	Not reported
Facility ID:	0401736
Program Number:	0401736
SWIS:	3101
Region of Spill:	2
Investigator:	JMKRIMGO
Referred To:	Not reported
Reported to Dept:	05/17/04
CID:	15
Spill Cause:	Tank Failure
Water Affected:	Not reported
Spill Source:	Commercial/Industrial
Spill Notifier:	Responsible Party
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	False
Spill Class:	Known release that creates potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	06/02/04
Remediation Phase:	0
Date Entered In Computer:	05/17/04
Spill Record Last Update:	06/07/04
Spille Namer:	TONY PERETTA
Spiller Company:	MYSTIC TRANSPORTATION
Spiller Phone:	(718) 932-9075
Spiller Extention:	275
Spiller Address:	19-01 STEINWAY ST
Spiller City,St,Zip:	ASTORIA, NY 11105
Spiller County:	001
Spiller Contact:	SUPER
Spiller Phone:	Not reported
Spiller Extention:	Not reported
DEC Region:	2
Program Number:	0401736
DER Facility ID:	258196
Site ID:	320467
Operable Unit ID:	883577
Operable Unit:	01
Material ID:	492928
Material Code:	0002
Material Name:	#4 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	10.00
Units:	Gallons
Recovered:	0.00

APARTMENT BLDG. (Continued) **S106471669**

Resource Affected:	Soil
Oxygenate:	False
Site ID:	Not reported
Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported
DEC Memo:	Start DECRemark - 0401736 Prior to Sept, 2004 data translation this spill Lead DEC Field was "KRIMGOLD" 5/18/04. J.Krimgold at site. Eastmond performing a cleanup. During last oil delivery AST was over pressurized and an epoxy patch on the top of the tank let go. After cleaning up of the spill Eastmond will repair the tank. 6/3/04. J.Krimgold spoke to Rene. Cleanup has been completed. NFA. END DECRemark - 0401736
Remarks:	Start CallerRemark - 0401736 EASTMAN AND SONS ENVIRONMENTAL WILL BE HANDLING THE CLEANUP. THE SPILL IS CONTAINED TO THE TANK ROOM OF THE APARTMENT BUILDING. PHONE NUMBER FOR EASTMAN AND SONS IS 718-378-7000 ***uPDATE: CAHNGE OF ADDRESS AND CLEAN UP IS DONE: * END CallerRemark - 0401736

BA239 **RESIDENTS** **LTANKS** **S105997948**
SSW **416 W.145TH ST** **N/A**
1/4-1/2 **NEW YORK CITY, NY**
2633 ft.

Site 1 of 2 in cluster BA

Relative:
Lower

Actual:
87 ft.

LTANKS:

Site ID:	226851
Spill Date:	01/18/03
Facility Addr2:	Not reported
Facility ID:	0210504
Program Number:	0210504
SWIS:	3101
Region of Spill:	2
Investigator:	JXZHAO
Referred To:	Not reported
Reported to Dept:	01/18/03
CID:	15
Spill Cause:	Tank Failure
Water Affected:	Not reported
Spill Source:	Private Dwelling
Spill Notifier:	Other
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	01/23/03
Remediation Phase:	0
Date Entered In Computer:	01/18/03
Spill Record Last Update:	02/20/03
Spille Namer:	N/A
Spiller Company:	OWNER OF 416 WEST 145 STR

RESIDENTS (Continued) **S105997948**

Spiller Phone:	Not reported
Spiller Extention:	Not reported
Spiller Address:	SAME]
Spiller City,St,Zip:	NEW YORK CITY, NY
Spiller County:	001
Spiller Contact:	FRANK RIZZO
Spiller Phone:	(718) 828-3100
Spiller Extention:	Not reported
DEC Region:	2
Program Number:	0210504
DER Facility ID:	187237
Site ID:	226851
Operable Unit ID:	861715
Operable Unit:	01
Material ID:	513882
Material Code:	0001
Material Name:	#2 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	6.00
Units:	Gallons
Recovered:	6.00
Resource Affected:	Soil
Oxygenate:	False
Site ID:	Not reported
Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported
DEC Memo:	Start DECRemark - 0210504 Prior to Sept, 2004 data translation this spill Lead DEC Field was "ZHAO" 1/23/2003 Spill closed. Same spill as 0210501. END DECRemark - 0210504
Remarks:	Start CallerRemark - 0210504 A 550 GALLON TANK FAILED AND LEAKED THEY REMOVED THE TANK AND ARE GOING TO REPAIR THE TANK AND RETURN IT BACK TO THE DWELLING LOCATION IS A 3 FAMILY APARTMENT HOUSE. END CallerRemark - 0210504

BA240 **LTANKS** **S105997946**
SSW **416 W 145TH ST** **N/A**
1/4-1/2 **MANHATTAN, NY**
2633 ft.

Site 2 of 2 in cluster BA

Relative:
Lower

Actual:
87 ft.

LTANKS:

Site ID:	254582
Spill Date:	01/18/03
Facility Addr2:	Not reported
Facility ID:	0210501
Program Number:	0210501
SWIS:	3101
Region of Spill:	2
Investigator:	JXZHAO
Referred To:	Not reported
Reported to Dept:	01/18/03

(Continued) **S105997946**

CID:	15
Spill Cause:	Tank Failure
Water Affected:	Not reported
Spill Source:	Private Dwelling
Spill Notifier:	Other
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	01/23/03
Remediation Phase:	0
Date Entered In Computer:	01/18/03
Spill Record Last Update:	01/23/03
Spille Namer:	Not reported
Spiller Company:	SAME
Spiller Phone:	Not reported
Spiller Extention:	Not reported
Spiller Address:	Not reported
Spiller City,St,Zip:	NN
Spiller County:	999
Spiller Contact:	ANTHONY LARA
Spiller Phone:	(718) 624-4842
Spiller Extention:	Not reported
DEC Region:	2
Program Number:	0210501
DER Facility ID:	208513
Site ID:	254582
Operable Unit ID:	863924
Operable Unit:	01
Material ID:	552534
Material Code:	0001
Material Name:	#2 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	20.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
Site ID:	Not reported
Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported
DEC Memo:	Start DECRemark - 0210501 Prior to Sept, 2004 data translation this spill Lead DEC Field was "ZHAO" 1/18/2003 - 15:15pm Zhao inspected the site during clean up. There were two 275 gal AST connected ASTs. One had leaked. Tank was emptied, disconnected with the another and removed. Minor spill on concrete floor and Robani Energy was on scene for fixing the system and final clean up.

(Continued) **S105997946**

Remarks: Clean up was completed at 16:20pm. Spill closed. END DECRemark - 0210501 Start CallerRemark - 0210501 crystal transport called pet. tank cleaners ref to a leaking tank at above. they are on the way for clean up. END CallerRemark - 0210501

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241 SSE 1/2-1 5255 ft. | **2350 FIFTH AVENUE CORP** | **2350 5TH AVE** | **NEW YORK, NY 10037** | **RCRA-SQG** **SHWS** **FINDS** **DRYCLEANERS** **NY MANIFEST** | **1000108749** **NYD071026173**

Relative: Lower

Actual: 4 ft.

RCRAInfo:

Owner: 2350 FIFTH AVENUE CORP
(212) 234-5000
EPA ID: NYD071026173

Contact: JOSEPH KARTEN
(212) 234-5000

Classification: Small Quantity Generator
TSDF Activities: Not reported

Violation Status: Violations exist

Regulation Violated: Not reported
Area of Violation: GENERATOR-RECORDKEEPING REQUIREMENTS
Date Violation Determined: 08/03/1989
Actual Date Achieved Compliance: 08/03/1989

Regulation Violated: Not reported
Area of Violation: GENERATOR-RECORDKEEPING REQUIREMENTS
Date Violation Determined: 01/05/1988
Actual Date Achieved Compliance: 01/05/1988

Enforcement Action: WRITTEN INFORMAL
Enforcement Action Date: 01/05/1988
Penalty Type: Not reported

There are 2 violation record(s) reported at this site:

Evaluation	Area of Violation	Date of Compliance
Non-Financial Record Review	GENERATOR-RECORDKEEPING REQUIREMENTS	19890803
Non-Financial Record Review	GENERATOR-RECORDKEEPING REQUIREMENTS	19880105

SHWS:

Program: HW
Site Code: 57691
Classification: SIGNIFICANT THREAT TO THE PUBLIC HEALTH OR ENVIRONMENT - ACTION REQUIRED.
Region: 2
Acres: 1.700
HW Code: 231004
Record Add: 1999-11-18 12:00:00
Record Upd: 2007-04-05 13:00:00
Updated By: dcwalsh
Site Description: The site is located on the west side of Fifth Avenue between 141st Street and 142nd Street in Manhattan. The entire site is occupied by a building comprised of three connected sections. The site is at an elevation of about 10 feet or less above mean sea level. Surrounding the Site are multi-story residential buildings on the west, south and southeast; the Harlem River Drive and the Harlem River on the east, and the 369th Regiment Armory to the north. From

2350 FIFTH AVENUE CORP (Continued) **1000108749**

1970 to 1994 the Site was occupied by an industrial laundry with a dry cleaning operation utilizing tetrachloroethylene (PCE) as a cleaning solvent. A portion of the building was renovated for use as a public school, but such use was discontinued. Soil Vapor Extraction system (SVE) was installed as part of the Interim Remedial Measures (IRM) to remove PCE. The SVE has been operated continuously since 1997, and was renovated in 2002. April 2005, the SVE has was shut off to evaluate the performance of the remedy, during one of the indoor air quality monitoring TCE concentration was found to be above the DOH guidance value (5 microgram per cubic meter) The SVE system was re-activated on December 18, 2006. Remedial Investigation to delineate the full extent of contamination are underway.

Environmental Problems: From 1970 to 1994 the Site was occupied by an industrial laundry with a dry cleaning operation utilizing tetrachloroethylene (PCE) as a cleaning solvent. Soils beneath the Site, and on-site and off-site groundwater are contaminated with PCE. Additional investigation is necessary to fully delineate the contamination. Exceedances of NYSDOH indoor air guidandance value for TCE and PCE in the former boiler room in the basement which is below Room 112.

Health Problems Assesment: During renovations to the building in 1996-1997, several rounds of indoor air testing were conducted and on one occasion the data indicated the presence of tetrachloroethene (PCE) above the NYSDOH residential indoor air guideline of 15 parts per billion (ppb). Interim remedial measures initiated during 1997 to address the source of the contamination included the installation and operation of a shallow soil vapor extraction system. These measures have generally resulted in reducing the levels of tetrachloroethene in indoor air to levels below the15 ppb guideline. Indoor air sampling conducted in April 2002 only detected trace concentrations of PCE. Exposure to contaminated groundwater is unlikely as public drinking water is suppliedto the entire community. Exposure to contaminated soils is unlikely as the affected areas are covered by buildings or pavement.

Dump:	False
Structure:	True
Lagoon:	False
Landfill:	False
Pond:	False
Disp Start:	1970
Disp Term:	1994
Lat/Long:	40:49:02:0 / 73:56:07:0
Dell:	F
Record Add:	11/18/99
Record Upd:	12/23/04
Updated By:	JMOCONNE
Own Op:	03
Sub Type:	NNN
Owner Name:	Not reported
Owner Company:	INNER CITY REDEVELOPMENT CORPORATION
Owner Address:	Not reported
Owner Addr2:	Not reported
Owner City,St,Zip:	ZZ
Owner Country:	United States of America
Own Op:	01
Sub Type:	NNN
Owner Name:	Not reported
Owner Company:	Inner City Redevelopment Corporation
Owner Address:	2350 Fifth Avenue
Owner Addr2:	Not reported
Owner City,St,Zip:	New York, NY 10037
Owner Country:	United States of America

2350 FIFTH AVENUE CORP (Continued) **1000108749**

Own Op:	01
Sub Type:	E
Owner Name:	Not reported
Owner Company:	INNER CITY REDEVELOPMENT CORPORATION
Owner Address:	2350 FIFTH AVE.
Owner Addr2:	Not reported
Owner City,St,Zip:	NEW YORK, NY 10037
Owner Country:	United States of America
Own Op:	04
Sub Type:	NNN
Owner Name:	Not reported
Owner Company:	Inner City Redevelopment Corporation
Owner Address:	23050 Fifth Avenue
Owner Addr2:	Not reported
Owner City,St,Zip:	New York, NY 10037
Owner Country:	United States of America
Own Op:	04
Sub Type:	E
Owner Name:	Not reported
Owner Company:	INNER CITY REDEVELOPMENT CORPORATION
Owner Address:	2350 FIFTH AVE
Owner Addr2:	Not reported
Owner City,St,Zip:	NEW YORK, NY
Owner Country:	United States of America
HW Code:	231004
Waste Type:	TETRACHLOROETHYLENE (PCE)
Waste Quantity:	UNKNOWN
Waste Code:	Not reported
HW Code:	231004
Waste Type:	TETRACHLOROETHYLENE (PCE)
Waste Quantity:	UNKNOWN
Waste Code:	Not reported
HW Code:	231004
Waste Type:	BENZO(A)PYRENE
Waste Quantity:	UNKNOWN
Waste Code:	Not reported
Crossref ID:	Not reported
Cross Ref Type Code:	Not reported
Cross Ref Type:	Not reported
Record Added Date:	Not reported
Record Updated:	Not reported
Updated By:	Not reported

FINDS:
Other Pertinent Environmental Activity Identified at Site

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

DRYCLEANERS:
Facility ID: 2-6203-00165

2350 FIFTH AVENUE CORP (Continued) **1000108749**

Region: NY

NY MANIFEST:

Document ID:	MNA5030458
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	861107
Trans1 Recv Date:	861107
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	861107
Part A Recv Date:	861118
Part B Recv Date:	861120
Generator EPA ID:	NYD071026173
Trans1 EPA ID:	ILD000805911
Trans2 EPA ID:	Not reported
TSDF ID:	NJD000768093
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	01040
Units:	P - Pounds
Number of Containers:	013
Container Type:	CF - Fiber or plastic boxes, cartons
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	01260
Units:	P - Pounds
Number of Containers:	012
Container Type:	DM - Metal drums, barrels
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Year:	86
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD071026173
Facility Name:	2350 LAUNDRY & DRY CLNG CORP
Facility Address:	2350 FIFTH AVE
Facility City:	NEW YORK
Facility Address 2:	Not reported
Country:	USA
County:	NE
Mailing Name:	2350 LAUNDRY & DRY CLNG CORP
Mailing Contact:	2350 LAUNDRY & DRY CLNG CORP
Mailing Address:	2350 FIFTH AVENUE
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY

2350 FIFTH AVENUE CORP (Continued) **1000108749**

Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-862-5517
Document ID:	NJA0215392
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	860811
Trans1 Recv Date:	860811
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	860811
Part A Recv Date:	860820
Part B Recv Date:	860821
Generator EPA ID:	NYD071026173
Trans1 EPA ID:	ILD000805911
Trans2 EPA ID:	Not reported
TSDF ID:	NJD000768093
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	01600
Units:	P - Pounds
Number of Containers:	020
Container Type:	CM - Metal boxes, cases, roll-offs
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	00810
Units:	P - Pounds
Number of Containers:	009
Container Type:	DM - Metal drums, barrels
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Year:	86
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD071026173
Facility Name:	2350 LAUNDRY & DRY CLNG CORP
Facility Address:	2350 FIFTH AVE
Facility City:	NEW YORK
Facility Address 2:	Not reported
Country:	USA
County:	NE
Mailing Name:	2350 LAUNDRY & DRY CLNG CORP
Mailing Contact:	2350 LAUNDRY & DRY CLNG CORP
Mailing Address:	2350 FIFTH AVENUE
Mailing Address 2:	Not reported

2350 FIFTH AVENUE CORP (Continued) **1000108749**

Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-862-5517
Document ID:	NJA0319671
Manifest Status:	Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	870506
Trans1 Recv Date:	870506
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	870506
Part A Recv Date:	870608
Part B Recv Date:	870519
Generator EPA ID:	NYD071026173
Trans1 EPA ID:	ILD000805911
Trans2 EPA ID:	Not reported
TSDF ID:	NJD000768093
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	01600
Units:	P - Pounds
Number of Containers:	020
Container Type:	CF - Fiber or plastic boxes, cartons
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	02925
Units:	P - Pounds
Number of Containers:	015
Container Type:	DM - Metal drums, barrels
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Year:	87
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD071026173
Facility Name:	2350 LAUNDRY & DRY CLNG CORP
Facility Address:	2350 FIFTH AVE
Facility City:	NEW YORK
Facility Address 2:	Not reported
Country:	USA
County:	NE
Mailing Name:	2350 LAUNDRY & DRY CLNG CORP
Mailing Contact:	2350 LAUNDRY & DRY CLNG CORP

2350 FIFTH AVENUE CORP (Continued) **1000108749**

Mailing Address:	2350 FIFTH AVENUE
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-862-5517
Document ID:	NJA0177425
Manifest Status:	Completed copy
Trans1 State ID:	NJSWAS284
Trans2 State ID:	Not reported
Generator Ship Date:	860106
Trans1 Recv Date:	860106
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	860106
Part A Recv Date:	860117
Part B Recv Date:	860115
Generator EPA ID:	NYD071026173
Trans1 EPA ID:	NJD002200046
Trans2 EPA ID:	Not reported
TSDF ID:	NJD002200046
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	01748
Units:	P - Pounds
Number of Containers:	023
Container Type:	CF - Fiber or plastic boxes, cartons
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	00120
Units:	P - Pounds
Number of Containers:	002
Container Type:	CF - Fiber or plastic boxes, cartons
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Year:	86
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD071026173
Facility Name:	2350 LAUNDRY & DRY CLNG CORP
Facility Address:	2350 FIFTH AVE
Facility City:	NEW YORK
Facility Address 2:	Not reported
Country:	USA
County:	NE

2350 FIFTH AVENUE CORP (Continued) **1000108749**

Mailing Name:	2350 LAUNDRY & DRY CLNG CORP
Mailing Contact:	2350 LAUNDRY & DRY CLNG CORP
Mailing Address:	2350 FIFTH AVENUE
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-862-5517
Document ID:	MNA5025569
Manifest Status:	Completed copy
Trans1 State ID:	000000000
Trans2 State ID:	Not reported
Generator Ship Date:	861128
Trans1 Recv Date:	861128
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	861128
Part A Recv Date:	861212
Part B Recv Date:	861212
Generator EPA ID:	NYD071026173
Trans1 EPA ID:	NJD000768093
Trans2 EPA ID:	Not reported
TSDF ID:	NJD000768093
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00150
Units:	P - Pounds
Number of Containers:	001
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	00320
Units:	P - Pounds
Number of Containers:	004
Container Type:	CF - Fiber or plastic boxes, cartons
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Year:	86
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD071026173
Facility Name:	2350 LAUNDRY & DRY CLNG CORP
Facility Address:	2350 FIFTH AVE
Facility City:	NEW YORK
Facility Address 2:	Not reported

2350 FIFTH AVENUE CORP (Continued) **1000108749**

Country:	USA
County:	NE
Mailing Name:	2350 LAUNDRY & DRY CLNG CORP
Mailing Contact:	2350 LAUNDRY & DRY CLNG CORP
Mailing Address:	2350 FIFTH AVENUE
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-862-5517
Document ID:	NJA0232508
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS-86
Trans2 State ID:	Not reported
Generator Ship Date:	861125
Trans1 Recv Date:	861125
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	861125
Part A Recv Date:	861208
Part B Recv Date:	861209
Generator EPA ID:	NYD071026173
Trans1 EPA ID:	ILD000805911
Trans2 EPA ID:	Not reported
TSDF ID:	NJD000768093
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	01320
Units:	P - Pounds
Number of Containers:	012
Container Type:	CF - Fiber or plastic boxes, cartons
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	00750
Units:	P - Pounds
Number of Containers:	005
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	00360
Units:	P - Pounds
Number of Containers:	006
Container Type:	DM - Metal drums, barrels
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Year:	86
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported

2350 FIFTH AVENUE CORP (Continued) **1000108749**

Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD071026173
Facility Name:	2350 LAUNDRY & DRY CLNG CORP
Facility Address:	2350 FIFTH AVE
Facility City:	NEW YORK
Facility Address 2:	Not reported
Country:	USA
County:	NE
Mailing Name:	2350 LAUNDRY & DRY CLNG CORP
Mailing Contact:	2350 LAUNDRY & DRY CLNG CORP
Mailing Address:	2350 FIFTH AVENUE
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-862-5517

Document ID:	NJA0245002
Manifest Status:	Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	861119
Trans1 Recv Date:	861119
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	861119
Part A Recv Date:	861230
Part B Recv Date:	861201
Generator EPA ID:	NYD071026173
Trans1 EPA ID:	ILD000805911
Trans2 EPA ID:	Not reported
TSDF ID:	NJD000768093
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	00045
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Year:	86
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD071026173

2350 FIFTH AVENUE CORP (Continued) **1000108749**

Facility Name:	2350 LAUNDRY & DRY CLNG CORP
Facility Address:	2350 FIFTH AVE
Facility City:	NEW YORK
Facility Address 2:	Not reported
Country:	USA
County:	NE
Mailing Name:	2350 LAUNDRY & DRY CLNG CORP
Mailing Contact:	2350 LAUNDRY & DRY CLNG CORP
Mailing Address:	2350 FIFTH AVENUE
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-862-5517
Document ID:	MNA5052590
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	870411
Trans1 Recv Date:	870411
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	870411
Part A Recv Date:	870427
Part B Recv Date:	870429
Generator EPA ID:	NYD071026173
Trans1 EPA ID:	NJD000768093
Trans2 EPA ID:	Not reported
TSDF ID:	NJD000768093
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	01280
Units:	P - Pounds
Number of Containers:	016
Container Type:	CF - Fiber or plastic boxes, cartons
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	00630
Units:	P - Pounds
Number of Containers:	009
Container Type:	DM - Metal drums, barrels
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	01560
Units:	P - Pounds
Number of Containers:	008
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Year:	87
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported

2350 FIFTH AVENUE CORP (Continued) **1000108749**

Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD071026173
Facility Name:	2350 LAUNDRY & DRY CLNG CORP
Facility Address:	2350 FIFTH AVE
Facility City:	NEW YORK
Facility Address 2:	Not reported
Country:	USA
County:	NE
Mailing Name:	2350 LAUNDRY & DRY CLNG CORP
Mailing Contact:	2350 LAUNDRY & DRY CLNG CORP
Mailing Address:	2350 FIFTH AVENUE
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-862-5517
Document ID:	NJA1434022
Manifest Status:	Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	920430
Trans1 Recv Date:	920430
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	920430
Part A Recv Date:	Not reported
Part B Recv Date:	920603
Generator EPA ID:	NYD071026173
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NJD000768093
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	00135
Units:	P - Pounds
Number of Containers:	001
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	00320
Units:	P - Pounds
Number of Containers:	006
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	00195
Units:	P - Pounds

2350 FIFTH AVENUE CORP (Continued) **1000108749**

Number of Containers:	001
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	92
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD071026173
Facility Name:	2350 LAUNDRY & DRY CLNG CORP
Facility Address:	2350 FIFTH AVE
Facility City:	NEW YORK
Facility Address 2:	Not reported
Country:	USA
County:	NE
Mailing Name:	2350 LAUNDRY & DRY CLNG CORP
Mailing Contact:	2350 LAUNDRY & DRY CLNG CORP
Mailing Address:	2350 FIFTH AVENUE
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-862-5517
Document ID:	NJA1351869
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	921112
Trans1 Recv Date:	921112
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	921112
Part A Recv Date:	921123
Part B Recv Date:	921201
Generator EPA ID:	NYD071026173
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NJD000768093
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00960
Units:	P - Pounds
Number of Containers:	016
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Waste Code:	Not reported

2350 FIFTH AVENUE CORP (Continued) **1000108749**

Quantity:	00600
Units:	P - Pounds
Number of Containers:	004
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	92
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD071026173
Facility Name:	2350 LAUNDRY & DRY CLNG CORP
Facility Address:	2350 FIFTH AVE
Facility City:	NEW YORK
Facility Address 2:	Not reported
Country:	USA
County:	NE
Mailing Name:	2350 LAUNDRY & DRY CLNG CORP
Mailing Contact:	2350 LAUNDRY & DRY CLNG CORP
Mailing Address:	2350 FIFTH AVENUE
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-862-5517
Document ID:	NJA1331836
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	920226
Trans1 Recv Date:	920226
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	920226
Part A Recv Date:	Not reported
Part B Recv Date:	920311
Generator EPA ID:	NYD071026173
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NJD000768093
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	00045
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	R Material recovery of more than 75 percent of the total material.

2350 FIFTH AVENUE CORP (Continued) **1000108749**

Specific Gravity:	100
Year:	92
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD071026173
Facility Name:	2350 LAUNDRY & DRY CLNG CORP
Facility Address:	2350 FIFTH AVE
Facility City:	NEW YORK
Facility Address 2:	Not reported
Country:	USA
County:	NE
Mailing Name:	2350 LAUNDRY & DRY CLNG CORP
Mailing Contact:	2350 LAUNDRY & DRY CLNG CORP
Mailing Address:	2350 FIFTH AVENUE
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-862-5517

Document ID:	NJA1617484
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	921217
Trans1 Recv Date:	921217
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	921217
Part A Recv Date:	921230
Part B Recv Date:	921230
Generator EPA ID:	NYD071026173
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NJD000768093
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	01470
Units:	P - Pounds
Number of Containers:	022
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	00195
Units:	P - Pounds
Number of Containers:	001

2350 FIFTH AVENUE CORP (Continued) **1000108749**

Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	92
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD071026173
Facility Name:	2350 LAUNDRY & DRY CLNG CORP
Facility Address:	2350 FIFTH AVE
Facility City:	NEW YORK
Facility Address 2:	Not reported
Country:	USA
County:	NE
Mailing Name:	2350 LAUNDRY & DRY CLNG CORP
Mailing Contact:	2350 LAUNDRY & DRY CLNG CORP
Mailing Address:	2350 FIFTH AVENUE
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-862-5517
Document ID:	NJA1422797
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	920605
Trans1 Recv Date:	920605
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	920605
Part A Recv Date:	Not reported
Part B Recv Date:	920619
Generator EPA ID:	NYD071026173
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NJD000768093
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	00202
Units:	P - Pounds
Number of Containers:	002
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	00390

2350 FIFTH AVENUE CORP (Continued) **1000108749**

Units:	P - Pounds
Number of Containers:	002
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	00550
Units:	P - Pounds
Number of Containers:	011
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	92
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD071026173
Facility Name:	2350 LAUNDRY & DRY CLNG CORP
Facility Address:	2350 FIFTH AVE
Facility City:	NEW YORK
Facility Address 2:	Not reported
Country:	USA
County:	NE
Mailing Name:	2350 LAUNDRY & DRY CLNG CORP
Mailing Contact:	2350 LAUNDRY & DRY CLNG CORP
Mailing Address:	2350 FIFTH AVENUE
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-862-5517
Document ID:	NJA1461457
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	920611
Trans1 Recv Date:	920611
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	920611
Part A Recv Date:	Not reported
Part B Recv Date:	920624
Generator EPA ID:	NYD071026173
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NJD000768093

2350 FIFTH AVENUE CORP (Continued) **1000108749**

Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	00045
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Year:	92
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD071026173
Facility Name:	2350 LAUNDRY & DRY CLNG CORP
Facility Address:	2350 FIFTH AVE
Facility City:	NEW YORK
Facility Address 2:	Not reported
Country:	USA
County:	NE
Mailing Name:	2350 LAUNDRY & DRY CLNG CORP
Mailing Contact:	2350 LAUNDRY & DRY CLNG CORP
Mailing Address:	2350 FIFTH AVENUE
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-862-5517
Document ID:	NJA1338888
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	920316
Trans1 Recv Date:	920316
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	920316
Part A Recv Date:	Not reported
Part B Recv Date:	920324
Generator EPA ID:	NYD071026173
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NJD000768093
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	00045
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels

2350 FIFTH AVENUE CORP (Continued) **1000108749**

Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Year:	92
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD071026173
Facility Name:	2350 LAUNDRY & DRY CLNG CORP
Facility Address:	2350 FIFTH AVE
Facility City:	NEW YORK
Facility Address 2:	Not reported
Country:	USA
County:	NE
Mailing Name:	2350 LAUNDRY & DRY CLNG CORP
Mailing Contact:	2350 LAUNDRY & DRY CLNG CORP
Mailing Address:	2350 FIFTH AVENUE
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-862-5517
Document ID:	NJA1374173
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	920116
Trans1 Recv Date:	920116
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	920116
Part A Recv Date:	Not reported
Part B Recv Date:	920204
Generator EPA ID:	NYD071026173
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NJD000768093
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	00045
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Year:	92
Manifest Tracking Num:	Not reported
Import Ind:	Not reported

2350 FIFTH AVENUE CORP (Continued) **1000108749**

Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD071026173
Facility Name:	2350 LAUNDRY & DRY CLNG CORP
Facility Address:	2350 FIFTH AVE
Facility City:	NEW YORK
Facility Address 2:	Not reported
Country:	USA
County:	NE
Mailing Name:	2350 LAUNDRY & DRY CLNG CORP
Mailing Contact:	2350 LAUNDRY & DRY CLNG CORP
Mailing Address:	2350 FIFTH AVENUE
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-862-5517
Document ID:	NJA1423039
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	920319
Trans1 Recv Date:	920319
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	920319
Part A Recv Date:	920326
Part B Recv Date:	920330
Generator EPA ID:	NYD071026173
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NJD000768093
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00300
Units:	P - Pounds
Number of Containers:	005
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	00195
Units:	P - Pounds
Number of Containers:	001
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	92

2350 FIFTH AVENUE CORP (Continued) **1000108749**

Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD071026173
Facility Name:	2350 LAUNDRY & DRY CLNG CORP
Facility Address:	2350 FIFTH AVE
Facility City:	NEW YORK
Facility Address 2:	Not reported
Country:	USA
County:	NE
Mailing Name:	2350 LAUNDRY & DRY CLNG CORP
Mailing Contact:	2350 LAUNDRY & DRY CLNG CORP
Mailing Address:	2350 FIFTH AVENUE
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-862-5517
Document ID:	NJA1436697
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	920625
Trans1 Recv Date:	920625
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	920625
Part A Recv Date:	Not reported
Part B Recv Date:	920703
Generator EPA ID:	NYD071026173
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NJD000768093
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	01060
Units:	P - Pounds
Number of Containers:	017
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	00195
Units:	P - Pounds
Number of Containers:	001
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	B Incineration, heat recovery, burning.

2350 FIFTH AVENUE CORP (Continued) **1000108749**

Specific Gravity:	100
Year:	92
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD071026173
Facility Name:	2350 LAUNDRY & DRY CLNG CORP
Facility Address:	2350 FIFTH AVE
Facility City:	NEW YORK
Facility Address 2:	Not reported
Country:	USA
County:	NE
Mailing Name:	2350 LAUNDRY & DRY CLNG CORP
Mailing Contact:	2350 LAUNDRY & DRY CLNG CORP
Mailing Address:	2350 FIFTH AVENUE
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-862-5517

Document ID:	NJA1456871
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	920630
Trans1 Recv Date:	920630
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	920630
Part A Recv Date:	Not reported
Part B Recv Date:	920710
Generator EPA ID:	NYD071026173
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NJD000768093
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	00045
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Year:	92
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported

2350 FIFTH AVENUE CORP (Continued) **1000108749**

Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD071026173
Facility Name:	2350 LAUNDRY & DRY CLNG CORP
Facility Address:	2350 FIFTH AVE
Facility City:	NEW YORK
Facility Address 2:	Not reported
Country:	USA
County:	NE
Mailing Name:	2350 LAUNDRY & DRY CLNG CORP
Mailing Contact:	2350 LAUNDRY & DRY CLNG CORP
Mailing Address:	2350 FIFTH AVENUE
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-862-5517
Document ID:	NJA1366669
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	920124
Trans1 Recv Date:	920124
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	920124
Part A Recv Date:	920130
Part B Recv Date:	920207
Generator EPA ID:	NYD071026173
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NJD000768093
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00932
Units:	P - Pounds
Number of Containers:	017
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	00195
Units:	P - Pounds
Number of Containers:	001
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	92
Manifest Tracking Num:	Not reported

2350 FIFTH AVENUE CORP (Continued) **1000108749**

Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD071026173
Facility Name:	2350 LAUNDRY & DRY CLNG CORP
Facility Address:	2350 FIFTH AVE
Facility City:	NEW YORK
Facility Address 2:	Not reported
Country:	USA
County:	NE
Mailing Name:	2350 LAUNDRY & DRY CLNG CORP
Mailing Contact:	2350 LAUNDRY & DRY CLNG CORP
Mailing Address:	2350 FIFTH AVENUE
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-862-5517

Click this hyperlink while viewing on your computer to access
292 additional NY_MANIFEST: record(s) in the EDR Site Report.

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
MANHATTAN	S108298483	564 WEST 160TH STREET	564 WEST 160TH STREET	10032	LTANKS
NEW YORK	1009237939	CONSOLIDATED EDISON	V2062-W 151ST ST / ST NICHOL		NY MANIFEST
NEW YORK	1004761989	NYCDEP - SHAFT 9B	155TH ST W OF AMSTERDAM AVE	10032	RCRA-SQG, FINDS
NEW YORK	1001203039	NEW YORK CITY DEPT OF TRANSPORTATI	158TH ST YARD OVER AMTRAC	10032	FINDS, RCRA-LQG, NY MANIFEST
NEW YORK	S104654272	133 STREET AT	AMSTERDAM AVENUE		NY Spills, NY Hist Spills
NEW YORK	A100183511	1608-10 AMSTERDAM AVENUE H.D.F.C.	1608-10 AMSTERDAM AVENUE H.D.F	10031	AST
NEW YORK	A100183519	HIGHBRIDGE PARK PARTNERS LLC	2220 AMSTERDAM AVE. A/K/A	10032	AST
NEW YORK	S106698658	MANHOLE 58594	AMSTERDAM AVE/WEST 62ND S		NY Spills
NEW YORK	A100296299	CITY COLLEGE OF NEW YORK	CONVENT AVENUE AND 138TH STREE	10031	AST
NEW YORK	U001841935	CITY COLLEGE OF NEW YORK - CUNY	CONVENT AVE./138TH ST.(NAC.BOI	10031	HIST UST
NEW YORK	U004062304	CITY COLLEGE OF NEW YORK	CONVENT AVENUE AND 138TH STREE	10031	UST
NEW YORK	S106009241	405 EDGECOMBE AVE	405 EDGECOMBE AVENUE	10032	NY Spills
NEW YORK	S108650388	CONED	FREDERICK DOUGLASS BLVD / 11		NY MANIFEST
NEW YORK	1009226161	CONSOLIDATED EDISON	MH24816-W 152ND ST / AMSTERD	10031	NY MANIFEST
NEW YORK	1007371335	NYSDOT BRIDGE BIN 1077050	RAMP TO NB HARLEM RIVER DR	10039	RCRA-LQG, NY MANIFEST
NEW YORK	S103560209	146TH STREET/ROCKAWAY BLV	ROCKAWAY BLVD/146TH ST.		NY Spills, NY Hist Spills
NEW YORK	1009237944	CONSOLIDATED EDISON	VS0400-153RD ST/79TH AVE		NY MANIFEST
NEW YORK	1007207403	V5274	W143RD ST AND BRADHURST AVE	10031	RCRA-SQG, NY MANIFEST
NEW YORK	1007207402	V8233	W163RD ST AND AMSTERDAM AVE	10032	RCRA-SQG, NY MANIFEST
NEW YORK CITY	1007207162	TM2097	155TH STREET 40 W SAINT NICHOL	10032	RCRA-SQG, NY MANIFEST
NEW YORK CITY	1007206876	W 157TH STREET AND BROADWAY	W 157TH STREET AND BROADWAY	10032	RCRA-SQG, NY MANIFEST
NY	U003396182	CITY COLLEGE OF NY	160 CONVENT AVE (NAC BOILER N.	10031	AST, HIST AST
WHITESTONE	U004046986	GRACE INDUSTRIES INC	6-45 152ND STREET	10031	UST

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Number of Days to Update: Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

FEDERAL RECORDS

NPL: National Priority List

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 07/18/2007
Date Data Arrived at EDR: 08/03/2007
Date Made Active in Reports: 08/29/2007
Number of Days to Update: 26

Source: EPA
Telephone: N/A
Last EDR Contact: 07/31/2007
Next Scheduled EDR Contact: 10/29/2007
Data Release Frequency: Quarterly

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1
Telephone 617-918-1143

EPA Region 6
Telephone: 214-655-6659

EPA Region 3
Telephone 215-814-5418

EPA Region 7
Telephone: 913-551-7247

EPA Region 4
Telephone 404-562-8033

EPA Region 8
Telephone: 303-312-6774

EPA Region 5
Telephone 312-886-6686

EPA Region 9
Telephone: 415-947-4246

EPA Region 10
Telephone 206-553-8665

Proposed NPL: Proposed National Priority List Sites

A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Date of Government Version: 08/09/2007
Date Data Arrived at EDR: 09/05/2007
Date Made Active in Reports: 10/11/2007
Number of Days to Update: 36

Source: EPA
Telephone: N/A
Last EDR Contact: 08/31/2007
Next Scheduled EDR Contact: 10/29/2007
Data Release Frequency: Quarterly

DELISTED NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 08/27/2007
Date Data Arrived at EDR: 08/29/2007
Date Made Active in Reports: 10/11/2007
Number of Days to Update: 43

Source: EPA
Telephone: N/A
Last EDR Contact: 08/29/2007
Next Scheduled EDR Contact: 10/29/2007
Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

NPL LIENS: Federal Superfund Liens

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/1991
Date Data Arrived at EDR: 02/02/1994
Date Made Active in Reports: 03/30/1994
Number of Days to Update: 56

Source: EPA
Telephone: 202-564-4267
Last EDR Contact: 08/20/2007
Next Scheduled EDR Contact: 11/19/2007
Data Release Frequency: No Update Planned

CERCLIS: Comprehensive Environmental Response, Compensation, and Liability Information System

CERCLIS contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). CERCLIS contains sites which are either proposed to or on the National Priorities List (NPL) and sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 04/23/2007
Date Data Arrived at EDR: 06/20/2007
Date Made Active in Reports: 08/29/2007
Number of Days to Update: 70

Source: EPA
Telephone: 703-412-9810
Last EDR Contact: 09/19/2007
Next Scheduled EDR Contact: 12/17/2007
Data Release Frequency: Quarterly

CERCLIS-NFRAP: CERCLIS No Further Remedial Action Planned

Archived sites are sites that have been removed and archived from the inventory of CERCLIS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list this site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. This decision does not necessarily mean that there is no hazard associated with a given site; it only means that, based upon available information, the location is not judged to be a potential NPL site.

Date of Government Version: 06/21/2007
Date Data Arrived at EDR: 07/23/2007
Date Made Active in Reports: 08/29/2007
Number of Days to Update: 37

Source: EPA
Telephone: 703-412-9810
Last EDR Contact: 09/17/2007
Next Scheduled EDR Contact: 12/17/2007
Data Release Frequency: Quarterly

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 06/26/2007
Date Data Arrived at EDR: 08/08/2007
Date Made Active in Reports: 08/29/2007
Number of Days to Update: 21

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 09/04/2007
Next Scheduled EDR Contact: 12/03/2007
Data Release Frequency: Quarterly

RCRA: Resource Conservation and Recovery Act Information

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. RCRAInfo replaces the data recording and reporting abilities of the Resource Conservation and Recovery Information System (RCRIS). The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month. Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month. Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month. Transporters are individuals or entities that move hazardous waste from the generator off-site to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 06/13/2006
Date Data Arrived at EDR: 06/28/2006
Date Made Active in Reports: 08/23/2006
Number of Days to Update: 56

Source: EPA
Telephone: (212) 637-3660
Last EDR Contact: 10/16/2007
Next Scheduled EDR Contact: 01/14/2008
Data Release Frequency: Quarterly

ERNS: Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 12/31/2006
Date Data Arrived at EDR: 01/24/2007
Date Made Active in Reports: 03/12/2007
Number of Days to Update: 47

Source: National Response Center, United States Coast Guard
Telephone: 202-267-2180
Last EDR Contact: 10/19/2007
Next Scheduled EDR Contact: 01/21/2008
Data Release Frequency: Annually

HMIRS: Hazardous Materials Information Reporting System

Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 07/02/2007
Date Data Arrived at EDR: 07/18/2007
Date Made Active in Reports: 09/18/2007
Number of Days to Update: 62

Source: U.S. Department of Transportation
Telephone: 202-366-4555
Last EDR Contact: 10/16/2007
Next Scheduled EDR Contact: 01/14/2008
Data Release Frequency: Annually

US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 07/16/2007
Date Data Arrived at EDR: 08/03/2007
Date Made Active in Reports: 10/11/2007
Number of Days to Update: 69

Source: Environmental Protection Agency
Telephone: 703-603-8905
Last EDR Contact: 10/01/2007
Next Scheduled EDR Contact: 12/31/2007
Data Release Frequency: Varies

US INST CONTROL: Sites with Institutional Controls

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 07/16/2007
Date Data Arrived at EDR: 08/03/2007
Date Made Active in Reports: 10/11/2007
Number of Days to Update: 69

Source: Environmental Protection Agency
Telephone: 703-603-8905
Last EDR Contact: 10/01/2007
Next Scheduled EDR Contact: 12/31/2007
Data Release Frequency: Varies

DOD: Department of Defense Sites

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 11/10/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 62

Source: USGS
Telephone: 703-692-8801
Last EDR Contact: 11/09/2007
Next Scheduled EDR Contact: 02/04/2008
Data Release Frequency: Semi-Annually

FUDS: Formerly Used Defense Sites

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 12/31/2006
Date Data Arrived at EDR: 08/31/2007
Date Made Active in Reports: 10/11/2007
Number of Days to Update: 41

Source: U.S. Army Corps of Engineers
Telephone: 202-528-4285
Last EDR Contact: 10/01/2007
Next Scheduled EDR Contact: 12/31/2007
Data Release Frequency: Varies

US BROWNFIELDS: A Listing of Brownfields Sites

Included in the listing are brownfields properties addresses by Cooperative Agreement Recipients and brownfields properties addressed by Targeted Brownfields Assessments. Targeted Brownfields Assessments-EPA's Targeted Brownfields Assessments (TBA) program is designed to help states, tribes, and municipalities--especially those without EPA Brownfields Assessment Demonstration Pilots--minimize the uncertainties of contamination often associated with brownfields. Under the TBA program, EPA provides funding and/or technical assistance for environmental assessments at brownfields sites throughout the country. Targeted Brownfields Assessments supplement and work with other efforts under EPA's Brownfields Initiative to promote cleanup and redevelopment of brownfields. Cooperative Agreement Recipients-States, political subdivisions, territories, and Indian tribes become Brownfields Cleanup Revolving Loan Fund (BCRLF) cooperative agreement recipients when they enter into BCRLF cooperative agreements with the U.S. EPA. EPA selects BCRLF cooperative agreement recipients based on a proposal and application process. BCRLF cooperative agreement recipients must use EPA funds provided through BCRLF cooperative agreement for specified brownfields-related cleanup activities.

Date of Government Version: 06/20/2007
Date Data Arrived at EDR: 07/09/2007
Date Made Active in Reports: 08/29/2007
Number of Days to Update: 51

Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 09/10/2007
Next Scheduled EDR Contact: 12/10/2007
Data Release Frequency: Semi-Annually

CONSENT: Superfund (CERCLA) Consent Decrees

Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 04/13/2007
Date Data Arrived at EDR: 07/16/2007
Date Made Active in Reports: 08/29/2007
Number of Days to Update: 44

Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 09/21/2007
Next Scheduled EDR Contact: 01/21/2008
Data Release Frequency: Varies

ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 06/08/2007
Date Data Arrived at EDR: 07/03/2007
Date Made Active in Reports: 08/29/2007
Number of Days to Update: 57

Source: EPA
Telephone: 703-416-0223
Last EDR Contact: 11/08/2007
Next Scheduled EDR Contact: 12/31/2007
Data Release Frequency: Annually

UMTRA: Uranium Mill Tailings Sites

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 11/08/2006
Date Made Active in Reports: 01/29/2007
Number of Days to Update: 82

Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 09/19/2007
Next Scheduled EDR Contact: 12/17/2007
Data Release Frequency: Varies

ODI: Open Dump Inventory

An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985
Date Data Arrived at EDR: 08/09/2004
Date Made Active in Reports: 09/17/2004
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 800-424-9346
Last EDR Contact: 06/09/2004
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

TRIS: Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 04/27/2007
Date Made Active in Reports: 07/05/2007
Number of Days to Update: 69

Source: EPA
Telephone: 202-566-0250
Last EDR Contact: 09/18/2007
Next Scheduled EDR Contact: 12/17/2007
Data Release Frequency: Annually

TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2002
Date Data Arrived at EDR: 04/14/2006
Date Made Active in Reports: 05/30/2006
Number of Days to Update: 46

Source: EPA
Telephone: 202-260-5521
Last EDR Contact: 10/30/2007
Next Scheduled EDR Contact: 01/14/2008
Data Release Frequency: Every 4 Years

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 07/06/2007
Date Data Arrived at EDR: 07/20/2007
Date Made Active in Reports: 09/18/2007
Number of Days to Update: 60

Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Telephone: 202-566-1667
Last EDR Contact: 09/17/2007
Next Scheduled EDR Contact: 12/17/2007
Data Release Frequency: Quarterly

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 07/06/2007
Date Data Arrived at EDR: 07/20/2007
Date Made Active in Reports: 09/18/2007
Number of Days to Update: 60

Source: EPA
Telephone: 202-566-1667
Last EDR Contact: 09/17/2007
Next Scheduled EDR Contact: 12/17/2007
Data Release Frequency: Quarterly

SSTS: Section 7 Tracking Systems

Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 03/13/2007
Date Made Active in Reports: 04/27/2007
Number of Days to Update: 45

Source: EPA
Telephone: 202-564-4203
Last EDR Contact: 10/15/2007
Next Scheduled EDR Contact: 01/14/2008
Data Release Frequency: Annually

LUCIS: Land Use Control Information System

LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 12/09/2005
Date Data Arrived at EDR: 12/11/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 31

Source: Department of the Navy
Telephone: 843-820-7326
Last EDR Contact: 09/12/2007
Next Scheduled EDR Contact: 12/10/2007
Data Release Frequency: Varies

DOT OPS: Incident and Accident Data

Department of Transporation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 08/14/2007
Date Data Arrived at EDR: 08/29/2007
Date Made Active in Reports: 10/11/2007
Number of Days to Update: 43

Source: Department of Transporation, Office of Pipeline Safety
Telephone: 202-366-4595
Last EDR Contact: 08/29/2007
Next Scheduled EDR Contact: 11/26/2007
Data Release Frequency: Varies

ICIS: Integrated Compliance Information System

The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 07/27/2007
Date Data Arrived at EDR: 08/13/2007
Date Made Active in Reports: 10/11/2007
Number of Days to Update: 59

Source: Environmental Protection Agency
Telephone: 202-564-5088
Last EDR Contact: 10/15/2007
Next Scheduled EDR Contact: 01/14/2008
Data Release Frequency: Quarterly

DEBRIS REGION 9: Torres Martinez Reservation Illegal Dump Site Locations

A listing of illegal dump sites location on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

Date of Government Version: 07/25/2007
Date Data Arrived at EDR: 07/31/2007
Date Made Active in Reports: 10/11/2007
Number of Days to Update: 72

Source: EPA, Region 9
Telephone: 415-972-3336
Last EDR Contact: 09/24/2007
Next Scheduled EDR Contact: 12/24/2007
Data Release Frequency: Varies

HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing

A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 09/17/2007
Next Scheduled EDR Contact: 12/17/2007
Data Release Frequency: No Update Planned

CDL: Clandestine Drug Labs

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 12/01/2006
Date Data Arrived at EDR: 01/08/2007
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 3

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 10/02/2007
Next Scheduled EDR Contact: 12/24/2007
Data Release Frequency: Quarterly

RADINFO: Radiation Information Database

The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Date of Government Version: 07/31/2007
Date Data Arrived at EDR: 08/01/2007
Date Made Active in Reports: 08/29/2007
Number of Days to Update: 28

Source: Environmental Protection Agency
Telephone: 202-343-9775
Last EDR Contact: 10/31/2007
Next Scheduled EDR Contact: 01/28/2008
Data Release Frequency: Quarterly

LIENS 2: CERCLA Lien Information

A Federal CERCLA ('Superfund') lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

Date of Government Version: 03/08/2007
Date Data Arrived at EDR: 04/12/2007
Date Made Active in Reports: 05/14/2007
Number of Days to Update: 32

Source: Environmental Protection Agency
Telephone: 202-564-6023
Last EDR Contact: 08/20/2007
Next Scheduled EDR Contact: 11/19/2007
Data Release Frequency: Varies

PADS: PCB Activity Database System

PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 04/12/2007
Date Data Arrived at EDR: 06/08/2007
Date Made Active in Reports: 08/29/2007
Number of Days to Update: 82

Source: EPA
Telephone: 202-566-0500
Last EDR Contact: 08/09/2007
Next Scheduled EDR Contact: 11/05/2007
Data Release Frequency: Annually

MLTS: Material Licensing Tracking System

MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 07/09/2007
Date Data Arrived at EDR: 07/24/2007
Date Made Active in Reports: 09/18/2007
Number of Days to Update: 56

Source: Nuclear Regulatory Commission
Telephone: 301-415-7169
Last EDR Contact: 10/01/2007
Next Scheduled EDR Contact: 12/31/2007
Data Release Frequency: Quarterly

MINES: Mines Master Index File

Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 05/09/2007
Date Data Arrived at EDR: 06/28/2007
Date Made Active in Reports: 08/29/2007
Number of Days to Update: 62

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Last EDR Contact: 09/26/2007
Next Scheduled EDR Contact: 12/24/2007
Data Release Frequency: Semi-Annually

FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 07/19/2007
Date Data Arrived at EDR: 07/25/2007
Date Made Active in Reports: 09/18/2007
Number of Days to Update: 55

Source: EPA
Telephone: (212) 637-3000
Last EDR Contact: 10/01/2007
Next Scheduled EDR Contact: 12/31/2007
Data Release Frequency: Quarterly

RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995
Date Data Arrived at EDR: 07/03/1995
Date Made Active in Reports: 08/07/1995
Number of Days to Update: 35

Source: EPA
Telephone: 202-564-4104
Last EDR Contact: 08/31/2007
Next Scheduled EDR Contact: 12/03/2007
Data Release Frequency: No Update Planned

BRS: Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 03/06/2007
Date Made Active in Reports: 04/13/2007
Number of Days to Update: 38

Source: EPA/NTIS
Telephone: 800-424-9346
Last EDR Contact: 09/12/2007
Next Scheduled EDR Contact: 12/10/2007
Data Release Frequency: Biennially

USGS WATER WELLS: National Water Information System (NWIS)

This database consists of well records in the United States. Available site descriptive information includes well location information (latitude and longitude, well depth, site use, water use, and aquifer).

Date of Government Version: 03/25/2005
Date Data Arrived at EDR: 03/25/2005
Date Made Active in Reports: N/A
Number of Days to Update: 0

Source: USGS
Telephone: N/A
Last EDR Contact: 03/25/2005
Next Scheduled EDR Contact: N/A
Data Release Frequency: N/A

PWS: Public Water System Data

This Safe Drinking Water Information System (SDWIS) file contains public water systems name and address, population served and the primary source of water

Date of Government Version: 02/24/2000
Date Data Arrived at EDR: 04/27/2005
Date Made Active in Reports: N/A
Number of Days to Update: 0

Source: EPA
Telephone: N/A
Last EDR Contact: 08/20/2007
Next Scheduled EDR Contact: 11/19/2007
Data Release Frequency: N/A

STATE AND LOCAL RECORDS

HSWDS: Hazardous Substance Waste Disposal Site Inventory
The list includes any known or suspected hazardous substance waste disposal sites. Also included are sites delisted from the Registry of Inactive Hazardous Waste Disposal Sites and non-Registry sites that U.S. EPA Preliminary Assessment (PA) reports or Site Investigation (SI) reports were prepared. Hazardous Substance Waste Disposal Sites are eligible to be Superfund sites now that the New York State Superfund has been refinanced and changed. This means that the study inventory has served its purpose and will no longer be maintained as a separate entity. The last version of the study inventory is frozen in time. The sites on the study will not automatically be made Superfund sites, rather each site will be further evaluated for listing on the Registry. So overtime they will be added to the registry or not.

Date of Government Version: 01/01/2003
Date Data Arrived at EDR: 10/20/2006
Date Made Active in Reports: 11/30/2006
Number of Days to Update: 41

Source: Department of Environmental Conservation
Telephone: 518-402-9564
Last EDR Contact: 08/27/2007
Next Scheduled EDR Contact: 11/26/2007
Data Release Frequency: No Update Planned

SHWS: Inactive Hazardous Waste Disposal Sites in New York State
Referred to as the State Superfund Program, the Inactive Hazardous Waste Disposal Site Remedial Program is the cleanup program for inactive hazardous waste sites and now includes hazardous substance sites

Date of Government Version: 08/15/2007
Date Data Arrived at EDR: 09/12/2007
Date Made Active in Reports: 10/17/2007
Number of Days to Update: 35

Source: Department of Environmental Conservation
Telephone: 518-402-9622
Last EDR Contact: 09/12/2007
Next Scheduled EDR Contact: 12/10/2007
Data Release Frequency: Annually

DEL SHWS: Delisted Registry Sites
A database listing of sites delisted from the Registry of Inactive Hazardous Waste Disposal Sites.

Date of Government Version: 05/01/2007
Date Data Arrived at EDR: 06/13/2007
Date Made Active in Reports: 07/24/2007
Number of Days to Update: 41

Source: Department of Environmental Conservation
Telephone: 518-402-9622
Last EDR Contact: 09/12/2007
Next Scheduled EDR Contact: 12/10/2007
Data Release Frequency: Annually

SWF/LF: Facility Register
Solid Waste Facilities/Landfill Sites. SWF/LF type records typically contain an inventory of solid waste disposal facilities or landfills in a particular state. Depending on the state, these may be active or inactive facilities or open dumps that failed to meet RCRA Subtitle D Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 07/31/2007
Date Data Arrived at EDR: 08/01/2007
Date Made Active in Reports: 09/21/2007
Number of Days to Update: 51

Source: Department of Environmental Conservation
Telephone: 518-457-2051
Last EDR Contact: 10/26/2007
Next Scheduled EDR Contact: 01/28/2008
Data Release Frequency: Semi-Annually

SWTIRE: Registered Waste Tire Storage & Facility List
A listing of facilities registered to accept waste tires.

Date of Government Version: 08/01/2006
Date Data Arrived at EDR: 11/15/2006
Date Made Active in Reports: 11/30/2006
Number of Days to Update: 15

Source: Department of Environmental Conservation
Telephone: 518-402-8694
Last EDR Contact: 08/15/2007
Next Scheduled EDR Contact: 11/12/2007
Data Release Frequency: Annually

SWRCY: Registered Recycling Facility List
A listing of recycling facilities.

Date of Government Version: 07/31/2007
Date Data Arrived at EDR: 08/01/2007
Date Made Active in Reports: 09/21/2007
Number of Days to Update: 51

Source: Department of Environmental Conservation
Telephone: 518-402-8705
Last EDR Contact: 10/26/2007
Next Scheduled EDR Contact: 01/28/2008
Data Release Frequency: Semi-Annually

LTANKS: Spills Information Database
Leaking Storage Tank Incident Reports. These records contain an inventory of reported leaking storage tank incidents reported from 4/1/86 through the most recent update. They can be either leaking underground storage tanks or leaking aboveground storage tanks. The causes of the incidents are tank test failures, tank failures or tank overfills.

Date of Government Version: 07/11/2007
Date Data Arrived at EDR: 07/25/2007
Date Made Active in Reports: 09/21/2007
Number of Days to Update: 58

Source: Department of Environmental Conservation
Telephone: 518-402-9549
Last EDR Contact: 10/24/2007
Next Scheduled EDR Contact: 01/21/2008
Data Release Frequency: Varies

HIST LTANKS: Listing of Leaking Storage Tanks
A listing of leaking underground and aboveground storage tanks. The causes of the incidents are tank test failures, tank failures or tank overfills. In 2002, the Department of Environmental Conservation stopped providing updates to its original Spills Information Database. This database includes fields that are no longer available from the NYDEC as of January 1, 2002. Current information may be found in the NY LTANKS database. Department of Environmental Conservation.

Date of Government Version: 01/01/2002
Date Data Arrived at EDR: 07/08/2005
Date Made Active in Reports: 07/14/2005
Number of Days to Update: 6

Source: Department of Environmental Conservation
Telephone: 518-402-9549
Last EDR Contact: 07/07/2005
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

UST: Petroleum Bulk Storage (PBS) Database
Facilities that have petroleum storage capacities in excess of 1,100 gallons and less than 400,000 gallons.

Date of Government Version: 07/11/2007
Date Data Arrived at EDR: 07/25/2007
Date Made Active in Reports: 08/31/2007
Number of Days to Update: 37

Source: Department of Environmental Conservation
Telephone: 518-402-9549
Last EDR Contact: 10/24/2007
Next Scheduled EDR Contact: 01/21/2008
Data Release Frequency: No Update Planned

CBS UST: Chemical Bulk Storage Database
Facilities that store regulated hazardous substances in underground tanks of any size

Date of Government Version: 01/01/2002
Date Data Arrived at EDR: 02/20/2002
Date Made Active in Reports: 03/22/2002
Number of Days to Update: 30

Source: NYSDEC
Telephone: 518-402-9549
Last EDR Contact: 10/24/2005
Next Scheduled EDR Contact: 01/23/2006
Data Release Frequency: No Update Planned

MOSF UST: Major Oil Storage Facilities Database
Facilities that may be onshore facilities or vessels, with petroleum storage capacities of 400,000 gallons or greater.

Date of Government Version: 01/01/2002
Date Data Arrived at EDR: 02/20/2002
Date Made Active in Reports: 03/22/2002
Number of Days to Update: 30

Source: NYSDEC
Telephone: 518-402-9549
Last EDR Contact: 07/25/2005
Next Scheduled EDR Contact: 10/24/2005
Data Release Frequency: Varies

HIST UST: Historical Petroleum Bulk Storage Database
These facilities have petroleum storage capacities in excess of 1,100 gallons and less than 400,000 gallons. This database contains detailed information per site. It is no longer updated due to the sensitive nature of the information involved. See UST for more current data.

Date of Government Version: 01/01/2002
Date Data Arrived at EDR: 06/02/2006
Date Made Active in Reports: 07/20/2006
Number of Days to Update: 48

Source: Department of Environmental Conservation
Telephone: 518-402-9549
Last EDR Contact: 10/23/2006
Next Scheduled EDR Contact: 01/22/2007
Data Release Frequency: Varies

AST: Petroleum Bulk Storage
Registered Aboveground Storage Tanks.

Date of Government Version: 07/11/2007
Date Data Arrived at EDR: 07/25/2007
Date Made Active in Reports: 08/30/2007
Number of Days to Update: 36

Source: Department of Environmental Conservation
Telephone: 518-402-9549
Last EDR Contact: 10/24/2007
Next Scheduled EDR Contact: 01/21/2008
Data Release Frequency: No Update Planned

HIST AST: Historical Petroleum Bulk Storage Database
These facilities have petroleum storage capabilities in excess of 1,100 gallons and less than 400,000 gallons. This database contains detailed information per site. No longer updated due to the sensitive nature of the information involved. See AST for more current data.

Date of Government Version: 01/01/2002
Date Data Arrived at EDR: 06/02/2006
Date Made Active in Reports: 07/20/2006
Number of Days to Update: 48

Source: Department of Environmental Conservation
Telephone: 518-402-9549
Last EDR Contact: 10/23/2006
Next Scheduled EDR Contact: 01/22/2007
Data Release Frequency: No Update Planned

CBS AST: Chemical Bulk Storage Database
Facilities that store regulated hazardous substances in aboveground tanks with capacities of 185 gallons or greater, and/or in underground tanks of any size.

Date of Government Version: 01/01/2002
Date Data Arrived at EDR: 02/20/2002
Date Made Active in Reports: 03/22/2002
Number of Days to Update: 30

Source: NYSDEC
Telephone: 518-402-9549
Last EDR Contact: 07/25/2005
Next Scheduled EDR Contact: 10/24/2005
Data Release Frequency: No Update Planned

MOSF AST: Major Oil Storage Facilities Database
Facilities that may be onshore facilities or vessels, with petroleum storage capacities of 400,000 gallons or greater.

Date of Government Version: 01/01/2002
Date Data Arrived at EDR: 02/20/2002
Date Made Active in Reports: 03/22/2002
Number of Days to Update: 30

Source: NYSDEC
Telephone: 518-402-9549
Last EDR Contact: 07/25/2005
Next Scheduled EDR Contact: 10/24/2005
Data Release Frequency: No Update Planned

NY MANIFEST: Facility and Manifest Data
Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

Date of Government Version: 08/27/2007
Date Data Arrived at EDR: 08/30/2007
Date Made Active in Reports: 09/21/2007
Number of Days to Update: 22

Source: Department of Environmental Conservation
Telephone: 518-402-8651
Last EDR Contact: 08/30/2007
Next Scheduled EDR Contact: 11/26/2007
Data Release Frequency: Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

SPILLS: Spills Information Database

Data collected on spills reported to NYSDEC as required by one or more of the following: Article 12 of the Navigation Law, 6 NYCRR Section 613.8 (from PBS regs), or 6 NYCRR Section 595.2 (from CBS regs). It includes spills active as of April 1, 1986, as well as spills occurring since this date.

Date of Government Version: 07/11/2007
Date Data Arrived at EDR: 07/25/2007
Date Made Active in Reports: 09/21/2007
Number of Days to Update: 58

Source: Department of Environmental Conservation
Telephone: 518-402-9549
Last EDR Contact: 10/24/2007
Next Scheduled EDR Contact: 01/21/2008
Data Release Frequency: Varies

HIST SPILLS: SPILLS Database

This database contains records of chemical and petroleum spill incidents. Under State law, petroleum and hazardous chemical spills that can impact the waters of the state must be reported by the spiller (and, in some cases, by anyone who has knowledge of the spills). In 2002, the Department of Environmental Conservation stopped providing updates to its original Spills Information Database. This database includes fields that are no longer available from the NYDEC as of January 1, 2002. Current information may be found in the NY SPILLS database. Department of Environmental Conservation.

Date of Government Version: 01/01/2002
Date Data Arrived at EDR: 07/08/2005
Date Made Active in Reports: 07/14/2005
Number of Days to Update: 6

Source: Department of Environmental Conservation
Telephone: 518-402-9549
Last EDR Contact: 07/07/2005
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

ENG CONTROLS: Registry of Engineering Controls

Environmental Remediation sites that have engineering controls in place.

Date of Government Version: 08/15/2007
Date Data Arrived at EDR: 09/12/2007
Date Made Active in Reports: 10/17/2007
Number of Days to Update: 35

Source: Department of Environmental Conservation
Telephone: 518-402-9553
Last EDR Contact: 09/12/2007
Next Scheduled EDR Contact: 12/10/2007
Data Release Frequency: Quarterly

INST CONTROL: Registry of Institutional Controls

Environmental Remediation sites that have institutional controls in place.

Date of Government Version: 08/15/2007
Date Data Arrived at EDR: 09/12/2007
Date Made Active in Reports: 10/17/2007
Number of Days to Update: 35

Source: Department of Environmental Conservation
Telephone: 518-402-9553
Last EDR Contact: 09/12/2007
Next Scheduled EDR Contact: 12/10/2007
Data Release Frequency: Quarterly

VCP: Voluntary Cleanup Agreements

New York established its Voluntary Cleanup Program (VCP) to address the environmental, legal and financial barriers that often hinder the redevelopment and reuse of contaminated properties. The Voluntary Cleanup Program was developed to enhance private sector cleanup of brownfields by enabling parties to remediate sites using private rather than public funds and to reduce the development pressures on "greenfield" sites.

Date of Government Version: 08/15/2007
Date Data Arrived at EDR: 09/12/2007
Date Made Active in Reports: 10/17/2007
Number of Days to Update: 35

Source: Department of Environmental Conservation
Telephone: 518-402-9711
Last EDR Contact: 09/12/2007
Next Scheduled EDR Contact: 12/10/2007
Data Release Frequency: Semi-Annually

DRYCLEANERS: Registered Drycleaners

A listing of all registered drycleaning facilities.

Date of Government Version: 06/15/2004
Date Data Arrived at EDR: 06/15/2004
Date Made Active in Reports: 07/29/2004
Number of Days to Update: 44

Source: Department of Environmental Conservation
Telephone: 518-402-8403
Last EDR Contact: 05/21/2004
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

BROWNFIELDS: Brownfields Site List

A Brownfield is any real property where redevelopment or re-use may be complicated by the presence or potential presence of a hazardous waste, petroleum, pollutant, or contaminant.

Date of Government Version: 08/15/2007
Date Data Arrived at EDR: 09/12/2007
Date Made Active in Reports: 10/17/2007
Number of Days to Update: 35

Source: Department of Environmental Conservation
Telephone: 518-402-9764
Last EDR Contact: 09/12/2007
Next Scheduled EDR Contact: 12/10/2007
Data Release Frequency: Semi-Annually

SPDES: State Pollutant Discharge Elimination System

New York State has a state program which has been approved by the United States Environmental Protection Agency for the control of wastewater and stormwater discharges in accordance with the Clean Water Act. Under New York State law the program is known as the State Pollutant Discharge Elimination System (SPDES) and is broader in scope than that required by the Clean Water Act in that it controls point source discharges to groundwaters as well as surface waters.

Date of Government Version: 08/06/2007
Date Data Arrived at EDR: 08/07/2007
Date Made Active in Reports: 09/21/2007
Number of Days to Update: 45

Source: Department of Environmental Conservation
Telephone: 518-402-8233
Last EDR Contact: 11/05/2007
Next Scheduled EDR Contact: 02/04/2008
Data Release Frequency: No Update Planned

AIRS: Air Emissions Data

Point source emissions inventory data.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 09/05/2007
Date Made Active in Reports: 10/17/2007
Number of Days to Update: 42

Source: Department of Environmental Conservation
Telephone: 518-402-8452
Last EDR Contact: 08/21/2007
Next Scheduled EDR Contact: 11/19/2007
Data Release Frequency: Annually

E DESIGNATION: E DESIGNATION SITE LISTING

The (E (Environmental)) designation would ensure that sampling and remediation take place on the subject properties, and would avoid any significant impacts related to hazardous materials at these locations. The (E) designations would require that the fee owner of the sites conduct a testing and sampling protocol, and remediation where appropriate, to the satisfaction of the NYCDEP before the issuance of a building permit by the Department of Buildings pursuant to the provisions of Section 11-15 of the Zoning Resolution (Environmental Requirements). The (E) designations also include a mandatory construction-related health and safety plan which must be approved by NYCDEP.

Date of Government Version: 03/28/2007
Date Data Arrived at EDR: 08/27/2007
Date Made Active in Reports: 09/21/2007
Number of Days to Update: 25

Source: New York City Department of City Planning
Telephone: 718-595-6658
Last EDR Contact: 10/16/2007
Next Scheduled EDR Contact: 01/14/2008
Data Release Frequency: Varies

MOSF: Major Oil Storage Facility Site Listing

These facilities may be onshore facilities or vessels, with petroleum storage capacities of 400,000 gallons or greater.

Date of Government Version: 07/11/2007
Date Data Arrived at EDR: 07/25/2007
Date Made Active in Reports: 09/21/2007
Number of Days to Update: 58

Source: Department of Environmental Conservation
Telephone: 518-402-9549
Last EDR Contact: 10/24/2007
Next Scheduled EDR Contact: 01/21/2008
Data Release Frequency: Quarterly

RES DECL: Restrictive Declarations Listing

A restrictive declaration is a covenant running with the land which binds the present and future owners of the property. As a condition of certain special permits, the City Planning Commission may require an applicant to sign and record a restrictive declaration that places specified conditions on the future use and development of the property. Certain restrictive declarations are indicated by a D on zoning maps.

Date of Government Version: 12/31/1992
Date Data Arrived at EDR: 01/31/2007
Date Made Active in Reports: 04/19/2007
Number of Days to Update: 78

Source: NYC Department of City Planning
Telephone: 212-720-3401
Last EDR Contact: 07/17/2007
Next Scheduled EDR Contact: 10/15/2007
Data Release Frequency: No Update Planned

CBS: Chemical Bulk Storage Site Listing
These facilities store regulated hazardous substances in aboveground tanks with capacities of 185 gallons or greater, and/or in underground tanks of any size

Date of Government Version: 07/11/2007
Date Data Arrived at EDR: 07/25/2007
Date Made Active in Reports: 09/21/2007
Number of Days to Update: 58

Source: Department of Environmental Conservation
Telephone: 518-402-9549
Last EDR Contact: 10/24/2007
Next Scheduled EDR Contact: 01/21/2008
Data Release Frequency: Quarterly

TRIBAL RECORDS

INDIAN RESERV: Indian Reservations
This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 12/08/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 34

Source: USGS
Telephone: 202-208-3710
Last EDR Contact: 11/09/2007
Next Scheduled EDR Contact: 02/04/2008
Data Release Frequency: Semi-Annually

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land
A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 12/01/2006
Date Data Arrived at EDR: 12/01/2006
Date Made Active in Reports: 01/29/2007
Number of Days to Update: 59

Source: EPA Region 1
Telephone: 617-918-1313
Last EDR Contact: 08/20/2007
Next Scheduled EDR Contact: 11/19/2007
Data Release Frequency: Varies

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 08/27/2007
Date Data Arrived at EDR: 09/07/2007
Date Made Active in Reports: 10/11/2007
Number of Days to Update: 34

Source: EPA Region 8
Telephone: 303-312-6271
Last EDR Contact: 08/20/2007
Next Scheduled EDR Contact: 11/19/2007
Data Release Frequency: Quarterly

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 09/12/2007
Date Data Arrived at EDR: 09/14/2007
Date Made Active in Reports: 10/11/2007
Number of Days to Update: 27

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 08/20/2007
Next Scheduled EDR Contact: 11/19/2007
Data Release Frequency: Quarterly

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 09/11/2007
Date Data Arrived at EDR: 09/14/2007
Date Made Active in Reports: 10/11/2007
Number of Days to Update: 27

Source: Environmental Protection Agency
Telephone: 415-972-3372
Last EDR Contact: 08/20/2007
Next Scheduled EDR Contact: 11/19/2007
Data Release Frequency: Quarterly

INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Florida, Mississippi and North Carolina.

Date of Government Version: 09/05/2007
Date Data Arrived at EDR: 10/02/2007
Date Made Active in Reports: 10/11/2007
Number of Days to Update: 9

Source: EPA Region 4
Telephone: 404-562-8677
Last EDR Contact: 08/20/2007
Next Scheduled EDR Contact: 11/19/2007
Data Release Frequency: Semi-Annually

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 01/04/2005
Date Data Arrived at EDR: 01/21/2005
Date Made Active in Reports: 02/28/2005
Number of Days to Update: 38

Source: EPA Region 6
Telephone: 214-665-6597
Last EDR Contact: 10/18/2007
Next Scheduled EDR Contact: 11/19/2007
Data Release Frequency: Varies

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 06/01/2007
Date Data Arrived at EDR: 06/14/2007
Date Made Active in Reports: 07/05/2007
Number of Days to Update: 21

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 08/20/2007
Next Scheduled EDR Contact: 11/19/2007
Data Release Frequency: Varies

INDIAN UST R5: Underground Storage Tanks on Indian Land

Date of Government Version: 12/02/2004
Date Data Arrived at EDR: 12/29/2004
Date Made Active in Reports: 02/04/2005
Number of Days to Update: 37

Source: EPA Region 5
Telephone: 312-886-6136
Last EDR Contact: 08/20/2007
Next Scheduled EDR Contact: 11/19/2007
Data Release Frequency: Varies

INDIAN UST R8: Underground Storage Tanks on Indian Land

Date of Government Version: 08/27/2007
Date Data Arrived at EDR: 09/07/2007
Date Made Active in Reports: 10/11/2007
Number of Days to Update: 34

Source: EPA Region 8
Telephone: 303-312-6137
Last EDR Contact: 08/20/2007
Next Scheduled EDR Contact: 11/19/2007
Data Release Frequency: Quarterly

INDIAN UST R10: Underground Storage Tanks on Indian Land

Date of Government Version: 09/12/2007
Date Data Arrived at EDR: 09/14/2007
Date Made Active in Reports: 10/11/2007
Number of Days to Update: 27

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 08/20/2007
Next Scheduled EDR Contact: 11/19/2007
Data Release Frequency: Quarterly

INDIAN UST R9: Underground Storage Tanks on Indian Land

Date of Government Version: 09/11/2007
Date Data Arrived at EDR: 09/14/2007
Date Made Active in Reports: 10/11/2007
Number of Days to Update: 27

Source: EPA Region 9
Telephone: 415-972-3368
Last EDR Contact: 08/20/2007
Next Scheduled EDR Contact: 11/19/2007
Data Release Frequency: Quarterly

INDIAN UST R7: Underground Storage Tanks on Indian Land

Date of Government Version: 06/01/2007
Date Data Arrived at EDR: 06/14/2007
Date Made Active in Reports: 07/05/2007
Number of Days to Update: 21

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 08/20/2007
Next Scheduled EDR Contact: 11/19/2007
Data Release Frequency: Varies

INDIAN UST R6: Underground Storage Tanks on Indian Land

Date of Government Version: 08/31/2007
Date Data Arrived at EDR: 08/31/2007
Date Made Active in Reports: 10/11/2007
Number of Days to Update: 41

Source: EPA Region 6
Telephone: 214-665-7591
Last EDR Contact: 08/20/2007
Next Scheduled EDR Contact: 11/19/2007
Data Release Frequency: Semi-Annually

INDIAN UST R4: Underground Storage Tanks on Indian Land

Date of Government Version: 09/05/2007
Date Data Arrived at EDR: 10/02/2007
Date Made Active in Reports: 10/11/2007
Number of Days to Update: 9

Source: EPA Region 4
Telephone: 404-562-9424
Last EDR Contact: 08/20/2007
Next Scheduled EDR Contact: 11/19/2007
Data Release Frequency: Semi-Annually

INDIAN UST R1: Underground Storage Tanks on Indian Land
A listing of underground storage tank locations on Indian Land.

Date of Government Version: 12/01/2006
Date Data Arrived at EDR: 12/01/2006
Date Made Active in Reports: 01/29/2007
Number of Days to Update: 59

Source: EPA, Region 1
Telephone: 617-918-1313
Last EDR Contact: 08/20/2007
Next Scheduled EDR Contact: 11/19/2007
Data Release Frequency: Varies

EDR PROPRIETARY RECORDS

Manufactured Gas Plants: EDR Proprietary Manufactured Gas Plants
The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

EDR Historical Auto Stations: EDR Proprietary Historic Gas Stations
EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR Historical Cleaners: EDR Proprietary Historic Dry Cleaners

EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

FEDERAL RECORDS

PUBLIC SCHOOLS: Public Schools

The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/13/2004
Date Made Active in Reports: N/A
Number of Days to Update: 0

Source: National Center for Education statistics
Telephone: 202-502-7300
Last EDR Contact: 10/10/2007
Next Scheduled EDR Contact: 01/07/2008
Data Release Frequency: N/A

PRIVATE SCHOOLS: Private Schools of the United States

The National Center for Education Statistics' primary database on private school locations in the United States.

Date of Government Version: N/A
Date Data Arrived at EDR: 10/07/2005
Date Made Active in Reports: N/A
Number of Days to Update: 0

Source: National Center for Education Statistics
Telephone: 202-502-7300
Last EDR Contact: 09/22/2006
Next Scheduled EDR Contact: N/A
Data Release Frequency: N/A

NURSING HOMES: Directory of Nursing Homes

Information on Medicare and Medicaid certified nursing homes in the United States.

Date of Government Version: N/A
Date Data Arrived at EDR: 10/11/2005
Date Made Active in Reports: N/A
Number of Days to Update: 0

Source: N/A
Telephone: 800-568-3282
Last EDR Contact: 09/22/2006
Next Scheduled EDR Contact: N/A
Data Release Frequency: N/A

MEDICAL CENTERS: Provider of Services Listing

A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health & Human Services.

Date of Government Version: 06/01/1998
Date Data Arrived at EDR: 11/10/2005
Date Made Active in Reports: N/A
Number of Days to Update: 0

Source: Centers for Medicare & Medicaid Services
Telephone: 410-786-3000
Last EDR Contact: 01/12/2007
Next Scheduled EDR Contact: N/A
Data Release Frequency: N/A

HOSPITALS: AHA Hospital Guide

The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

Date of Government Version: N/A
Date Data Arrived at EDR: 10/19/1994
Date Made Active in Reports: N/A
Number of Days to Update: 0

Source: American Hospital Association
Telephone: 800-242-2626
Last EDR Contact: 09/22/2006
Next Scheduled EDR Contact: N/A
Data Release Frequency: N/A

COLLEGES: Integrated Postsecondary Education Data
The National Center for Education Statistics' primary database on integrated postsecondary education in the United States.

Date of Government Version: N/A
Date Data Arrived at EDR: 10/12/2005
Date Made Active in Reports: N/A
Number of Days to Update: 0

Source: National Center for Education Statistics
Telephone: 202-502-7300
Last EDR Contact: 09/22/2006
Next Scheduled EDR Contact: N/A
Data Release Frequency: N/A

COUNTY RECORDS

CORTLAND COUNTY:

Cortland County Storage Tank Listing
A listing of aboveground storage tank sites located in Cortland County.

Date of Government Version: 04/26/2007
Date Data Arrived at EDR: 05/02/2007
Date Made Active in Reports: 05/30/2007
Number of Days to Update: 28

Source: Cortland County Health Department
Telephone: 607-753-5035
Last EDR Contact: 08/27/2007
Next Scheduled EDR Contact: 11/26/2007
Data Release Frequency: Quarterly

Cortland County Storage Tank Listing
A listing of underground storage tank sites located in Cortland County.

Date of Government Version: 04/26/2007
Date Data Arrived at EDR: 05/02/2007
Date Made Active in Reports: 05/30/2007
Number of Days to Update: 28

Source: Cortland County Health Department
Telephone: 607-753-5035
Last EDR Contact: 08/27/2007
Next Scheduled EDR Contact: 11/26/2007
Data Release Frequency: Quarterly

NASSAU COUNTY:

Registered Tank Database
A listing of aboveground storage tank sites located in Nassau County.

Date of Government Version: 05/21/2003
Date Data Arrived at EDR: 05/27/2003
Date Made Active in Reports: 06/09/2003
Number of Days to Update: 13

Source: Nassau County Health Department
Telephone: 516-571-3314
Last EDR Contact: 10/26/2007
Next Scheduled EDR Contact: 01/28/2008
Data Release Frequency: No Update Planned

Storage Tank Database
A listing of aboveground storage tank sites located in Nassau County.

Date of Government Version: 05/03/2007
Date Data Arrived at EDR: 07/17/2007
Date Made Active in Reports: 09/06/2007
Number of Days to Update: 51

Source: Nassau County Office of the Fire Marshal
Telephone: 516-572-1000
Last EDR Contact: 11/05/2007
Next Scheduled EDR Contact: 02/04/2008
Data Release Frequency: Varies

Registered Tank Database
A listing of underground storage tank sites located in Nassau County.

Date of Government Version: 05/21/2003
Date Data Arrived at EDR: 05/27/2003
Date Made Active in Reports: 06/09/2003
Number of Days to Update: 13

Source: Nassau County Health Department
Telephone: 516-571-3314
Last EDR Contact: 10/26/2007
Next Scheduled EDR Contact: 01/28/2008
Data Release Frequency: No Update Planned

Storage Tank Database
A listing of underground storage tank sites located in Nassau County.

Date of Government Version: 05/03/2007
Date Data Arrived at EDR: 07/17/2007
Date Made Active in Reports: 09/06/2007
Number of Days to Update: 51

Source: Nassau County Office of the Fire Marshal
Telephone: 516-572-1000
Last EDR Contact: 11/05/2007
Next Scheduled EDR Contact: 02/04/2008
Data Release Frequency: Varies

ROCKLAND COUNTY:

Petroleum Bulk Storage Database
A listing of aboveground storage tank sites located in Rockland County.

Date of Government Version: 08/23/2007
Date Data Arrived at EDR: 08/23/2007
Date Made Active in Reports: 10/04/2007
Number of Days to Update: 42

Source: Rockland County Health Department
Telephone: 914-364-2605
Last EDR Contact: 10/01/2007
Next Scheduled EDR Contact: 12/31/2007
Data Release Frequency: Quarterly

Petroleum Bulk Storage Database
A listing of underground storage tank sites located in Rockland County.

Date of Government Version: 08/23/2007
Date Data Arrived at EDR: 08/23/2007
Date Made Active in Reports: 10/04/2007
Number of Days to Update: 42

Source: Rockland County Health Department
Telephone: 914-364-2605
Last EDR Contact: 10/01/2007
Next Scheduled EDR Contact: 12/31/2007
Data Release Frequency: Quarterly

SUFFOLK COUNTY:

Storage Tank Database
A listing of aboveground storage tank sites located in Suffolk County.

Date of Government Version: 09/13/2006
Date Data Arrived at EDR: 01/11/2007
Date Made Active in Reports: 02/07/2007
Number of Days to Update: 27

Source: Suffolk County Department of Health Services
Telephone: 631-854-2521
Last EDR Contact: 08/27/2007
Next Scheduled EDR Contact: 11/26/2007
Data Release Frequency: Annually

Storage Tank Database
A listing of underground storage tank sites located in Suffolk County.

Date of Government Version: 09/13/2006
Date Data Arrived at EDR: 01/11/2007
Date Made Active in Reports: 02/07/2007
Number of Days to Update: 27

Source: Suffolk County Department of Health Services
Telephone: 631-854-2521
Last EDR Contact: 08/27/2007
Next Scheduled EDR Contact: 11/26/2007
Data Release Frequency: Annually

WESTCHESTER COUNTY:

Listing of Storage Tanks
A listing of aboveground storage tank sites located in Westchester County.

Date of Government Version: 05/05/2005
Date Data Arrived at EDR: 05/31/2005
Date Made Active in Reports: 06/30/2005
Number of Days to Update: 30

Source: Westchester County Department of Health
Telephone: 914-813-5161
Last EDR Contact: 09/10/2007
Next Scheduled EDR Contact: 11/26/2007
Data Release Frequency: Varies

Listing of Storage Tanks

A listing of underground storage tank sites located in Westchester County.

Date of Government Version: 05/05/2005
Date Data Arrived at EDR: 05/31/2005
Date Made Active in Reports: 06/30/2005
Number of Days to Update: 30

Source: Westchester County Department of Health
Telephone: 914-813-5161
Last EDR Contact: 09/10/2007
Next Scheduled EDR Contact: 11/26/2007
Data Release Frequency: Varies

OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

CT MANIFEST: Hazardous Waste Manifest Data

Facility and manifest data. Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a tsd facility.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 06/15/2007
Date Made Active in Reports: 08/20/2007
Number of Days to Update: 66

Source: Department of Environmental Protection
Telephone: 860-424-3375
Last EDR Contact: 09/12/2007
Next Scheduled EDR Contact: 12/10/2007
Data Release Frequency: Annually

NJ MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 04/01/2007
Date Data Arrived at EDR: 04/05/2007
Date Made Active in Reports: 05/08/2007
Number of Days to Update: 33

Source: Department of Environmental Protection
Telephone: N/A
Last EDR Contact: 11/07/2007
Next Scheduled EDR Contact: 12/31/2007
Data Release Frequency: Annually

PA MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 12/31/2006
Date Data Arrived at EDR: 08/23/2007
Date Made Active in Reports: 09/27/2007
Number of Days to Update: 35

Source: Department of Environmental Protection
Telephone: N/A
Last EDR Contact: 09/10/2007
Next Scheduled EDR Contact: 12/10/2007
Data Release Frequency: Annually

RI MANIFEST: Manifest information

Hazardous waste manifest information

Date of Government Version: 04/09/2007
Date Data Arrived at EDR: 04/12/2007
Date Made Active in Reports: 04/27/2007
Number of Days to Update: 15

Source: Department of Environmental Management
Telephone: 401-222-2797
Last EDR Contact: 10/16/2007
Next Scheduled EDR Contact: 12/17/2007
Data Release Frequency: Annually

VT MANIFEST: Hazardous Waste Manifest Data

Hazardous waste manifest information.

Date of Government Version: 12/31/2006
Date Data Arrived at EDR: 04/03/2007
Date Made Active in Reports: 04/24/2007
Number of Days to Update: 21

Source: Department of Environmental Conservation
Telephone: 802-241-3443
Last EDR Contact: 11/13/2007
Next Scheduled EDR Contact: 02/11/2008
Data Release Frequency: Annually

WI MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2006
Date Data Arrived at EDR: 04/27/2007
Date Made Active in Reports: 06/08/2007
Number of Days to Update: 42

Source: Department of Natural Resources
Telephone: N/A
Last EDR Contact: 10/09/2007
Next Scheduled EDR Contact: 01/07/2008
Data Release Frequency: Annually

Oil/Gas Pipelines: This data was obtained by EDR from the USGS in 1994. It is referred to by USGS as GeoData Digital Line Graphs from 1:100,000-Scale Maps. It was extracted from the transportation category including some oil, but primarily gas pipelines.

Electric Power Transmission Line Data
Source: PennWell Corporation
Telephone: (800) 823-6277
This map includes information copyrighted by PennWell Corporation. This information is provided on a best effort basis and PennWell Corporation does not guarantee its accuracy nor warrant its fitness for any particular purpose. Such information has been reprinted with the permission of PennWell.

Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

AHA Hospitals:
Source: American Hospital Association, Inc.
Telephone: 312-280-5991
The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

Medical Centers: Provider of Services Listing
Source: Centers for Medicare & Medicaid Services
Telephone: 410-786-3000
A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

Nursing Homes
Source: National Institutes of Health
Telephone: 301-594-6248
Information on Medicare and Medicaid certified nursing homes in the United States.

Public Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

Private Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on private school locations in the United States.

Daycare Centers: Day Care Providers
Source: Department of Health
Telephone: 212-676-2444

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 1999 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002 and 2005 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Freshwater Wetlands
Source: Department of Environmental Conservation
Telephone: 518-402-8961

Scanned Digital USGS 7.5' Topographic Map (DRG)

Source: United States Geologic Survey

A digital raster graphic (DRG) is a scanned image of a U.S. Geological Survey topographic map. The map images are made by scanning published paper maps on high-resolution scanners. The raster image is georeferenced and fit to the Universal Transverse Mercator (UTM) projection.

STREET AND ADDRESS INFORMATION

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GEOCHECK ®- PHYSICAL SETTING SOURCE ADDENDUM

TARGET PROPERTY ADDRESS

414 WEST 155TH STREET
414 WEST 155TH STREET
NEW YORK, NY 10032

TARGET PROPERTY COORDINATES

Latitude (North):	40.83064 - 40˚ 49' 50.3''
Longitude (West):	73.94081 - 73˚ 56' 26.9''
Universal Tranverse Mercator:	Zone 18
UTM X (Meters):	589310.2
UTM Y (Meters):	4520285.0
Elevation:	111 ft. above sea level

USGS TOPOGRAPHIC MAP

Target Property Map:	40073-G8 CENTRAL PARK, NY
Most Recent Revision:	1995

EDR's GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

Assessment of the impact of contaminant migration generally has two principle investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

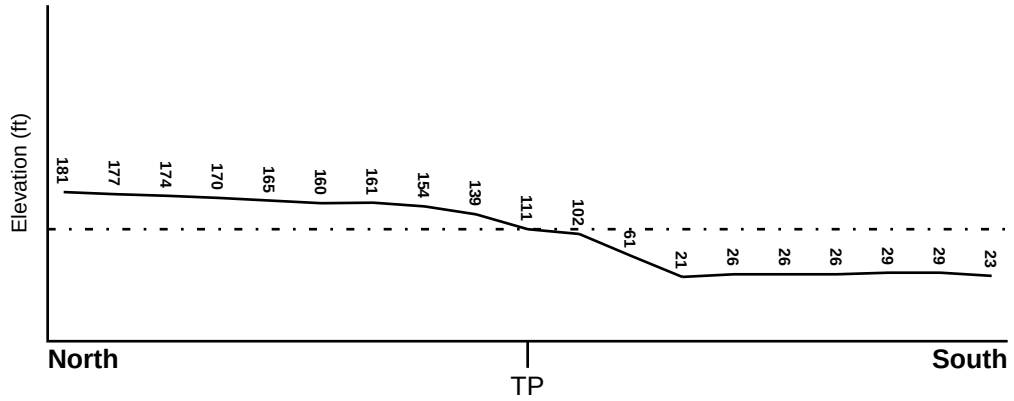
TOPOGRAPHIC INFORMATION

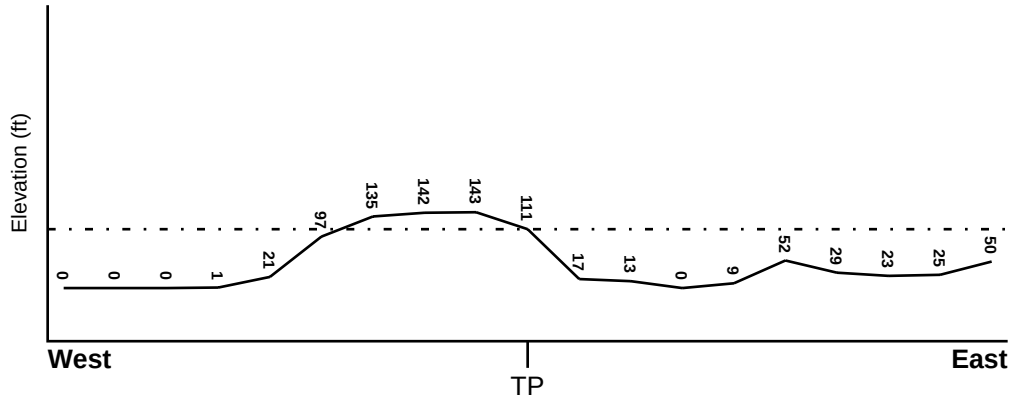
Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

TARGET PROPERTY TOPOGRAPHY

General Topographic Gradient: General SE

SURROUNDING TOPOGRAPHY: ELEVATION PROFILES





Target Property Elevation: 111 ft.

0 1/2 1 Miles

Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

FEMA FLOOD ZONE

Target Property County	FEMA Flood Electronic Data
NEW YORK, NY	YES - refer to the Overview Map and Detail Map

Flood Plain Panel at Target Property:	3604970015B
Additional Panels in search area:	3604970014B 3604970019B 3604970020B

NATIONAL WETLAND INVENTORY

NWI Quad at Target Property	NWI Electronic Data Coverage
CENTRAL PARK	YES - refer to the Overview Map and Detail Map

HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Site-Specific Hydrogeological Data*:

Search Radius:	1.25 miles
Status:	Not found

AQUIFLOW®

Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

MAP ID	LOCATION FROM TP	GENERAL DIRECTION GROUNDWATER FLOW
Not Reported		

* ©1996 Site−specific hydrogeological data gathered by CERCLIS Alerts, Inc., Bainbridge Island, WA. All rights reserved. All of the information and opinions presented are those of the cited EPA report(s), which were completed under a Comprehensive Environmental Response Compensation and Liability Information System (CERCLIS) investigation.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

ROCK STRATIGRAPHIC UNIT		**GEOLOGIC AGE IDENTIFICATION**	
Era:	Paleozoic	Category:	Stratified Sequence
System:	Ordovicias		
Series:	Lower Ordovician and Cambrian carbonate rocks		
Code:	OC *(decoded above as Era, System & Series)*		

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps. The following information is based on Soil Conservation Service STATSGO data.

Soil Component Name: URBAN LAND

Soil Surface Texture: variable

Hydrologic Group: Not reported

Soil Drainage Class: Not reported

Hydric Status: Soil does not meet the requirements for a hydric soil.

Corrosion Potential - Uncoated Steel: Not Reported

Depth to Bedrock Min: > 10 inches

Depth to Bedrock Max: > 10 inches

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification			
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil	Permeability Rate (in/hr)	Soil Reaction (pH)
1	0 inches	6 inches	variable	Not reported	Not reported	Max: 0.00 Min: 0.00	Max: 0.00 Min: 0.00

OTHER SOIL TYPES IN AREA

Based on Soil Conservation Service STATSGO data, the following additional subordinant soil types may appear within the general area of target property.

Soil Surface Textures: silt loam
loamy sand
sandy loam
fine sandy loam

Surficial Soil Types: silt loam
loamy sand
sandy loam
fine sandy loam

Shallow Soil Types: sandy loam

Deeper Soil Types: unweathered bedrock
very gravelly - loamy sand
stratified
sandy loam

LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

WELL SEARCH DISTANCE INFORMATION

DATABASE	SEARCH DISTANCE (miles)
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 1 mile
State Database	1.000

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
1	USGS2114133	1/8 - 1/4 Mile ENE
2	USGS2114382	1/2 - 1 Mile South
3	USGS2114053	1/2 - 1 Mile NNW
4	USGS2114275	1/2 - 1 Mile ESE
5	USGS2114076	1/2 - 1 Mile NE

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

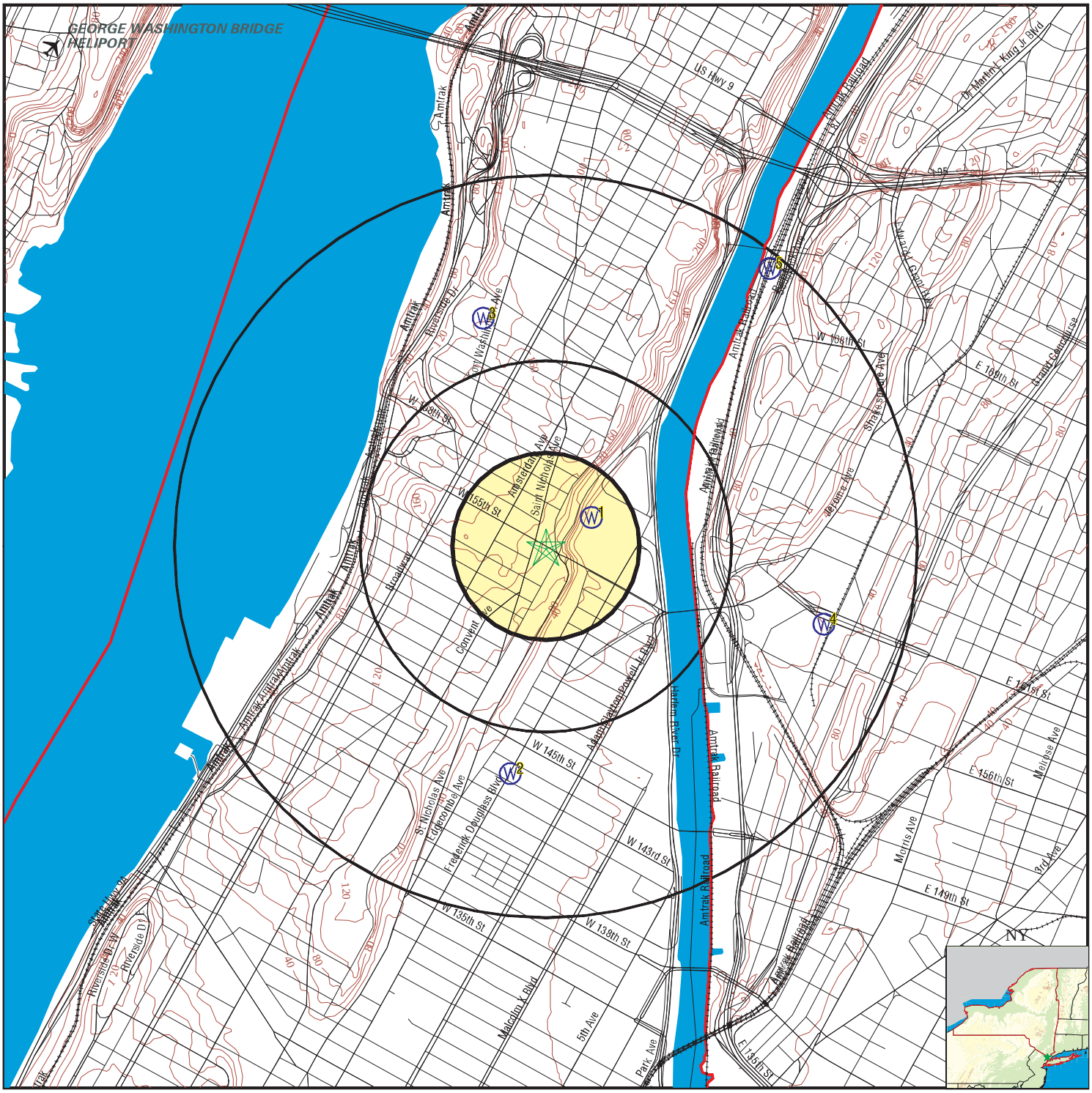
MAP ID	WELL ID	LOCATION FROM TP
No PWS System Found		

Note: PWS System location is not always the same as well location.

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
No Wells Found		

PHYSICAL SETTING SOURCE MAP - 2077001.2s



0 1/4 1/2 1 Miles

- County Boundary
- Major Roads
- Contour Lines
- Airports
- Earthquake epicenter, Richter 5 or greater
- Water Wells
- Public Water Supply Wells
- Cluster of Multiple Icons
- Groundwater Flow Direction
- GI Indeterminate Groundwater Flow at Location
- GV Groundwater Flow Varies at Location
- HD Closest Hydrogeological Data
- Oil, gas or related wells

SITE NAME: 414 West 155th Street	CLIENT: ATC Associates Inc.
ADDRESS: 414 West 155th Street New York NY 10032	CONTACT: Bedia Saray INQUIRY #: 2077001.2s
LAT/LONG: 40.8306 / 73.9408	DATE: November 13, 2007 7:31 pm

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Map ID Direction Distance Elevation	Database	EDR ID Number
1 **ENE** **1/8 - 1/4 Mile** **Lower**	**FED USGS**	**USGS2114133**

Agency cd:	USGS	Site no:	404954073562001
Site name:	NY 138		
Latitude:	404954		
Longitude:	0735620	Dec lat:	40.83176709
Dec lon:	-73.93847067	Coor meth:	M
Coor accr:	R	Latlong datum:	NAD27
Dec latlong datum:	NAD83	District:	36
State:	36	County:	061
Country:	US	Land net:	Not Reported
Location map:	CENTRAL PARK R-25-4	Map scale:	Not Reported
Altitude:	20		
Altitude method:	Interpolated from topographic map		
Altitude accuracy:	10		
Altitude datum:	National Geodetic Vertical Datum of 1929		
Hydrologic:	Not Reported		
Topographic:	Not Reported		
Site type:	Ground-water other than Spring	Date construction:	Not Reported
Date inventoried:	Not Reported	Mean greenwich time offset:	EST
Local standard time flag:	N		
Type of ground water site:	Single well, other than collector or Ranney type		
Aquifer Type:	Not Reported		
Aquifer:	Not Reported		
Well depth:	357	Hole depth:	Not Reported
Source of depth data:	driller		
Project number:	Not Reported		
Real time data flag:	Not Reported	Daily flow data begin date:	Not Reported
Daily flow data end date:	Not Reported	Daily flow data count:	Not Reported
Peak flow data begin date:	Not Reported	Peak flow data end date:	Not Reported
Peak flow data count:	Not Reported	Water quality data begin date:	Not Reported
Water quality data end date:	Not Reported	Water quality data count:	Not Reported
Ground water data begin date:	Not Reported	Ground water data end date:	Not Reported
Ground water data count:	Not Reported		

Ground-water levels, Number of Measurements: 0

---

2 **South** **1/2 - 1 Mile** **Lower**	**FED USGS**	**USGS2114382**

Agency cd:	USGS	Site no:	404918073563501
Site name:	NY 162		
Latitude:	404918		
Longitude:	0735635	Dec lat:	40.82176725
Dec lon:	-73.9426375	Coor meth:	M
Coor accr:	R	Latlong datum:	NAD27
Dec latlong datum:	NAD83	District:	36
State:	36	County:	061
Country:	US	Land net:	Not Reported
Location map:	Not Reported	Map scale:	Not Reported

Altitude:	20		
Altitude method:	Interpolated from topographic map		
Altitude accuracy:	10		
Altitude datum:	National Geodetic Vertical Datum of 1929		
Hydrologic:	Not Reported		
Topographic:	Not Reported		
Site type:	Ground-water other than Spring	Date construction:	Not Reported
Date inventoried:	Not Reported	Mean greenwich time offset:	EST
Local standard time flag:	N		
Type of ground water site:	Test hole, not completed as a well		
Aquifer Type:	Not Reported		
Aquifer:	Not Reported		
Well depth:	112	Hole depth:	Not Reported
Source of depth data:	driller		
Project number:	Not Reported		
Real time data flag:	Not Reported	Daily flow data begin date:	Not Reported
Daily flow data end date:	Not Reported	Daily flow data count:	Not Reported
Peak flow data begin date:	Not Reported	Peak flow data end date:	Not Reported
Peak flow data count:	Not Reported	Water quality data begin date:	Not Reported
Water quality data end date:	Not Reported	Water quality data count:	Not Reported
Ground water data begin date:	Not Reported	Ground water data end date:	Not Reported
Ground water data count:	Not Reported		

Ground-water levels, Number of Measurements: 0

3
NNW **FED USGS** **USGS2114053**
1/2 - 1 Mile
Higher

Agency cd:	USGS	Site no:	405022073564001
Site name:	NY 164		
Latitude:	405022		
Longitude:	0735640	Dec lat:	40.83954472
Dec lon:	-73.94402635	Coor meth:	M
Coor accr:	R	Latlong datum:	NAD27
Dec latlong datum:	NAD83	District:	36
State:	36	County:	061
Country:	US	Land net:	Not Reported
Location map:	CENTRAL PARK R-25-4	Map scale:	Not Reported
Altitude:	140		
Altitude method:	Interpolated from topographic map		
Altitude accuracy:	10		
Altitude datum:	National Geodetic Vertical Datum of 1929		
Hydrologic:	Not Reported		
Topographic:	Not Reported		
Site type:	Ground-water other than Spring	Date construction:	Not Reported
Date inventoried:	Not Reported	Mean greenwich time offset:	EST
Local standard time flag:	N		
Type of ground water site:	Test hole, not completed as a well		
Aquifer Type:	Not Reported		
Aquifer:	Not Reported		
Well depth:	48	Hole depth:	48
Source of depth data:	driller		
Project number:	Not Reported		
Real time data flag:	Not Reported	Daily flow data begin date:	Not Reported
Daily flow data end date:	Not Reported	Daily flow data count:	Not Reported
Peak flow data begin date:	Not Reported	Peak flow data end date:	Not Reported

Peak flow data count:	Not Reported	Water quality data begin date:	Not Reported
Water quality data end date:	Not Reported	Water quality data count:	Not Reported
Ground water data begin date:	Not Reported	Ground water data end date:	Not Reported
Ground water data count:	Not Reported		

Ground-water levels, Number of Measurements: 0

4
ESE **FED USGS** **USGS2114275**
1/2 - 1 Mile
Lower

Agency cd:	USGS	Site no:	404939073553701
Site name:	B 26		
Latitude:	404939		
Longitude:	0735537	Dec lat:	40.82760051
Dec lon:	-73.9265259	Coor meth:	M
Coor accr:	R	Latlong datum:	NAD27
Dec latlong datum:	NAD83	District:	36
State:	36	County:	005
Country:	US	Land net:	Not Reported
Location map:	CENTRAL PARK R-25-4	Map scale:	Not Reported
Altitude:	20		
Altitude method:	Interpolated from topographic map		
Altitude accuracy:	10		
Altitude datum:	National Geodetic Vertical Datum of 1929		
Hydrologic:	Not Reported		
Topographic:	Not Reported		
Site type:	Ground-water other than Spring	Date construction:	19500200
Date inventoried:	Not Reported	Mean greenwich time offset:	EST
Local standard time flag:	N		
Type of ground water site:	Single well, other than collector or Ranney type		
Aquifer Type:	Not Reported		
Aquifer:	SAND		
Well depth:	65	Hole depth:	Not Reported
Source of depth data:	reporting agency (generally USGS)		
Project number:	Not Reported		
Real time data flag:	0	Daily flow data begin date:	0000-00-00
Daily flow data end date:	0000-00-00	Daily flow data count:	0
Peak flow data begin date:	0000-00-00	Peak flow data end date:	0000-00-00
Peak flow data count:	0	Water quality data begin date:	0000-00-00
Water quality data end date:	0000-00-00	Water quality data count:	0
Ground water data begin date:	1950-02-00	Ground water data end date:	1950-02-00
Ground water data count:	1		

Ground-water levels, Number of Measurements: 1

Date	Feet below Surface	Feet to Sealevel
1950-02	28	

5
NE **FED USGS** **USGS2114076**
1/2 - 1 Mile
Lower

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Agency cd:	USGS	Site no:	405029073554701
Site name:	B 46		
Latitude:	405029		
Longitude:	0735547	Dec lat:	40.84148916
Dec lon:	-73.9293037	Coor meth:	M
Coor accr:	R	Latlong datum:	NAD27
Dec latlong datum:	NAD83	District:	36
State:	36	County:	005
Country:	US	Land net:	Not Reported
Location map:	CENTRAL PARK R-25-4	Map scale:	Not Reported
Altitude:	10		
Altitude method:	Interpolated from topographic map		
Altitude accuracy:	10		
Altitude datum:	National Geodetic Vertical Datum of 1929		
Hydrologic:	Not Reported		
Topographic:	Not Reported		
Site type:	Ground-water other than Spring	Date construction:	Not Reported
Date inventoried:	Not Reported	Mean greenwich time offset:	EST
Local standard time flag:	N		
Type of ground water site:	Single well, other than collector or Ranney type		
Aquifer Type:	Not Reported		
Aquifer:	Not Reported		
Well depth:	200	Hole depth:	Not Reported
Source of depth data:	Not Reported		
Project number:	Not Reported		
Real time data flag:	Not Reported	Daily flow data begin date:	Not Reported
Daily flow data end date:	Not Reported	Daily flow data count:	Not Reported
Peak flow data begin date:	Not Reported	Peak flow data end date:	Not Reported
Peak flow data count:	Not Reported	Water quality data begin date:	Not Reported
Water quality data end date:	Not Reported	Water quality data count:	Not Reported
Ground water data begin date:	Not Reported	Ground water data end date:	Not Reported
Ground water data count:	Not Reported		

Ground-water levels, Number of Measurements: 0

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS
RADON

AREA RADON INFORMATION

Federal EPA Radon Zone for NEW YORK County: 3

Note: Zone 1 indoor average level > 4 pCi/L.
: Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.
: Zone 3 indoor average level < 2 pCi/L.

Not Reported

PHYSICAL SETTING SOURCE RECORDS SEARCHED

TOPOGRAPHIC INFORMATION

USGS 7.5' Digital Elevation Model (DEM)
Source: United States Geologic Survey
EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

Scanned Digital USGS 7.5' Topographic Map (DRG)
Source: United States Geologic Survey
A digital raster graphic (DRG) is a scanned image of a U.S. Geological Survey topographic map. The map images are made by scanning published paper maps on high-resolution scanners. The raster image is georeferenced and fit to the Universal Transverse Mercator (UTM) projection.

HYDROLOGIC INFORMATION

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 1999 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002 and 2005 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Freshwater Wetlands
Source: Department of Environmental Conservation
Telephone: 518-402-8961

HYDROGEOLOGIC INFORMATION

AQUIFLOW[R] Information System
Source: EDR proprietary database of groundwater flow information
EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit
Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

STATSGO: State Soil Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Services
The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

SSURGO: Soil Survey Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Services (NRCS)
Telephone: 800-672-5559
SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Services, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

LOCAL / REGIONAL WATER AGENCY RECORDS

FEDERAL WATER WELLS

PWS: Public Water Systems
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

USGS Water Wells: USGS National Water Inventory System (NWIS)
This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

STATE RECORDS

New York Public Water Wells
Source: New York Department of Health
Telephone: 518-458-6731

OTHER STATE DATABASE INFORMATION

Oil and Gas Well Database
Department of Environmental Conservation
Telephone: 518-402-8056
These files contain records, in the database, of wells that have been drilled.

RADON

State Database: NY Radon
Source: Department of Health
Telephone: 518-402-7556
Radon Test Results

Area Radon Information
Source: USGS
Telephone: 703-356-4020
The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

EPA Radon Zones
Source: EPA
Telephone: 703-356-4020
Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

OTHER

Airport Landing Facilities: Private and public use landing facilities
Source: Federal Aviation Administration, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater
Source: Department of Commerce, National Oceanic and Atmospheric Administration

PHYSICAL SETTING SOURCE RECORDS SEARCHED

STREET AND ADDRESS INFORMATION

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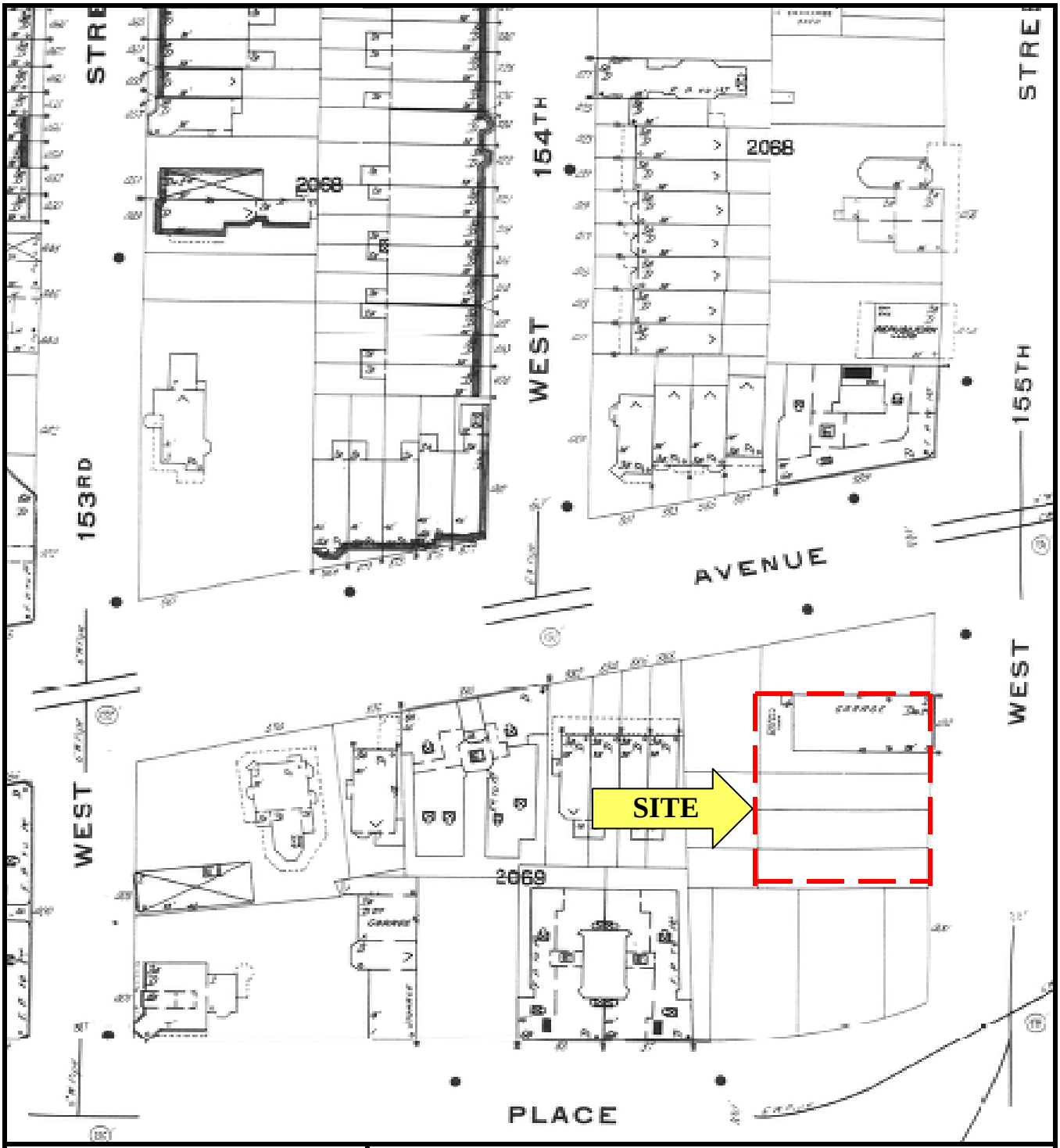
APPENDIX F

AERIAL PHOTOGRAPHS

(NOTUSED)

APPENDIX G

HISTORICAL RESEARCH DOCUMENTATION



ATC ASSOCIATES INC.

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(212) 353-8280 Fax (212) 979-8447

EDR: Environmental Data Resources
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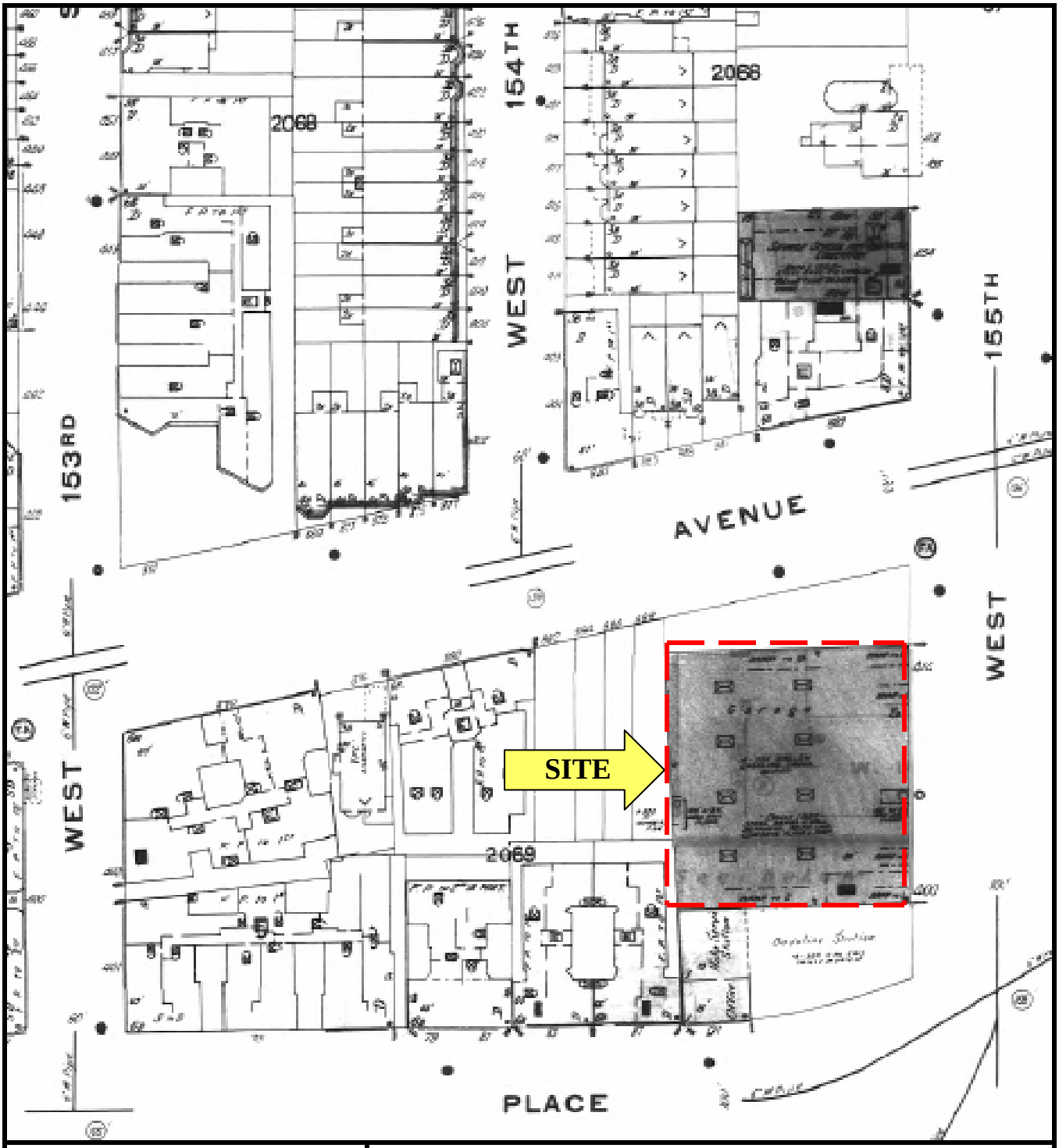
APPENDIX G– HISTORICAL SANBORN MAPS
1909

CLIENT: **Broadway Housing Communities**
SITE: 414 West 155th Street
New York, NY 10032
ATC PROJECT #: 015.26789.0002
SCALE: Not to Scale

N



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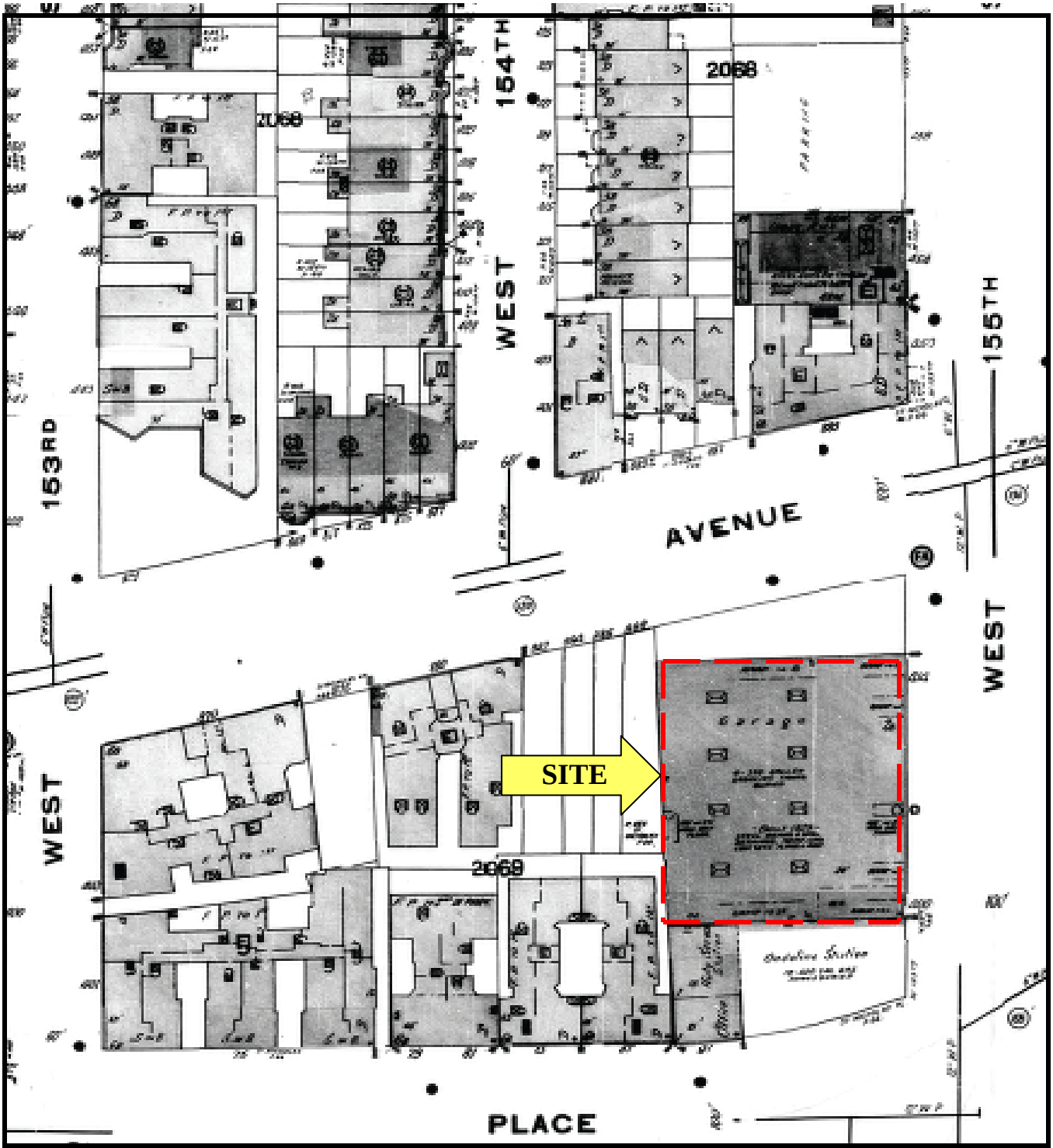
APPENDIX G– HISTORICAL SANBORN MAPS 1939

CLIENT: **Broadway Housing Communities**
SITE: 414 West 155th Street
New York, NY 10032
ATC PROJECT #: 015.26789.0002
SCALE: Not to Scale

N



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APPENDIX G– HISTORICAL SANBORN MAPS
1950

CLIENT: **Broadway Housing Communities**
SITE: 414 West 155th Street
New York, NY 10032
ATC PROJECT #: 015.26789.0002
SCALE: Not to Scale

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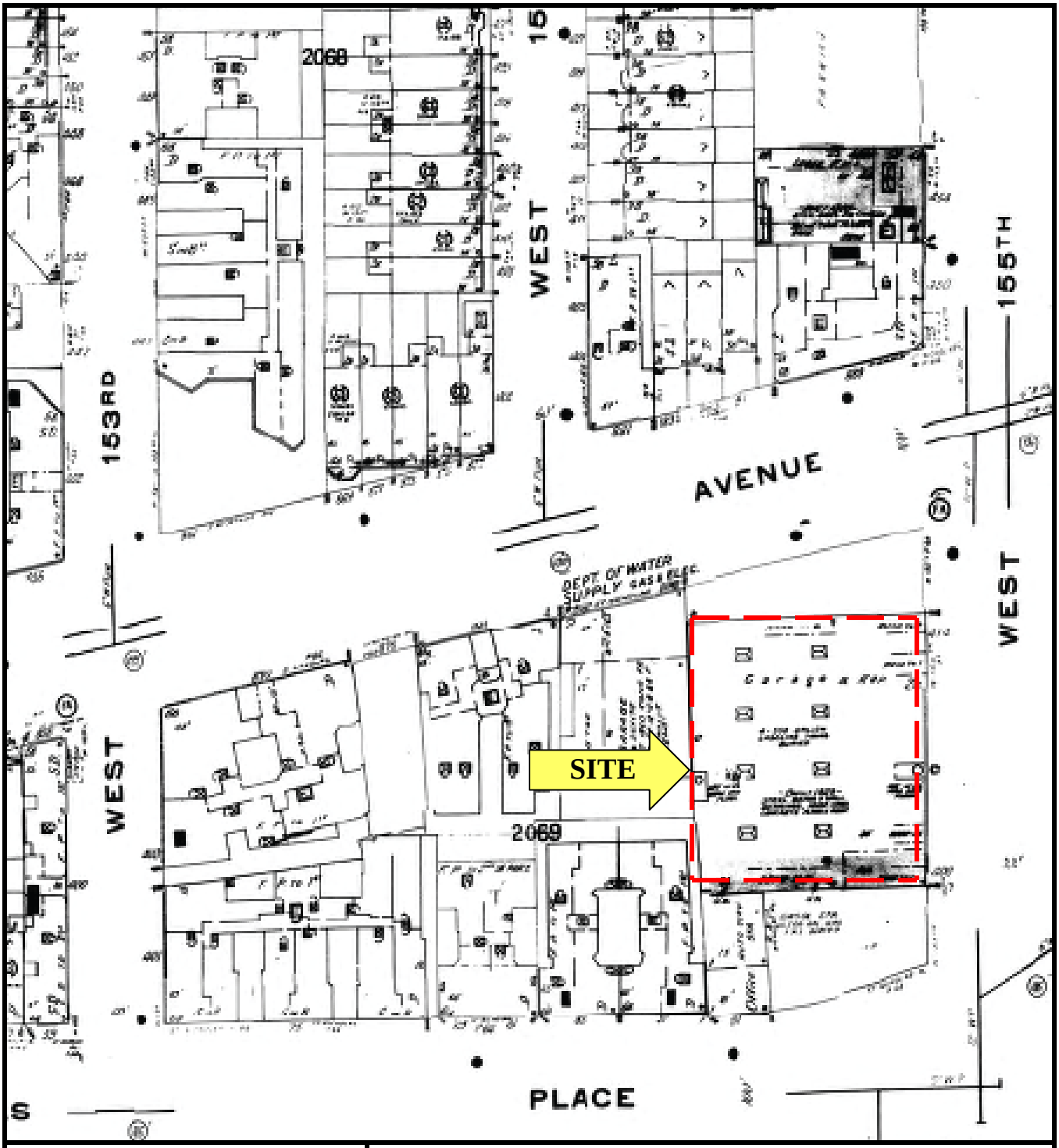

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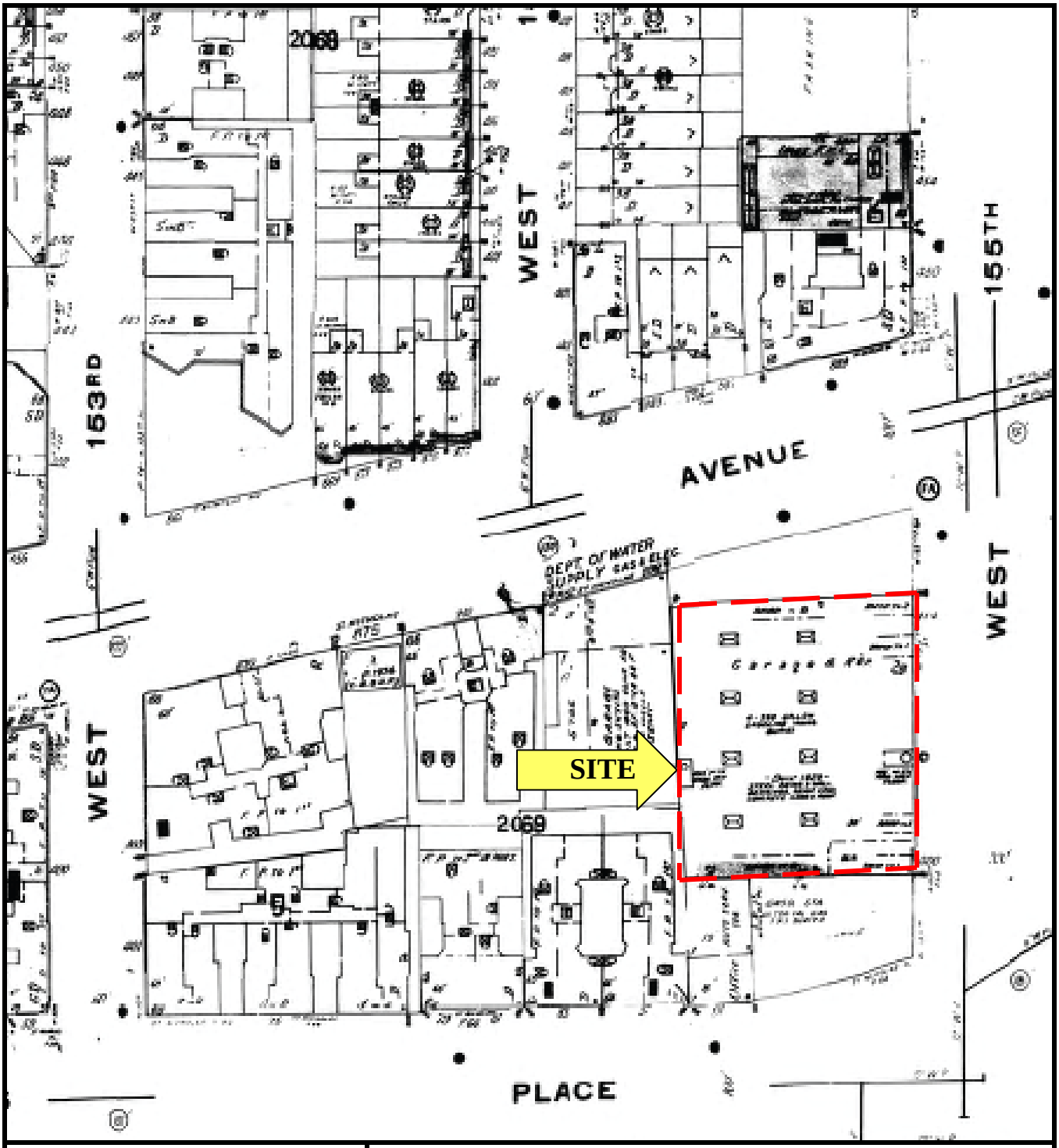
APPENDIX G– HISTORICAL SANBORN MAPS 1968

CLIENT: **Broadway Housing Communities**
SITE: 414 West 155th Street
New York, NY 10032
ATC PROJECT #: 015.26789.0002
SCALE: Not to Scale

N



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APPENDIX G– HISTORICAL SANBORN MAPS 1976

CLIENT: **Broadway Housing Communities**

SITE: 414 West 155th Street
New York, NY 10032

ATC PROJECT #: 015.26789.0002

SCALE: Not to Scale

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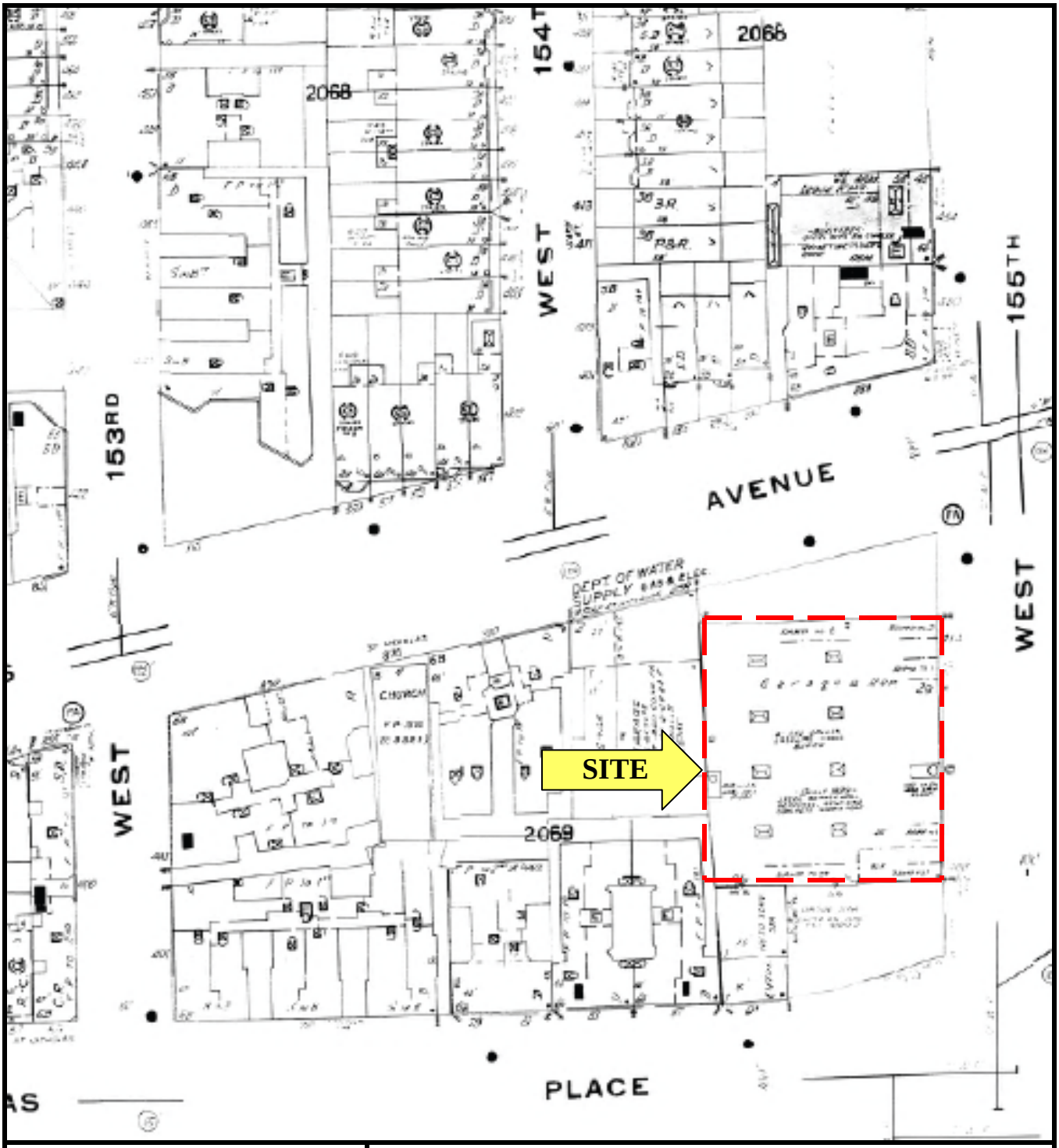

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APPENDIX G– HISTORICAL SANBORN MAPS 1981

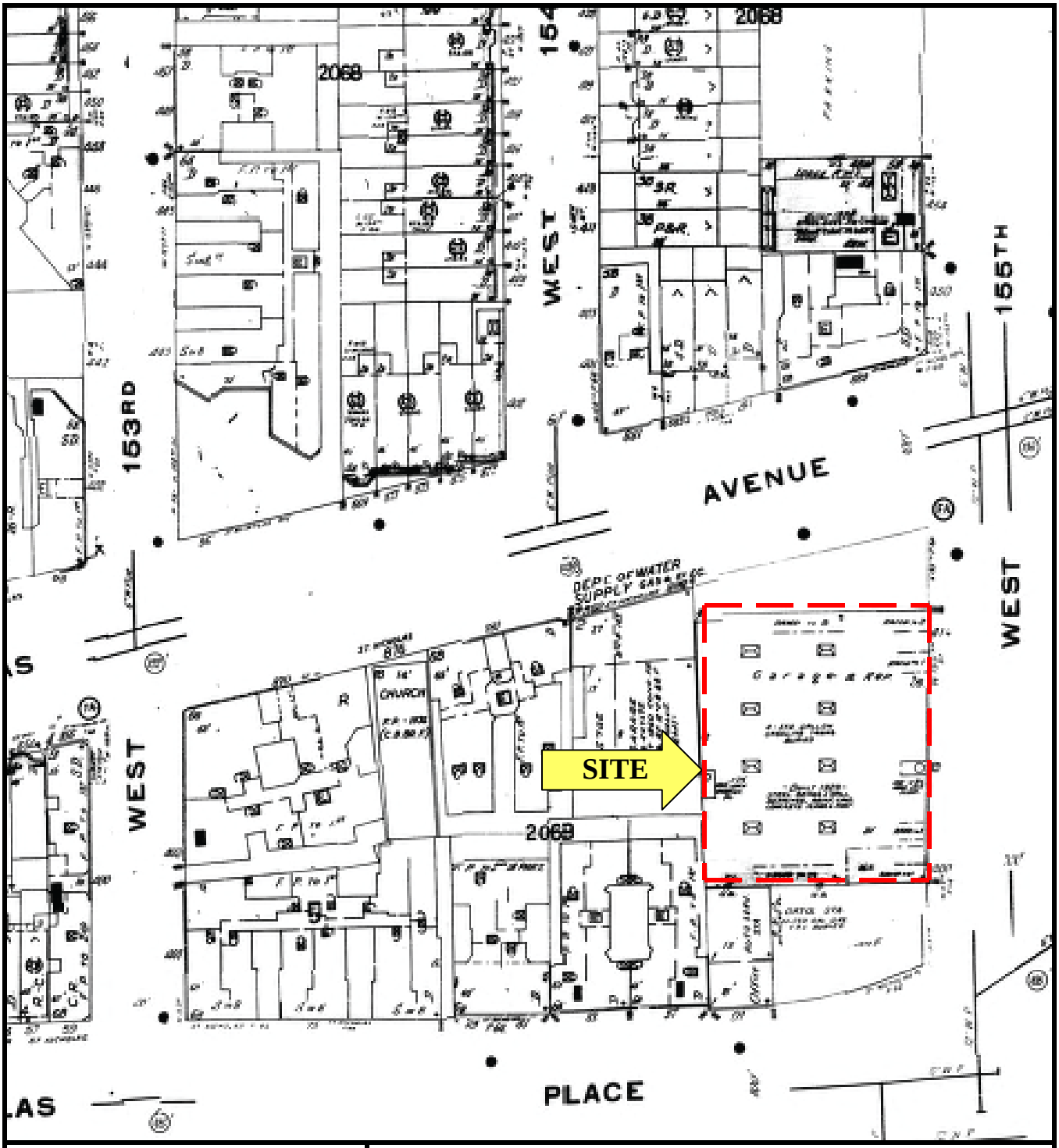
CLIENT: **Broadway Housing Communities**

SITE: 414 West 155th Street
New York, NY 10032

ATC PROJECT #: 015.26789.0002

SCALE: Not to Scale

N



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CLIENT: **Broadway Housing Communities**
SITE: 414 West 155th Street
New York, NY 10032
ATC PROJECT #: 015.26789.0002
SCALE: Not to Scale

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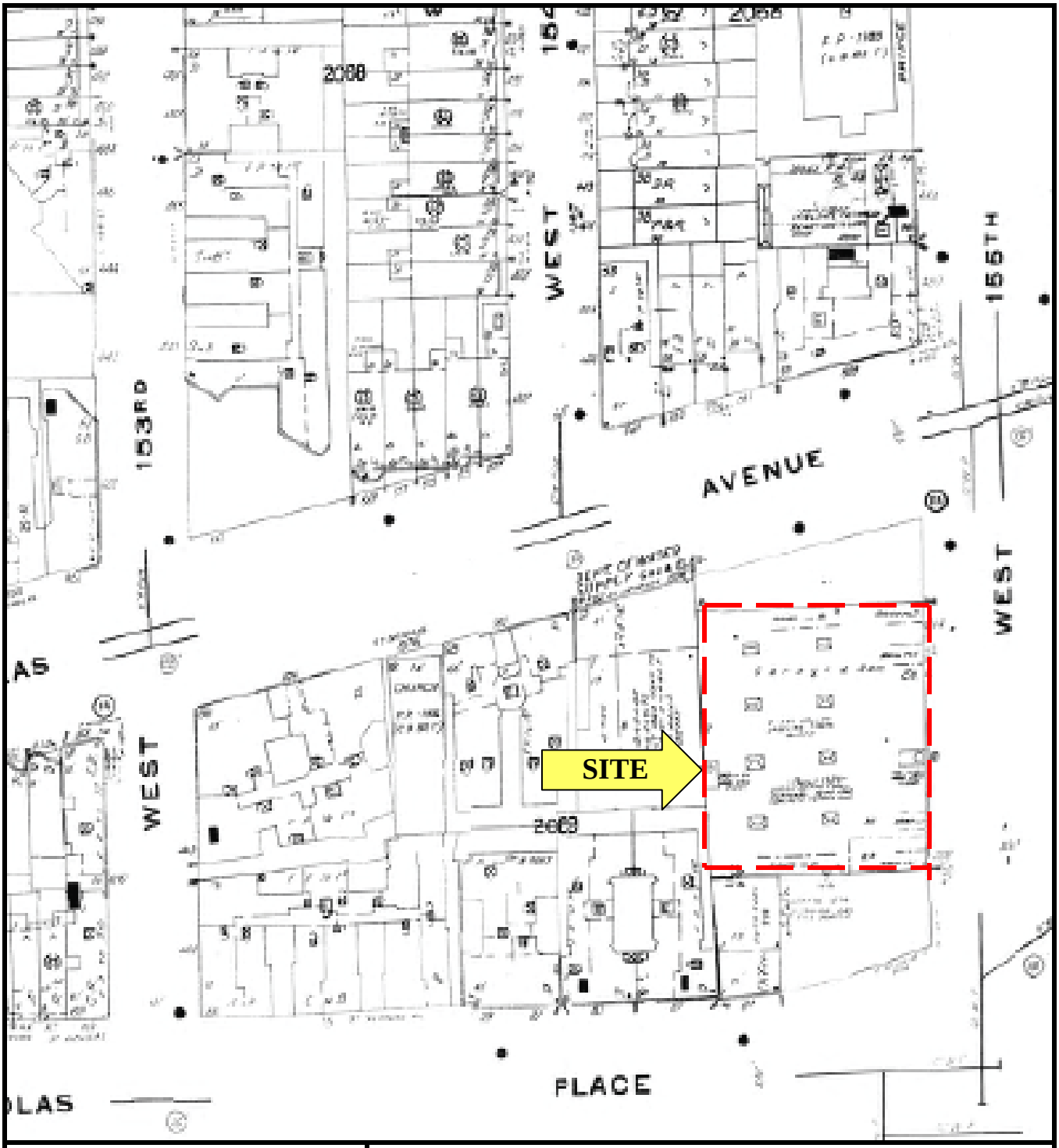

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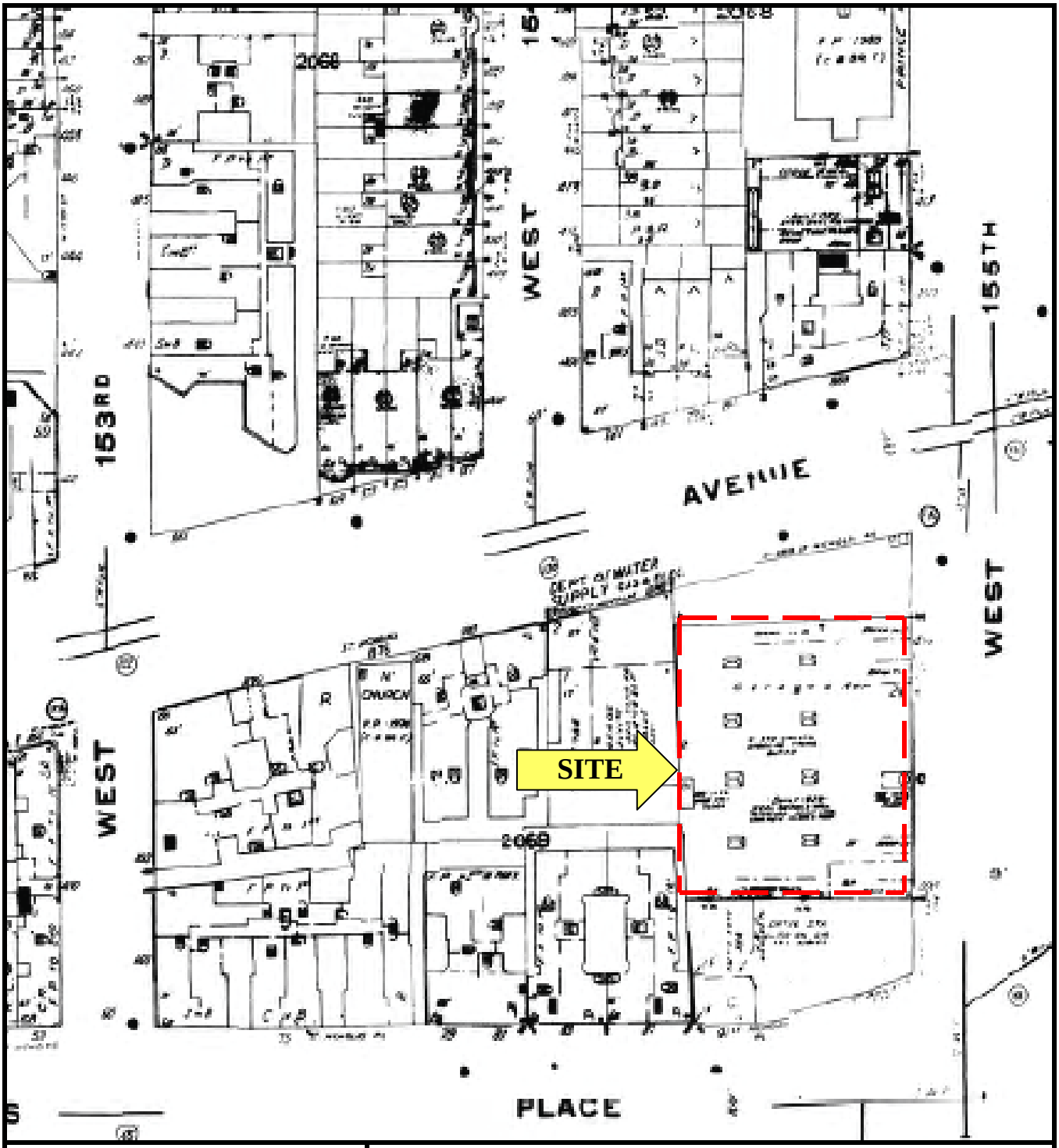
APPENDIX G– HISTORICAL SANBORN MAPS 1991

CLIENT: **Broadway Housing Communities**
SITE: 414 West 155th Street
New York, NY 10032
ATC PROJECT #: 015.26789.0002
SCALE: Not to Scale

N



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APPENDIX G– HISTORICAL SANBORN MAPS 1996

CLIENT: **Broadway Housing Communities**
SITE: 414 West 155th Street
New York, NY 10032
ATC PROJECT #: 015.26789.0002
SCALE: Not to Scale

N

The EDR-City Directory
Abstract

414 West 155th Street
414 West 155th Street
New York, NY 10032

Inquiry Number: 2077001.4

Tuesday, November 13, 2007

EDR® Environmental Data Resources Inc

The Standard in Environmental Risk Information

440 Wheelers Farms Road
Milford, Connecticut 06461

Nationwide Customer Service

Telephone: 1-800-352-0050
Fax: 1-800-231-6802
Internet: www.edrnet.com

EDR City Directory Abstract

Environmental Data Resources, Inc.'s (EDR) City Directory Abstract is a screening report designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's City Directory Abstract includes a search and abstract of available city directory data. For each address, the directory lists the name of the corresponding occupant at five year intervals.

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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SUMMARY

- ***City Directories:***

Business directories including city, cross reference and telephone directories were reviewed, if available, at approximately five year intervals for the years spanning 1920 through 2000. (These years are not necessarily inclusive.) A summary of the information obtained is provided in the text of this report.

This report compiles information by geocoding the subject properties (that is, plotting the latitude and longitude for such subject properties and obtaining data concerning properties within 100.32 Feet of the subject properties). There is no warranty or guarantee that geocoding will report or list all properties within the specified radius of the subject properties and any such warranty or guarantee is expressly disclaimed. Accordingly, some properties within the aforementioned radius and the information concerning those properties may not be referenced in this report.

Date EDR Searched Historical Sources: November 13, 2007

Target Property:
414 West 155th Street
New York, NY 10032

Year	***Uses***	***Source***
1920	****W 155TH****	R. L. Polk & Co.
	CAMPBELL STEPH GARAGE (414)	
1923	Address Not Listed in Research Source	R. L. Polk & Co.
1927	****W 155TH****	New York Telephone
	SPEEDWAY AUTO EXCH CO (414)	
	****W 155 ST****	New York Telephone
	SPEEDWAY AUTO EXCH CO (414)	
1931	Address Not Listed in Research Source	Manhattan and Bronx Directory Publishing Company Residential Directory
1934	****W 155TH****	R. L. Polk & Co.
	BIENSTOCK HARRY MGR STORES BLDG CO INC (414)	
	BIENSTOCK IRVING SEC STORES BLDG CO INC (414)	
	BIENSTOCK MORRIS PRES STORES BLDG CO INC (414)	
	DAVIS BENJ HLPR STORES BUILDING CO INC (414)	
	GADKE WALTER HLPR STORES BLDG CO INC (414)	
	ONE HUNDRED FIFTY-FIFTH ST GARAGE INC (NY IRVING BIENANSTOCK (414)	
	STORES BUILDING CO INC MORRIS BIENSTOCK PRES IRVING BIENSTO (414)	
1938	Address Not Listed in Research Source	New York Telephone
1942	Address Not Listed in Research Source	New York Telephone
1947	Address Not Listed in Research Source	New York Telephone
1950	Address Not Listed in Research Source	New York Telephone
1956	****W 155 ST****	New York Telephone
	CHRIS AUTO REPRS (414)	
1958	Address Not Listed in Research Source	New York Telephone
1963	Address Not Listed in Research Source	New York Telephone

Year	Uses	Source
1968	Address Not Listed in Research Source	New York Telephone
1973	Address Not Listed in Research Source	New York Telephone
1978	Address Not Listed in Research Source	New York Telephone
1983	Address Not Listed in Research Source	New York Telephone
1988	Address Not Listed in Research Source	NYNEX Telephone
1993	**W 155 ST**	NYNEX Telephone
	DAN LEARY (414)	
1998	Address Not Listed in Research Source	NYNEX Telephone
2000	Address Not Listed in Research Source	Cole Information Services

Adjoining Properties

SURROUNDING

Multiple Addresses
New York, NY 10032

Year	Uses	Source
1920	**W 155TH**	R. L. Polk & Co.
	BARRY HMA H (408)	
	DANNEMANN HY F PRES CONVENT GARAGE INC H (418)	
	COOK RAYMOND E LAW CLK R (419)	
	DEGENHARDT W CONTR (433)	
1923	Address Not Listed in Research Source	R. L. Polk & Co.
1927	**W 155TH**	New York Telephone
	BINGHAM JOS A CIGARS (425)	
	W 155 ST	New York Telephone
	BINGHAM JOS A CIGARS (425)	
1931	**W 155TH**	Manhattan and Bronx Directory Publishing Company Residential Directory
	JOHNSON ANNS (411)	
	JOHNSON JOHN (411)	
	OHANLON CATHERINE (411)	
	OHANLON JAS (411)	

Year	Uses	Source
1931 (continued)		
	SCHULTZ FRED (413)	
	KIRK THOM J (420)	
	KNIGHT FLORENCE K (420)	
	REGAN MARTHA C (420)	
	MULLINEAUX EDW H (435)	
	****E 155 ST****	Manhattan and Bronx Directory Publishing Company Residential Directory
	BONOMOLO FRANK (431)	
	CARMODY MARTHA (431)	
1934	****W 155TH****	R. L. Polk & Co.
	MCCARTHY DANL PORTER R (409)	
	BRENNEN FRANK SLSMN H (417)	
	BAUMGARTNER JOHANN M REG NURSE (419)	
1938	****W 155 ST****	New York Telephone
	POLO GROUNDS GARAGE INC (410)	
	FERGUSEN W L (411)	
1942	Address Not Listed in Research Source	New York Telephone
1947	Address Not Listed in Research Source	New York Telephone
1950	Address Not Listed in Research Source	New York Telephone
1956	Address Not Listed in Research Source	New York Telephone
1958	****W 155 ST****	New York Telephone
	PQUET MABEL C (422)	
	MILLIGAN MIC (435)	
1963	Address Not Listed in Research Source	New York Telephone
1968	Address Not Listed in Research Source	New York Telephone
1973	Address Not Listed in Research Source	New York Telephone
1978	Address Not Listed in Research Source	New York Telephone
1983	Address Not Listed in Research Source	New York Telephone
1988	Address Not Listed in Research Source	NYNEX Telephone
1993	Address Not Listed in Research Source	NYNEX Telephone

Year	***Uses***	***Source***
1998	Address Not Listed in Research Source	NYNEX Telephone
2000	Address Not Listed in Research Source	Cole Information Services

APPENDIX H

PRIOR REPORTS

(NONE PROVIDED)

APPENDIX I

RESUMES

BEDIA SARAY
Project Manager

EDUCATION

- 1993, BS, Engineering, University of Cukurova, Turkey
- 2002, MS, Environmental Technology, NY Institute of Technology

PROFESSIONAL SUMMARY

Ms. Saray is a Project Manager at ATC's New York Environmental Division and has 5 years experience conducting Phase I Environmental Assessments and Transaction Screens, Indoor Air Quality Investigations, asbestos and lead abatement inspections and soil/groundwater testing. Ms. Saray has in-depth knowledge of regulatory guidelines and compliance requirements (ASTM, USEPA, NYDEC and local agencies). Prior to joining ATC, Ms. Saray provided engineering services regarding management of water, chemicals, and plant nutrition to the agricultural industry in Karaman, Turkey.

PROFESSSIONAL CERTIFICATIONS

- NYS DOL Asbestos Inspector, Project Monitor and Air Technician (#02-040221)

PROFESSSIONAL EXPERIENCE

- **Environmental Site Assessments / Jones Lang LaSalle / New York.** Project Manager. Managed the coordination and draft report preparation of Phase I environmental assessments for the sale and acquisition of commercial and residential properties. Project activities included asbestos and lead based paint surveys and Phase I ESA for each site performed according to ASTM 1527 and 40CFR.312 AAI screening and additional remedial investigation activities associated with volatile organic compounds in the soil and groundwater.

- **Environmental Site Assessments / Community Preservation Corporation / New York.** Project Manager. Managed the coordination and draft report preparation of Phase I environmental assessments for the sale and acquisition of commercial and residential properties. Project activities included asbestos and lead based paint surveys and Phase I ESA for each site performed according to ASTM 1527 and 40CFR.312 AAI screening and additional remedial investigation activities associated with volatile organic compounds in the soil and groundwater.

- **Environmental Site Assessments / LeFrak Organization / New York.** Project Manager. Managed the coordination and draft report preparation of Phase I environmental assessments for the sale and acquisition of commercial and residential properties. Project activities included asbestos and lead based paint surveys and Phase I ESA for each site performed according to ASTM 1527 and 40CFR.312 AAI screening and additional remedial investigation activities associated with volatile organic compounds in the soil and groundwater.

- **Indoor Air Quality Assessments / Jones Lang LaSalle / New York.** Project Manager. Managed the field operations for air quality investigations and

assessments in response to water intrusion and possible microbial contamination at financial institution's New York City headquarters. Project activities included sampling, survey, oversight of mold remediation contractor and post remediation sampling.

- **Indoor Air Quality Assessments / A.T. Kearney / New York.** Project Manager. Managed the field operations for air quality investigations and assessments in response to water intrusion and possible microbial contamination. Project activities included sampling, survey, managed contractor selection process, oversight of mold remediation contractor and post remediation sampling.

- **Indoor Air Quality Assessments / Murray Hill Properties / New York.** Project Manager. Managed the field operations for bi-annual pro-active air quality investigations and assessments as part of due diligence and building maintenance. Project activities include visual observations and reporting.

MATTHEW MANKOVICH
Senior Project Manager

EDUCATION

1999 B.S., Natural Science, University of Pittsburgh at Johnstown

PROFESSIONAL REGISTRATION

- Current OSHA Approved Hazardous Waste Operations Health and Safety Training (40 Hrs and 8 Hr Annual Refreshers)
- Long Island Rail Road (LIRR) Safety Training, 2004

PROFESSIONAL SUMMARY

Mr. Mankovich is a Senior Project Manager with more than six (6) years of broad-based professional experience in environmental services, including site assessments, investigations, and remediation for private and public sector clients. Technical experience includes site assessments and investigations, remedial investigation, environmental management and compliance, and due diligence support.

PROFESSIONAL EXPERIENCE

- **Environmental Services / NYC School Construction Authority / New York.** Senior Environmental Scientist – Responsible for project management and/or preparation of Phase I Environmental Site Assessments (ESAs), Phase II Environmental Site Investigations (ESIs) and other environmental assessments and investigations. The properties include industrial facilities, educational and commercial properties. The projects were conducted in accordance with current ASTM and NYCSCA standards to investigate the potential for on-site or off-site environmental concerns for liability and suitability for use as a school. Responsibilities include site reconnaissance, local and county agency interviews, geological and hydrological data review, historical data review, State and Federal database reviews, and report preparation, soil, groundwater, indoor air quality and soil gas investigations, UST/AST investigations, environmental oversight, and report preparation.

- **Phase I and II Environmental Site Assessments / NYC Transit Authority / New York -- Number 7 Subway Extension — Hudson Yards Rezoning and Development Program.** Environmental Scientist. Prepared Phase I ESAs and Phase II ESIs in accordance with current ASTM and client standards. Phase II ESI included collection of soil and groundwater samples for laboratory analysis. Results and interpretations were used to prepare EIS Chapter.

- **Phase I Environmental Site Assessments / NYC Department of Economic**

Development Corporation / New York. Environmental Scientist – Prepared Phase I ESAs in accordance with current ASTM and client standards. Results and interpretations were used to prepare EIS Chapter for the Stapleton Waterfront Development Plan EIS.

- **Phase I and II Environmental Site Assessments / NYC Department of Design and Construction / New York.** Senior Environmental Scientist – Phase I Environmental Site Assessments (ESAs), Phase II Environmental Site Investigations (ESIs) and other environmental assessments and investigations in accordance with current ASTM and client standards.

- **Phase I and II Environmental Site Assessments and NEPA Surveys, New York and New Jersey. Verizon, T-Mobile, Sprint and private clients.** Environmental Scientist. Performed Phase I ESAs and Phase II ESIs in accordance with current ASTM standards for industrial facilities, and commercial and residential properties and NEPA Surveys.

- **Construction Testing and Inspection Services, Pittsburgh, Pennsylvania. Public and Private clients.** Field Technician/Project Manager. Provided on-site inspection and construction documentation for commercial and residential development projects throughout Western Pennsylvania. Responsibilities include: coordination between contractor and client to ensure the project is on schedule; specification review for compliance enforcement; field testing of soil, concrete, asphalt, masonry, & steel; soil compaction and inspection; proofrolling inspection; data collection, field logs, data reduction and interpretation.

APPENDIX J

RECORDS OF COMMUNICATION

Form 54-JSM-701421(51) [redacted] 214

DEPARTMENT OF HOUSING AND BUILDINGS

BOROUGH OF MANHATTAN , CITY OF NEW YORK

No. 40818

Date February 10, 1953

CERTIFICATE OF OCCUPANCY

(Standard form adopted by the Board of Standards and Appeals and issued pursuant to Section 646 of the New York Charter, and Sections C26-181.0 to C26-187.0 inclusive Administrative Code 2.1.3.1. to 2.1.3.7. Building Code.)

This certificate supersedes C. O. No.

To the owner or owners of the building or premises:

THIS CERTIFIES that the [redacted]-altered-[redacted]—building—premises located at

91-99 St. Nicholas Place

Block 2069 Lot 20

, conforms substantially to the approved plans and specifications, and to the requirements of the building code and all other laws and ordinances, and of the rules and regulations of the Board of Standards and Appeals, applicable to a building of its class and kind at the time the permit was issued; and

CERTIFIES FURTHER that, any provisions of Section 646F of the New York Charter have been complied with as certified by a report of the Fire Commissioner to the Borough Superintendent.

[redacted] Alt. No.— 797-1951 Construction classification— Class 1 fireproof

Occupancy classification— Commercial Bldg. . Height 1 stories, 15.5 feet.

Date of completion— February 10, 1953 . Located in Business & Residence Use District.

B Area 1½ . Height Zone at time of issuance of permit 876-1952

This certificate is issued subject to the limitations hereinafter specified and to the following resolutions of the Board of Standards and Appeals: (Calendar numbers to be inserted here) 1190-27-BZ

PERMISSIBLE USE AND OCCUPANCY

STORY	LIVE LOADS Lbs. per Sq. Ft.	PERSONS ACCOMMODATED			USE
		MALE	FEMALE	TOTAL	
1st story	on ground	2		2	Gasoline Service Station.
					Gasoline tank installed approved by Fire Department April 17, 1952.
					Fuel Oil installation approved by Fire Department February 4, 1953.

Borough Superintendent

NO CHANGES OF USE OR OCCUPANCY NOT CONSISTENT WITH THIS CERTIFICATE SHALL BE MADE UNLESS FIRST APPROVED BY THE BOROUGH SUPERINTENDENT

Unless an approval for the same has been obtained from the Borough Superintendent, no change or rearrangement in the structural parts of the building, or affecting the light and ventilation of any part thereof, or in the exit facilities, shall be made; no enlargement, whether by extending on any side or by increasing in height shall be made; nor shall the building be moved from one location or position to another; nor shall there be any reduction or diminution of the area of the lot or plot on which the building is located.

The building or any part thereof shall not be used for any purpose other than that for which it is certified.

The superimposed, uniformly distributed loads, or concentrated loads producing the same stresses in the construction in any story shall not exceed the live loads specified on reverse side; the number of persons of either sex in any story shall not exceed that specified when sex is indicated, nor shall the aggregate number of persons in any story exceed the specified total; and the use to which any story may be put shall be restricted to that fixed by this certificate except as specifically stated.

This certificate does not in any way relieve the owner or owners or any other person or persons in possession or control of the building, or any part thereof from obtaining such other permits, licenses or approvals as may be prescribed by law for the uses or purposes for which the building is designed or intended; nor from obtaining the special certificates required for the use and operation of elevators; nor from the installation of fire alarm systems where required by law; nor from complying with any lawful order for additional fire extinguishing appliances under the discretionary powers of the fire commissioner; nor from complying with any lawful order issued with the object of maintaining the building in a safe or lawful condition; nor from complying with any authorized direction to remove encroachments into a public highway or other public place, whether attached to or part of the building or not.

If this certificate is marked "Temporary", it is applicable only to those parts of the building indicated on its face, and certifies to the legal use and occupancy of only such parts of the building; it is subject to all the provisions and conditions applying to a final or permanent certificate; it is not applicable to any building under the jurisdiction of the Housing Division unless it is also approved and endorsed by them, and it must be replaced by a full certificate at the date of expiration.

If this certificate is for an existing building, erected prior to March 14, 1916, it has been duly inspected and it has been found to have been occupied or arranged to be occupied prior to March 14, 1916, as noted on the reverse side, and that on information and belief, since that date there has been no alteration or conversion to a use that changed its classification as defined in the Building Code, or that would necessitate compliance with some special requirement or with the State Labor Law or any other law or ordinance; that there are no notices of violations or orders pending in the Department of Housing and Buildings at this time; that Section 646F of the New York City Charter has been complied with as certified by a report of the Fire Commissioner to the Borough Superintendent, and that, so long as the building is not altered, except by permission of the Borough Superintendent, the existing use and occupancy may be continued.

"§ 646 F. No certificate of occupancy shall be issued for any building, structure, enclosure, place or premises wherein containers for combustibles, chemicals, explosives, inflammables and other dangerous substances, articles, compounds or mixtures are stored, or wherein automatic or other fire alarm systems or fire extinguishing equipment are required by law to be or are installed, until the fire commissioner has tested and inspected and has certified his approval in writing of the installation of such containers, systems or equipment to the Borough Superintendent of the borough in which the installation has been made. Such approval shall be recorded on the certificate of occupancy."

Additional copies of this certificate will be furnished to persons having an interest in the building or premises, upon payment of a fee of fifty cents per copy.

Form—:44-1527 Certificate of Occupancy. 8A-2087-27-1,

BUREAU OF BUILDINGS

BOROUGH OF MANHATTAN, CITY OF NEW YORK

HVC **CERTIFICATE OF OCCUPANCY No. 15260** 192 9

Supersedes Certificate of Occupancy No.

To the owner or owners of the building: New York May 16, 1929.

THIS CERTIFIES that the building located on Block 2069, Lot 20

known as 91-99 St. Nicholas Place-404-414 West 155th Street
154'3¾" front

under a permit, Application No. 467 H.B. of 19 27, conforms to the approved plans and specifications accompanying said permit and any approved amendments thereto, and to the requirements of the building code and all other laws and ordinances and to the rules and regulations of the board of standards and appeals, applicable to a building of its class and kind, except that in the case of a building heretofore existing and for which no previous certificate of occupancy has been issued and which has not been altered or converted since March 14, 1916, to a use that changed its classification as defined in the building code, this certificate confirms and continues the existing uses to which the building has been put; and

CERTIFIES FURTHER that the building is of fireproof construction within the meaning of the building code and may be used and occupied as a business building as hereinafter qualified, in a residence and business district under the building zone resolution, subject to all the privileges, requirements, limitations, and conditions prescribed by law or as hereinafter specified.

STORY	LIVE LOADS Lbs. per Sq. Ft.	PERSONS ACCOMMODATED			USE
		MALE	FEMALE	TOTAL	
Cellar					Garage for more than 5 autos.
Basement	120				
1st Story	120				
2nd "	120				

This certificate is issued to Storse Building Corp.Inc.,
463-7th Avenue, City
, for the owner or owners.

The superimposed, uniformly distributed loads, or their equivalent concentrated loads in any story shall not exceed the live loads specified above; the number of persons of either sex in any story shall not exceed that specified when sex is indicated, nor shall the aggregate number of persons in any story exceed the specified total; and the use to which any story may be put shall be restricted to that fixed by this certificate except as specifically stated.

The building or any part thereof shall not be used for any purpose other than that for which it is certified.

Unless specifically stated above, the building or any part thereof, if certified as a public building, shall not be used as a building in which persons are harbored to receive medical, charitable or other care or treatment, such as a hospital, asylum, etc., or in which persons are held or detained under legal restraint, such as a police station, jail, etc.; nor shall it be used as a motion picture theatre as defined in section 30, chapter 3, Code of Ordinances; nor as a theatre or opera house or other building intended to be used for theatrical or operatic purposes, or for public entertainment of any kind, for the accommodation of more than 300 persons.

Unless specifically stated above, the building or any part thereof, if certified as a residence building, shall not be used as a tenement house as defined in the tenement house law; nor shall it be used as any form of residence building having more than 15 sleeping rooms; nor shall it be used as a lodging house within the meaning of Sec. 1305 of the Greater New York Charter.

Unless specifically stated above, the building or any part thereof, if certified as a business building, shall not be used as a garage, motor vehicle repair shop or oil selling station as defined in section 1, chapter 10, Code of Ordinances; nor shall it be used for the generation or compression of acetylene; nor as a factory building as defined in the labor law; nor as a grain elevator; nor as a coal pocket.

Except as otherwise noted above, the building, or any part thereof, if located elsewhere than in an unrestricted district, shall not be used for any of the purposes enumerated in paragraph (a) of section 4 of the building zone resolution; nor for any trade, industry or use that is noxious or offensive by reason of the emission of odor, dust, smoke, gas or noise; nor for any kind of manufacturing not already prohibited, except that, if located in a business district, not more than twenty-five per cent. of the total floor space may be so used, or space equal to the area of the lot in any case.

Except as otherwise noted above, the building, if certified as a garage, may not be used for more than five cars on any portion of a street between two intersecting streets, in which portion there exists an exit from or an entrance to a public school, or in which portion there exists any hospital maintained as a charitable institution; and in no case within a distance of 200 feet from the nearest exit from or entrance to a public school; nor within two hundred feet of any hospital maintained as a charitable institution.

If the building has, at any time previous to the issuance of this certificate, been the subject of an appeal to the board of appeals or of a petition to the board of standards and appeals resulting in modification or variation of law or any lawful requirement, the construction and arrangement of the building as specified in the resolution granting such modification or variation, must be maintained, and all conditions imposed by either board must be observed.

No change or re-arrangement in the structural parts of the building, or affecting the lighting or ventilation of any part thereof, or in the exit facilities, shall be made; no enlargement, whether by extending on any side or by increasing in height shall be made; nor shall the building be moved from one location or position to another; nor shall there be any reduction or diminution of the area of the lot or plot on which the building is located, until an approval of the same has been obtained from the superintendent of buildings.

This certificate supersedes each and every previously issued certificate of occupancy for this building or any part thereof, and each and every such previously issued certificate shall be null and void; and this certificate in turn becomes null and void upon the issuance of any new lawful certificate.

This certificate does not in any way relieve the owner or owners, or any other person or persons in possession or control of the building, or any part thereof, from obtaining such other permits or licenses as may be prescribed by law for the uses or purposes for which the building is designed or intended; nor from complying with any lawful order issued with the object of maintaining the building in a safe or lawful condition; nor from complying with any authorized direction to remove encroachments into a public highway or other public place, whether attached to or part of the building or not.

This certificate does not authorize the use or operation of any elevator in the building without the special certificate required by section 563 of the building code.

If the building is or is required to be equipped with standpipes or other fire extinguishing or gas shut off appliances, this certificate is not complete until such standpipes or other appliances have been inspected by the fire department (or by the Tenement House Department, in the case of a gas shut off in a tenement house) and approved in writing, either in a separate certificate or by endorsement upon this certificate. (Space for such endorsement is provided on page 4 of this certificate.)

If this certificate is marked "Temporary," it is applicable only to those parts of the building indicated on its face, and certifies to the legal use and occupancy of only such parts of the building; it is subject to all the provisions and conditions applying to a final or permanent certificate; it is not applicable to a tenement house unless also approved by the tenement house commissioner; and it must be replaced by a full certificate as soon as the entire building is completed according to law and ready for occupancy.

The word "class" as used in this certificate refers to the classification of buildings in the building code (section 70).

This certificate is issued in accordance with the provisions of section 411-a of the Greater New York Charter and of section 5 of chapter 3 (Building Code) of the Code of Ordinances of the City of New York.

Examined.

Superintendent of Buildings, Borough of Manhattan.

Additional copies of this certificate will be issued, upon written request, to persons having a proprietary interest in the building.

lew York State Department of Environmental Conservation
egional Enforcement Coordinator, Region 2
7-40 21ST Street, Long Island City, NY 11101-5407
hone: (718) 482-4507 • **FAX:** (718) 482-6729
ebsite: www.dec.state.ny.us

Alexander B. Grannis
Commissioner

November 27, 2007

FOIL # R2-07-1919

Bedia Saray/ATC Associates, Inc
212-353-8280
Fax 212-979-8447

RE: 3 Sites in Manhattan: - 414 W 155th St
- 89-91 St Nicholas Place 8805013 & 9503535
- 886 St Nicholas Ave 9710796 & 9504500

Dear Ms. Saray:

We are in receipt of your Foil request for the above referenced site. The Foil identification number assigned is R2-07-1919.

If for any reason you need to contact us again please use that number. When the programs are done gathering the files/information this office will contact you.

Please expect our response within 20 days from the date of this letter.

Sincerely yours,

Fawzy I. Abdelsadek, Ph.D., P.E.
Regional Enforcement Coordinator

New York State Department of Environmental Conservation
Regional Enforcement Coordinator, Region 2, Regional Direction
47-40 21st Street, Long Island City, NY 11101-5407
Phone: (718) 482-4507 • **FAX:** (718) 482-6729
Website: www.dec.state.ny.us

Alexander B Grannis
Commissioner

Date: December 11, 2007

FOIL # R2-07-1919

Bedia Saray/ATC Associates, Inc
212-353-8280
Fax 212-979-8447

Re: 3 Sites in Manhattan:
- 414 W 155th St
- 89-91 St Nicholas Place 8805013 & 9503535
- 886 St Nicholas Ave 9710796 & 9504500

Dear Ms. Saray:

:

NYSDEC/Region 2 has reviewed your request for the above referenced records under New York State's Freedom of Information Law (FOIL). Please note that most of our records are filed by number under the names of individuals or corporations. We have no way of locating or retrieving records if they are filed under names or addresses other than those you have provided.

If no records have been located, this does not necessarily mean, and should not be interpreted to mean that there have never been any violations, complaints, claims, investigations or inquiries involving those names or addresses. We cannot make any representations as to whether there are or have been any such violations, complaints, claims, investigations or inquiries.

☒ Attached are (3) pages free copy of the records located for the names and/or addresses you provided.

Thank you for your request. If additional information is needed, please call Gloria Silva/FOIL Secretary at (718) 482-4507, or fax your response to me.

Sincerely yours,

Fawzy I Abdelsadek, Ph.D., P.E.
Regional Enforcement Coordinator

Attachment (3) Pages

cc: Records Access Office

R2-07-1919

New York State Department of Environmental Conservation
Division of Solid & Hazardous Materials

Acute, Non-Acute and Total Hazardous Waste Shipped per Calendar Month

Search Criteria: Generator RCRA ID = NYR000011643 Shipped To: 01/01/1900 Through: 01/01/2099

GENERATOR ID: NYR000011643
NAME: GETTY PETROLEUM CORP
LOCATION ADDRESS: 89-91 ST NICHOLAS PL
NEW YORK, NY 10032-8004

MAILING ADDRESS: 89-91 ST NICHOLAS PL
NEW YORK, NY 10032-8004

DETAILS:

Month - Year	Acute (kg)	Non-Acute (kg)	Total (kg)
Aug-1995	0.00	624.00	624.00
Dec-2001	0.00	340.36	340.36
Sep-2006	0.00	545.45	545.45

New York State Department of Environmental Conservation
Regional Enforcement Coordinator, Region 2, Regional Direction
47-40 21ST Street, Long Island City, NY 11101-5407
Phone: (718) 482-4507 • **FAX:** (718) 482-6729
Website: www.dec.state.ny.us

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Commissioner

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NEW YORK, NY 10032-8004

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NEW YORK, NY 10032-8004

DETAILS:

Month - Year	Acute (kg)	Non-Acute (kg)	Total (kg)
Aug-1995	0.00	624.00	624.00
Dec-2001	0.00	340.36	340.36
Sep-2006	0.00	545.45	545.45
Total	0.00	1,509.81	1,509.81

New York State Department of Environmental Conservation
Division of Solid & Hazardous Materials

INSPECTION REPORT

SEARCH CRITERIA: **Generator is 'NYR000011643'.**

GEN / OFFEROR ID: NYR000011643
NAME: GETTY PETROLEUM CORP
LOCATION: 89-91 ST NICHOLAS PL
NEW YORK, NY 10032-8004

MAILING ADDRESS: 89-91 ST NICHOLAS PL
NEW YORK, NY 10032-8004

GEN / OFFER SHIP DATE	PAGE #	LINE #	TSDF / REC REC'D DATE	TRANS #1 RCRA ID	TSDF RCRA ID	CONTAINER #	CONTAINER TYPE	TOTAL QTY	UNIT WT / VOL	WASTE CODE(S)	HANDLING CODE	MGMT CODE
MANIFEST NO:	**000078423JJK**											
09/05/2006	1	1	09/21/2006	NYD04917829	CDX48000000	4	DF	1200	lbs	D001	B	H141
MANIFEST NO:	**NYG3195549**											
12/28/2001		1	01/02/2002	NYD07744426	NYD07744426	2	DM	90	gal	D001	B	
MANIFEST NO:	**MAG2629280**											
08/18/1995		1	08/22/1995	MAD03932225	MAD0534526	3	DM	165	gal	D001	B	

C 61978

Please print or type. (Form designed for use on elite (12-pitch) typewriter.) Form Approved, OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator ID Number: NYR000011643
2. Page 1 of: 1
3. Emergency Response Phone: 1800-424-9300
4. Manifest Tracking Number: 000078423 JJK

5. Generator's Name and Mailing Address: Gettyservice Station, 99 Nicholas Place, New York, New York
Generator's Site Address (if different than mailing address): SAME
Generator's Phone: 212 694-0240

6. Transporter 1 Company Name: Radiac Research Corp.
U.S. EPA ID Number: NYD049178296

7. Transporter 2 Company Name:
U.S. EPA ID Number:

8. Designated Facility Name and Site Address: C.R.I. Envirmnet Inc., 75 RUE-DU-Progress Street, Chteau-Du-Lac, Q.C. JOP 1B0
Facility's Phone: 450-763-5541
U.S. EPA ID Number: CDX980000000 Canadian Provincial 1144100543

Gen. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes		
X	1. Waste Flammable Liquid,nos,3,UN1993,II (Gasoline Tank Bottoms)ERG#128	04	DF	1200	P	D001		B
	2.							
	3.							
	4.							

14. Special Handling Instructions and Additional Information
1.) LPC
Primary Exporter's EPA Notice No. 181/06

15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: RAGATZ ROSN
Signature: [signature]
Month 9 Day 15 Year 06

16. International Shipments: ☐ Import to U.S. ☒ Export from U.S.
Port of entry/exit: Champlain NY
Transporter signature (for exports only): [signature]
Date leaving U.S.: 9/20/06

17. Transporter Acknowledgment of Receipt of Materials
Transporter 1 Printed/Typed Name: ED MCGUIRE
Signature: [signature]
Month 09 Day 05 Year 06
Transporter 2 Printed/Typed Name:
Signature:
Month Day Year

18. Discrepancy
18a. Discrepancy Indication Space: ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection
Manifest Reference Number:
18b. Alternate Facility (or Generator)
U.S. EPA ID Number
Facility's Phone:
18c. Signature of Alternate Facility (or Generator)
Month Day Year

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)
1. 2. 3. 4.

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a
Printed/Typed Name: [illegible]
Signature: [signature]
Month 09 Day 21 Year 06

GENERATOR — TRANSPORTER — DESIGNATED FACILITY

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete. DESIGNATED FACILITY TO GENERATOR STATE (IF REQUIRED)

104 East 25th Street
New York, NY 10010
Telephone: 212-353-8280
Facsimile: 212-979-8447

November 13, 2007

NYSDEC Region 2 Office
1 Hunters Point Plaza
47-40 21st Street
Long Island City, NY 11101

RE: Freedom of Information Law (FOIL) request
414 West 155th Street, New York, NY
89-91 St Nicholas Place, New York, NY (LTANKS IDs: 8805013 & 9503535)
886 St Nicholas Avenue, New York, NY (LTANKS IDs: 9710796 & 9504500)

Attn Foil Officer:

ATC Associates Inc. (ATC) is requesting to review any records available with respect to the above-mentioned properties. These records can include any registered underground or aboveground storage tanks, petroleum leaks and or spills, the storage or production of hazardous materials, etc. Please notify me once these records, if any, have been located.

Sincerely,

ATC Associates Inc.

Bedia Saray
Project Manager

104 East 25th Street
Tenth Floor
New York, NY 10010
Telephone: 212-353-8280
Facsimile: 212-979-8447

November 13, 2007

Ms. Rena Bryant
Secretary of the Health Department
NYC Department of Health
125 Worth Street
Room 604A - Box 31
New York, New York 10013
(212) 295-5383 (tel)
(212) 788-4315 (fax)

Sent-by-fax

Re: Freedom of Information Law Request
414 West 155th Street
New York, NY
(Block 2069, Lot 21)

Dear Ms. Bryant:

Pursuant to the Freedom of Information Act, please forward available non-identifying records regarding cases of reported lead poisoning, any information regarding USTs, spill records, remediation sites, dump sites, storage of hazardous material, and hazardous material activities to us as soon as possible.

Please let me know if there are any costs associated with this request prior to processing same. Your response can either be faxed or mailed to us at the fax number and/or location identified above. If you have any questions, please call me at (212) 353-8280, extension 330.

Sincerely,

ATC Associates Inc.

Bedia Saray
Project Manager

FIRE DEPARTMENT – CITY OF NEW YORK

Public Records Unit / Tanks Section

9 MetroTech Center
Brooklyn, New York 11201-3857
(718) 999-2441 or 2442

Tank Request Form

OFFICE USE ONLY
Cashier / Search No.

SECTION A **CUSTOMER INFORMATION**

Please print your address and contact telephone number.

Name: Bedia Saray; ATC Associates, Inc.

Address: 104 E. 25th Street, 10th Floor

Telephone Number: (212) 353-8280 x330

State: New York, NY Zip Code: 10010

Processing may take time, please choose one option below:
I will wait for it ☐ I will it pick-up ☐ Mail it to my address ☑

Note: Please make sure you complete this form and attach all required documents. Enclose a check or money order (made payable to the NYC Fire Department) and a self-addressed envelope (with postal stamp). Mail checks or money orders directly to the address and unit listed above. DO NOT MAIL CASH. Cash payments can only be made in person and accepted by our Cashiers Office (9am –3pm).

SECTION B **PLEASE PRINT THE ADDRESS TO BE SEARCHED.**

House Number: 414 Street Name: West 155th Street, New York, NY Borough: (Block: 2069, Lot: 21)

CUSTOMER – PLEASE READ THE INFORMATION BELOW.

A CERTIFIED REPORT WILL BE MAILED TO THE ADDRESS YOU HAVE PROVIDED WITHIN TEN (10) BUSINESS DAYS AFTER DATE SUBMITTED. COMPUTER PRINTOUTS WILL BE PROVIDED ONLY UPON REQUEST.

After you have received the certified report, you may request a certified computer printouts and/or a copy of any related record for an additional fee of $0.25 (cents) / per page. The fee for individual copies can only be determined after this search has been completed and you have received the related report. All payments are non-refundable.

Note: All listed tank information come from records, which exist in the FDNY District Office Folders and computer files. Also, please be advised that this search will not include records manually kept by Fire or Engine Companies, unless a summons for "Failure to Comply" was issued.

SECTION C **FUEL (HEATING) OIL TANKS - FEE $10.00 / PER REPORT**

If you would like to obtain a certified report, please complete this section by checking one or more boxes from the selection below.

☑ **ITEM 1 – THE TOTAL AMOUNT AND SIZE OF EXISTING FUEL OIL / HEATING TANKS (includes installation date)**

☑ **ITEM 2 – THE TOTAL AMOUNT AND SIZE OF REMOVED OR SEALED FUEL OIL / HEATING TANKS**

☐ **ITEM 3 – OTHER:** _____

For Office Use Only – Do not write in this section.

Searched By: _____ Date: ___/___/___

(PLEASE SEE OTHER SIDE OF FORM)

NEW YORK CITY DEPARTMENT OF ENVIRONMENTAL PROTECTION

Application for Records, Article 6 - New York State Public Officers Law, Freedom of Information Law

Complete Part I of this form. Please refer to instruction sheet for assistance in completing this form. If responsive records are located, you will be notified and informed of the required payment. Advance payment is required in check or money order payable to the City of New York before documents will be released. Send the complete application to the Records Access Officer at NYC DEP, Bureau of Legal Affairs, 59-17 Junction Blvd., 19th Fl., Flushing, NY 11373 or fax to (718) 595-6543

PART I. APPLICATION - Check Bureau(s) known or believed to have the record(s):

- ☐ Executive
- ☐ General Counsel
- ☐ Agency Chief Contracting Office
- ☐ Bureau of Customer Services (Water Bills)
- ☒ Bureau of Environmental Compliance
- ☒ Asbestos
- ☒ Hazardous Materials
- ☐ Air & Noise
- ☒ Environmental Control Board
- ☒ Bureau of Environmental Engineering
- ☒ Office of Environmental Planning and Assessment
- ☐ Bureau of Wastewater Treatment
- ☒ Sewer discharge violations
- ☐ Bureau of Water and Sewer Operations
- ☐ Water Records
- ☐ Sewer Records
- ☐ Bureau of Water Supply
- ☒ Water Quality
- ☐ DEP Police
- ☐ _____

I hereby apply to ○ inspect or ☒ receive copies of the following records (use additional sheets as needed and attach):
Please forward all available information regarding USTs, spill records, remediation sites, dumpsites, Storage of hazardous materials, hazardous material activites, etc as pertains to the following address:
414 West 155th Street
New York, NY (Block: 2069, Lot: 21)

Name: Bedia Saray Phone: (212) 353-8280 E-Mail: _____
Firm: ATC Associates Inc.
Address: 104 E. 25th Street, NY, NY 10010
Signature: B. [signature] Date: 11/13/07

PART II. DISPOSITION OF REQUEST (*TO BE COMPLETED BY THE DEPARTMENT*)

☐ **APPROVED** ☐ **APPROVED IN PART** - - To arrange for access to the records, please contact:

_____ (Department Representative) _____ (Bureau) _____ (Phone No.)

Number of Pages: _____ x$.25 per page = Cost: _____

☐ **DENIED** ☐ **DENIED IN PART** - - for reason(s) checked: References are to Sec. 87 of the Public Officers Law.

- ☐ Exempt: State/Fed. Statute (2(a))
- ☐ Invasion of personal privacy (2(b))
- ☐ Competitive position injury (2(d))
- ☐ Exempt: Law Enforcement (2(e))
- ☐ Inter/Intra-agency material (2(g))
- ☐ (Other) _____

Brief Description of records not subject to disclosure _____

A denial, in whole or in part, may be appealed within 30 days by writing to the NYCDEP FOIL Appeals Officer, 59-17 Junction Blvd., 19th Fl., Flushing, NY 11373

☐ **UNAVAILABLE** - - for reason(s) checked:

- ☐ Not described in sufficient detail
- ☐ After search, no records responsive to request located
- ☐ (Other) _____
- ☐ Not maintained by this Department

LOG NO.: _____

(Department Representative) (Bureau) (Date)

☐ Fee Waived ☐ Check/M.O. received ☐ Check/M.O. requested

DOC# 050303

APPENDIX K

LABORATORY REPORTS

(NOT USED)

APPENDIX L

OTHER SUPPORTING DOCUMENTATION

AMERISTAR
PUBLIC RECORDS RESEARCH

CURRENT OWNERSHIP REPORT

CLIENT INFORMATION

Client:	ATC Associates Inc (NY-New York)	**Report Date:**	11/16/2007
Client No.:	12021	**Index Date:**	11/14/2007
Address:	104 East 25th St. 8th Floor New York, NY 10010	**Order ID:**	711-200-1-2935
		Client Ref.:	414 West 155th Street
Contact:	Bedia Saray	**PO Number:**	N/A
Phone:	212-353-8280		
Delivery:	bedia.saray@atcassociates.com		

CURRENT OWNER INFORMATION

Current Owner of Record:	Gargage Estates Co
Current Site Address:	414 West 155th Street New York, NY 10032
County of Research:	NEW YORK

LEGAL DESCRIPTION

ALL THAT CERTAIN PLOT, PIECE OR PARCEL OF LAND WITH THE BUILDINGS AND IMPROVEMENTS THEREON ERECTED, SITUATE, LYING AND BEING IN THE BOROUGH OF MANHATTAN, CITY AND STATE OF NEW JERSEY, BEING MORE FULLY DESCRIBED IN VOLUME 1508, PAGE 2172 IN THE DEED RECORDS OF NEW YORK COUNTY, NEW JERSEY.

NOTE: Ameristar does not represent that the above legal description, acreage, or square footage calculations are correct. We have taken this information directly from a document recorded at the courthouse.

TAX INFORMATION

PARCEL IDENTIFICATION NUMBER: **Block 2069 Lot 21**

TAX VALUE INFORMATION		**SPECIAL COMMENTS**
Total Value:	$3,240,000.00	None

DISCLAIMER: This report contains information obtained from public records, and being that our company is not the primary provider of such, Ameristar cannot and will not, for the fee charged, be an insurer or guarantor of the accuracy or reliability of said information. Ameristar does not guarantee or warrant the accuracy, timeliness, completeness, currentness, merchantability or fitness for a particular purpose of services provided. Further, Ameristar's sole liability is limited to the cost of this report only. Ameristar is not liable to user for any loss or injury arising out of or caused, in whole or in part, by Ameristar's acts or omissions, whether negligent or otherwise, in procuring, compiling, collecting, interpreting, reporting, communicating, or delivering the services or information contained herein. THIS REPORT IS NOT AN ABSTRACT, OPINION OF TITLE, TITLE COMMITMENT NOR GUARANTEE, OR TITLE INSURANCE POLICY.

500 South Nolen Drive, Ste 100 Southlake TX 76092 Phone (800) 920-9270 Fax (800) 920-9271

AMERISTAR
PUBLIC RECORDS RESEARCH

DEED / CURRENT OWNERSHIP INFORMATION

BARGAIN AND SALE DEED:

DATED:	12/03/1988		
GRANTOR:	Garage Estates, Inc., a corporation		
GRANTEE:	Garage Estates Company		
VOLUME:	1508	**PAGE:**	2172

ENVIRONMENTAL LIEN INFORMATION

**NONE FOUND OF RECORD.*

GENERAL ENCUMBRANCES INFORMATION

**NONE FOUND OF RECORD.*

REEL 1508 PG 2172

Form 8001 9/88-5M—Bargain and Sale Deed, without Covenant against Grantor's Acts—Individual or Corporation (single sheet)

CONSULT YOUR LAWYER BEFORE SIGNING THIS INSTRUMENT—THIS INSTRUMENT SHOULD BE USED BY LAWYERS ONLY.

THIS INDENTURE, made the 30 day of December, nineteen hundred and eighty-eight

BETWEEN GARAGE ESTATES, INC., a corporation organized and existing under and by virtue of the Laws of the State of New York, with its principal office c/o Kooperstein, 160 East 48th Street, Borough of Manhattan, ~~City and~~ State of New York,

party of the first part, and GARAGE ESTATES COMPANY, with its office c/o Kooperstein, 160 East 48th Street, Borough of Manhattan, City and State of New York

party of the second part,

WITNESSETH, that the party of the first part, in consideration of ten dollars and other valuable consideration paid by the party of the second part, does hereby grant and release unto the party of the second part, the heirs or successors and assigns of the party of the second part forever,

ALL that certain plot, piece or parcel of land, with the buildings and improvements thereon erected, situate, lying and being in the Borough of Manhattan, City and State of New York, bounded and described as follows:

BEGINNING at a point on the Southerly side of 155th Street distant 45 feet Westerly from the corner formed by the intersection of the Southerly side of 155th Street with the Westerly side of St. Nicholas Place; thence Westerly along the Southerly side of 155th Street 154 feet 3-3/4 inches to the Easterly line of the land of the Mayor, Alderman and Commonalty of the City of New York, commonly known as land of the Croton Aqueduct; thence Southerly along said line belonging to the City of New York, 144 feet 3 inches; thence Easterly 154 feet 3-3/4 inches; thence Northerly and forming a line at right angles with the Southerly side of 155th Street, approximately 137 feet to the point or place of BEGINNING; being the said several dimensions more or less.

Said premises being known and designated as Nos. 404-414 West 155th Street New York City and being the same premises as were conveyed by H. Casabianca, Inc. to Garage Estates, Inc. by deed dated February 28, 1956 and recorded on March 6, 1956 in the Office of the City Register, County of New York in Liber 4956 of Conveyances, Pages 267 and 268.

SUBJECT to any state of facts an accurate survey may show provided the same does not render the title unmarketable.

SUBJECT to existing leases and tenancies.

SUBJECT to covenants, restrictions and easements, if any, contained in prior instruments of record, provided they do not prohibit erection maintenance and present use of existing structure.

TAX MAP DESIGNATION

Dist.

Sec.

Blk.

Lot(s):

TOGETHER with all right, title and interest, if any, of the party of the first part in and to any streets and roads abutting the above described premises to the center lines thereof; TOGETHER with the appurtenances and all the estate and rights of the party of the first part in and to said premises; TO HAVE AND TO HOLD the premises herein granted unto the party of the second part, the heirs or successors and assigns of the party of the second part forever.

AND the party of the first part, in compliance with Section 13 of the Lien Law, covenants that the party of the first part will receive the consideration for this conveyance and will hold the right to receive such consideration as a trust fund to be applied first for the purpose of paying the cost of the improvement and will apply the same first to the payment of the cost of the improvement before using any part of the total of the same for any other purpose.

The word "party" shall be construed as if it read "parties" whenever the sense of this indenture so requires.

IN WITNESS WHEREOF, the party of the first part has duly executed this deed the day and year first above written.

IN PRESENCE OF:

Marilyn Klein

GARAGE ESTATES, INC.

By Ethel Katz

President

SEAL 1988 NEW YORK

REEL 1508 PG 2172

Form 8001® 6/18-1M—Bargain and Sale Deed, without Covenant against Grantor's Acts—Individual or Corporation (single sheet)

CONSULT YOUR LAWYER BEFORE SIGNING THIS INSTRUMENT—THIS INSTRUMENT SHOULD BE USED BY LAWYERS ONLY.

THIS INDENTURE, made the 3d day of December, nineteen hundred and eighty-eight

BETWEEN GARAGE ESTATES, INC., a corporation organized and existing under and by virtue of the Laws of the State of New York, with its principal office c/o Kooperstein, 160 East 48th Street, Borough of Manhattan, ~~City and~~ State of New York,

party of the first part, and GARAGE ESTATES COMPANY, with its office c/o Kooperstein, 160 East 48th Street, Borough of Manhattan, City and State of New York

party of the second part,

WITNESSETH, that the party of the first part, in consideration of ten dollars and other valuable consideration paid by the party of the second part, does hereby grant and release unto the party of the second part, the heirs or successors and assigns of the party of the second part forever,

ALL that certain plot, piece or parcel of land, with the buildings and improvements thereon erected, situate, lying and being in the Borough of Manhattan, City and State of New York, bounded and described as follows:

BEGINNING at a point on the Southerly side of 155th Street distant 45 feet Westerly from the corner formed by the intersection of the Southerly side of 155th Street with the Westerly side of St. Nicholas Place; thence Westerly along the Southerly side of 155th Street 154 feet 3-3/4 inches to the Easterly line of the land of the Mayor, Alderman and Commonalty of the City of New York, commonly known as land of the Croton Aqueduct; thence Southerly along said line belonging to the City of New York, 144 feet 3 inches; thence Easterly 154 feet 3-3/4 inches; thence Northerly and forming a line at right angles with the Southerly side of 155th Street, approximately 137 feet to the point or place of BEGINNING; being the said several dimensions more or less.

Said premises being known and designated as Nos. 404-414 West 155th Street New York City and being the same premises as were conveyed by H. Casabianca, Inc. to Garage Estates, Inc. by deed dated February 28, 1956 and recorded on March 6, 1956 in the Office of the City Register, County of New York in Liber 4956 of Conveyances, Pages 267 and 268.

SUBJECT to any state of facts an accurate survey may show provided the same does not render the title unmarketable.

SUBJECT to existing leases and tenancies.

SUBJECT to covenants, restrictions and easements, if any, contained in prior instruments of record, provided they do not prohibit erection maintenance and present use of existing structure.

TAX MAP DESIGNATION

Dist.

Sec.

Blk.

Lot(s):

TOGETHER with all right, title and interest, if any, of the party of the first part in and to any streets and roads abutting the above described premises to the center lines thereof; TOGETHER with the appurtenances and all the estate and rights of the party of the first part in and to said premises; TO HAVE AND TO HOLD the premises herein granted unto the party of the second part, the heirs or successors and assigns of the party of the second part forever.

AND the party of the first part, in compliance with Section 13 of the Lien Law, covenants that the party of the first part will receive the consideration for this conveyance and will hold the right to receive such consideration as a trust fund to be applied first for the purpose of paying the cost of the improvement and will apply the same first to the payment of the cost of the improvement before using any part of the total of the same for any other purpose.

The word "party" shall be construed as if it read "parties" whenever the sense of this indenture so requires.

IN WITNESS WHEREOF, the party of the first part has duly executed this deed the day and year first above written.

IN PRESENCE OF:

Klein

GARAGE ESTATES, INC.

By Ethel Ltr.

President

TAX SEAL 1988 NEW YORK

APPENDIX M

TERMINOLOGY

TERMINOLOGY

The following provides definitions and descriptions of certain terms that may be used in this report. Italics indicate terms that are defined by ASTM Standard Practice E 1527-05. The Standard Practice should be referenced for further detail (such as the precise wording), related definitions or additional explanation regarding the meaning of terms.

recognized environmental condition(s) (REC) - the presence or likely presence of any *hazardous substances* or *petroleum products* on a *property* under conditions that indicate an existing release, a past release, or a *material threat* of a release of any *hazardous substances* or *petroleum products* into structures on the *property* or into the ground, ground water, or surface water of the *property*. The term includes *hazardous substances* or *petroleum products* even under conditions in compliance with laws. The term is not intended to include *de minimis* conditions.
.
de minimis conditions – are conditions that generally do not present a threat to human health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies. Conditions determined to be *de minimis* are not *recognized environmental conditions*.

historical recognized environmental condition(s) (HREC) - environmental condition which in the past would have been considered a *recognized environmental condition*, but which may or may not be considered a *recognized environmental condition* currently. The final decision rests with the *environmental professional* and will be influenced by the current impact of the *historical recognized environmental condition* on the *property*. If a past release of any *hazardous substances* or *petroleum products* has occurred in connection with the property and has been remediated, with such remediation accepted by the responsible regulatory agency (for example, as evidenced by the issuance of a no further action letter or equivalent), this condition shall be considered a *historical recognized environmental condition*.

material threat – a physically observable or *obvious* threat which is reasonably likely to lead to a release that, in the opinion of the *environmental professional*, is threatening and might result in impact to public health or the environment. An example might include an aboveground storage tank system that contains a *hazardous substance* and which shows evidence of damage such that it may cause or contribute to tank integrity failure with a release of contents to the environment.

threat to human health or the environment – a substantial risk of harm to public health or the environment resulting from the presence or likely presence of an existing release, a past release, or a *material threat* of a release of any *hazardous substances* or *petroleum products* into structures on the *property* or into the ground, ground water, or surface water of the *property*. An example might include a release of a *hazardous substance* in concentrations exceeding applicable governmental agency standards under conditions that could reasonably and foreseeably result in substantial exposure to humans or substantial damage to natural resources. The risk of that exposure or damage would represent a threat to human health or the environment.

generally would not be the subject of an enforcement action – the likelihood that an environmental condition would not be subject to enforcement action if brought to the attention of appropriate governmental agencies. If the circumstances suggest an enforcement action would be less likely than not, then the condition is considered to be generally not the likely the subject of an enforcement action.

104 East 25th Street
Tenth Floor
New York, NY 10010
Telephone: 212-353-8280
Facsimile: 212-979-8447

January 20, 2009

Ms. Mary Ann Villari
Broadway Housing Communities
583 Riverside Drive, 7th Floor
New York, NY 10031

Re: Proposal for Phase II Environmental Site Investigation
Parking Garage
414 West 155th Street
New York, NY 10032

Dear Ms. Villari:

INTRODUCTION

ATC Associates Inc. (ATC) appreciates the opportunity to submit this proposal to Broadway Housing Communities to perform a Phase II Environmental Site Investigation (ESI) of the three-story parking garage with a cellar located at 414 West 155th Street between St. Nicholas Avenue and St. Nicholas Place in New York, New York (hereinafter referred to as the "Site"). A Site location map is shown on Figure 1. This proposal has been prepared in general accordance with New York City Department of Environmental Protection (NYCDEP) guidelines.

A Phase I Environmental Site Assessment (ESA) conducted at the Site in November 2007 identified the following recognized environmental conditions (RECs):

1. The historical Site use for garage and repair purposes;
2. The potential presence of four historical gasoline tanks, two lube oil tanks and a potential tank associated with an observed apparent fill port;
3. Petroleum staining (approximately 12' x 18') observed on the floor in the east-northeastern portion of the cellar along the eastern wall by the door; and
4. The presence of a historical gasoline filling and service station adjacent to the east of the Site with documented soil and groundwater contamination that is reportedly being remediated under the supervision of the New York State Department of Environmental Conservation (NYSDEC) and a garage adjacent to the southwest of the Site.
5. Subsequent site visit identified the presence of vent pipes located on the roof which are assumed to be consistent with fuel oil tanks.

Based on the results of the November 2007 Phase I ESA, ATC recommended that a Phase II ESI be conducted to assess potential impacts to the soil and groundwater as a result of potential releases from the identified RECs.

SITE BACKGROUND

The Site consists of a 65,070 square foot lot currently developed with a rectangular three-story parking garage. The elevation of the Site is approximately 110 feet above mean sea level (MSL). The Harlem

DRAFT

River is located approximately 1,800 feet east of the Site. Groundwater is anticipated to flow in an easterly direction. Groundwater was identified at an adjacent property at 14 to 16 feet below grade (ftbg).

PROPOSED SCOPE OF SERVICES

Task 1 – Preliminary Work

Preliminary work includes:

- Coordinating with Broadway Housing Communities for access to the Site;
- Contacting the "One-Call" for a subsurface utility mark-out service;
- Scheduling a drilling subcontractor and geophysical survey subcontractor;
- Coordinating with a laboratory for sampling containers, sample pick-ups and drop-offs; and
- Preparing a Site-Specific Health and Safety Plan (HASP).

Task 2 – Geophysical Survey

A geophysical survey subcontractor will be utilized to: (1) assess whether historic gasoline tanks, the historic lube oil tanks and the suspect tank associated with the suspect fill port are still present at the Site; and (2) investigate subsurface structures, utilities and anomalies in the areas of the proposed soil boring locations so that they can be avoided during drilling activities. Geophysical methods may include the use of radio-frequency equipment, magnetometer, and/or ground penetrating radar (GPR).

Task 3 – Soil Boring and Groundwater Sampling Activities

Soil Boring and Soil Sampling Activities

ATC is proposing to advance six soil borings using a Geoprobe® truck mounted drilling rig to facilitate the collection of soil and groundwater samples. Proposed soil boring locations are shown on Figure 1. Soil borings will be advanced to groundwater or bedrock/refusal, whichever is encountered first. It is estimated that groundwater will be encountered at a depth of about 14 to 16 ftbg. The soil boring locations are proposed on the following rationale:

- SB-01 to assess the area of the suspect fill port;
- SB-02 and SB-03 to assess potential impacts from the adjacent gasoline station to the east and the adjacent garage to the south;
- SB-03 to assess the area of observed staining;
- SB-04 and SB-05 to assess the area of the historic gasoline tanks; and,
- SB-06 to assess the area of the historic lube oil tanks.

Continuous soil quality field screening will be performed at all boring locations. Visual and olfactory methods of screening will be used during the field efforts to identify evidence of contamination. Additionally, a portable photo ionization detector (PID) will be used to obtain qualitative measurements of volatile organic vapors. Soil samples will be collected from each boring as follows:

- One soil sample will be collected from the ground surface to a depth of two ftbg to assess the presence of historic fill material, if any;
- One soil sample will be collected from the soil/groundwater interface or the soil/bedrock interface;

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- One soil sample will be collected from impacted soils, if any, based on field screening (e.g., staining, odor, and/or PID readings).

Soil samples will be preserved as necessary and submitted via overnight courier to a New York State Department of Health (NYSDOH) ELAP-approved analytical laboratory. Standard chain of custody procedures will be followed. Soil samples will be analyzed for volatile organic compounds (VOCs) and methyl tertiary butyl ether (MTBE) using EPA method 8260 (full list), target compounds list (TCL) semi-volatile organic compounds, target analyte list (TAL) metals, polychlorinated biphenyls (PCBs) and pesticides.

Groundwater Sampling

If groundwater is encountered in the soil borings, a temporary well point (TWP) will be installed in each of the six borings and one groundwater sample will be collected from each TWP.

The groundwater samples will be collected utilizing a peristaltic pump or check valve and dedicated high-density polyethylene (HDPE) tubing and analyzed for VOCs+MTBE, TCL SVOCs, TAL metals (filtered and unfiltered), PCBs and pesticides.

Upon completion of sampling, each boring will be filled to the near grade with the drill cuttings and a cement/bentonite grout mixture or bentonite pellets. The borings will be patched with the appropriate materials (asphalt or concrete patch).

Task 4 - Report Preparation

ATC will prepare a Phase II ESI Report, which will document the findings of the investigation. If requested, the report will be electronically submitted in draft form for review and comment prior to issuance of a final report. Two hard copies and one electronic copy of the report will be submitted.

PROJECT SCHEDULE

Provided the Site is accessible, ATC anticipates initiation of field work within one week of notice to proceed. It is expected that all the work described in this proposal can be completed within approximately five to six weeks following receipt of written authorization to proceed.

FEE ESTIMATE

The total estimated fee for the Phase II ESI is **$XXXX**. Changes to the scope of work may necessitate the re-evaluation of the total cost for the project.

Our services will be provided on a time-and-materials basis in accordance with the attached Client Service Agreement. ATC will be authorized to proceed with the proposed services when you indicate your acceptance by signing the Agreement.

DRAFT

Should you have any questions regarding our proposal or require additional information, please do not hesitate to contact us at (212) 353-8280.

Sincerely,

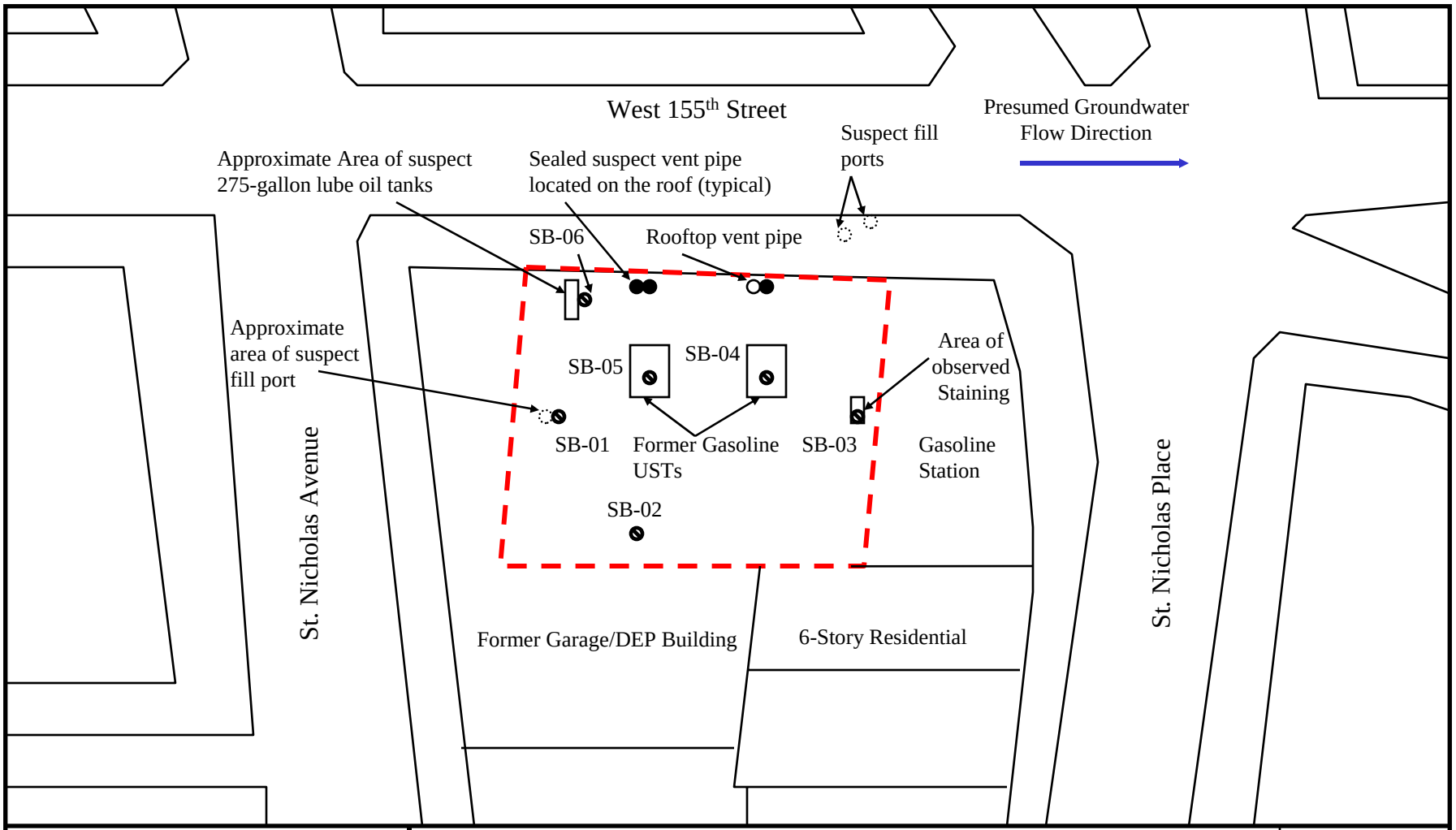
ATC ASSOCIATES INC.

Matthew Mankovich
Senior Project Manager

Constantine Tsentas, P.G.
Technical Director, Environmental Division

Attachments: Figure 1-Proposed Boring Locations
Tables 1-Fee Estimate
Client Service Agreement

DRAFT



ATC ASSOCIATES INC.

104 East 25th Street, 10th Floor
New York, NY 10010-2917
(212) 353-8280 Fax (212) 979-8447

Figure 1 – Proposed Boring Locations Plan

SITE: **414 West 155th Street**
New York, NY
CLIENT: Broadway Housing Communities
ATC PROJECT #: 015.26789.0002
SCALE: Not to scale

LEGEND:

- Soil and Groundwater Sample
- Site Boundary

N

PHASE II ENVIRONMENTAL SITE INVESTIGATION

414 WEST 155TH STREET
BLOCK 2069, LOT 21
NEW YORK, NEW YORK 10032
DEP PROJECT # 10DCP031M / 10DEPTECH074M

ATC PROJECT NO. 015.26789.0004

NOVEMBER 18 , 2010

Prepared by:
ATC Associates Inc.
104 East 25th Street, 10th Floor
New York, New York 10010
Phone: (212) 353-8280
Fax: (212) 979-8447

Prepared For:
Ms. Mary Ann Villari
Broadway Housing
Development Fund
583 Riverside Drive, 7th Floor
New York, New York 10032

104 East 25th Street
10th Floor
New York, NY 10010
Telephone: 212-353-8280
Facsimile: 212-979-8447

November 22, 2010

Ms. Mary Ann Villari
Broadway Housing Development Fund, 7th Floor
583 Riverside Drive
New York, New York 10031

RE: Report
Phase II Environmental Site Investigation
414 West 155th Street
Block 2069, Lot 21
New York, New York 10032
DEP Project #10DEPTECH074M
ATC Project No. 015.26789.0004

Dear Ms. Villari:

ATC Associates Inc. (ATC) is pleased to submit the referenced report. If you have any questions regarding this report, please feel free to contact the undersigned at (212) 353-8280.

Sincerely,

ATC ASSOCIATES INC.

Report Prepared By:

Matthew Mankovich
Senior Project Manager

Report Reviewed By:

Constantine Tsentas, LSRP, P.G.
Manager, Environmental Division

TABLE OF CONTENTS

EXECUTIVE SUMMARY

ATC Associates Inc. (ATC) was retained by Broadway Housing Development Fund Company to perform a Phase II Environmental Site Investigation (ESI) of The Bradford, located at 414 West 155th Street, New York, New York (hereinafter referred to as the "Site").

ATC prepared a Final Phase I Environmental Site Assessment (ESA) report for the Site dated March 21, 2008 that identified the following recognized environmental conditions:

1. The historical Site use for garage and repair purposes;
2. The potential presence of four historical gasoline tanks, two lube oil tanks and a potential tank associated with an observed apparent fill port;
3. Petroleum staining (approximately 12' x 18') observed on the floor in the southeastern portion of the cellar along the eastern wall; and
4. The presence of: (a) a historical gasoline filling and service station adjacent to the east of the Site with documented soil and groundwater contamination that is reportedly being remediated under the supervision of the New York State Department of Environmental Conservation (NYSDEC); and (b) a former garage adjacent to the southwest of the Site.

A subsequent site visit identified the presence of vent pipes located on the roof, which appeared to be consistent with fuel oil tanks.

The Phase II ESI was performed in accordance with ATC's Draft Proposal for Phase II ESI dated January 20, 2009, which has been reviewed and approved by the New York City Department of Environmental Protection (DEP) (DEP approval letter dated July 9, 2010). The objective of this Phase II ESI is to assess whether there are hazardous materials impacts to the subsurface (soil and groundwater).

The scope of this Phase II ESI consisted of the following:

1. A geophysical survey; and
2. The advancement of six (6) soil borings and the collection of eight (8) soil samples.

The Draft Proposal for Phase II ESI proposed the advancement of six (6) soil borings, the collection of 16 soil samples (one (1) sample from 0-2 feet below ground surface (bgs) and one (1) sample from the soil/groundwater interface or soil/bedrock interface, the installation of six (6) temporary well points (TWPs) and the collection of six (6) groundwater samples. Shallow bedrock was encountered in each of the six (6) soil borings, thus resulting in the collection of eight (8) soil samples as follows: one (1) soil sample (consisting of one (1) grab sample and one (1) composite sample) was collected from Borings SB-01, SB-04, SB-05, and SB-06 where bedrock was encountered from 1 to 2 feet bgs and two (2) soil samples (each consisting of one (1) grab sample and one (1) composite sample) were collected from SB-02 and SB-03 where bedrock was encountered at 5.5 and 9 feet bgs, respectively. In addition, since groundwater was not encountered, TWPs were not installed and groundwater samples were not collected.

The Phase II ESI identified the following:

1. The subsurface soils consist of brown coarse to fine sand with trace gravel, underlain by rock fragments. Weathered bedrock (schist) was encountered at depths ranging from one (1) foot below ground surface (bgs) in the western portion of the basement to nine (9) feet bgs in the

southeastern portion of the basement. A prior geotechnical investigation (Tectonic, May 2010) reported fill material from ground surface to approximately 7.5 feet bgs consisting of sand with varying gradations and amounts of silt and gravel and minor amounts of debris including brick and concrete. The Tectonic geotechnical investigation reported bedrock ranging in depth from 2 feet bgs in the western portion of the basement to 14.5 feet bgs in the southeastern portion of the basement.

2. Groundwater was not encountered in any of the borings advanced during the ATC Phase II investigation. The Tectonic geotechnical investigation reported groundwater at 3.5 feet bgs in the northwestern portion of the basement and 5.2 feet bgs in the southeastern portion of the basement.

3. The geophysical survey found no evidence to suggest the presence of USTs in the areas of the Site investigated.

4. Semi-volatile organic compounds (SVOCs) were detected at concentrations exceeding the New York State Department of Environmental Conservation (NYSDEC) Technical and Administrative Guidance Memorandum #4046 (TAGM) Recommended Soil Cleanup Objectives (RSCOs), the NYSDEC Subpart 375-6: Remedial Program Unrestricted Use Soil Cleanup Objectives (SCOs) and Restricted Use-Protection of Public Health-Residential (Restricted-Residential) SCOs. The presence of SVOCs may be reflective of fill material.

5. Metals were detected at concentrations exceeding the TAGM RSCOs, Unrestricted Use SCOs, and/or Eastern USA Soil Background Levels. Their presence is attributed to natural (background) levels.

6. VOCs were not detected above applicable cleanup standards. PCBs and pesticides were not detected in the soil samples collected.

Based upon the presence of fill materials at the Site, concentrations of SVOCs that exceed TAGM RSCOs and Unrestricted Use Soil Cleanup Objectives SCOs in soil samples, ATC recommends the preparation of a Remedial Action Plan (RAP) and Construction Health and Safety Plan (CHASP).

1.0 INTRODUCTION

ATC Associates Inc. (ATC) was retained by Broadway Housing Development Fund Company to perform a Phase II Environmental Site Investigation (ESI) of The Bradford, located at 414 West 155th Street, New York, New York (hereinafter referred to as the "Site").

The Site consists of an approximately 21,685-square foot lot (Block 2069, Lot 21) and is developed with an approximately 65,070-square foot, two-story building with a cellar that is utilized as a parking garage. Based on historical research, the building was constructed in 1929.

The Site, is part of the Sugar Hill Rezoning, which consists of three additional lots (14, 26, and 28), which are not addressed as part of this Phase II ESI. According to the New York City Department of Environmental Protection (DEP) approval letter dated July 9, 2010, the Site is planned to undergo a zoning change from C8-3 to R8A. The proposed actions would facilitate the development of an approximately 169,333-square foot 13-story mixed-use building with 124 residential units on Lot 21. As currently proposed, the building will consist of: (1) an approximately 18,036-square foot Faith Ringgold Children's Museum of Art and Storytelling; (2) a 12,196-square foot day care facility and early childcare center; (3) a 2,350-square foot non-profit program and office space; and (4) a 114-space below grade accessory parking garage. The existing on-Site building will be demolished to facilitate the construction of the proposed building. Reportedly, there will be no development on Lots 14 and 28. Improvements to Lot 26, which is reportedly City-owned, would be limited to landscaping and paving to provide access to the proposed development on Lot 21. The DEP approval letter stated that in order to insure that the comments/recommendations are implemented for Lot 21, a Restrictive Declaration should be recorded to ensure that the potential hazardous materials issues are adequately addressed prior to and during construction activities. The institutional control would bind the property owners and their successors or assigns to address the recommendations prior to construction. It is ATC's understanding that a Restrictive Declaration would involve the New York City Office of Environmental Remediation (OER) and this Phase II ESI may need to submitted to OER for review and approval.

The Phase II ESI was performed in accordance with ATC's Draft Proposal for Phase II ESI dated January 20, 2009, which has been reviewed and approved by the DEP. ATC prepared a Final Phase I Environmental Site Assessment (ESA) for the Site dated March 21, 2008 that identified the following recognized environmental conditions:

1. The historical Site use for garage and repair purposes;
2. The potential presence of four historical gasoline tanks, two lube oil tanks and a potential tank associated with an observed apparent fill port;
3. Petroleum staining (approximately 12' x 18') observed on the floor in the southeastern portion of the cellar along the eastern wall; and
4. The presence of: (a) a historical gasoline filling and service station adjacent to the east of the Site with documented soil and groundwater contamination that is reportedly being remediated under the supervision of the New York State Department of Environmental Conservation (NYSDEC); and (b) a former garage adjacent to the southwest of the Site.

A subsequent site visit identified the presence of vent pipes located on the roof, which appeared to be consistent with fuel oil tanks.

The objective of this Phase II ESI is to assess whether there are hazardous materials impacts to the subsurface (soil and groundwater).

2.0 SCOPE OF WORK

The project scope of work included the following:

- Preparation of a Site-Specific Health and Safety Plan (HASP);
- Performance of a geophysical survey;
- The advancement of six (6) soil borings;
- The collection of eight (8) soil samples for laboratory analysis; and
- An evaluation of the field and laboratory data and preparation of this report.

3.0 PHYSICAL SITE SETTING

3.1 Topography

According to the United States Geological Survey (USGS) 7.5 Minute Series *Central Park, NY-NJ*, Topographic Quadrangle, dated 1995, the elevation of the Site is approximately 110 feet above mean sea level. The area surrounding the Site indicates topography that slopes downward to the east.

3.2 Geology

According to the New York Department of Environmental Conservation, Water Power and Control Commission report titled *Ground Water in Bronx, New York, and Richmond Counties, with Summary Data on Kings and Queens Counties, New York City, New York*, the Project Area is located in a southern extension of an upland area that covers a large part of New England. Manhattan has been extensively eroded by pre-glacial stream action, modified by later glacial erosion and deposition. A layer of unconsolidated glacial and glaciofluvial deposits is present beneath the section of Manhattan in which the site is located. The sediments are underlain by high-grade metamorphic schist.

During the Phase II ESI, bedrock (schist) was encountered at depths ranging from one (1) foot bgs in the western portion of the basement to nine (9) feet bgs in the southeastern portion of the basement.

A report titled *Geotechnical Investigation, Proposed Sugar Hill Residences, 404-414 West 155th Street, New York, NY*, dated May 13, 2010 and prepared by Tectonic Engineering & Surveying Consultants, P.C., indicated that bedrock (schist) was reported in each of the boring ranging in depth from 2 feet bgs in the western portion of the basement to 14.5 feet bgs in the southeastern portion of the basement. The Tectonic geotechnical investigation is included in Appendix B.

3.3 Soils

The results of the Phase II ESI identified the subsurface consisting of brown coarse to fine sand with trace gravel and rock fragments. Soil boring logs are provided in Appendix A.

The Tectonic geotechnical investigation reported fill material in six (6) borings from below the basement concrete floor to approximately 7.5 feet bgs. The fill material consisted of sand with varying gradations and amounts of silt and gravel and minor amounts of debris, including brick and concrete. Native soils were encountered in three (3) borings and consisted of coarse to fine sand with varying amounts of gravel and silt.

3.4 Hydrogeology

The Phase II ESI did not encounter groundwater in any the borings advanced. The Tectonic geotechnical investigation reported groundwater at 3.5 feet bgs in the northwestern portion of the basement and 5.2 feet bgs in the southeastern portion of the basement. It is believed that the groundwater encountered in the Tectonic geotechnical investigation represents a seasonal perched groundwater table.

Based on the surface topography at the Site, groundwater flow is assumed to be to the east towards the Harlem River, which is located approximately 1,600 feet east of the Site. Estimated groundwater levels and/or flow direction may vary due to seasonal fluctuations in precipitation, local usage

demands, geology, underground structures, or dewatering operations.

4.0 GEOPHYSICAL INVESTIGATION

On November 3, 2010, Enviroprobe Service, Inc., under the observation of ATC, performed a geophysical survey of the Site. The purpose of this investigation was to identify possible USTs and underground conduits/utilities. The investigation utilized a Sensors & Software Inc. cart-mounted Ground Penetrating Radar (GPR) unit with a 250 MHz antenna, a Radiodetection RD4000T10 multi-frequency transmitter, a Radiodetection RD4000 receiver, and a Fisher TW-6 metallic locator.

The results of the geophysical survey found no evidence to suggest the presence of USTs in the areas of the Site investigated. An anomaly was identified in the northwest corner of the basement. This area was surveyed with the GPR and the TW-6. The investigation with the TW-6 identified a metallic anomaly that measured approximately 6 feet by 8 feet. The investigation with the GPR did not identify the area to be consistent with a UST. The GPR signal penetrated two (2) feet in this area due to subsurface conditions and content. The geophysical survey cleared all soil borings in a 10 foot radius from subsurface structures and utilities so they may be avoided during drilling activities. A copy of the geophysical report is provided in Appendix C.

5.0 SOIL SAMPLING ACTIVITIES

On November 4, 2010, Enviroprobe Service, Inc., under the observation of ATC, advanced six (6) soil borings (SB-01 through SB-06) throughout the Site using a Geoprobe drilling rig. The soil boring locations were advanced based on the following rationale:

- SB-01 to assess the area of the suspect fill port;
- SB-02 and SB-03 to assess potential impacts from the adjacent garage to the south and the adjacent gasoline station to the east;
- SB-03 to assess the area of observed staining;
- SB-04 and SB-05 to assess the area of the historic gasoline tanks; and,
- SB-06 to assess the area of the historic lube oil tanks and the area of the anomaly identified during the geotechnical investigation.

Boring locations are shown on Figure 2. Soil borings were advanced to bedrock.

Continuous soil quality field screening was performed to the deepest interval attained at all boring locations. Visual and olfactory methods of screening were used during the field efforts to identify evidence of contamination. Additionally, a portable photo ionization detector (PID) was used to obtain qualitative measurements of volatile organic vapors. Soil boring logs are included in Appendix A.

Bedrock ranged in depth from 1 to 2 feet bgs in borings SB-01, SB-04, SB-05, and SB-06. One (1) grab soil sample and one (1) composite soil sample was collected from each of these four borings as follows.

- From ground surface to a depth of two (2) feet bgs or the soil/bedrock interface to assess the presence of historic fill material. The grab sample was collected from 0.5-1 foot bgs in SB-01 and SB-05 and 1.5-2.0 feet bgs in SB-04 and SB-06 and the composite sample was collected from 0-1 foot bgs in SB-01 and SB-05 and 0-2.0 feet bgs in SB-03, SB-04 and SB-06.

Bedrock ranged in depth from 5.5 to 9 feet bgs in borings SB-02 and SB-03. One (1) grab soil sample and one (1) composite soil sample was collected from these two borings as follows:

- From ground surface to a depth of two (2) feet bgs to assess the presence of historic fill material. The grab sample was collected from 1.5-2.0 feet bgs and the composite sample was collected from 0-2.0 feet bgs.

- From the soil/bedrock interface (since no elevated PID readings or visual/olfactory observations of impacted soils were noted from the subsurface soil intervals). The grab sample was collected 5-5.5 feet bgs in SB-02 and 8.5-9 feet bgs in SB-03 and the composite sample was collected from 4.5-5.5 feet in SB-02 and 8-9 feet bgs in SB-03.

Soil samples were placed in laboratory supplied containers and cooled to 4 degrees centigrade (wet ice) during shipment to the laboratory. ATC completed all chain of custody documents prior to sample shipment. Samples were submitted to AmeriSci in Weymouth, Massachusetts and analyzed for target compounds list (TCL) volatile organic compounds (VOCs) via EPA Method 8260B, TCL semi-volatile organic compounds (SVOCs) via EPA Method 8270C, Target Analyte List (TAL) metals via EPA Method 6010B, Pesticides via EPA Method 8081A, and PCBs via EPA Method 8082. The soil sampling results were tabulated and compared to NYSDEC Subpart 375-6: Remedial Program

Unrestricted Use Soil Cleanup Objectives (SCOs) and Restricted Use-Protection of Public Health-Residential (Restricted-Residential) SCOs, NYSDEC Technical and Administrative Guidance Memorandum #4046 (TAGM) Recommended Soil Cleanup Objectives (RSCOs), and Eastern USA (EUS) Soil Background Concentrations for metals included in TAGM. A copy of the laboratory analytical report is provided in Appendix E.

Drilling equipment was decontaminated by scrubbing with a non-phosphate detergent (i.e., Alconox) and rinsing with fresh water prior to use at each sample location. Upon completion of drilling, each boring was filled to near grade with drill cuttings (since no PID measurements were recorded). The boring was patched at grade with the appropriate materials (on-site soils).

6.0 SOIL ANALYTICAL RESULTS

6.1 Target Compound List (TCL) Volatile Organic Compounds (VOCs)

Only toluene was detected in one soil sample SB-05 (0-1) below all applicable criteria. The remaining soil samples did not indicate any VOCS above laboratory method detection limits (MDLs). Refer to Table 2 for a summary of TCL VOC detections.

6.2 Target Compound List (TCL) Semi-Volatile Organic Compounds (SVOCs)

Only two of the six soil samples [SB-03 (0-2) and SB-06 (0-2)] indicated SVOCs above the laboratory MDLs. Benzo(a)anthracene and benzo(a)pyrene were detected in soil sample SB-03 (0-2) above their corresponding TAGM RSCOs but below their Unrestricted Use and Restricted-Residential Use SCOs. Benzo(a)anthracene, benzo(a)pyrene, and benzo(b)fluoranthene were detected in soil sample SB-06 (0-2) above their corresponding TAGM RSCOs, Unrestricted Use and Restricted-Residential Use SCOs; benzo(k)fluoranthene and chrysene were detected above their corresponding TAGM RSCOs and Unrestricted Use SCO but below its Restricted-Residential Use SCO; dibenzo(a,h)anthracene was detected above its corresponding TAGM RSCO but below its Unrestricted Use and Restricted-Residential Use SCOs; and indeno(1,2,3-cd)pyrene was detected above its Unrestricted Use and Restricted-Residential Use SCOs but below its TAGM RSCO. The detected concentrations are attributed to the presence of fill material. Refer to Table 2 for a summary of TCL SVOC detections.

6.3 Target Analyte List (TAL) Metals

The laboratory results indicate that concentrations of one or more of the following metals were detected above TAGM RSCOs and/or Eastern USA Soil Background Levels in each of the soil samples analyzed: beryllium, chromium, copper, iron, magnesium, mercury, nickel, potassium, and zinc. Mercury was also detected above its Unrestricted Use SCO and below its Restricted-Residential Use SCO in soil sample SB-06 (0-2). Lead was detected above its Unrestricted Use SCO and below its Restricted-Residential Use SCO in soil samples SB-03 (0-2) and SB-06 (0-2). The laboratory results did not indicate any of the remaining concentrations of metals in soil samples above their corresponding TAGM RSCOs, Unrestricted Use SCOs, Restricted-Residential Use SCOs and/or not detected. The detected concentrations are attributed to natural (background) levels or the presence of fill material. Refer to Table 3 for a summary of TAL Metals detections.

6.4 Polychlorinated Biphenyls (PCBs)

PCBs were not detected in the soil samples collected. A copy of the laboratory analytical report is provided in Appendix E.

6.5 Pesticides

Pesticides were not detected in the soil samples collected. A copy of the laboratory analytical report is provided in Appendix E.

7.0 CONCLUSIONS AND RECOMMENDATIONS

The Phase II ESI identified the following:

1. The subsurface soils consist of brown coarse to fine sand with trace gravel, underlain by rock fragments. Weathered bedrock (schist) was encountered at depths ranging from one (1) foot bgs in the western portion of the basement to nine (9) feet bgs in the southeastern portion of the basement. A prior geotechnical investigation (Tectonic, May 2010) reported fill material from ground surface to approximately 7.5 feet bgs consisting of sand with varying gradations and amounts of silt and gravel and minor amounts of debris including brick and concrete. The Tectonic geotechnical investigation reported bedrock ranging in depth from 2 feet bgs in the western portion of the basement to 14.5 feet bgs in the southeastern portion of the basement.

2. Groundwater was not encountered in any of the borings advanced during the ATC Phase II investigation. The Tectonic geotechnical investigation reported groundwater at 3.5 feet bgs in the northwestern portion of the basement and 5.2 feet bgs in the southeastern portion of the basement.

3. The geophysical survey found no evidence to suggest the presence of USTs in the areas of the Site investigated.

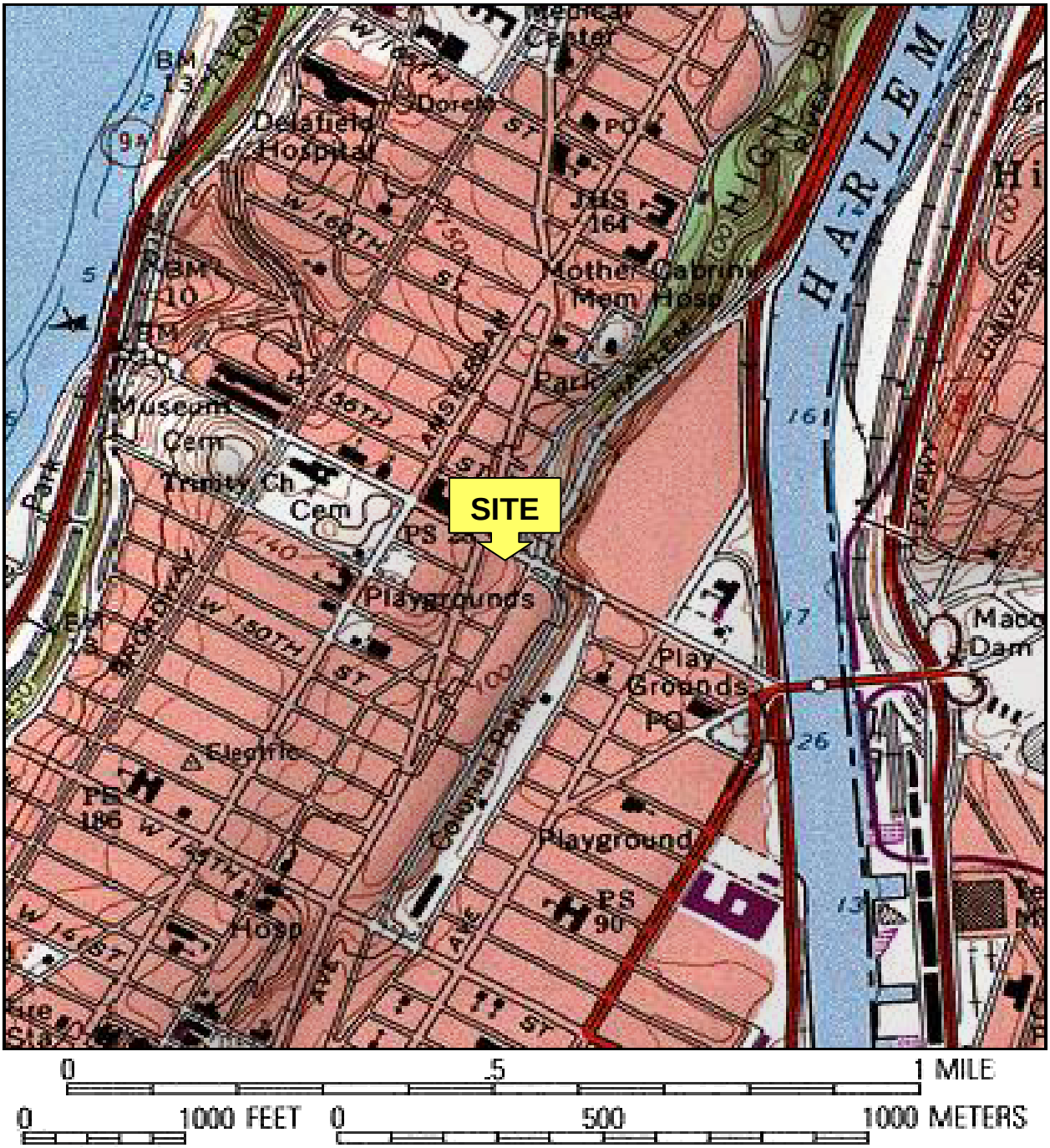
4. SVOCs were detected at concentrations exceeding the NYSDEC TAGM RSCOs, the NYSDEC Unrestricted Use SCOs and Restricted-Residential SCOs. The presence of SVOCs may be reflective of fill material.

5. Metals were detected at concentrations exceeding the TAGM RSCOs, Unrestricted Use SCOs, and/or Eastern USA Soil Background Levels. Their presence is attributed to natural (background) levels.

6. VOCs were not detected above applicable cleanup standards. PCBs and pesticides were not detected in the soil samples collected.

Based upon the presence of fill materials at the Site, concentrations of SVOCs that exceed TAGM RSCOs and Unrestricted Use Soil Cleanup Objectives SCOs in soil samples, ATC recommends the preparation of a Remedial Action Plan (RAP) and Construction Health and Safety Plan (CHASP).

FIGURES



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ATC ASSOCIATES INC.
104 East 25th Street, 8th Floor
New York, NY 10010-2917
Phone (212) 353-8280 * Fax (212) 979-8447

N

USGS Central Park, NY-NJ Quadrangle (1995)

FIGURE 1 – SITE LOCATION PLAN

Client: Broadway Housing Development Fund
Address: 414 West 155th Street
Block 2069, Lot 21
New York, New York 10032
Project No. 015.26789.0004

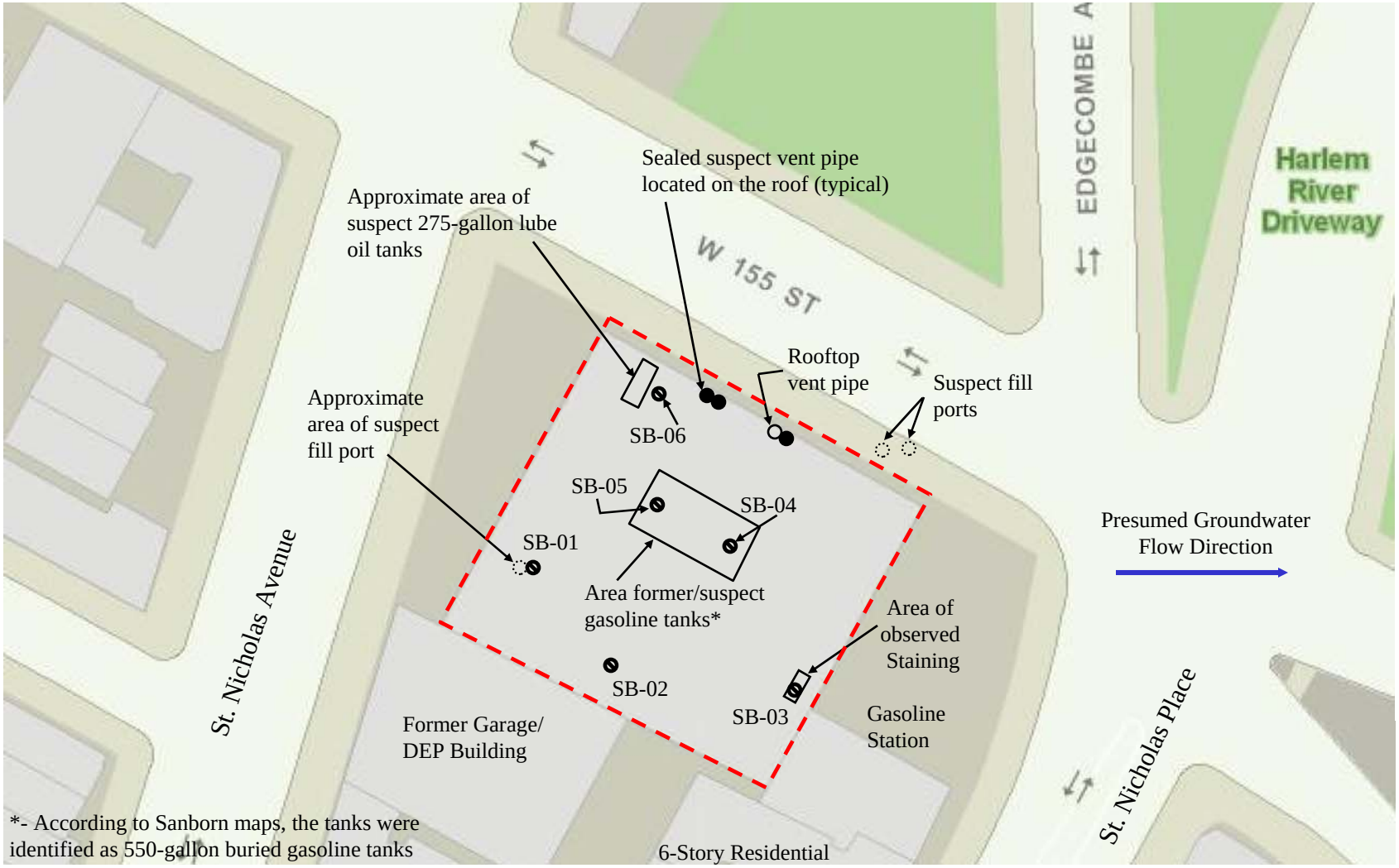

Figure 2 – Soil Boring Location Plan

ATC ASSOCIATES INC.
104 East 25th Street, 10th Floor
New York, NY 10010-2917
(212) 353-8280 Fax (212) 979-8447

Client: Broadway Housing Development Fund
Address: 414 West 155th Street
Block 2069, Lot 21
New York, New York 10032
Project No. 015.26789.0004

LEGEND:

- Soil and Groundwater Sample
- Site Boundary

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TABLES

TABLE 1
SUMMARY OF DETECTED VOCS IN SOIL
414 WEST 155TH STREET
NEW YORK, NEW YORK 10032

Location ID	**Unrestricted Use Soil Cleanup Objectives (SCOs)**	**Restricted-Residential Use Soil Cleanup Objectives (SCOs)**	**TAGM #4046 Recommended Soil Cleanup Objectives (RSCOs)**	414 W. 155th St.	414 W. 155th St.	414 W. 155th St.	414 W. 155th St.	414 W. 155th St.	414 W. 155th St.	414 W. 155th St.	414 W. 155th St.
Sample ID				SB-01 (0-1)	SB-02 (0-2)	SB-02 (4.5-5.5)	SB-03 (0-2)	SB-03 (8-9)	SB-04 (0-2)	SB-05 (0-1)	SB-06 (0-2)
Lab Sample ID				001	002	003	004	005	006	007	008
Sample Date				11/4/2010	11/4/2010	11/4/2010	11/4/2010	11/4/2010	11/4/2010	11/4/2010	11/4/2010
Sample Interval (ft)				0.5-1.0'	1.5-2.0'	5.0-5.5'	1.5-2.0'	8.5-9.0'	1.5-2.0'	0.5-1.0'	0.5-1.0'
Matrix				soil	soil	soil	soil	soil	soil	soil	soil
VOCs											
Toluene	0.7	100	1.5	ND	ND	ND	ND	ND	ND	0.015	ND

Notes:
All concentrations are reported in milligram per kilogram (mg/kg)
ND = Compound not detected above method detection limit (see attached lab report for mdl's)
NS = No Standard
TAGM RSCOs = NYSDEC Technical and Administrative Guidance Memorandum (TAGM #4046) Recommended Soil Cleanup Objectives (RSCOs) (January 24, 1994), amended December 20, 2000
SCOs = Soil Cleanup Objectives as per the NYSDEC Regulations 6 NYCRR Subpart 375-6 Remedial Program Soil Cleanup Objectives (December 14, 2006)

TABLE 2
SUMMARY OF DETECTED SVOCS IN SOIL
414 WEST 155TH STREET
NEW YORK, NEW YORK 10032

Location ID	**Unrestricted Use Soil Cleanup Objectives (SCOs)**	**Restricted-Residential Use Soil Cleanup Objectives (SCOs)**	**TAGM #4046 Recommended Soil Cleanup Objectives (RSCOs)**	414 W. 155th St.	414 W. 155th St.	414 W. 155th St.	414 W. 155th St.	414 W. 155th St.	414 W. 155th St.	414 W. 155th St.	414 W. 155th St.
Sample ID				SB-01 (0-1)	SB-02 (0-2)	SB-02 (4.5-5.5)	SB-03 (0-2)	SB-03 (8-9)	SB-04 (0-2)	SB-05 (0-1)	SB-06 (0-2)
Lab Sample ID				001	002	003	004	005	006	007	008
Sample Date				11/4/2010	11/4/2010	11/4/2010	11/4/2010	11/4/2010	11/4/2010	11/4/2010	11/4/2010
Sample Interval (ft)				0-1.0'	0-2.0'	4.5-5.5'	0-2.0'	8-9.0'	0-2.0'	0-1.0'	0-1.0'
Matrix				soil	soil	soil	soil	soil	soil	soil	soil
SVOCs											
Acenaphthene	20	100	50	ND	ND	ND	ND	ND	ND	ND	0.32
Anthracene	100	100	50	ND	ND	ND	ND	ND	ND	ND	0.68
Benzo(a)anthracene	1	1	0.224	ND	ND	ND	**0.24**	ND	ND	ND	**1.6**
Benzo(a)pyrene	1	1	0.061	ND	ND	ND	**0.24**	ND	ND	ND	**1.5**
Benzo(b)fluoranthene	1	1	0.22	ND	ND	ND	0.21	ND	ND	ND	**1.4**
Benzo (g,h,i) perylene	100	100	50	ND	ND	ND	ND	ND	ND	ND	0.91
Benzo(k)fluoranthene	0.8	3.9	0.22	ND	ND	ND	0.19	ND	ND	ND	**1.2**
Chrysene	1	3.9	0.4	ND	ND	ND	0.28	ND	ND	ND	**1.6**
Dibenzo(a,h)Anthracene	0.33	0.33	0.014	ND	ND	ND	ND	ND	ND	ND	**0.27**
Dibenzofuran	NS	NS	6.2	ND	ND	ND	ND	ND	ND	ND	0.19
Fluoranthene	100	100	50	ND	ND	ND	0.47	ND	ND	ND	4.8
Fluorene	30	100	50	ND	ND	ND	ND	ND	ND	ND	0.3
Indeno (1,2,3-cd)Pyrene	0.5	0.5	3.2	ND	ND	ND	ND	ND	ND	ND	0.8
Naphthalene	12	100	13	ND	ND	ND	ND	ND	ND	ND	0.22
Phenanthrene	100	100	50	ND	ND	ND	0.28	ND	ND	ND	2.8
Pyrene	100	100	50	ND	ND	ND	0.44	ND	ND	ND	3

Notes:
All concentrations are reported in milligram per kilogram (mg/kg)
ND = Compound not detected above method detection limit (see attached lab report for mdl's)
NS = No Standard
TAGM RSCOs = NYSDEC Technical and Administrative Guidance Memorandum (TAGM #4046) Recommended Soil Cleanup Objectives (RSCOs) (January 24, 1994), amended December 20, 2000
SCOs = Soil Cleanup Objectives as per the NYSDEC Regulations 6 NYCRR Subpart 375-6 Remedial Program Soil Cleanup Objectives (December 14, 2006)
BOLD = Concentration exceeds NYSDEC TAGM RSCOs
Underline = Concentration exceeds Unrestricted Use Soil Cleanup Objectives
Shading = Concentration exceeds Restricted-Residenital Use Soil Cleanup Objectives

TABLE 3
SUMMARY OF DETECTED TAL METALS IN SOIL
414 WEST 155TH STREET
NEW YORK, NEW YORK 10032

Location ID	**Eastern USA Soil Background**	**Unrestricted Use Soil Cleanup Objectives (SCOs)**	**Restricted-Residential Use Soil Cleanup Objectives (SCOs)**	**TAGM #4046 Recommended Soil Cleanup Objectives (RSCOs)**	414 W. 155th St.	414 W. 155th St.	414 W. 155th St.	414 W. 155th St.	414 W. 155th St.	414 W. 155th St.	414 W. 155th St.	414 W. 155th St.
Sample ID					SB-01 (0-1)	SB-02 (0-2)	SB-02 (4.5-5.5)	SB-03 (0-2)	SB-03 (8-9)	SB-04 (0-2)	SB-05 (0-1)	SB-06 (0-2)
Lab Sample ID					001	002	003	004	005	006	007	008
Sample Date					11/4/2010	11/4/2010	11/4/2010	11/4/2010	11/4/2010	11/4/2010	11/4/2010	11/4/2010
Sample Interval (ft)					0.5-1.0'	1.5-2.0'	5.0-5.5'	1.5-2.0'	8.5-9.0'	1.5-2.0'	0.5-1.0'	0.5-1.0'
Matrix					soil	soil	soil	soil	soil	soil	soil	soil
Metals												
Antimony	NS	NS	NS	SB	ND	ND	4.2	ND	5.6	ND	ND	ND
Aluminum	33,000	NS	NS	SB	10200	18900	9340	9690	26400	15700	10800	9830
Arsenic	3 - 12	13	16	7.5 or SB	1.3	1.8	ND	2.6	ND	ND	1.7	3.2
Barium	15 - 600	350	400	300 or SB	49.4	73.8	168	90.5	161	121	90.2	119
Beryllium	0-1.75	7.2	72	0.16 or SB	**0.37**	**0.37**	**0.33**	**0.35**	**0.41**	**0.47**	**0.53**	**0.35**
Cadmium	0.1 -1	2.5	4.3	1 or SB	ND	ND	ND	ND	ND	ND	ND	ND
Chromium	1.5 - 40	NS	NS	10 or SB	**12.9**	**14.2**	**26.2**	**15.7**	**36.7**	**21.8**	**21.5**	**16.7**
Calcium	130 - 35,000	NS	NS	SB	29100	2650	2340	3550	2720	5650	17200	9170
Iron	2,000 - 550,000	NS	NS	2,000 or SB	**17600**	**34400**	**17700**	**18200**	**47500**	**27800**	**17600**	**20800**
Cobalt	1 - 50	50	270	25 or SB	5.71	6.86	22.7	7.45	23.8	17.0	8.57	7.89
Copper	2.5 - 60	NS	NS	30 or SB	24.2	18.8	16.8	**36.4**	**123**	**30.9**	19.6	**76.0**
Lead	500*	63	400	SB	43.1	55.7	8.25	159	7.55	38.3	14.0	243
Magnesium	100 - 5,000	NS	NS	SB	15700	10700	3300	3090	15900	8030	4550	5250
Manganese	50 - 5,000	1,600	2,000	SB	274	343	368	343	481	355	635	403
Mercury	0.001 - 0.2	0.18	0.81	0.1	ND	ND	ND	**0.17**	ND	**0.12**	ND	**0.24**
Nickel	0.5-25	30	310	13 or SB	11.7	**13.8**	**38.2**	**16.6**	**40.1**	**29.5**	**21.7**	**16.6**
Vanadium	1 - 300	NS	NS	150 or SB	19.4	19.3	37.3	23.8	45.6	33.1	34.6	20.4
Selenium	0.1-3.9	3.9	180	2 or SB	ND	ND	ND	ND	ND	ND	ND	ND
Potassium	8,500 - 4,300	NS	NS	SB	1530	2070	1410	1590	7620	7020	2530	1920
Silver	NS	2	180	SB	ND	ND	ND	ND	ND	ND	ND	ND
Sodium	6,000 - 8,000	NS	NS	SB	836	398	682	338	176	704	619	878
Thallium	NS	NS	NS	SB	ND	ND	ND	ND	ND	ND	ND	ND
Zinc	9 - 50	109	10,000	20 or SB	**41.1**	**53.0**	**102**	**154**	**103**	**93.9**	**37.3**	**132**

Notes:
All concentrations are in milligram per kilogram (mg/kg)
ND = Compound not detected above method detection limit (see attached lab report for mdl's)
NS = No Standard
SB = Site Background Concentration
TAGM RSCOs = NYSDEC Technical and Administrative Guidance Memorandum (TAGM #4046) Recommended Soil Cleanup Objectives (RSCOs) (January 24, 1994)
BOLD = Concentration exceeds NYSDEC TAGM RSCOs
Box = Detected concentration exceeds Eastern Soil Background Concentrations as per TAGM RSCOs
Shading = Concentration exceeds Restricted-Residenital Use Soil Cleanup Objectives
Underline = Concentration exceeds Unrestricted Use Soil Cleanup Objectives
*Background levels for lead vary widely. Average levels in undeveloped, rural areas may range from 4 - 61 ppm. Average background levels in metropolitan or suburban areas or near highways are much higher and typically range from 200 - 500 ppm

APPENDICES

APPENDIX A:
SOIL BORING LOGS

BORING LOG

ATC Associates Inc. **104 East 25th Street** **New York, NY 10010** **212-353-8280**	**Client:**	Broadway Housing Communities	**Boring No.:** **SB-01**
	ATC Project No:	015.26789.0004	
	Project Location:	414 West 155th Street New York, NY	**Boring Location:** See Figure 2 (near suspect fill port in southwestern portion of building)
Driller: Enviroprobe	**Drilling Method:**	Geoprobe (Dingo)	
Inspector: Denise DeGennaro	**Sampling Method:**	3' Macro Core (2" diameter)	
Groundwater: Not encountered			**Date:** November 4, 2010

Depth (ft.)	Well Point Construction	Sample Interval	Recovery (ft.)	PID Reading (ppm)	Lithology and Field Observations
0		0-1' 0.5-1'	1	0	0-4" - concrete floor slab 4"-1' - Brown medium SAND with trace gravel
3					Refusal/bedrock (schist) encountered @ 1 foot below ground surface. End of boring. Composite sample collected from 0-1 ft. Grab sample collected from 0.5-1 ft.
6					
9					
12					
15					
18					

BORING LOG

ATC Associates Inc. **104 East 25th Street** **New York, NY 10010** **212-353-8280**	**Client:**	Broadway Housing Communities	**Boring No.:** **SB-02**
	ATC Project No:	015.26789.0004	
	Project Location:	414 West 155th Street New York, NY	**Boring Location:** See Figure 2 (south-central portion of building)
Driller: Enviroprobe	**Drilling Method:**	Geoprobe (Dingo)	
Inspector: Denise DeGennaro	**Sampling Method:**	3' Macro Core (2" diameter)	
Groundwater: Not encountered			**Date:** November 4, 2010

Depth (ft.)	Well Point Construction	Sample Interval	Recovery (ft.)	PID Reading (ppm)	Lithology and Field Observations
0		0-2' 1.5-2'	1.5	0	0-4" - concrete floor slab 4"-2.5' - Brown medium SAND Composite sample collected from 0-2 ft. Grab sample collected from 1.5-2 ft.
3					
		4.5-5.5' 5-5'	1.5	0	2.5-5' - Rock fragments with trace sand and weathered bedrock Composite sample collected from 4.5-5.5 ft. Grab sample collected from 5-5.5' ft.
6					Refusal/bedrock (schist) encountered @ 5.5 feet below ground surface. End of boring.
9					
12					
15					
18					

BORING LOG

ATC Associates Inc. **104 East 25th Street** **New York, NY 10010** **212-353-8280**	**Client:**	Broadway Housing Communities	**Boring No.:** **SB-03**
	ATC Project No:	015.26789.0004	
	Project Location:	414 West 155th Street New York, NY	**Boring Location:**
Driller: Enviroprobe	**Drilling Method:**	Geoprobe (Dingo)	See Figure 2 (area of observed staining, southeast portion of the building)
Inspector: Denise DeGennaro	**Sampling Method:**	3' Macro Core (2" diameter)	
Groundwater: Not encountered			

Depth (ft.)	Well Point Construction	Sample Interval	Recovery (ft.)	PID Reading (ppm)	Lithology and Field Observations
0		0-2' 1.5-2'	2	0	0-4" - concrete floor slab Composite sample collected from 0-2 ft. Grab sample collected from 1.5-2 ft.
3					
6			2.5	0	4"-6' - Brown coarse to fine SAND
9		8-9' 8.5-9'	2.5	0	6-9' - Brown coarse to fine SAND with rock fragments and weathered bedrock Composite sample collected from 8-9 ft. Grab sample collected from 8.5-9' ft.
12					Refusal/bedrock (schist) encountered @ 9 feet below ground surface. End of boring.
15					
18					

BORING LOG

ATC Associates Inc. **104 East 25th Street** **New York, NY 10010** **212-353-8280**	**Client:** Broadway Housing Communities **ATC Project No:** 015.26789.0004 **Project Location:** 414 West 155th Street New York, NY	**Boring No.:** **SB-04** **Boring Location:** See Figure 2 (area of former gasoline USTs, east-central portion of building)
Driller: Enviroprobe	**Drilling Method:** Geoprobe (Dingo)	
Inspector: Denise DeGennaro	**Sampling Method:** 3' Macro Core (2" diameter)	
Groundwater: Not encountered		

Depth (ft.)	Well Point Construction	Sample Interval	Recovery (ft.)	PID Reading (ppm)	Lithology and Field Observations
0		0-2' 1.5-2'	1.5	0	0-2" - concrete floor slab 2"-2' - Rock fragments with weathered bedrock Composite sample collected from 0-2 ft. Grab sample collected from 1.5-2 ft.
3					Refusal/bedrock (schist) encountered @ 2 feet below ground surface. End of boring.
6					
9					
12					
15					
18					

BORING LOG

ATC Associates Inc. **104 East 25th Street** **New York, NY 10010** **212-353-8280**	**Client:**	Broadway Housing Communities	**Boring No.:** **SB-05**
	ATC Project No:	015.26789.0004	
	Project Location:	414 West 155th Street New York, NY	**Boring Location:** See Figure 2 (area of former gaoline USTs, central portion of building)
Driller: Enviroprobe	**Drilling Method:**	Geoprobe (Dingo)	
Inspector: Denise DeGennaro	**Sampling Method:**	3' Macro Core (2" diameter)	
Groundwater: Not encountered			

Depth (ft.)	Well Point Construction	Sample Interval	Recovery (ft.)	PID Reading (ppm)	Lithology and Field Observations
0		0-1' 0.5-1'	8"	0	0-3" - concrete floor slab 3"- 1' - Rock fragments with weathered bedrock
3					Refusal/bedrock (schist) encountered @ 1 foot below ground surface. End of boring. Composite sample collected from 0-1 ft. Grab sample collected from 0.5-1 ft.
6					
9					
12					
15					
18					

BORING LOG

ATC Associates Inc. **104 East 25th Street** **New York, NY 10010** **212-353-8280**	**Client:**	Broadway Housing Communities	**Boring No.:** **SB-06**
	ATC Project No:	015.26789.0004	
	Project Location:	414 West 155th Street New York, NY	**Boring Location:** See Figure 2 (approximate area of suspect lube oil tanks, northwest portion of building)
Driller: Enviroprobe	**Drilling Method:**	Geoprobe (Dingo)	
Inspector: Denise DeGennaro	**Sampling Method:**	3' Macro Core (2" diameter)	
Groundwater: Not encountered			

Depth (ft.)	Well Point Construction	Sample Interval	Recovery (ft.)	PID Reading (ppm)	Lithology and Field Observations
0		0-2' 1.5-2'	1	0	0-3" - concrete floor slab 3"-2 - Brown medium SAND with weathered bedrock - recovery was moist at end of Macro Core
3					Refusal/bedrock (schist) encountered @ 2 feet below ground surface. End of boring. Composite sample collected from 0-2 ft. Grab sample collected from 1.5-2 ft.
6					
9					
12					
15					
18					

APPENDIX B:
TECTONIC GEOTECHNICAL INVESTIGATION

GEOTECHNICAL INVESTIGATION
PROPOSED SUGARHILL RESIDENCES
404-414 W 155TH STREET
NEW YORK, NEW YORK

PREPARED FOR:

BROADWAY HOUSING DEVELOPMENT FUND COMPANY, INC.
10 FORT WASHINGTON AVENUE
NEW YORK, NEW YORK 10032

PREPARED BY:

TECTONIC ENGINEERING & SURVEYING CONSULTANTS P.C.
70 Pleasant Hill Road, P.O. Box 37
Mountainville, NY 10953
(P) 845.534.5959
(F) 845.534.5655

May 13, 2010

STATE OF NEW YORK
SCOTT MICHAEL DOEHLA
083448
LICENSED PROFESSIONAL ENGINEER

SCOTT M. DOEHLA, P.E. NO. 083448

TECTONIC

Practical Solutions, Exceptional Service

GEOTECHNICAL INVESTIGATION
PROPOSED SUGARHILL RESIDENCES
404-414 W 155TH STREET
NEW YORK, NEW YORK

TABLE OF CONTENTS

1.0 INTRODUCTION

Tectonic Engineering & Surveying Consultants P.C. has completed a subsurface investigation and geotechnical engineering evaluation for the proposed Sugarhill Residences project located at 414 W 155th Street in New York, New York. The purpose of the investigation was to evaluate the subsurface conditions in the area of the proposed building and to develop geotechnical recommendations for the design and construction of the proposed foundations. This report presents our findings and recommendations.

2.0 SCOPE OF SERVICES

The following services were performed for Broadway Housing Development Fund Company, Inc., herein referred to as Client:

- Performance of eight (8) test borings and the installation of two groundwater monitoring wells at locations near those requested on the boring plan included with the Request for Proposals.
- Field inspection services and oversight of the boring operations by an engineering geologist working under the direction of a Professional Engineer. Field inspection services included field locating the borings, preparing logs of encountered soil, rock, and groundwater conditions, and obtaining soil and rock samples for laboratory testing.
- Performance of laboratory testing of selected soil samples as deemed necessary to evaluate the engineering properties of the materials and to confirm field identification of the soil and bedrock.
- Performance of a geotechnical engineering evaluation of the subsurface conditions as related to the design and construction of the proposed building.
- Preparation of this geotechnical report describing the investigation and testing and their results, discussing the impact of the subsurface conditions on the proposed construction, and providing our geotechnical recommendations for the design and construction of the proposed building.

3.0 PROJECT AND SITE DESCRIPTION

The project site is located at 414 W 155th Street in New York, New York. The property is on the south side of W 155th Street and consists of a parking garage building which appears to have three floors and occupies the entire property. The building footprint measures about 155 feet along W 155th Street and is137 to 144 feet deep, for a total area of 21,692 square feet (sf), and is centrally located along W 155th Street between St. Nicholas Avenue and St.

Nicholas Place. The building is bordered by open space to the west, an existing building to the south, and a gas station to the east. The building consists of a parking garage on the lower and middle levels. The lower floor level consists of a concrete slab supported at grade. Several areas of standing water were observed within the lower level. The lower level was accessed from an entrance on the north-facing side of the building near the northeast corner. Based on the site survey prepared by Erlandsen-Crowell & Shaw dated May 17, 2009, the elevation at the lowest floor level is +106.69 feet. Surface elevations outside the building range from +133.5 feet on the northwest corner to +108 feet on the southwest corner. The topography within the general area slopes down towards the east. An immediately west of the site is designated as "Land of the Old Croton Aqueduct" on the site survey.

The proposed construction will consist of a 13-story building containing residential space, a children's museum, a day care facility, and parking. The lower level will primarily be used for parking, with interior stair and elevator access to the upper levels. The lower level Finish Floor Elevation (FFE) is shown as El. +100 feet on the drawing titled "Cellar Floor Plan" dated February 3, 2010 by SLCE Architects. The cellar level will span the entire property footprint and contain 37 car stackers, and the first floor will contain the children's museum and office space. The footprint area of both the cellar and first floor will be approximately 21,680 sf. The upper floors will contain a day care facility and residential space, and will have smaller footprints than the lower levels.

4.0 SUBSURFACE INVESTIGATION

The subsurface investigation was performed on March 26, 29, and 30, 2010, and consisted of the drilling of eight (8) test borings and the installation of groundwater monitoring wells within two of the borings. The borings, which were designated B-1 through B-7 with B-4A as the additional boring, were performed as close as possible to locations selected by the Client as identified on the boring plan provided with the original Request for Proposals. Several borings were relocated due to access obstructions. A plan showing the as-drilled locations of the borings is attached as Figure 1.

The borings were performed by Craig Test Boring Co., Inc. utilizing one rubber tired ATV-mounted drill rig and one skid-mounted drill rig. The borings were advanced using rotary bit and casing methods through soil and highly decomposed bedrock, and an NX double-tube core barrel in more competent bedrock. The borings ranged in depth from 7.5 to 29.5 feet, with the deepest boring, B-4A, being performed near the southeast portion of the site. Typically, bedrock was cored for a length of 10 feet at each boring location. Bedrock was cored for greater lengths at boring B-4A and B-7, where rock was cored for lengths of 15 feet. Another exception is that no coring was performed at boring B-4, which was terminated at roller-bit refusal on bedrock. Standard Penetration Testing (SPT) was typically performed continuously to a depth of 12 feet or to lesser depths where refusal was encountered within weathered bedrock.

Groundwater observation wells were installed within borings B-1 and B-4A to depths of 13.75 feet and 29.5 feet, respectively. The wells consist of either a 5 or 10-foot length of 2-inch diameter PVC slotted well casing placed at the bottom of the borehole. The upper portion of the well consists of solid 2-inch diameter PVC pipe. Filter sand was used to fill the annulus between the PVC and the borehole to allow water infiltration. A bentonite plug was placed over the sand to minimize infiltration of surface water into the well. The remaining annular space was backfilled with drill cuttings. A man-hole type well covering was installed to protect the top of each well.

All drilling and testing operations were observed on a full-time basis by an engineering geologist to verify conformance to appropriate ASTM Standards. The engineering geologist also obtained soil and rock samples for laboratory testing and prepared logs of the encountered subsurface conditions. Copies of the boring logs and monitoring well installation logs are included in Appendix I.

5.0 LABORATORY TESTING

The laboratory testing of soils included three particle-size analysis tests and two tests for soil pH, sulfate, and chloride content. The particle-size analysis tests were conducted in accordance with ASTM Standard D422. The results of the laboratory testing are included in Appendix II and discussed in Section 6.

6.0 SUBSURFACE CONDITIONS

The subsurface conditions beneath the ground floor concrete slab generally consist of fill materials that either directly overlie weathered bedrock or is separated from the bedrock by a layer of native soil. The following subsections provide a general summary of the subsurface conditions. Detailed descriptions of the subsurface conditions are provided on the boring logs contained in Appendix II.

6.1 Concrete Slab & Existing Fill

A 3 to 6-inch thick concrete slab was encountered within each boring, comprising the floor of the lower level of the parking garage. Existing fill materials were encountered at all boring locations except borings B-1 and B-2. Fill was encountered to depths varying from as shallow as 2 feet to as deep as 7.5 feet in the southeast area of the site (B-4). The thickness of the fill is expected to vary across the site and could be deeper than 7.5 feet at some locations. The fill generally consists of sands of varying gradations with varying amounts of silt and gravel. The fill often contains minor amounts of debris including brick and concrete. Based on the results of Standard Penetration Testing (SPT), the fill is generally in a loose condition and occasionally in a medium dense condition. The higher SPT N values within the fill are attributed to the presence of coarser gravel and debris. The fill classifies as Class 7 material per the New York City Building Code (Code).

6.2 Native Soils and Weathered Bedrock

Native soils were encountered underlying the floor slab or fill within borings B-2, B-4A, and B-7. The native soils typically consist of coarse to fine sand with varying amounts of gravel and little silt. The native soils are micaceous and transition to residual (derivered from bedrock) soils within some borings. Based on the SPT results, the native soils are typically in a medium dense to very dense condition, especially where deeper and are residual in origin. The native soils classify as Class 3a or 3b per the Code.

Weathered bedrock was encountered within all borings, ranging between 0.5 and 3 feet in thickness. The weathered bedrock, when sampled using the split-spoon sampler, consisted of gravel-sized fragments with lesser amounts of sand and silt. SPT N-values indicate the weathered bedrock to be in a very dense condition. Split-spoon sampler refusal, which is defined as more than 50 blows for less than 6 inches of sampler penetration, was encountered within many of the samples attempted within the weathered rock. The weathered rock classifies as Class 3a per the Code.

6.3 Bedrock

The bedrock consists of Manhattan schist. The schist is fresh to slightly weathered, slightly to moderately fractured, coarse to fine grained, and hard. The fracturing of the schist was generally near horizontal; however, some fractures were observed to be dipping as steep as 85 degrees from horizontal. The degree of weathering generally decreased with the depth of each core. The top of the competent bedrock was generally encountered at depths ranging from 2 to 7 feet below grade within the borings except at boring B-4A where it was at a depth of 14.5 feet. These depths correspond to elevations ranging from +100 to +105 feet except at boring B-4A which corresponds to +92.5 feet. The bedrock surface is deepest near the southeast portion of the site. The bedrock is expected to vary throughout the building area and may be deeper than 14.5 feet at some locations.

The Rock Quality Designation (RQD) of the cored intervals, which is the cumulative sum of the lengths of the recovered core pieces having lengths greater than 4 inches divided by the length of the cored interval, expressed as a percentage, ranges from 55 to 100 percent in the upper 5 feet of rock core. This range in RQDs indicates rock mass qualities varying from fair to good. The RQDs from the second 5 feet of core within most borings ranges from 60 to 100 percent; however, the RQD of the second core was generally less than the upper core samples. In accordance with the Code, the rock varies from Class 1a to Class 1c, depending on fracture spacing and frequency.

6.4 Groundwater

Groundwater was measured within the monitoring wells installed at borings B-1 and B-4A at depths of 3.5 and 5.2 feet below grade. Due to the introduction of drilling fluids during rock core drilling, accurate groundwater readings could not be made after the borings were advanced into bedrock. It is noted that groundwater levels fluctuate seasonally and with changing weather conditions. The fluctuations may be substantial due to the relatively low permeability of the deeper, less weathered, bedrock at the site. The standing water observed within the lower level of the parking garage is likely groundwater which infiltrated the building.

7.0 SEISMIC SITE COEFFICIENTS AND LIQUEFACTION POTENTIAL

As part of our investigation, we have evaluated an appropriate site coefficient for use in seismic design. In accordance with Section 1615.1.1 of the Code, as the design professional preparing this report, we recommend that Site Class B be assumed based on the results of the subsurface investigations performed at the site. Site Class B results in maximum spectral response acceleration at short periods (Sm_S) equal to 0.365g and at 1-second periods (Sm_1) equal to 0.071g.

Liquefaction of soils can be caused by a strong vibratory motion due to earthquakes. Both research and historical data indicate that loose, granular soils saturated by a shallow groundwater table are most susceptible to liquefaction. Liquefaction occurs when an earthquake and associated ground shaking of sufficient duration results in the loss of grain-to-grain contact due to a rapid increase in pore water pressure, causing the soil to behave as a fluid for short periods. The potential for liquefaction at this site is low due to the shallow bedrock conditions.

8.0 DISCUSSION AND CONCLUSIONS

Based on the results of the subsurface investigation, the primary geotechnical issues impacting the design and construction of the proposed building is the presence of shallow bedrock and shallow groundwater. As summarized in Section 6, competent bedrock was encountered at elevations ranging from +92.5 feet to +105 feet across the building footprint. Bedrock was encountered at or above the proposed Finish Floor Elevation (FFE) of +100

feet at all but one boring location. Based on the cellar level having an FFE of +100 feet, more than 5 feet of rock removal will be required in some locations. Additionally, the depth to bedrock and the location of the foundations for the adjacent building might make excavation for shallow foundations difficult. If excavations are to proceed, the proper shoring and dewatering would be required and should be in place prior to excavation, especially in the southeast portion of the building area where bedrock is deeper than the planned excavation depth. An alternative to shoring and dewatering where rock is deep would be to utilize deep foundations such as drilled piers, or drilled micropiles, to extend from the foundation down to the bedrock.

The bedrock at the site classifies as Class 1a, 1b or 1c rock per the Code. These classifications allow for relatively high allowable bearing pressure and pile foundation loading. The foundation bearing pressure should be adequate to support the loads for the proposed building. Based on the typical RQDs of the cored intervals, it is anticipated that all rock except that characterized as highly to completely weathered will require the use of drilling and splitting or hydraulic hoe-rams to remove in a timely, cost efficient, manner. Other means of rock splitting such as expansive grouts or other non-high explosive means are impractical due to the volume of rock that needs to be excavated. Blasting of the rock would be the most efficient method of rock removal, however, blasting may be impractical given the urban setting of the project site.

The basement walls of the existing building currently serve as retaining walls resisting the lateral loading imposed by the retained earth on the western portions of the property. During demolition of the existing building, those walls may become less stable due to a reduction of vertical load. Care should be exercised when performing demolitions of the upper floors not to weaken the foundation or the basement walls. Excavation should be sequenced and designed to maintain stability of the adjacent properties at all times. Excavation support will also be required to retain the soils within the courtyard area west of the existing building during construction. If possible, the temporary excavation support measures should be in-place prior to building demolition. It is possible that the existing basement was constructed by excavating bedrock, and that the sidewalls of some of the excavations will consist of bedrock. Exposed bedrock sidewalls should be evaluated during

construction by a geotechnical engineer specializing in geology for potential instability concerns associated with the strike and dip of joints and the measures necessary to ensure stability of the rock cut.

Groundwater levels were measured at elevations ranging from approximately +101.8 to +103.5 feet at the monitoring wells installed at the site. In addition, several areas of standing water were observed within the basement level of the parking garage at the time of the subsurface investigation. Based on the above findings, the building will need to be designed to be water tight and to resist hydrostatic pressure. A less desirable alternative would be the incorporation of a permanent dewatering system. This approach would require redundancy in pumps as well as the power supply since failure of the dewatering system could result in substantial damage to the building. This type of system would also require a legally permitted point of discharge for the pumped groundwater. Groundwater is anticipated to be present at a higher elevation in the western portion of the site.

Other conclusions that can be drawn from the performed investigation are as follows:

- The subsurface conditions are favorable with respect to building support. The proposed building can be supported on conventional shallow spread footings and continuous wall footings founded on bedrock. Based on the performed borings, bedrock will be at or in close proximity to the minimum bearing depth based on the proposed lower level finish floor elevation. An exception is the southeast portion of the site, where bedrock was found approximately 7.5 feet below the finish floor elevation. In these areas, construction of shallow foundations may not be cost-effective.

- The proposed basement wall within the western and northern portion of the building will retain approximately 30 feet of soil within the proposed plaza area.

- The depth and dimension of the foundations for the neighboring buildings should be investigated prior to proceeding with demolition. Neighboring building foundations, below-grade utilities within the sidewalks adjacent to the site, pavements, sidewalks, and any other permanent feature which may be partially undermined by the excavation should be properly underpinned or excavation support systems should be in place prior to excavation.

- The existing fill and native soils are generally not suitable for use as controlled fill due to their high silt contents. It is also noted that the existing fill contains demolition debris such as brick and asphalt. Oversize debris as well as cobbles and boulders should be anticipated within the overburden soils.

- Additional subsurface investigation could be performed to identify the depth to bedrock within the southeast portion of the building (area of B-4A) which would provide a better understanding of the effort required to construct the foundations in this area and the excavation support measures necessary for construction.

9.0 RECOMMENDATIONS

The following sections outline our recommendations for foundation design, design of slabs-on-grade floors, and design for lateral loading.

9.1 Building Foundations

The majority of the borings encountered bedrock at or above the proposed cellar floor elevation. The foundations for the building are anticipated to consist of shallow foundations bearing directly on the bedrock. Within one of the borings, the bedrock surface was found approximately 7.5 feet below the proposed cellar floor elevation. The depth to the top of bedrock in this area may require the use of deeper foundations, due to the significant excavation and dewatering effort that would be required. The following sections provide design criteria for shallow and deep foundations.

9.1.1 Shallow Foundations

The bedrock at the site varies in classification per the Code from 1c to 1a. Although some of the bedrock at the site classifies as 1a, the majority of the rock was found to be 1 b, and some was found to be 1c. It is recommended that the building foundations be designed assuming the foundation will bear on Class 1c rock. If the building were designed to bear on Class 1a or 1b rock, and Class 1c rock was found during excavation, the 1c rock would need to be over-excavated to expose the more competent rock. The excavation of Class 1c rock is anticipated to require significant effort and will likely be time consuming and costly. If the building is designed to bear on Class 1c rock, the potential need for over-excavation of bedrock to achieve the desired rock class is reduced. Foundations designed to bear on Class 1c rock should assume a net allowable bearing pressure of 20 tons per square foot (tsf).

Spread footing foundation should have a minimum width of 2 feet. Continuous footings should have a minimum width of 12 inches. Using the above design criteria, total settlement is estimated to be less than 0.5 inch and differential settlements are estimated to be less than 1/4 inch. The differential settlement is estimated over a distance of about 30 feet along continuous footings or between adjacent column footings. Footing subgrade preparation should be performed in accordance with Section 10.2 of this report.

9.1.2 Deep Foundations

The top of the Class 1c rock surface was found at 7.5 feet below the FFE of the cellar within the southeast portion of the building (boring B-4A). At all other locations, bedrock was encountered above the FFE. If excavation to this depth is not practical, or if the bedrock surface is highly variable and becomes deeper in some areas, short drilled piles or drilled shafts can be used to extend from the foundation level to the competent bedrock. It is recommended that drilled foundations (caisson piles or micropiles) be used in this case instead of driven piles due to the uncertainty associated with the depth to bedrock. Drilled foundations will be more easily altered in the field than pre-determined pile sections or lengths. The Code provides no limit to the maximum allowable load for caisson piles. If selected, caisson piles should consist of a minimum 7-inch diameter drilled pile with a socket extending into the rock the minimum depth required by the Code. Caisson piles should be designed assuming a net allowable bearing pressure of 20 tsf at the base of the caisson, and should ignore side friction for support. It should be noted that the Code requires load testing if pile loads exceed 40 tons.

9.1.3 Design for Lateral Loading

The following soil parameters are provided for designing to resist lateral movement and for analyzing lateral deflection and lateral stability. Lateral deflection at the top of the pile should be checked using a computer program such as LPILE.

TABLE 9.1.3 LATERAL SOIL PARAMETERS						
Elevation[1] (feet)	γ (pcf)	ϕ	C_u (psf)	K_l (pci)	K_p	ε_{50} (inch / inch)
Above +102.5	60	34°	NA	60	3.53	NA
Below +102.5	80	NA	6,000	2,000	NA	0.004

Note:
1) Elevations estimated based on the surface elevations.
2) The soil parameters provided above reflect the long-term high groundwater elevation of +108 feet.

Where,

γ = design unit weight of soil (pounds per cubic foot).
ϕ = angle of internal friction (degrees).
C_u = undrained shear strength (pounds per square foot).
K_l = coefficient of lateral subgrade reaction (pounds per cubic inch) required for p-y curve methods of analysis.
K_p = passive earth pressure coefficient.
ε_{50} = axial strain of soil corresponding to one-half of the maximum principal stress difference.
NA = not applicable

When installed as a group, the appropriate reduction factors should be applied to individual piles based on the pile group configuration.

9.1.4 Pile Installation

Any obstructions present within the fill soils encountered at the site should be removed prior to pile installation. Drilled piles may encounter debris, cobbles, or boulders which might make installation difficult. The appropriate methodologies should be employed by the contractor to ensure successful installation of the piles.

A pre-condition survey of the neighboring buildings should be performed prior to installing any piles, any excavation support systems or rock excavation. Additionally, monitoring points should be established on neighboring structures to evaluate the vibrations or movements which may be experienced at those

structures as a result of the pile installation and rock excavation operations. A peak particle velocity vibration limit should be established prior to commencing operations. If this limit is exceeded, construction should stop and construction methods should be re-evaluated. It should be noted that the tolerable limits for vibration and peak particle velocity may be dictated more by the composition and condition of the structure being monitored than the distance of the structure from the site.

9.1.5 Pile Load Testing

The Code requires a minimum of one load test per 5,000 square feet of new foundation area for piles having a design capacity greater than 40 tons. If required by the Code, pile load testing should consist of static load tests. All static load tests should be performed in accordance with Code requirements.

9.2 Cellar Floor Slab

The cellar floor slab should bear on a 6-inch thick layer of free-draining crushed stone placed over a subgrade consisting of medium dense to dense native soil, bedrock, or controlled fill. Backfill around foundations below floor slabs should consist of compacted controlled fill. The crushed stone and other subgrade preparations should conform to the requirements of Section 11 of this report.

A subgrade modulus of 175 pci is recommended for the design of slab-on-grade floors. The subgrade modulus is suitable for estimating distributions of bearing pressure beneath the slab and for estimating bending moments and shear within the slab. It is not intended for the purpose of calculating total or differential settlements. Proofrolling, subgrade preparation and controlled fill material and placement recommendations are provided in Section 11 of this report.

Unless a permanent dewatering system is incorporated into building design, design of the ground floor slab will be governed by the hydrostatic pressure resulting from a high groundwater level. We recommend that a design groundwater elevation of +108 feet be used to evaluate the uplift pressure resulting from shallow groundwater.

Recommendations for rock anchor design and installation, if necessary to resist hydrostatic forces, can be provided upon request.

9.3 Design for Lateral Loading

The borings were performed within the lower level of the existing building; however, the building walls will retain soils up to El. +130 feet on the west and north sides of the building. If these soils are removed and replaced with compacted controlled fill, then the lateral loading on the wall will be different than if the existing soils remain in-place and the wall is constructed with the aid of temporary supports. The table below provides lateral earth pressure parameters for both the existing soils for design of temporary or permanent earth retaining systems without removal of existing soils and replacement with controlled fill, and for controlled fill in the event that these removals are performed:

Soil Parameter	Existing Soil	Controlled Fill
Angle of internal friction	30º	34º
Active earth pressure coefficient (K_a) for horizontal backfill surface(1)	0.33	0.28
At rest earth pressure coefficient (K_o) for horizontal backfill surface(2)	0.50	0.44
Passive earth pressure coefficient (K_p)(3)	3.00	3.54
Coefficient of base friction(4)	0.6	0.6
Total unit weight of soil (pounds per cubic foot)(5)	120	120

1) Use for free standing walls where movement of up to 0.0025 X height of wall is both possible and tolerable. Otherwise, use at-rest coefficient.

2) Use for walls restrained against outward lateral movement

3) Assume passive pressure below a depth of 4 feet only.

4) Coefficient of base friction applies to mass concrete placed directly against bedrock.

5) Subtract unit weight of water (62.4 pcf) to obtain buoyant unit weight below the groundwater level.

Unless a permanent dewatering system is incorporated into building design, building walls should be designed to resist the hydrostatic pressure resulting from shallow groundwater and the backfill soils. As previously noted, we recommend that the design groundwater be taken as +108 feet unless a more detailed hydrologic evaluation is performed.

Additional loading due to temporary and permanent surcharges, such as automobiles and construction traffic, should be added to the lateral loading exerted by the backfill. Loads due to supported structures should be applied in appropriate combinations with the lateral loads.

Walls should be backfilled in accordance with Section 10.4 of this report. Placement and compaction of backfill should be observed and tested by a geotechnical engineer to monitor that proper compaction of the fill soils is achieved.

Below grade walls should be waterproofed below El. +108 feet, and dampproofed above El. +108 feet. Dampproofing should include a layer of free draining crushed stone with a collector pipe draining to a positive outlet. The use of a fabricated composite drainage board is also acceptable. A perimeter drainage system may be needed to minimize the potential for the accumulation of subsurface seepage against the up-gradient side of the building.

10.0 EARTHWORK CONSTRUCTION CRITERIA

The following sections provide our recommendations for earthwork construction.

10.1 Subgrade Preparations

All subgrades should be inspected by a geotechnical engineer to verify the acceptability of the subgrades. Rock subgrades should be prepared approximately level and they should be cleaned of all soil materials. If lean concrete is used to provide a level subgrade, the geotechnical engineer should evaluate the degree and direction of the slope of the rock surface and their variation over the area of the leveling pad to determine the stability of the leveling pad relative to sliding failure along the concrete-bedrock interface. If it is determined that the leveling pad is unstable due to shear forces resulting from a sloping rock surface, the bedrock surface should be stepped or dowels should be installed to resist the sliding forces.

10.2 Groundwater Control

Groundwater seepage should be anticipated, and dewatering should be performed as required. The dewatering of soil areas, such as during fill placement, should be performed in a manner that will prevent loosening or migration of soil materials. Water should be removed from subgrades prior to concrete placement to prevent concrete segregation.

Consideration should be given to installing a groundwater cut-off system within the upslope side of the site to intercept groundwater from flowing into the excavation. Any significant dewatering should be designed by a Professional Engineer licensed in New York State, and reviewed by a geotechnical engineer to evaluate the potential impacts of the dewatering on neighboring structures.

10.3 Fill Materials, Placement and Compaction

As indicated in the Code, controlled fill should consist of clean sand, gravel, crushed stone, crushed gravel, or a mixture of these, and should contain no organic matter. The fill materials should contain no particles exceeding 4 inches in largest dimension. No more than 30 percent of the material should be retained on the 3/4 inch sieve.

The material passing the 3/4 inch sieve should contain, by weight, no more than 40 percent passing the No. 100 sieve and no more than 12 percent passing the No. 200 sieve. Fill and backfill material, both on-site and soils imported to the site, should be free of trash, debris, roots, vegetation or other deleterious materials.

Based on the results of our subsurface investigation and laboratory testing, the on-site soils are not suitable for use as controlled fill due to their high silt and/or clay contents.

All controlled fill should be compacted to at least 95 percent of the maximum dry density at near optimum moisture contents as determined by ASTM D1557. The lift thickness for the fill soils will vary depending on the type of compaction equipment used. Fills should generally be placed in uniform horizontal lifts not exceeding 8 inches in loose thickness in open areas. In confined areas, the loose lift thickness should be reduced to 4 inches or less and each lift should be compacted with sufficient passes of hand operated vibratory or impact compaction equipment. Compaction within 5 feet of building walls should be done with hand-operated equipment.

A geotechnical engineer with appropriate field and laboratory support should inspect all footing and floor subgrades, approve materials for use as fill, and test backfill materials for compliance with the recommended compaction.

Free draining crushed stone placed below floor slabs and as drainage materials behind retaining walls should be Underdrain Filter Type I materials as specified in the New York State Department of Transportation Standard Specifications as follows:

Sieve Size	Percent Finer by Weight
1 inch	100
1/2 inch	30 - 100
1/4 inch	0 - 30
No. 4	0 - 10
No. 8	0 – 5

10.4 Rock Excavation and Subgrade Preparation

Based the results of our subsurface investigation, it appears that conventional heavy ripping techniques will only be feasible through the upper highly weathered bedrock. Otherwise, more extensive rock removal techniques, such as drilling and splitting or controlled blasting, will be required to further excavate the bedrock. Code requirements for noise and vibrations should be considered when selecting the method of rock removal.

If proposed, blasting techniques should be employed that minimize over-breakage at the foundation subgrades. Blasting operations should also be conducted in a manner that will minimize ground vibrations at adjacent structures and also limit the amount of air pressure (blast noise).

We recommend that a blast monitoring program be implemented to control blasting through limitations on charges per round, charges per delay, peak particle velocities, and maximum level of air overblast pressures at adjacent structures. In addition, blasting mats should be utilized to minimize the hazard of fly-rock to adjacent structures and to personnel on-site. A qualified contractor licensed and insured for use of explosives should perform rock excavations using drill and blast techniques. If there is to be a separate payment for soil and rock excavation, specific criteria should be established. We recommend that the bid documents be clear regarding the definition of rock and methods of measurement of rock.

A preblast condition survey should also be performed on all structures located within a minimum distance of 300 feet of the area of proposed blasting. This will assist in evaluating safe blast-included vibration limits and assist in mitigating false vibration induced damage claims.

Subgrades consisting of highly weathered bedrock should be protected from the effects of weather. Adequate protection can usually be obtained by placing a layer of lean concrete over the subgrade after approval of the subgrade by the geotechnical

engineer. Lean concrete should have a minimum unconfined compressive strength of 1,500 pounds per square inch at 28 days.

10.5 Trench Excavations

Utility trenches and any vertical cut in soil above 4 feet in height should be sloped back for safety unless sheeting or a bracing system is used. OSHA and other applicable agency requirements pertaining to worker safety should be met during excavation, dewatering, and backfilling activities. Design of all shoring and bracing should be performed by a licensed Professional Engineer. Bedding and backfill for all utility piping should be clean granular fill conforming to the pipe manufacture's specifications and/or local building codes.

11.0 CONSTRUCTION MONITORING

A geotechnical engineer familiar with the existing subsurface conditions and having the appropriate laboratory and field testing support should be engaged by the owner to observe that all earthwork is performed in accordance with the specifications and the design criteria provided in this report.

The following work should be performed under the observation of the geotechnical engineer:

- Excavation of bedrock/blast monitoring
- Placement and compaction of structural fill
- Footing and floor slab subgrade preparation
- Pile installation and load testing, if required
- Rock anchor installation, if required

All materials proposed for use as soil fill should be tested and approved prior to delivery to the site. All fill materials should be tested as they are being placed to verify that the required degree of compaction is being achieved.

12.0 LIMITATIONS

Our professional services have been performed using that degree of care and skill ordinarily exercised under similar circumstances by reputable geotechnical engineers and geologists practicing in this or similar situations. The interpretation of the field data is based on good judgment and experience. However, no matter how qualified the geotechnical engineer or detailed the investigation, subsurface conditions cannot always be predicted beyond the points of actual sampling and testing. No other warranty, expressed or implied, is made as to the professional advice included in this report.

The recommendations contained in this report are intended for design purposes only. Contractors and others involved in the construction of this project are advised to make an independent assessment of the rock, subsoil and groundwater conditions for the purpose of establishing quantities, schedules and construction techniques.

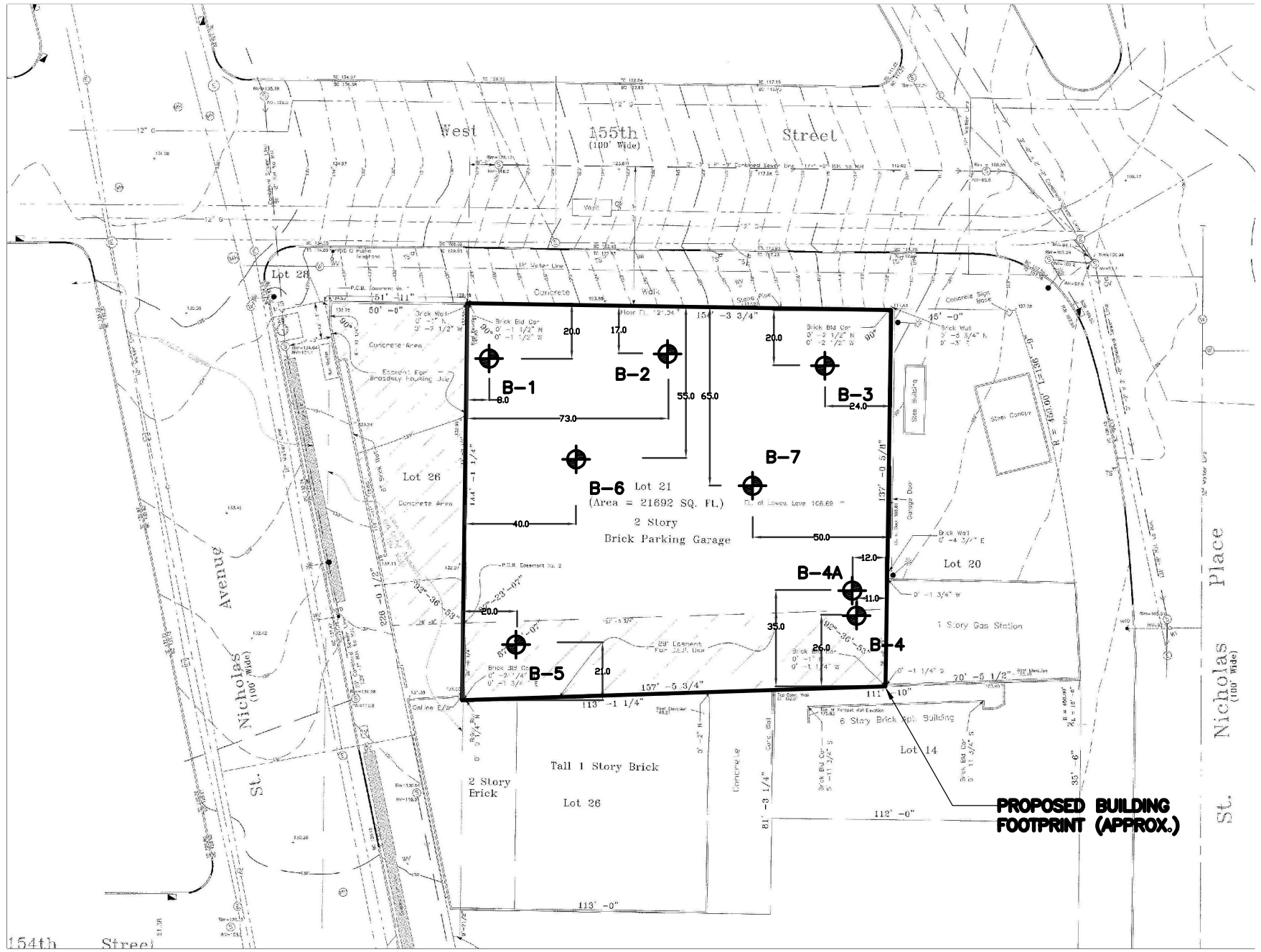
This report has been prepared for the exclusive use of Broadway Housing Development Fund Company and their agents, for the specific application to the proposed construction detailed in this report. In the event that any changes are made to the location or layout of the proposed construction, this report will not be considered valid unless reviewed and verified in writing by Tectonic Engineering & Surveying Consultants, P.C. We recommended that Tectonic be retained to provide construction monitoring and inspection services to ensure proper implementation of the recommendations contained herein, which would otherwise limit our professional liability.

G:\Latham\Geotechnical\5466 Sugarhill Residential Project\Report\5466.01 Geo Report.docx

FIGURE 1

N

APPROXIMATE



LEGEND

B-1 APPROXIMATE BORING LOCATION

NOTES

1. BORING LOCATIONS WERE DETERMINED ON-SITE BY MEASURING FROM EXISTING SITE FEATURES.
2. BORING LOCATION PLAN BASED ON UNTITLED SURVEY DRAWING BY ERLANDSEN-CROWELL & SHAW DATED MAY 17, 2009.
3. ALL BORINGS PERFORMED WITHIN LOWEST LEVEL OF EXISTING PARKING GARAGE.

ORIGINAL SIZE IN INCHES

0 1 2 3

TECTONIC
• PLANNING
• ENGINEERING
• SURVEYING
• CONSTRUCTION MANAGEMENT

TECTONIC Engineering & Surveying Consultants P.C. Phone: (518) 783-1630
36 British American Boulevard, Suite 101 Fax: (518) 783-1544
Latham, New York 12110 www.tectonicengineering.com

BORING LOCATION PLAN

PROPOSED 13-STORY BUILDING
SUGARHILL RESIDENCES
404-414 W 155TH STREET
NEW YORK, NEW YORK

Date	Work Order	Drawing No.	Rev
05/04/2010	5466.01	FIGURE 1	0
Scale 1" = 50'+/-			

APPENDIX I

TECTONIC *ENGINEERING & SURVEYING CONSULTANTS P.C.*

PROJECT No. **5466.01**
PROJECT: **Sugarhill Residential Project**
LOCATION: **New York, NY**

BORING No. B-1

SHEET No. 1 of 1

CLIENT: **Broadway Housing Development Fund Company, Inc**	GROUND WATER	DATE	TIME	DEPTH	INSPECTOR: **Adam Watson**
CONTRACTOR: **Craig Test Borings Co., Inc.**		**3/30/10**	**9:05 am**	**3.5'**	DRILLER: **Rob Dollar**
METHOD OF ADVANCING BORING / DIA. / DEPTH					SURFACE ELEVATION: **107.0**
POWER AUGER: / TO	MON. WELL	☒ YES	☐ NO		DATUM: **See Remarks**
ROT. DRILL: **3 7/8"** **0** TO **3.75'**	SCREEN DEPTH: **8.75** TO **13.75'**				DATE START: **3/26/10**
CASING: **4"** **0** TO **3.75'**	WEATHER: TEMP: **50° F**				DATE FINISH: **3/26/10**
DIAMOND CORE: **NX** **3.75** TO **13.75'**	DEPTH TO ROCK: **3.75'**				
CME 55 Truck Rig with Auto Hammer	*CHANGES IN STRATA ARE INFERRED				

DEPTH (FT.)	N OR MIN./FT.	PENETRATION RESISTANCE (BL/6 IN.)	SAMPLES: SAMPLE NUMBER	RECOV.: LENGTH (IN.)	RECOV.: RQD (%)	MOISTURE	UNIFIED SOIL CLASS.	DESCRIPTION OF MATERIAL	ELEVATION (FT.)
1	100+	5 100/5	S-1	5		D	GP	3" Concrete Tip of spoon c-f GRAVEL, some c-f Sand (3A)	100
2	100+	100/1	S-2	.25		D	GP	Gy f GRAVEL (3A) (weathered bedrock)	100
3								Bit Refusal @ 3.75'	
4	5								
5	5								102.0
6	5		C-1	60/60	80			Gy, slightly weathered, slightly to moderately fractured, c-f grained, hard SCHIST fracturing at 20 to 85 degrees from horizontal (1B)	
7	5								
8	5								
9	5								
10	5								97.0
11	5		C-2	60/60	100			Gy, fresh to slightly weathered, slightly fractured, c-f grained, hard, SCHIST, near horizontal fracturing (1A)	
12	5								
13									
14	5							End of Boring at 13.75'	
15									92.0
16									
17									
18									
19									
20									87.0
21									
22									
23									
24									
25									82.0

LITHOLOGY*

UNCONFINED COMPRESS. STRENGTH (TONS/FT) ◓ 1 2 3 4 5

PLASTIC LIMIT % ✕ — WATER CONTENT % ⊗ — LIQUID LIMIT △ 10 20 30 40 50

STANDARD PENETRATION (BLOWS/FT.) ● 10 20 30 40 50

REMARKS: Surface elevation estimated based on topographic data shown on the site survey prepared by Erlandsen -Crowell & Shaw, dated May 17, 2009. Depth to bedrock based on depth to roller-bit refusal. Weathered bedrock present at shallower depths.

TECTONIC *ENGINEERING & SURVEYING CONSULTANTS P.C.*

PROJECT No. **5466.01**

PROJECT: **Sugarhill Residential Project**

LOCATION: **New York, NY**

BORING No. B-2

SHEET No. 1 of 1

CLIENT: **Broadway Housing Development Fund Company, Inc**	GROUND WATER	DATE	TIME	DEPTH	INSPECTOR: **Adam Watson**
CONTRACTOR: **Craig Test Borings Co., Inc.**		**3/29/10**		**NE**	DRILLER: **Joe Shuster**
METHOD OF ADVANCING BORING / DIA. / DEPTH					SURFACE ELEVATION: **107.0**
POWER AUGER: / TO	MON. WELL	☐ YES	☒ NO		DATUM: **See Remarks**
ROT. DRILL: **3 7/8"** **0** TO **5'**	SCREEN DEPTH: **---** TO **---**				DATE START: **3/29/10**
CASING: **4"** **0** TO **5'**	WEATHER:	TEMP: **50° F**			DATE FINISH: **3/30/10**
DIAMOND CORE: **NX** **5** TO **15'**	DEPTH TO ROCK: **5'**				
CME 40C Skid Rig with Saftey Hammer	*CHANGES IN STRATA ARE INFERRED				

UNCONFINED COMPRESS. STRENGTH (TONS/FT): 1 2 3 4 5

PLASTIC LIMIT % — WATER CONTENT % — LIQUID LIMIT %: 10 20 30 40 50

STANDARD PENETRATION (BLOWS/FT.): 10 20 30 40 50

DEPTH (FT.)	N OR MIN./FT.	PENETRATION RESISTANCE (BL/6 IN.)	SAMPLE NUMBER	RECOV. LENGTH (IN.)	RECOV. RQD (%)	MOISTURE	UNIFIED SOIL CLASS.	DESCRIPTION OF MATERIAL	ELEVATION (FT.)
								6" Concrete	
1	54	9 20 34	S-1	10		M	SM	Bwn c-f SAND, some f Gravel, little Silt (brick fragments under concrete) (Residual soil) (3A)	
2	50+	50/4	S-2	1		M	GP	Gy c GRAVEL (3A) (weathered bedrock)	
3									
4									
5									102.0
								Bit Refusal @ 5'	
6	7								
7	7							Gy, slightly to moderately weathered, slightly to highly fractured, c-f grained, hard SCHIST, fracturing in many directions (1C)	
8	8		C-1	39/60	55				
9	8								
10	7								97.0
11	7								
12	7								
13	7		C-2	52/60	75			Same (1B)	
14	8								
15	8								92.0
								End of Boring at 15'	
16									
17									
18									
19									
20									87.0
21									
22									
23									
24									
25									82.0

REMARKS: Surface elevation estimated based on topographic data shown on the site survey prepared by Erlandsen -Crowell & Shaw, dated May 17, 2009. Depth to bedrock based on depth to roller-bit refusal. Weathered bedrock present at shallower depths.

TECTONIC *ENGINEERING & SURVEYING CONSULTANTS P.C.*

PROJECT No. **5466.01**

PROJECT: **Sugarhill Residential Project**

LOCATION: **New York, NY**

BORING No. B-3

SHEET No. 1 of 1

CLIENT: **Broadway Housing Development Fund Company, Inc**	GROUND WATER	DATE	TIME	DEPTH	INSPECTOR: **Adam Watson**
CONTRACTOR: **Craig Test Borings Co., Inc.**		**3/30/10**		**NE**	DRILLER: **Rob Dollar**
METHOD OF ADVANCING BORING / DIA. / DEPTH					SURFACE ELEVATION: **107.0**
POWER AUGER: / TO	MON. WELL	☐ YES	☒ NO		DATUM: **See Remarks**
ROT. DRILL: **3 7/8"** **0** TO **4'**	SCREEN DEPTH: **---** TO **---**				DATE START: **3/30/10**
CASING: **4"** **0** TO **4'**	WEATHER:	TEMP: **50° F**			DATE FINISH: **3/30/10**
DIAMOND CORE: **NX** **4** TO **14'**	DEPTH TO ROCK: **4'**				
CME 55 Truck Rig with Auto Hammer	*CHANGES IN STRATA ARE INFERRED				

UNCONFINED COMPRESS. STRENGTH (TONS/FT) ◓ 1 2 3 4 5

PLASTIC LIMIT % ✕ — WATER CONTENT % ⊗ — LIQUID LIMIT % △ 10 20 30 40 50

STANDARD PENETRATION (BLOWS/FT.) ● 10 20 30 40 50

DEPTH (FT.)	N OR MIN./FT.	PENETRATION RESISTANCE (BL/6 IN.)	SAMPLES: SAMPLE NUMBER	RECOV.: LENGTH (IN.)	RECOV.: RQD (%)	MOISTURE	UNIFIED SOIL CLASS.	DESCRIPTION OF MATERIAL	ELEVATION (FT.)
								6" Concrete slab	
1–2	3	3 1 2 2	S-1	8		M		Bwn c-f SAND, little f Gravel, little Silt (FILL) (Class 7)	
3	80+	4 80/5	S-2	6		M	GM	Gy c-f GRAVEL, some c-f Sand, little Silt (Weathered rock) (3A)	
4								Bit Refusal @ 4'	
5–9	5 5 5 5 5		C-1	60/60	100			Fresh, slightly to moderately fractured, c-f grained, hard SCHIST, fracturing near 45 degrees (1A)	102.0
10–14	5 5 5 5 5		C-2	53/60	85			Gy, fresh to slightly weathered, slightly to highly fractured, c-f grained, hard SCHIST, fracturing in many different directions (1B)	97.0
15–25								End of Boring at 14'	92.0 / 87.0 / 82.0

REMARKS: Surface elevation estimated based on topographic data shown on the site survey prepared by Erlandsen -Crowell & Shaw, dated May 17, 2009. Depth to bedrock based on depth to roller-bit refusal. Weathered bedrock present at shallower depths.

TECTONIC *ENGINEERING & SURVEYING CONSULTANTS P.C.*

PROJECT No. **5466.01**
PROJECT: **Sugarhill Residential Project**
LOCATION: **New York, NY**

BORING No. B-4

SHEET No. 1 of 1

CLIENT: **Broadway Housing Development Fund Company, Inc**	GROUND WATER	DATE	TIME	DEPTH	INSPECTOR: **Adam Watson**
CONTRACTOR: **Craig Test Borings Co., Inc.**		**3/29/10**		**NE**	DRILLER: **Rob Dollar**
METHOD OF ADVANCING BORING / DIA. / DEPTH					SURFACE ELEVATION: **107.0**
POWER AUGER: / TO	MON. WELL	☐ YES	☒ NO		DATUM: **See Remarks**
ROT. DRILL: **3 7/8"** **0** TO **7.5'**	SCREEN DEPTH: **---** TO **---**				DATE START: **3/29/10**
CASING: / TO	WEATHER:	TEMP: **55° F**			DATE FINISH: **3/29/10**
DIAMOND CORE: / TO	DEPTH TO ROCK: **7.5'**				
CME 55 Truck Rig with Auto Hammer	*CHANGES IN STRATA ARE INFERRED				

DEPTH (FT.)	N OR MIN./FT.	PENETRATION RESISTANCE (BL/6 IN.)	SAMPLE NUMBER	RECOV. LENGTH (IN.)	RECOV. RQD (%)	MOISTURE	UNIFIED SOIL CLASS.	DESCRIPTION OF MATERIAL	ELEVATION (FT.)
1–2	6	3 4 2 3	S-1	3		M		4" Concrete slab Bwn c-f SAND, some Silt, brick fragments (Class 7) (FILL)	
3–4	3	3 2 1 2	S-2	8		M		Bwn c-f SAND, little f Gravel, little Silt (Brick/Concrete) (Class 7) (FILL)	
5–6	5	1 3 2 1	S-3	10		M		Same (FILL) (7)	102.0
7	125+	2 25 100/5	S-4	8				Same (FILL) (7) (Weathered Bedrock) Roller-Bit Refusal @ 7.5'	125
8–25								End of Boring at 7.5'	97.0 92.0 87.0 82.0

UNCONFINED COMPRESS. STRENGTH (TONS/FT) ◓ 1 2 3 4 5

PLASTIC LIMIT % ✕ — WATER CONTENT % ⊗ — LIQUID LIMIT % △ 10 20 30 40 50

STANDARD PENETRATION (BLOWS/FT.) ● 10 20 30 40 50

REMARKS: Surface elevation estimated based on topographic data shown on the site survey prepared by Erlandsen -Crowell & Shaw, dated May 17, 2009. Depth to bedrock based on depth to roller-bit refusal. Weathered bedrock present at shallower depths.

TECTONIC *ENGINEERING & SURVEYING CONSULTANTS P.C.*

PROJECT No. **5466.01**

PROJECT: **Sugarhill Residential Project**

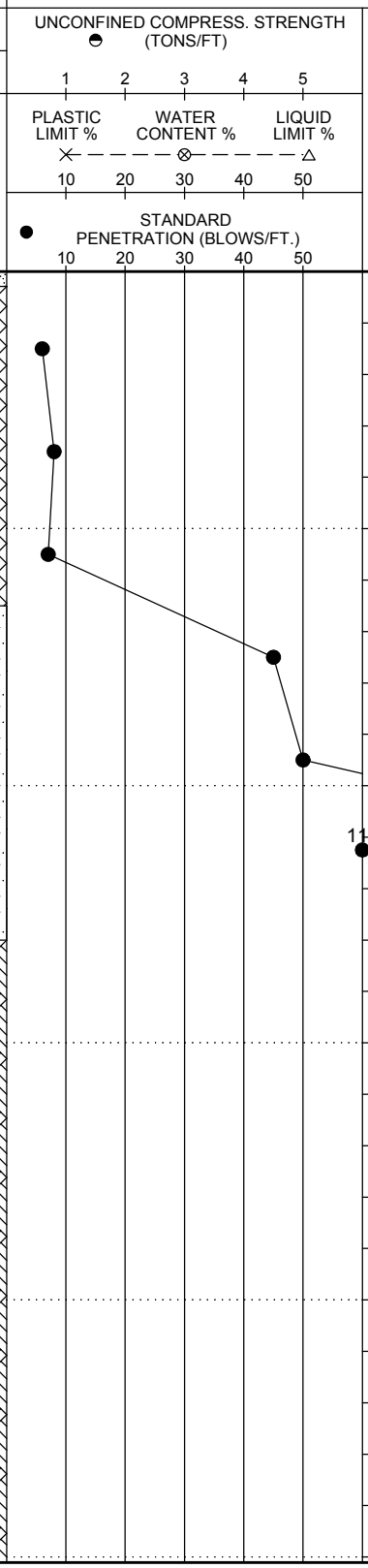
LOCATION: **New York, NY**

BORING No. B-4A

SHEET No. 1 of 2

CLIENT: **Broadway Housing Development Fund Company, Inc**	GROUND WATER	DATE	TIME	DEPTH	INSPECTOR: **Adam Watson**
CONTRACTOR: **Craig Test Borings Co., Inc.**		**3/30/10**	**9:00 am**	**5.25'**	DRILLER: **Rob Dollar**
METHOD OF ADVANCING BORING / DIA. / DEPTH					SURFACE ELEVATION: **107.0**
POWER AUGER: / TO	MON. WELL	☒ YES	☐ NO		DATUM: **See Remarks**
ROT. DRILL: **3 7/8"** **0** TO **14.5'**	SCREEN DEPTH: **19.5** TO **29.5'**				DATE START: **3/29/10**
CASING: **4"** **0** TO **5'**	WEATHER:	TEMP: **50° F**			DATE FINISH: **3/29/10**
DIAMOND CORE: **NX** **14.5** TO **29.5'**	DEPTH TO ROCK: **14.5'**				
CME 55 Truck Rig with Auto Hammer	*CHANGES IN STRATA ARE INFERRED				

DEPTH (FT.)	N OR MIN./FT.	PENETRATION RESISTANCE (BL/6 IN.)	SAMPLE NUMBER	RECOV. LENGTH (IN.)	RECOV. RQD (%)	MOISTURE	UNIFIED SOIL CLASS.	DESCRIPTION OF MATERIAL	ELEVATION (FT.)
								3.5" Concrete slab	
1–2	6	8 3 3 3	S-1	8		M		Bwn c-f SAND, and c-f Gravel, concrete, brick (Class 7) (FILL)	
3–4	8	10 5 3 2	S-2	6		M		Bwn m-f SAND, some Silt (FILL) (Class 7)	
5–6	7	2 3 4 3	S-3	15		M		Same (7)	102.0
7–8	45	24 21 24 20	S-4	15		W	SP-SM	Bwn c-f SAND, trace Silt, trace f Gravel (micaceous) (Residual Soil) (3A)	
9–10	50	20 24 26 27	S-5	24		W	SP-SM	Same (3A)	97.0
11–12	117+	16 17 100/5	S-6	20		W	SP-SM	Same (3A)	
13–14									
15	5							Bit Refusal @ 14.5'	92.0
16–19	5 5 5 5		C-1	60/60	100			Gy, fresh to slightly weathered, slightly to moderately fractured, c-f grained, hard, SCHIST, fracturing 45 degrees to horizontal (1A)	
20–24	5 5 5 5 5		C-2	60/60	100			Same (1A)	87.0
25									82.0



REMARKS: Surface elevation estimated based on topographic data shown on the site survey prepared by Erlandsen -Crowell & Shaw, dated May 17, 2009. Depth to bedrock based on depth to roller-bit refusal. Weathered bedrock present at shallower depths.

TECTONIC *ENGINEERING & SURVEYING CONSULTANTS P.C.*

PROJECT No. **5466.01**

PROJECT: **Sugarhill Residential Project**

LOCATION: **New York, NY**

BORING No. B-4A

SHEET No. 2 of 2

CLIENT: **Broadway Housing Development Fund Company, Inc.**

CONTRACTOR: **Craig Test Borings Co., Inc.**

DEPTH (FT.)	N OR MIN./FT.	PENETRATION RESISTANCE (BL/6 IN.)	SAMPLES: SAMPLE NUMBER	SAMPLES: RECOV. LENGTH (IN.)	SAMPLES: RECOV. RQD (%)	SAMPLES: MOISTURE	UNIFIED SOIL CLASS.	DESCRIPTION OF MATERIAL	LITHOLOGY*	ELEVATION (FT.)
	5									
26	5									
27	5		C-3	60/60	100			Same (1A)		
28	5									
29	5									
30								End of Boring at 29.5'		77.0
31										
32										
33										
34										
35										72.0
36										
37										
38										
39										
40										67.0
41										
42										
43										
44										
45										62.0
46										
47										
48										
49										
50										57.0
51										
52										
53										
54										
55										52.0

UNCONFINED COMPRESS. STRENGTH (TONS/FT) ◓ 1 2 3 4 5

PLASTIC LIMIT % ✕ — WATER CONTENT % ⊗ — LIQUID LIMIT % △ 10 20 30 40 50

● STANDARD PENETRATION (BLOWS/FT.) 10 20 30 40 50

REMARKS: Surface elevation estimated based on topographic data shown on the site survey prepared by Erlandsen -Crowell & Shaw, dated May 17, 2009. Depth to bedrock based on depth to roller-bit refusal. Weathered bedrock present at shallower depths.

TECTONIC *ENGINEERING & SURVEYING CONSULTANTS P.C.*

PROJECT No. **5466.01**

PROJECT: **Sugarhill Residential Project**

LOCATION: **New York, NY**

BORING No. B-5

SHEET No. 1 of 1

CLIENT: **Broadway Housing Development Fund Company, Inc**	GROUND WATER	DATE	TIME	DEPTH	INSPECTOR: **Adam Watson**
CONTRACTOR: **Craig Test Borings Co., Inc.**					DRILLER: **Joe Shuster**
METHOD OF ADVANCING BORING / DIA. / DEPTH					SURFACE ELEVATION: **107.0**
POWER AUGER: / TO	MON. WELL	☐ YES	☒ NO		DATUM: **See Remarks**
ROT. DRILL: **3 7/8"** **0** TO **4'**	SCREEN DEPTH: **---** TO **---**				DATE START: **3/26/10**
CASING: **4"** **0** TO **4'**	WEATHER:	TEMP: **55° F**			DATE FINISH: **3/29/10**
DIAMOND CORE: **NX** **4** TO **14'**	DEPTH TO ROCK: **2'**				
CME 55 Truck Rig with Auto Hammer	*CHANGES IN STRATA ARE INFERRED				

UNCONFINED COMPRESS. STRENGTH (TONS/FT): 1 2 3 4 5

PLASTIC LIMIT % / WATER CONTENT % / LIQUID LIMIT %: 10 20 30 40 50

STANDARD PENETRATION (BLOWS/FT.): 10 20 30 40 50

DEPTH (FT.)	N OR MIN./FT.	PENETRATION RESISTANCE (BL/6 IN.)	SAMPLE NUMBER	RECOV. LENGTH (IN.)	RECOV. RQD (%)	MOISTURE	UNIFIED SOIL CLASS.	DESCRIPTION OF MATERIAL	ELEVATION (FT.)
1	61+	8 11 50/1	S-1	5		M		5" Concrete Slab c-f GRAVEL (Subbase) (7) Bwn-gy c-f GRAVEL, some c-f Sand, little Silt (FILL) (Class 7)	
2	50+	50/3	S-2	0				No Recovery Competent Rock at 2' advance to 4' to facilitate coring mechanism	
3									
4									
5	5								102.0
6	5								
7	5		C-1	60/60	100			Gy, fresh to slightly weathered, slightly to moderately fractured, c-f grained, hard SCHIST, fracturing near horizontal (1A)	
8	5								
9	5								
10	5								97.0
11	5								
12	5		C-2	55/60	79			Gy, fresh to slightly weathered, moderately fractured, c-f grained, hard SCHIST, fracturing near horizontal (1B)	
13	5								
14	5								
15								End of Boring at 14'	92.0
16									
17									
18									
19									
20									87.0
21									
22									
23									
24									
25									82.0

REMARKS: Surface elevation estimated based on topographic data shown on the site survey prepared by Erlandsen -Crowell & Shaw, dated May 17, 2009. Weathered bedrock present at shallower depths.

TECTONIC *ENGINEERING & SURVEYING CONSULTANTS P.C.*

PROJECT No. **5466.01**
PROJECT: **Sugarhill Residential Project**
LOCATION: **New York, NY**

BORING No. B-6

SHEET No. 1 of 1

CLIENT: **Broadway Housing Development Fund Company, Inc**	GROUND WATER	DATE	TIME	DEPTH	INSPECTOR: **Adam Watson**
CONTRACTOR: **Craig Test Borings Co., Inc.**		**3/29/10**		**NE**	DRILLER: **Joe Shuster**
METHOD OF ADVANCING BORING / DIA. / DEPTH					SURFACE ELEVATION: **107.0**
POWER AUGER: / TO	MON. WELL	☐ YES	☒ NO		DATUM: **See Remarks**
ROT. DRILL: **3 7/8"** **0** TO **4'**	SCREEN DEPTH: **---** TO **---**				DATE START: **3/29/10**
CASING: **4"** **0** TO **4'**	WEATHER:	TEMP: **50° F**			DATE FINISH: **3/29/10**
DIAMOND CORE: **NX** **4** TO **14'**	DEPTH TO ROCK: **4'**				
CME 40C Skid Rig with Saftey Hammer	*CHANGES IN STRATA ARE INFERRED				

UNCONFINED COMPRESS. STRENGTH (TONS/FT): 1 2 3 4 5
PLASTIC LIMIT % — WATER CONTENT % — LIQUID LIMIT %: 10 20 30 40 50
STANDARD PENETRATION (BLOWS/FT.): 10 20 30 40 50

DEPTH (FT.)	N OR MIN./FT.	PENETRATION RESISTANCE (BL/6 IN.)	SAMPLE NUMBER	RECOV. LENGTH (IN.)	RECOV. RQD (%)	MOISTURE	UNIFIED SOIL CLASS.	DESCRIPTION OF MATERIAL	ELEVATION (FT.)
								4" Concrete slab	
1–2	29	7 8 21 50/3	S-1	10		M		Bwn c-f SAND, some c-f Gravel (FILL) (Brick) (7)	
3	50+	50/2	S-2	1		M	SM	Gy c-f SAND, and Silt (Weathered Bedrock) (3A)	
4								Bit Refusal @ 4'	
5–9	7 7 7 7 7		C-1	58/60	70			Gy, slightly weathered, slightly to highly fractured, c-f grained, hard, SCHIST, fracturing 45 degrees from horizontal (1B)	102.0
10–14	7 7 7 7 7		C-2	57/60	60			Same (1B)	97.0
15								End of Boring at 14'	92.0
20									87.0
25									82.0

REMARKS: Surface elevation estimated based on topographic data shown on the site survey prepared by Erlandsen -Crowell & Shaw, dated May 17, 2009. Depth to bedrock based on depth to roller-bit refusal. Weathered bedrock present at shallower depths.

TECTONIC *ENGINEERING & SURVEYING CONSULTANTS P.C.*

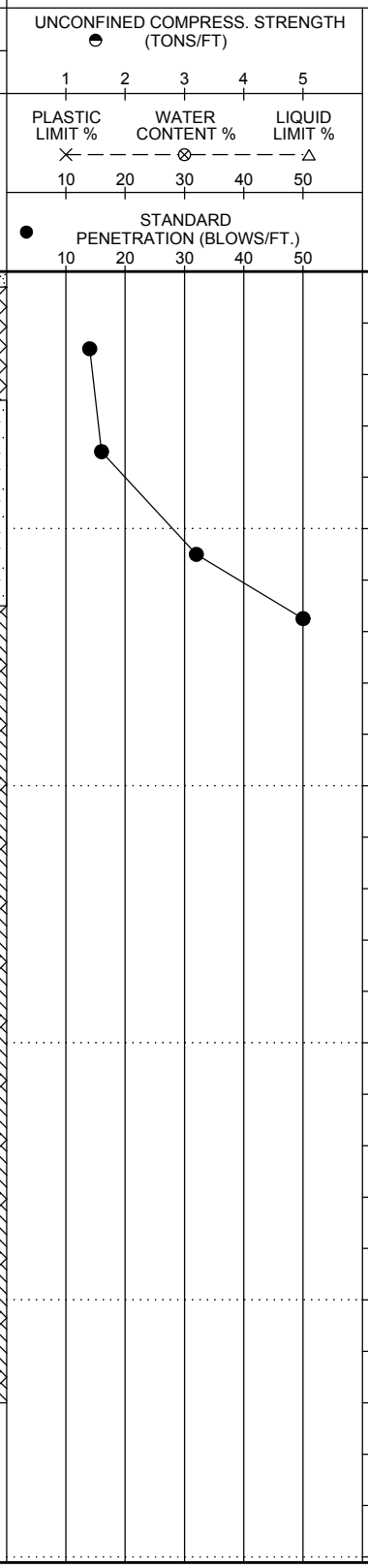
PROJECT No. **5466.01**
PROJECT: **Sugarhill Residential Project**
LOCATION: **New York, NY**

BORING No. B-7

SHEET No. 1 of 1

CLIENT: **Broadway Housing Development Fund Company, Inc**	GROUND WATER	DATE	TIME	DEPTH	INSPECTOR: **Adam Watson**
CONTRACTOR: **Craig Test Borings Co., Inc.**		**3/30/10**		**NE**	DRILLER: **Rob Dollar**
METHOD OF ADVANCING BORING / DIA. / DEPTH					SURFACE ELEVATION: **107.0**
POWER AUGER: / TO	MON. WELL	☐ YES	☒ NO		DATUM: **See Remarks**
ROT. DRILL: **3 7/8"** **0** TO **7'**	SCREEN DEPTH: **---** TO **---**				DATE START: **3/30/10**
CASING: **4"** **0** TO **5'**	WEATHER:	TEMP: **50° F**			DATE FINISH: **3/30/10**
DIAMOND CORE: **NX** **7** TO **22'**	DEPTH TO ROCK: **7'**				
CME 55 Truck Rig with Auto Hammer	*CHANGES IN STRATA ARE INFERRED				

DEPTH (FT.)	N OR MIN./FT.	PENETRATION RESISTANCE (BL/6 IN.)	SAMPLES: SAMPLE NUMBER	RECOV.: LENGTH (IN.)	RECOV.: RQD (%)	MOISTURE	UNIFIED SOIL CLASS.	DESCRIPTION OF MATERIAL	ELEVATION (FT.)
								Concrete slab	
1–2	14	7 8 6 6	S-1	6		M		Bwn c-f SAND, little f Gravel, little Silt (Class 7) (FILL)	
3–4	16	7 8 8 6	S-2	12		M	SM	Bwn m-f SAND, some Silt, little f Gravel (3B)	
5–6	32	7 18 14 28	S-3	20		M	SM	Bwn c-f SAND, some c-f Gravel, little Silt (3A)	102.0
7	50+	50/2	S-4					Bit Refusal @ 7'	
8–12	5 5 5 5 5		C-1	60/60	100			Gy, fresh, slightly to moderately fractured, c-f grained, hard, SCHIST, fracturing 45 degrees to horizontal (1A)	97.0
13–17	5 5 5 5 5		C-2	55/60	78			Gy, fresh to slightly weathered, slightly to moderately fractured, hard, SCHIST, fracturing mostly horizontal (1B)	92.0
18–22	5 5 5 5 5		C-3	60/60	88			Gy, fresh, slightly to moderately fractured, hard, SCHIST, fracturing horizontal to 45 degrees (1A)	87.0
23–25								End of Boring at 22'	82.0



REMARKS: Surface elevation estimated based on topographic data shown on the site survey prepared by Erlandsen -Crowell & Shaw, dated May 17, 2009. Depth to bedrock based on depth to roller-bit refusal. Weathered bedrock present at shallower depths.

TECTONIC

LEGEND FOR SOIL DESCRIPTION

COARSE GRAINED SOIL: (Coarser than No. 200 sieve)

DESCRIPTIVE TERM & GRAIN SIZE

TERM	SAND	GRAVEL
coarse - c	No. 4 Sieve to No. 10 Sieve	3" to 3/4"
medium - m	No. 10 Sieve to No. 40 Sieve	
fine - f	No. 40 Sieve to No. 200 Sieve	3/4" to 3/16"

COBBLES 3" to 10" **BOULDERS** 10" +

GRADATION DESIGNATIONS	PROPORTIONS OF COMPONENT
fine, f	Less than 10% coarse to medium
medium to fine, m-f	Less than 10% coarse
medium, m	Less than 10% coarse and fine
coarse to medium, c-m	less than 10% fine
coarse, c	Less than 10% medium and fine
coarse to fine, c-f	All greater than 10%

FINE GRAINED SOIL: (Finer than No. 200 Sieve)

DESCRIPTION	PLASTICITY INDEX	PLASTICITY
Silt	0 - 1	none
Clayey Silt	2 - 5	slight
Silt & Clay	6 - 10	low
Clay & Silt	11 - 20	medium
Silty Clay	21 - 40	high
Clay	greater than 40	very high

PROPORTION:

DESCRIPTIVE TERM	PERCENT OF SAMPLE WEIGHT
trace	1 - 10
little	10 - 20
some	20 - 35
and	35 - 50

The primary component is fully capitalized

COLOR:

Blue - blue	Gy - gray	Wh - white
Blk - black	Or - orange	Yl - yellow
Bwn - brown	Rd - red	Lgt - light
Gn - green	Tn - tan	Dk - dark

SAMPLE NOTATION:

S - Split Spoon Soil Sample
U - Undisturbed Tube Sample
C - Core Sample
B - Bulk Soil Sample
NR - No Recovery of Sample

WOC - Weight of Casing
WOR - Weight of Rods
WOH - Weight of Hammer
PPR - Compressive Strength based on Pocket Pentrometer
TV - Shear Strength (tsf) based on Torvane

ADDITIONAL CLASSIFICATIONS:

New York City Building Code soil classifications are given in parentheses at the end of each description of material, if applicable. See Sections 1804.2 of the 2008 Building Code for further details.

TECTONIC

LEGEND FOR SOIL DESCRIPTION

COARSE GRAINED SOIL: (Coarser than No. 200 sieve)

DESCRIPTIVE TERM & GRAIN SIZE

TERM	SAND	GRAVEL
coarse - c	No. 4 Sieve to No. 10 Sieve	3" to 3/4"
medium - m	No. 10 Sieve to No. 40 Sieve	
fine - f	No. 40 Sieve to No. 200 Sieve	3/4" to 3/16"

COBBLES 3" to 10" **BOULDERS** 10" +

GRADATION DESIGNATIONS	PROPORTIONS OF COMPONENT
fine, f	Less than 10% coarse to medium
medium to fine, m-f	Less than 10% coarse
medium, m	Less than 10% coarse and fine
coarse to medium, c-m	less than 10% fine
coarse, c	Less than 10% medium and fine
coarse to fine, c-f	All greater than 10%

FINE GRAINED SOIL: (Finer than No. 200 Sieve)

DESCRIPTION	PLASTICITY INDEX	PLASTICITY
Silt	0 - 1	none
Clayey Silt	2 - 5	slight
Silt & Clay	6 - 10	low
Clay & Silt	11 - 20	medium
Silty Clay	21 - 40	high
Clay	greater than 40	very high

PROPORTION:

DESCRIPTIVE TERM	PERCENT OF SAMPLE WEIGHT
trace	1 - 10
little	10 - 20
some	20 - 35
and	35 - 50

The primary component is fully capitalized

COLOR:

Blue - blue	Gy - gray	Wh - white
Blk - black	Or - orange	Yl - yellow
Bwn - brown	Rd - red	Lgt - light
Gn - green	Tn - tan	Dk - dark

SAMPLE NOTATION:

S - Split Spoon Soil Sample
U - Undisturbed Tube Sample
C - Core Sample
B - Bulk Soil Sample
NR - No Recovery of Sample

WOC - Weight of Casing
WOR - Weight of Rods
WOH - Weight of Hammer
PPR - Compressive Strength based on Pocket Pentrometer
TV - Shear Strength (tsf) based on Torvane

ADDITIONAL CLASSIFICATIONS:

New York City Building Code soil classifications are given in parentheses at the end of each description of material, if applicable. See Sections 1804.2 of the 2008 Building Code for further details.

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Practical Solutions, Exceptional Service

MONITORING WELL INSTALLATION LOG

PROJECT: Sugar Hill Residence W.O. #: 5466.01 WELL #: 1 BORING # 1

LOCATION: New York, NY DATE INSTALLED: 3/26/10

CONTRACTOR: Craig Test Borings TEC ENGINEER: Adam Watson

DIRECT MEASUREMENTS: CASING TO PVC: -1 CASING TO GROUND: Flush

SURFACE ELEV.: _____ PVC ELEV.: _____ PROTECTIVE CASING: Flush Mount

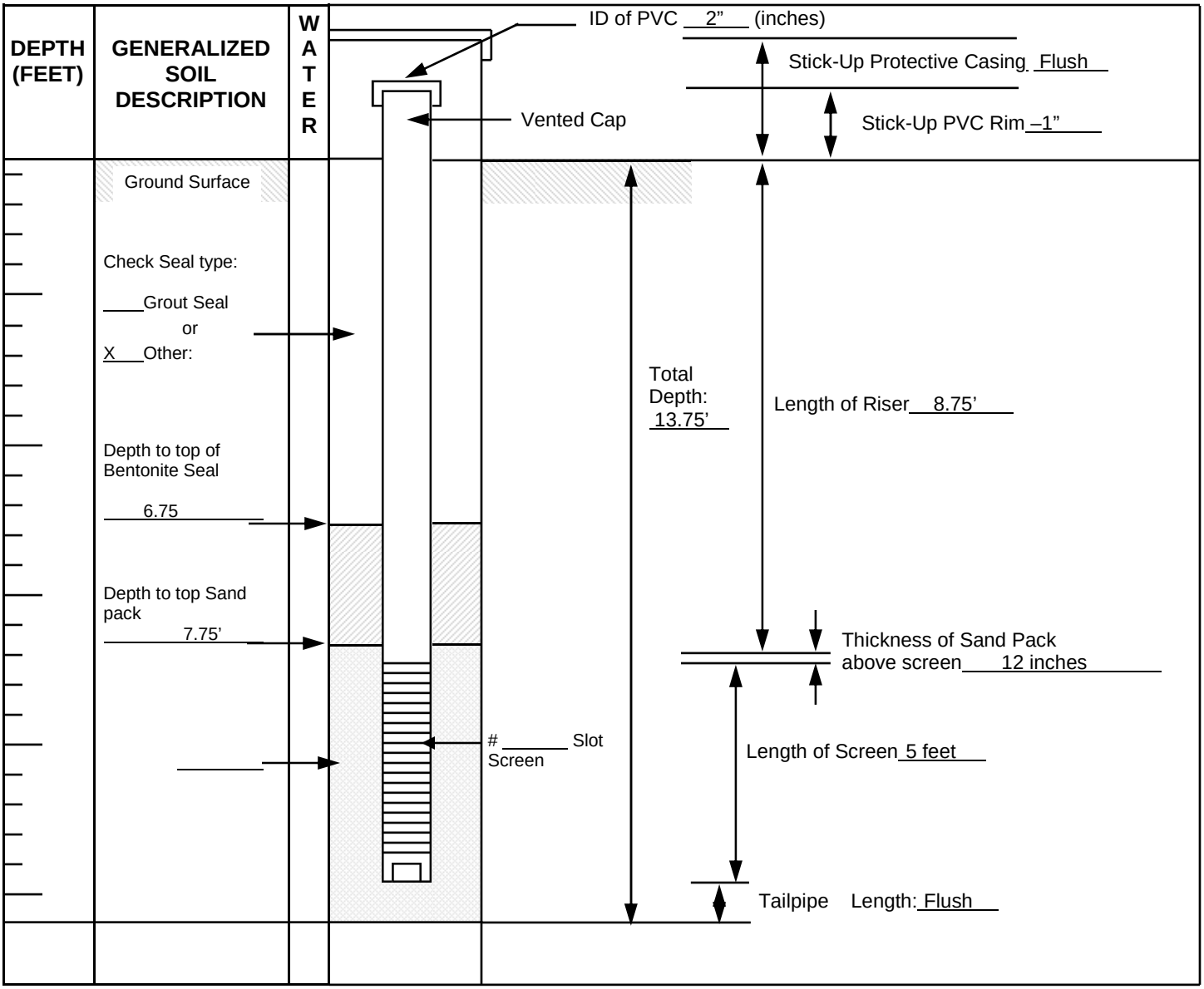
GROUNDWATER: DATE: 3/30/10 TIME: 9:05 am DEPTH: -3.5 ELEV.: _____

DATE: _____ TIME: _____ DEPTH: _____ ELEV.: _____

DEVELOPMENT: DATE: 3/30/10 RATE AND VOL. REMOVED: Run well dry

OBSERVATIONS: No Rever/Bent used only water used as drilling fluid

DEPTH (FEET)	GENERALIZED SOIL DESCRIPTION	WATER



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MONITORING WELL INSTALLATION LOG

PROJECT: Sugar Hill Residence W.O. #: 5466.01 WELL #: 1 BORING # 4A

LOCATION: New York, NY DATE INSTALLED: 3/29/10

CONTRACTOR: Craig Test Borings TEC ENGINEER: Adam Watson

DIRECT MEASUREMENTS: CASING TO PVC: 2" CASING TO GROUND: Flush

SURFACE ELEV.: _____ PVC ELEV.: _____ PROTECTIVE CASING: Flush Mount

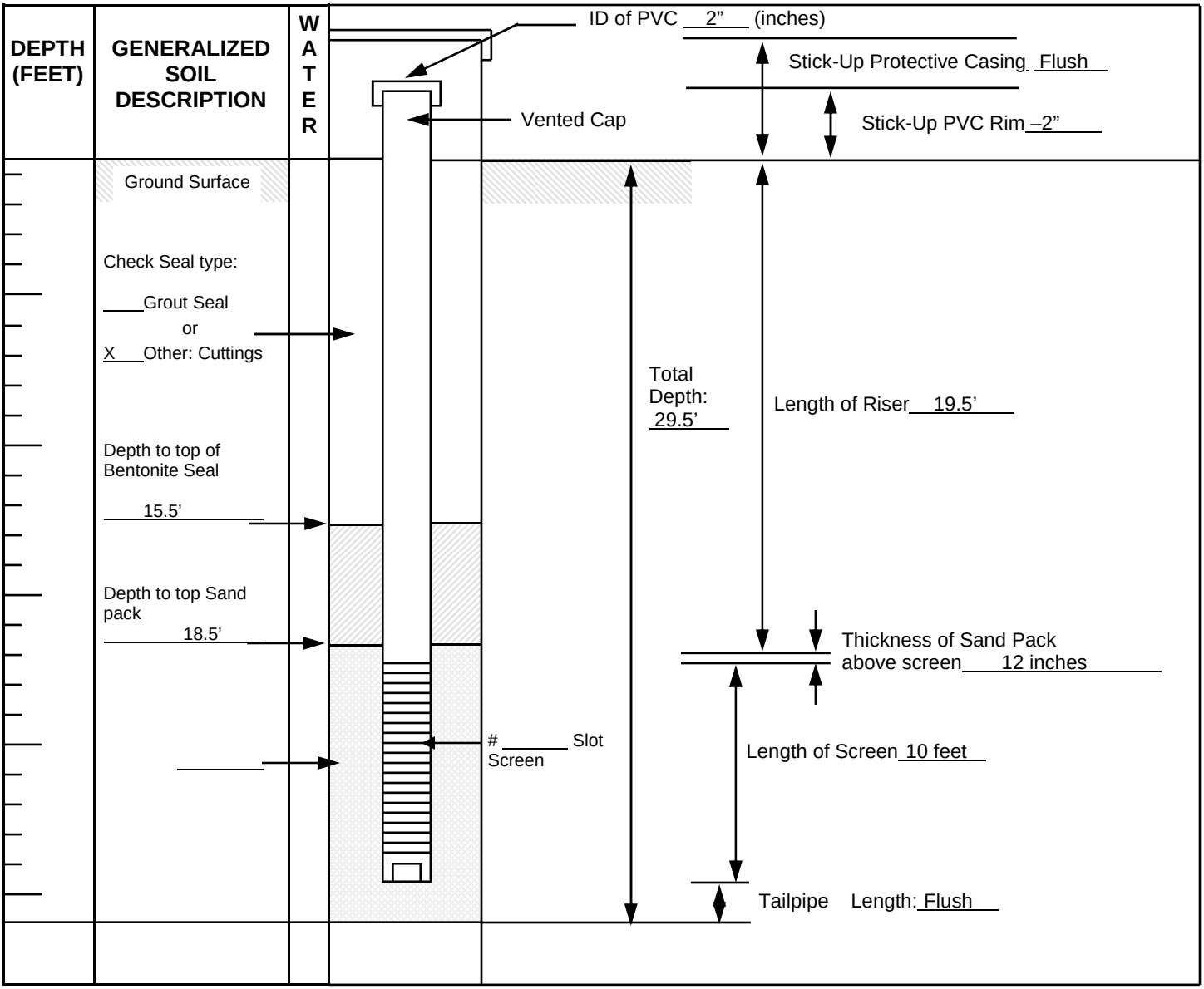
GROUNDWATER: DATE: 3/30/10 TIME: 9:00 am DEPTH: -5.75' ELEV.: _____

DATE: _____ TIME: _____ DEPTH: _____ ELEV.: _____

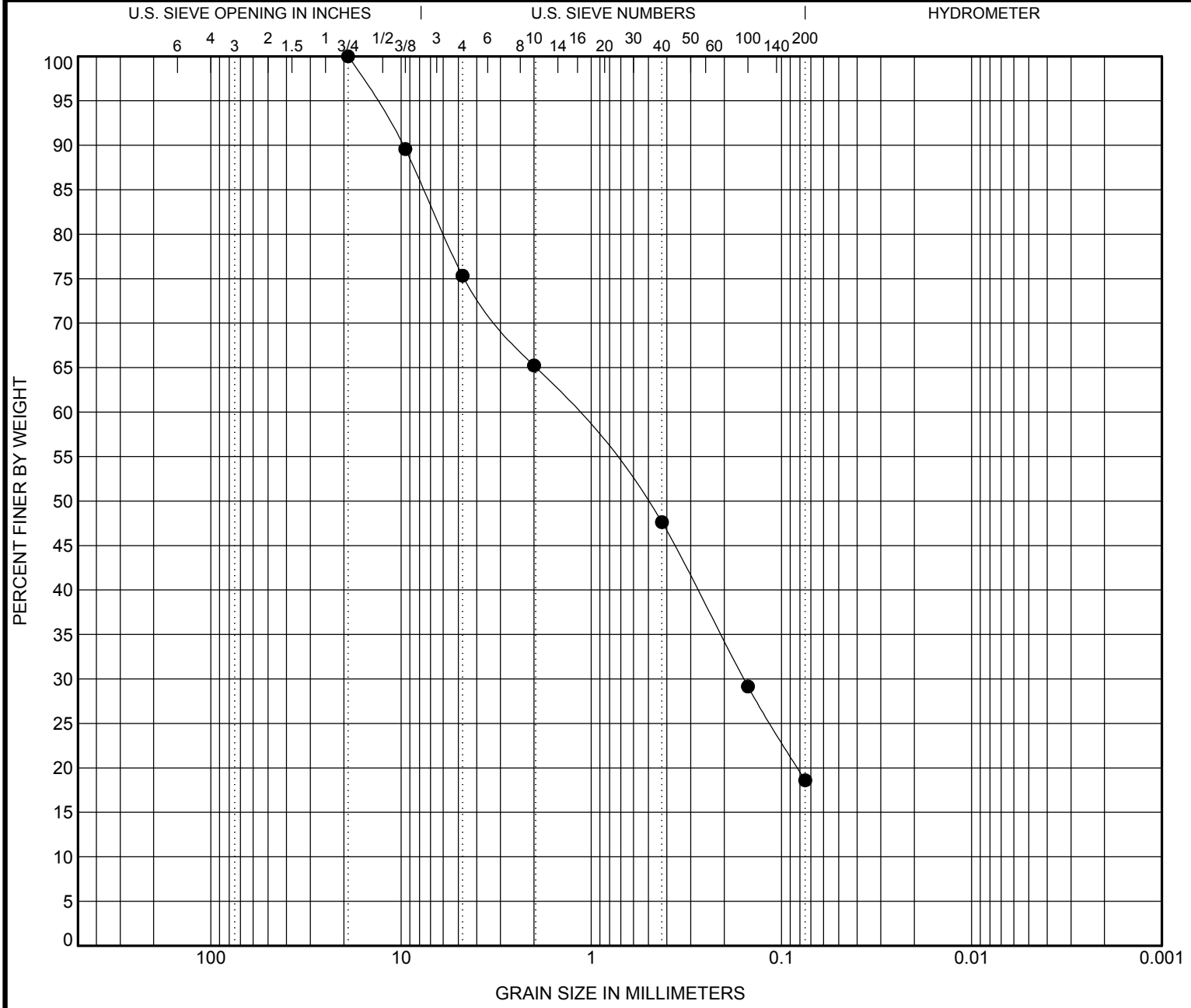
DEVELOPMENT: DATE: 3/29/10 RATE AND VOL. REMOVED: Pumped dry

OBSERVATIONS: Revert water used as drilling fluid

DEPTH (FEET)	GENERALIZED SOIL DESCRIPTION	WATER



APPENDIX II



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Sample Identification			Classification	WC%	LL	PL	PI	Cc	Cu
●	**B-2**	**0.5**	**S-1**	**Bwn c-f SAND, some f Gravel, little Silt**	**7.5**					

	Sample Identification			D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay	Source of Material
●	**B-2**	**0.5**	**S-1**	**19**	**1.262**	**0.157**		**24.7**	**56.7**	**18.6**		**Boring**

TECTONIC *ENGINEERING & SURVEYING CONSULTANTS P.C.*

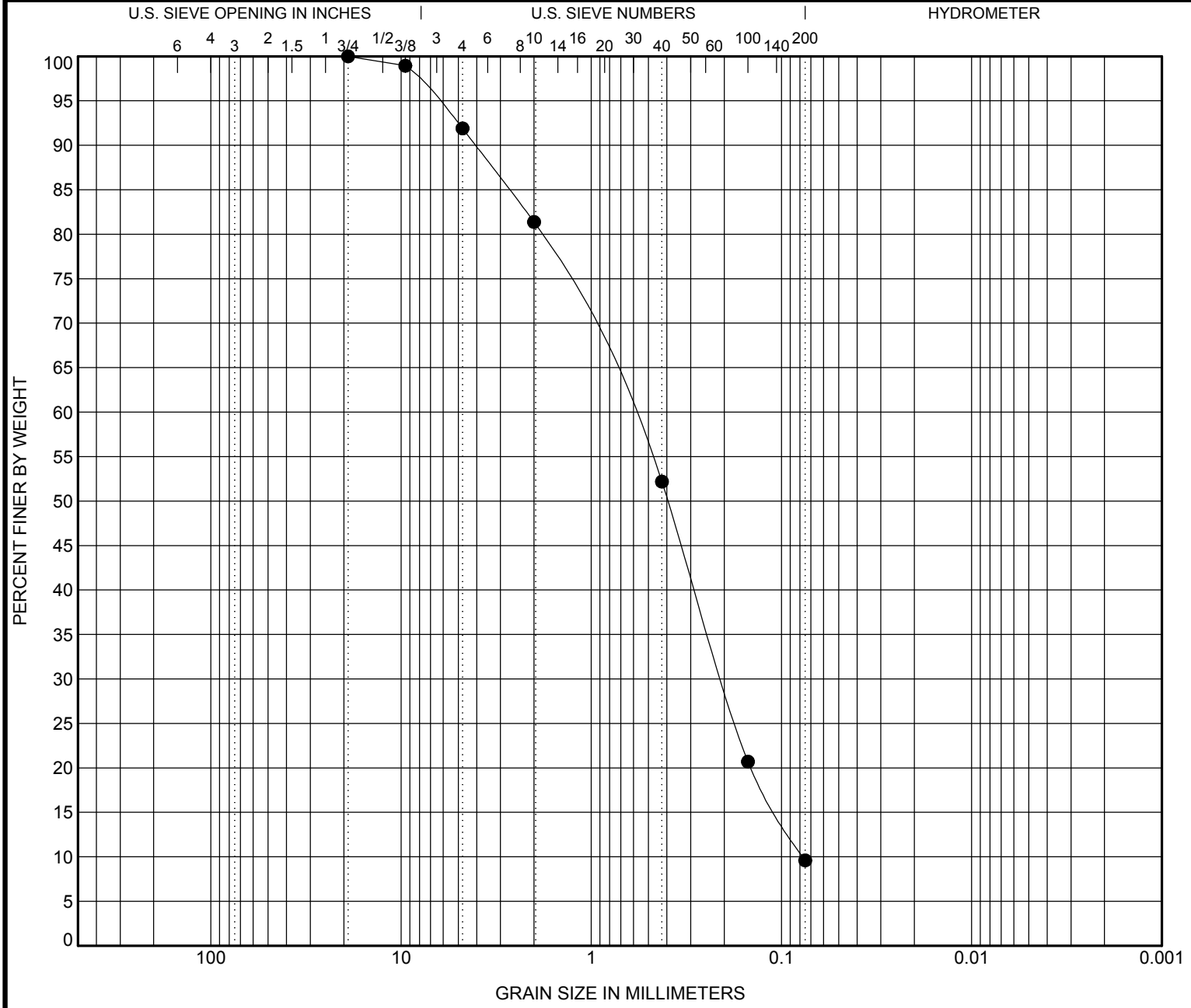
280 Little Britain Rd
Newburgh, NY 12550
Telephone: (845) 563-9081 Fax: (854) 563-9085

GRAIN SIZE DISTRIBUTION

Project No: **5466.01** Date: **5/5/10**

Project: **Sugarhill Residential Project**

Location: **New York, NY**



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Sample Identification			Classification	WC%	LL	PL	PI	Cc	Cu
●	**B-4A**	**6.5**	**S-4**	**Bwn c-f SAND, trace Silt, trace f Gravel**	**7.7**				**0.84**	**8.37**

	Sample Identification			D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay	Source of Material
●	**B-4A**	**6.5**	**S-4**	**19**	**0.644**	**0.204**	**0.077**	**8.1**	**82.3**	**9.6**		**Boring**

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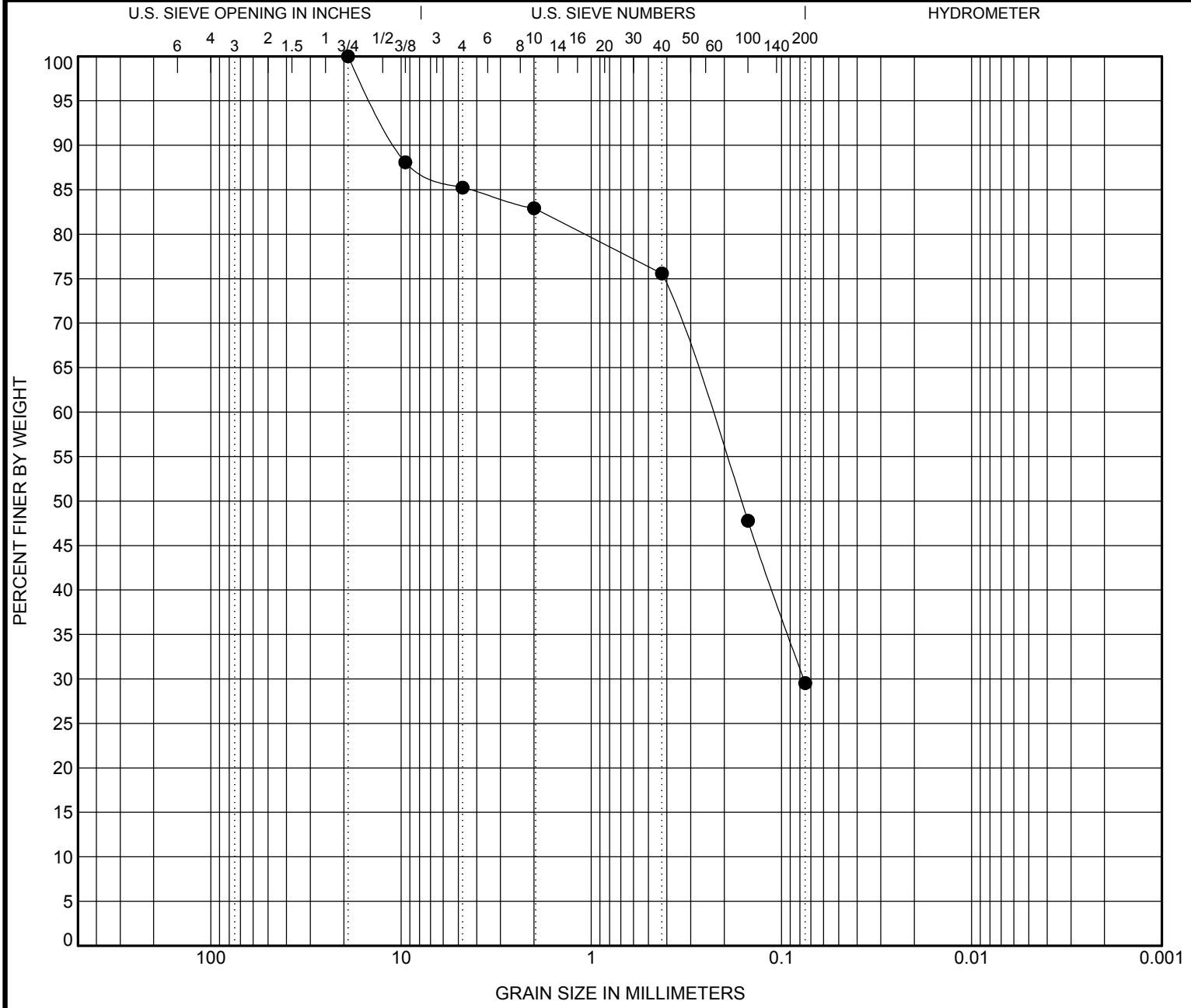
Newburgh, NY 12550
Telephone: (845) 563-9081 Fax: (854) 563-9085

GRAIN SIZE DISTRIBUTION

Project No: **5466.01** Date: **5/5/10**

Project: **Sugarhill Residential Project**

Location: **New York, NY**



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Sample Identification			Classification	WC%	LL	PL	PI	Cc	Cu
●	**B-7**	**2.5**	**S-2**	**Bwn m-f SAND, some Silt, little f Gravel**	**12.0**					

	Sample Identification			D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay	Source of Material
●	**B-7**	**2.5**	**S-2**	**19**	**0.237**	**0.076**		**14.8**	**55.7**	**29.5**		**Boring**

TECTONIC *ENGINEERING & SURVEYING CONSULTANTS P.C.*

280 Little Britain Rd
Newburgh, NY 12550
Telephone: (845) 563-9081 Fax: (854) 563-9085

GRAIN SIZE DISTRIBUTION

Project No: **5466.01** Date: **5/5/10**

Project: **Sugarhill Residential Project**

Location: **New York, NY**

PHOENIX

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

ACCREDITED IN ACCORDANCE WITH nelac NY # 11301

Analysis Report

May 12, 2010

FOR: Attn: Mr. Michael Miller
Tectonic Engineering
70 Pleasant Hill Road
Mountainville, NY 10953

Sample Information		Custody Information		Date	Time
Matrix:	SOIL	Collected by:		04/28/10	0:00
Location Code:	TECTONIC	Received by:	LDF	05/10/10	10:40
Rush Request:		Analyzed by:	see "By" below		
P.O.#:	5466.01				

Laboratory Data

SDG ID: GAZ02829
Phoenix ID: AZ02829

Project ID: SUGARHILL RESIDENTIAL

Client ID: S-5

Parameter	Result	RL	Units	Date	Time	By	Reference	
Percent Solid	92		%	05/10/10		m / JL	E160.3	
Chloride	130	11	mg/kg	05/11/10		B/E	9056	
pH - Soil	8.14	0.10	PH	05/10/10	23:00	EW/LK	4500-H B/9045	
Sulfate	44	11	mg/kg	05/11/10		B/E	9056	1

1 = This parameter is not certified by NY NELAC for this matrix. NY NELAC does not offer certification for all parameters.

Comments:

If there are any questions regarding this data, please call Phoenix Client Services at extension 200.

ND=Not detected BDL=Below Detection Level RL=Reporting Level

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Phyllis Shiller

Phyllis Shiller, Laboratory Director
May 13, 2010

PHOENIX

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

ACCREDITED IN ACCORDANCE WITH nelac NY # 11301

Analysis Report

May 12, 2010

FOR: Attn: Mr. Michael Miller
Tectonic Engineering
70 Pleasant Hill Road
Mountainville, NY 10953

Sample Information		Custody Information		Date	Time
Matrix:	SOIL	Collected by:		04/28/10	0:00
Location Code:	TECTONIC	Received by:	LDF	05/10/10	10:40
Rush Request:		Analyzed by:	see "By" below		
P.O.#:	5466.01				

Laboratory Data

SDG ID: GAZ02829
Phoenix ID: AZ02830

Project ID: SUGARHILL RESIDENTIAL

Client ID: S-3

Parameter	Result	RL	Units	Date	Time	By	Reference	
Percent Solid	91		%	05/10/10		m / JL	E160.3	
Chloride	380	11	mg/kg	05/11/10		B/E	9056	
pH - Soil	8.20	0.10	PH	05/10/10	23:00	EW/LK	4500-H B/9045	
Sulfate	46	11	mg/kg	05/11/10		B/E	9056	1

1 = This parameter is not certified by NY NELAC for this matrix. NY NELAC does not offer certification for all parameters.

Comments:

If there are any questions regarding this data, please call Phoenix Client Services at extension 200.

ND=Not detected BDL=Below Detection Level RL=Reporting Level

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Phyllis Shiller

Phyllis Shiller, Laboratory Director
May 13, 2010

PHOENIX

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

ACCREDITED IN ACCORDANCE WITH nelac NY # 11301

QA/QC Report

May 13, 2010

QA/QC Data

SDG I.D.: GAZ02829

Parameter	Blank	Dup RPD	LCS %	LCSD %	LCS RPD	MS Rec %	MS Dup Rec %	RPD
QA/QC Batch 153046, QC Sample No: AZ02846 (AZ02829, AZ02830)								
Chloride	BDL	0	98.0			99.7		
QA/QC Batch 153048, QC Sample No: AZ02846 (AZ02829, AZ02830)								
Nitrate as Nitrogen	BDL	0	99.3			103		
QA/QC Batch 153047, QC Sample No: AZ02846 (AZ02829, AZ02830)								
Nitrite as Nitrogen	BDL	NC	103			95.3		
QA/QC Batch 153049, QC Sample No: AZ02846 (AZ02829, AZ02830)								
Sulfate	BDL	NC	99.6			100		
QA/QC Batch 152921, QC Sample No: AZ02891 (AZ02829, AZ02830)								
pH - Soil		1.40	101					

If there are any questions regarding this data, please call Phoenix Client Services at extension 200.

RPD - Relative Percent Difference
LCS - Laboratory Control Sample
LCSD - Laboratory Control Sample Duplicate
MS - Matrix Spike
MS Dup - Matrix Spike Duplicate
NC - No Criteria

Phyllis Shiller, Laboratory Director
May 13, 2010

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Richmond, VA

BRANCH OFFICES: Located in principal cities throughout the United States

APPENDIX C:
GEOPHYSICAL SURVEY

GEOPHYSICAL INVESTIGATION REPORT

PERFORMED AT:

414 West 155th St.
New York, NY

PREPARED FOR:

Denise Degennaro
ATC
104 East 25th St.'
New York, NY

PREPARED BY:

Anthony Furchi
Geophysical Technician
Enviroprobe Service, Inc.
908 N Lenola Road
Moorestown, NJ 08057
(856) 858-8584
(800) 596-7472

November 15, 2010

1.0 INTRODUCTION

Enviroprobe Service, Inc. (Enviroprobe) is an environmental investigation services firm which provides monitoring well installation (HSA), Geoprobe (DPT) drilling services and Environmental & Engineering Geophysics (EEG) services to the environmental consulting and engineering community.

Enviroprobe conducted a subsurface geophysical investigation at the subject property within client-specified areas of concern. Due to conditions and objectives, the investigation utilized a Sensors & Software Inc. cart-mounted Ground Penetrating Radar (GPR) unit with a 250 MHz antenna, a Radiodetection RD4000T10 multi-frequency transmitter, a Radiodetection RD4000 receiver, and a Fisher TW-6 metallic locator.

Ground penetrating radar (commonly called GPR) is a geophysical method that has been developed over the past thirty years for shallow, high-resolution, subsurface investigations of the earth. GPR uses high frequency pulsed electromagnetic waves (generally 10 MHz to 2,000 MHz) to acquire subsurface information. An EM wave is propagated downward into the ground by a transmitting antenna. Where abrupt changes in electrical properties occur in the subsurface, a portion of the energy is reflected back to the surface. This reflected wave is detected by a receiver antenna and transmitted to a control unit for real time processing and display. The penetration depth of the unit varies from several inches to tens of feet according to site-specific conditions. The penetration depth decreases with increased soil conductivity. The penetration depth is the greatest in ice, dry sands, and fine gravels. Clayey, highly saline or saturated soils, areas covered by concrete, foundry slag, or other highly conductive materials greatly reduce GPR penetration. GPR is a method that is commonly used for environmental, engineering, archaeological, and other shallow investigations.

The Radiodetection (RD) transmitter and receiver are commonly used for pipe and cable locating. The multi-frequency transmitter can be directly connected, clamped, or used to induce a signal in a target line while the multi-frequency receiver is used to measure the signal from energized lines.

The Fisher TW-6 metallic locator is designed to find pipes, cables and other metallic objects such as underground storage tanks (USTs). The TW-6 transmitter generates an electromagnetic field that induces electrical currents in the subsurface. These currents produce a secondary electromagnetic field that is measured by the TW-6 receiver. One surveyor can carry both the transmitter and receiver together to search for underground metallic objects, although the TW-6 response can also be affected by the electrical properties of non-metallic materials in the subsurface.

2.0 SCOPE OF WORK

On November 3, 2010, a geophysical technician from Enviroprobe Service Inc. was mobilized to the subject property to perform a geophysical investigation. The purpose of this investigation was to detect possible USTs, designate underground conduits/utilities, and investigate proposed boring locations within client-specified portions of the subject property. The survey included areas around (7) proposed boring locations which were located on the basement level of the parking structure. The ground surface of the survey area consisted of concrete surfaces.

3.0 SURVEY RESULTS

The survey was conducted using a cart-mounted GPR unit, a Fisher TW-6 metallic locator, and a RD unit. The RD unit was used to trace common utilities from sources in and around the survey area. The RD receiver was also used in the passive mode to search for live underground electrical power cables and other utilities emitting 60Hz electromagnetic signals. When possible, the locations of utilities were confirmed with the GPR. Whenever possible and necessary, the manhole covers in and around the survey area were opened and the manholes were visually inspected for underground utilities. A GPR survey was also performed in a grid pattern in at least two orthogonal directions to search for underground utilities. Designated utilities were marked on-site with spray paint using the following colors; green – storm drain and sanitary sewer, and pink – unknown utility.

The GPR and TW-6 were used in a grid pattern over all client-specified areas of the property. Based on the results of the TW-6 survey, there was one area of concern (AOC) designated and marked as AOC #1. This AOC measured approximately 6 ft by 8 ft and was located on the northwest corner of the site. Due to near surface signal loss, it could not be determined with the GPR whether the area were consistent with an UST. When performing an investigation with the TW-6, this area produced positive metallic results. The approximate extent of this anomaly was designated on-site with pink spray paint.

Seven proposed boring locations were investigated with the GPR, TW-6, and RD receiver. When possible, an area of approximately 10 ft by 10 ft surrounding each boring location was scanned. In some cases, obstructions prevented an investigation of the entire 10 ft by 10 ft area. All designated anomalies were marked on-site with spray paint.

4.0 LIMITATIONS

Due to surface conditions and subsurface content, the GPR signal penetration was estimated at 2 feet in the majority of the survey area.

The TW-6 survey was kept up to 6 feet away from aboveground objects containing metals depending on the sizes, shapes and positions of the metal objects. The TW-6 survey was not effective in areas with reinforced concrete.

Due to the dielectric properties of the subsurface, plastic polymer and fiberglass utilities may not have been detected.

All field services were conducted in compliance with the industry standard of care guidelines found in ASCE 38-02 (Level B).

5.0 WARRANTIES

The field observations and measurements reported herein are considered sufficient in detail and scope for this project. Enviroprobe Service, Inc. warrants that the findings and conclusions contained herein have been promulgated in accordance with generally accepted environmental engineering methods. There is a possibility that conditions may exist which could not be identified within the scope of this project and were not apparent during the site activities performed for this project.

Enviroprobe represents that the services were performed in a manner consistent with that level of care and skill ordinarily exercised by environmental consultants under similar circumstances. No other representations to Client, express or implied, and no warranty or guarantee is included or intended in this agreement, or in any report, document, or otherwise.

Enviroprobe Service, Inc. believes that the information provided in this report is reliable. However, Enviroprobe cannot warrant or guarantee that the information provided by others is complete or accurate. No other warranties or guarantees are implied or expressed.

GPR data is subject to signal anomalies and operator interpretation. The GPR data is intended to provide the locations of areas of concern requiring additional investigation or the approximate location of underground structures and utilities. Great care must be utilized when excavating and/or drilling around underground structures and utilities since GPR data can only be used for estimation purposes and GPR data is subject to misinterpretation. Enviroprobe can not guarantee that utilities, post-tension cables, and/or rebar will not be incurred during drilling, cutting, coring, or excavating activities.

This report was prepared pursuant to the contract Enviroprobe has with the Client. That contractual relationship included an exchange of information about the property that was unique and between Enviroprobe and its client and serves as the basis upon which this report was prepared. Because of the importance of the communication between Enviroprobe and its client, reliance or any use of this report by anyone other than the Client, for whom it was prepared, is prohibited and therefore not foreseeable to Enviroprobe.

Reliance or use by any such third party without explicit authorization in the report does not make said third party a third party beneficiary to Enviroprobe contract with the Client. Any such unauthorized reliance on or use of this report, including any of its information or conclusions, will be at the third party's risk. For the same reasons, no warranties or representations, expressed or implied in this report, are made to any such third party.

APPENDIX D:
LABORATORY ANALYTICAL RESULTS

Please Reply To:

AmeriSci Boston
Eight School Street
Weymouth, MA 02189
TEL:(781)337-9334 FAX:(781)337-7642

To: Ms. Denise DeGennaro
ATC Associates

AmeriSci Job# 1011-00078
Subject: PARKING GARAGE

Fax # 212-979-8447

Email: DENISE.DEGENNARO@ATCASSOCIATES.COM

Date: Friday, November 12, 2010

Time: 3:09:37PM

Comments: This report contains a total of 55 pages, including the cover sheet, laboratory report, chain of custody, airbill, sample receiving form, and any other correspondence related to this work order.

CONFIDENTIALITY NOTICE: Unless otherwise indicated, the information contained in this communication is confidential information intended for the use of the individual named above. If the reader of this communication is not the intended recipient, you are hereby notified that any dissemination, distribution or copying of this communication is prohibited. If you have received this communication in error, please immediately notify the sender by telephone and return the original message to the above address via US Postal Service at our expense. Preliminary data reported here will be verified before final report is issued. Samples are disposed of in 60 days unless otherwise instructed by the protocol or special instructions in writing. Thank you.

AmeriSci Boston
Eight School Street
Weymouth, MA 02189
781-337-9334

Laboratory Report

Report Date 11/12/2010
Workorder No. 1011-00078

Customer: ATC Associates
104 East 25th Street
New York, NY 10010

Attention: Ms. Denise DeGennaro
Subject: PARKING GARAGE

Sample: 001 SB01 (0-1)
Collection Date: 11/04/2010 Time: 10:05:00AM **Received Date: 11/05/2010 Time: 10:00:00AM**
Matrix: SOIL

Parameter	Method	Results	Units	PQL	Tech	Analysis Date/Time	Qual
TAL Metals-Soil/Solid							
Antimony	6010B, SW-846	ND	mg/Kg	3.8	*PH	11/11/2010 / 12:24	
Aluminum	6010B, SW-846	10200	mg/Kg	57	*PH	11/11/2010 / 12:24	
Arsenic	6010B, SW-846	1.3	mg/Kg	0.8	*PH	11/11/2010 / 12:24	
Barium	6010B, SW-846	49.4	mg/Kg	0.38	*PH	11/11/2010 / 12:24	
Beryllium	6010B, SW-846	0.37	mg/Kg	0.30	*PH	11/11/2010 / 12:24	
Cadmium	6010B, SW-846	ND	mg/Kg	0.38	*PH	11/11/2010 / 12:24	
Chromium	6010B, SW-846	12.9	mg/Kg	0.38	*PH	11/11/2010 / 12:24	
Calcium	6010B, SW-846	29100	mg/Kg	57	*PH	11/11/2010 / 12:24	
Iron	6010B, SW-846	17600	mg/Kg	57	*PH	11/11/2010 / 12:24	
Cobalt	6010B, SW-846	5.71	mg/Kg	0.38	*PH	11/11/2010 / 12:24	
Copper	6010B, SW-846	24.2	mg/Kg	0.38	*PH	11/11/2010 / 12:24	
Lead	6010B, SW-846	43.1	mg/Kg	0.38	*PH	11/11/2010 / 12:24	
Magnesium	6010B, SW-846	15700	mg/Kg	57	*PH	11/11/2010 / 12:24	
Manganese	6010B, SW-846	274	mg/Kg	0.38	*PH	11/11/2010 / 12:24	
Mercury	SW-846; 7471A	ND	mg/Kg	0.09	*PH	11/11/2010 / 12:27	
Nickel	6010B, SW-846	11.7	mg/Kg	0.38	*PH	11/11/2010 / 12:27	
Vanadium	6010B, SW-846	19.4	mg/Kg	0.38	*PH	11/11/2010 / 12:27	
Selenium	6010B, SW-846	ND	mg/Kg	1.5	*PH	11/11/2010 / 12:27	
Potassium	6010B, SW-846	1530	mg/Kg	5.7	*PH	11/11/2010 / 12:27	
Silver	6010B, SW-846	ND	mg/Kg	0.38	*PH	11/11/2010 / 12:27	
Sodium	6010B, SW-846	836	mg/Kg	5.7	*PH	11/11/2010 / 12:27	
Thallium	6010B, SW-846	ND	mg/Kg	3.4	*PH	11/11/2010 / 12:27	
Zinc	6010B, SW-846	41.1	mg/Kg	0.38	*PH	11/11/2010 / 12:27	
VOC 8260-Soil/Solid/Oil							

Customer: ATC Associates

Workorder No. 1011-00078

Sample: 001 SB01 (0-1)
(Continued)

Parameter	Method	Results	Units	PQL	Tech	Analysis Date/Time	Qual
Dichlorodifluoromethane	EPA 8260B	ND	ug/Kg	5.6	*PH	11/06/2010 / 15:59	
Vinyl Chloride	EPA 8260B	ND	ug/Kg	5.6	*PH	11/06/2010 / 15:59	
Chloromethane	EPA 8260B	ND	ug/Kg	5.6	*PH	11/06/2010 / 15:59	
Bromomethane	EPA 8260B	ND	ug/Kg	5.6	*PH	11/06/2010 / 15:59	
Chloroethane	EPA 8260B	ND	ug/Kg	5.6	*PH	11/06/2010 / 15:59	
Trichlorofluoromethane	EPA 8260B	ND	ug/Kg	5.6	*PH	11/06/2010 / 15:59	
Acrolein	EPA 8260B	ND	ug/Kg	56	*PH	11/06/2010 / 15:59	
Acetone	EPA 8260B	ND	ug/Kg	28	*PH	11/06/2010 / 15:59	
1,1-Dichloroethylene	EPA 8260B	ND	ug/Kg	5.6	*PH	11/06/2010 / 15:59	
Iodomethane	EPA 8260B	ND	ug/Kg	56	*PH	11/06/2010 / 15:59	
Carbon Disulfide	EPA 8260B	ND	ug/Kg	5.6	*PH	11/06/2010 / 15:59	
Methylene Chloride	EPA 8260B	ND	ug/Kg	5.6	*PH	11/06/2010 / 15:59	
Acrylonitrile	EPA 8260B	ND	ug/Kg	11	*PH	11/06/2010 / 15:59	
Methyl-Tert-Butyl-Ether	EPA 8260B	ND	ug/Kg	11	*PH	11/06/2010 / 15:59	
trans-1,2-Dichloroethylene	EPA 8260B	ND	ug/Kg	5.6	*PH	11/06/2010 / 15:59	
1,1-Dichloroethane	EPA 8260B	ND	ug/Kg	5.6	*PH	11/06/2010 / 15:59	
2-Butanone-(MEK)	EPA 8260B	ND	ug/Kg	28	*PH	11/06/2010 / 15:59	
Vinyl Acetate	EPA 8260B	ND	ug/Kg	56	*PH	11/06/2010 / 15:59	
2,2-Dichloropropane	EPA 8260B	ND	ug/Kg	5.6	*PH	11/06/2010 / 15:59	
cis-1,2-Dichloroethylene	EPA 8260B	ND	ug/Kg	5.6	*PH	11/06/2010 / 15:59	
Chloroform	EPA 8260B	ND	ug/Kg	5.6	*PH	11/06/2010 / 15:59	
Bromochloromethane	EPA 8260B	ND	ug/Kg	5.6	*PH	11/06/2010 / 15:59	
1,1,1-Trichloroethane	EPA 8260B	ND	ug/Kg	5.6	*PH	11/06/2010 / 15:59	
1,1-Dichloropropene	EPA 8260B	ND	ug/Kg	5.6	*PH	11/06/2010 / 15:59	
Carbon Tetrachloride	EPA 8260B	ND	ug/Kg	5.6	*PH	11/06/2010 / 15:59	
Benzene	EPA 8260B	ND	ug/Kg	5.6	*PH	11/06/2010 / 15:59	
1,2-Dichloroethane	EPA 8260B	ND	ug/Kg	5.6	*PH	11/06/2010 / 15:59	
Trichloroethylene	EPA 8260B	ND	ug/Kg	5.6	*PH	11/06/2010 / 15:59	
1,2-Dichloropropane	EPA 8260B	ND	ug/Kg	5.6	*PH	11/06/2010 / 15:59	
4-Methyl-2-Pentanone (MIBK)	EPA 8260B	ND	ug/Kg	28	*PH	11/06/2010 / 15:59	
2-Chloroethyl vinyl ether	EPA 8260B	ND	ug/Kg	56	*PH	11/06/2010 / 15:59	
cis-1,3-Dichloropropene	EPA 8260B	ND	ug/Kg	5.6	*PH	11/06/2010 / 15:59	
Toluene	EPA 8260B	ND	ug/Kg	5.6	*PH	11/06/2010 / 15:59	
trans-1,3-Dichloropropene	EPA 8260B	ND	ug/Kg	5.6	*PH	11/06/2010 / 15:59	

Customer: ATC Associates

Workorder No. 1011-00078

Sample: 001 SB01 (0-1)
(Continued)

Parameter	Method	Results	Units	PQL	Tech	Analysis Date/Time	Qual
Bromodichloromethane	EPA 8260B	ND	ug/Kg	5.6	*PH	11/06/2010 / 15:59	
Dibromomethane	EPA 8260B	ND	ug/Kg	5.6	*PH	11/06/2010 / 15:59	
1,1,2-Trichloroethane	EPA 8260B	ND	ug/Kg	5.6	*PH	11/06/2010 / 15:59	
1,2-Dibromoethane	EPA 8260B	ND	ug/Kg	5.6	*PH	11/06/2010 / 15:59	
2-Hexanone	EPA 8260B	ND	ug/Kg	28	*PH	11/06/2010 / 15:59	
1,3-Dichloropropane	EPA 8260B	ND	ug/Kg	5.6	*PH	11/06/2010 / 15:59	
Tetrachloroethylene	EPA 8260B	ND	ug/Kg	5.6	*PH	11/06/2010 / 15:59	
Dibromochloromethane	EPA 8260B	ND	ug/Kg	5.6	*PH	11/06/2010 / 15:59	
Chlorobenzene	EPA 8260B	ND	ug/Kg	5.6	*PH	11/06/2010 / 15:59	
1,1,1,2-Tetrachloroethane	EPA 8260B	ND	ug/Kg	5.6	*PH	11/06/2010 / 15:59	
Ethylbenzene	EPA 8260B	ND	ug/Kg	5.6	*PH	11/06/2010 / 15:59	
M/P-Xylene	EPA 8260B	ND	ug/Kg	5.6	*PH	11/06/2010 / 15:59	
O-Xylene	EPA 8260B	ND	ug/Kg	5.6	*PH	11/06/2010 / 15:59	
Styrene	EPA 8260B	ND	ug/Kg	5.6	*PH	11/06/2010 / 15:59	
Bromoform	EPA 8260B	ND	ug/Kg	5.6	*PH	11/06/2010 / 15:59	
Isopropylbenzene	EPA 8260B	ND	ug/Kg	5.6	*PH	11/06/2010 / 15:59	
1,1,2,2-Tetrachloroethane	EPA 8260B	ND	ug/Kg	5.6	*PH	11/06/2010 / 15:59	
1,2,3-Trichloropropane	EPA 8260B	ND	ug/Kg	5.6	*PH	11/06/2010 / 15:59	
n-Propylbenzene	EPA 8260B	ND	ug/Kg	5.6	*PH	11/06/2010 / 15:59	
trans-1,4-Dichloro-2-butene	EPA 8260B	ND	ug/Kg	11	*PH	11/06/2010 / 15:59	
Bromobenzene	EPA 8260B	ND	ug/Kg	5.6	*PH	11/06/2010 / 15:59	
2-Chlorotoluene	EPA 8260B	ND	ug/Kg	5.6	*PH	11/06/2010 / 15:59	
1,3,5-Trimethylbenzene	EPA 8260B	ND	ug/Kg	5.6	*PH	11/06/2010 / 15:59	
4-Chlorotoluene	EPA 8260B	ND	ug/Kg	5.6	*PH	11/06/2010 / 15:59	
tert-Butylbenzene	EPA 8260B	ND	ug/Kg	5.6	*PH	11/06/2010 / 15:59	
1,2,4-Trimethylbenzene	EPA 8260B	ND	ug/Kg	5.6	*PH	11/06/2010 / 15:59	
sec-Butylbenzene	EPA 8260B	ND	ug/Kg	5.6	*PH	11/06/2010 / 15:59	
4-Isopropyltoluene	EPA 8260B	ND	ug/Kg	5.6	*PH	11/06/2010 / 15:59	
1,3-Dichlorobenzene	EPA 8260B	ND	ug/Kg	5.6	*PH	11/06/2010 / 15:59	
1,4-Dichlorobenzene	EPA 8260B	ND	ug/Kg	5.6	*PH	11/06/2010 / 15:59	
n-Butylbenzene	EPA 8260B	ND	ug/Kg	5.6	*PH	11/06/2010 / 15:59	
1,2-Dichlorobenzene	EPA 8260B	ND	ug/Kg	5.6	*PH	11/06/2010 / 15:59	
1,2-Dibromo-3-Chloropropane	EPA 8260B	ND	ug/Kg	5.6	*PH	11/06/2010 / 15:59	
1,2,4-Trichlorobenzene	EPA 8260B	ND	ug/Kg	5.6	*PH	11/06/2010 / 15:59	

Customer: ATC Associates

Workorder No. 1011-00078

Sample: 001 SB01 (0-1)
(Continued)

Parameter	Method	Results	Units	PQL	Tech	Analysis Date/Time	Qual
Hexachlorobutadiene	EPA 8260B	ND	ug/Kg	5.6	*PH	11/06/2010 / 15:59	
Naphthalene	EPA 8260B	ND	ug/Kg	5.6	*PH	11/06/2010 / 15:59	
1,2,3-Trichlorobenzene	EPA 8260B	ND	ug/Kg	5.6	*PH	11/06/2010 / 15:59	
DIBROMOFLUOROMETHANE (SURR)		95	%		*PH	11/06/2010 / 15:59	
TOLUENE-D8 (SURROGATE)		93	%		*PH	11/06/2010 / 15:59	
4-BROMOFLUOROBENZENE (SURR)		84	%		*PH	11/06/2010 / 15:59	
TCL SEMIVOLATILE-SOILS							
bis(2-Chloroethyl)ether	EPA 8270C	ND	ug/Kg	180	TLL	11/10/2010 / 17:52	
Phenol	EPA 8270C	ND	ug/Kg	180	TLL	11/10/2010 / 17:52	
2-Chlorophenol	EPA 8270C	ND	ug/Kg	180	TLL	11/10/2010 / 17:52	
1,3-Dichlorobenzene	EPA 8270C	ND	ug/Kg	180	TLL	11/10/2010 / 17:52	
1,4-Dichlorobenzene	EPA 8270C	ND	ug/Kg	180	TLL	11/10/2010 / 17:52	
1,2-Dichlorobenzene	EPA 8270C	ND	ug/Kg	180	TLL	11/10/2010 / 17:52	
2,2'-oxybis(1-Chloropropane	EPA 8270C	ND	ug/Kg	180	TLL	11/10/2010 / 17:52	
2-Methyl Phenol	EPA 8270C	ND	ug/Kg	180	TLL	11/10/2010 / 17:52	
Hexachloroethane	EPA 8270C	ND	ug/Kg	180	TLL	11/10/2010 / 17:52	
N-Nitroso-di-n-propylamine	EPA 8270C	ND	ug/Kg	180	TLL	11/10/2010 / 17:52	
3&4-Methyl Phenol	EPA 8270C	ND	ug/Kg	370	TLL	11/10/2010 / 17:52	
Nitrobenzene	EPA 8270C	ND	ug/Kg	180	TLL	11/10/2010 / 17:52	
Isophorone	EPA 8270C	ND	ug/Kg	180	TLL	11/10/2010 / 17:52	
2-Nitrophenol	EPA 8270C	ND	ug/Kg	180	TLL	11/10/2010 / 17:52	
2,4-Dimethylphenol	EPA 8270C	ND	ug/Kg	180	TLL	11/10/2010 / 17:52	
bis(2-Chloroethoxy)methane	EPA 8270C	ND	ug/Kg	180	TLL	11/10/2010 / 17:52	
2,4-Dichlorophenol	EPA 8270C	ND	ug/Kg	180	TLL	11/10/2010 / 17:52	
1,2,4-Trichlorobenzene	EPA 8270C	ND	ug/Kg	180	TLL	11/10/2010 / 17:52	
Naphthalene	EPA 8270C	ND	ug/Kg	180	TLL	11/10/2010 / 17:52	
4-Chloroaniline	EPA 8270C	ND	ug/Kg	180	TLL	11/10/2010 / 17:52	
Hexachlorobutadiene	EPA 8270C	ND	ug/Kg	180	TLL	11/10/2010 / 17:52	
4-Chloro-3-methylphenol	EPA 8270C	ND	ug/Kg	180	TLL	11/10/2010 / 17:52	
2-Methyl Naphthalene	EPA 8270C	ND	ug/Kg	180	TLL	11/10/2010 / 17:52	
Hexachlorocyclopentadiene	EPA 8270C	ND	ug/Kg	180	TLL	11/10/2010 / 17:52	
2-Chloronaphthalene	EPA 8270C	ND	ug/Kg	180	TLL	11/10/2010 / 17:52	
2,4,6-Trichlorophenol	EPA 8270C	ND	ug/Kg	180	TLL	11/10/2010 / 17:52	
2,4,5-Trichlorophenol	EPA 8270C	ND	ug/Kg	180	TLL	11/10/2010 / 17:52	

Customer: ATC Associates

Workorder No. 1011-00078

Sample: 001 SB01 (0-1)
(Continued)

Parameter	Method	Results	Units	PQL	Tech	Analysis Date/Time	Qual
2-Nitroaniline	EPA 8270C	ND	ug/Kg	180	TLL	11/10/2010 / 17:52	
Acenaphthylene	EPA 8270C	ND	ug/Kg	180	TLL	11/10/2010 / 17:52	
Dimethyl Phthalate	EPA 8270C	ND	ug/Kg	180	TLL	11/10/2010 / 17:52	
2,6-Dinitrotoluene	EPA 8270C	ND	ug/Kg	180	TLL	11/10/2010 / 17:52	
Acenaphthene	EPA 8270C	ND	ug/Kg	180	TLL	11/10/2010 / 17:52	
3-Nitroaniline	EPA 8270C	ND	ug/Kg	180	TLL	11/10/2010 / 17:52	
2,4-Dinitrophenol	EPA 8270C	ND	ug/Kg	730	TLL	11/10/2010 / 17:52	
Dibenzofuran	EPA 8270C	ND	ug/Kg	180	TLL	11/10/2010 / 17:52	
2,4-Dinitrotoluene	EPA 8270C	ND	ug/Kg	180	TLL	11/10/2010 / 17:52	
4-Nitrophenol	EPA 8270C	ND	ug/Kg	180	TLL	11/10/2010 / 17:52	
Fluorene	EPA 8270C	ND	ug/Kg	180	TLL	11/10/2010 / 17:52	
4-Chlorophenyl Phenyl Ether	EPA 8270C	ND	ug/Kg	180	TLL	11/10/2010 / 17:52	
Diethyl Phthalate	EPA 8270C	ND	ug/Kg	180	TLL	11/10/2010 / 17:52	
4-Nitroaniline	EPA 8270C	ND	ug/Kg	180	TLL	11/10/2010 / 17:52	
2-Methyl-4,6-dinitrophenol	EPA 8270C	ND	ug/Kg	180	TLL	11/10/2010 / 17:52	
N-Nitrosodiphenylamine	EPA 8270C	ND	ug/Kg	180	TLL	11/10/2010 / 17:52	
4-Bromophenyl Phenyl Ether	EPA 8270C	ND	ug/Kg	180	TLL	11/10/2010 / 17:52	
Hexachlorobenzene	EPA 8270C	ND	ug/Kg	180	TLL	11/10/2010 / 17:52	
Pentachlorophenol	EPA 8270C	ND	ug/Kg	370	TLL	11/10/2010 / 17:52	
Phenanthrene	EPA 8270C	ND	ug/Kg	180	TLL	11/10/2010 / 17:52	
Anthracene	EPA 8270C	ND	ug/Kg	180	TLL	11/10/2010 / 17:52	
Di-n-butylphthalate	EPA 8270C	ND	ug/Kg	180	TLL	11/10/2010 / 17:52	
Fluoranthene	EPA 8270C	ND	ug/Kg	180	TLL	11/10/2010 / 17:52	
Pyrene	EPA 8270C	ND	ug/Kg	180	TLL	11/10/2010 / 17:52	
Butyl Benzyl Phthalate	EPA 8270C	ND	ug/Kg	180	TLL	11/10/2010 / 17:52	
3,3'-Dichlorobenzidine	EPA 8270C	ND	ug/Kg	180	TLL	11/10/2010 / 17:52	
Benzo(a)anthracene	EPA 8270C	ND	ug/Kg	180	TLL	11/10/2010 / 17:52	
Chrysene	EPA 8270C	ND	ug/Kg	180	TLL	11/10/2010 / 17:52	
bis(2-Ethylhexyl)phthalate	EPA 8270C	ND	ug/Kg	180	TLL	11/10/2010 / 17:52	
Di-n-octyl phthalate	EPA 8270C	ND	ug/Kg	180	TLL	11/10/2010 / 17:52	
Indeno (1,2,3-cd)Pyrene	EPA 8270C	ND	ug/Kg	180	TLL	11/10/2010 / 17:52	
Benzo(b)fluoranthene	EPA 8270C	ND	ug/Kg	180	TLL	11/10/2010 / 17:52	
Benzo(k)fluoranthene	EPA 8270C	ND	ug/Kg	180	TLL	11/10/2010 / 17:52	
Benzo(a)pyrene	EPA 8270C	ND	ug/Kg	180	TLL	11/10/2010 / 17:52	

Customer: ATC Associates

Workorder No. 1011-00078

Sample: 001 SB01 (0-1)
(Continued)

Parameter	Method	Results	Units	PQL	Tech	Analysis Date/Time	Qual
Dibenzo(a,h)Anthracene	EPA 8270C	ND	ug/Kg	180	TLL	11/10/2010 / 17:52	
Benzo (g,h,i) perylene	EPA 8270C	ND	ug/Kg	180	TLL	11/10/2010 / 17:52	
2-FLUOROPHENOL (SURR)		58.3	%		TLL	11/10/2010 / 17:52	
PHENOL-D5 (SURR)		77.5	%		TLL	11/10/2010 / 17:52	
NITROBENZENE-D5 (SURR)		83.9	%		TLL	11/10/2010 / 17:52	
2-FLUOROBIPHENYL (SURR)		82.6	%		TLL	11/10/2010 / 17:52	
2,4,6-TRIBROMOPHENOL (SURR)		12.6	%		TLL	11/10/2010 / 17:52	
TERPHENYL-D14 (SURR)		94.0	%		TLL	11/10/2010 / 17:52	
Pesticides/PCBs-Soil/Solid							
Pesticides-Soil/Solid							
alpha-BHC	EPA 8081A	ND	ug/Kg	1.9	TLL	11/11/2010 / 12:23	
beta-BHC	EPA 8081A	ND	ug/Kg	1.9	TLL	11/11/2010 / 12:23	
gamma-BHC (Lindane)	EPA 8081A	ND	ug/Kg	1.9	TLL	11/11/2010 / 12:23	
delta-BHC	EPA 8081A	ND	ug/Kg	1.9	TLL	11/11/2010 / 12:23	
Heptachlor	EPA 8081A	ND	ug/Kg	1.9	TLL	11/11/2010 / 12:23	
Heptachlor Epoxide	EPA 8081A	ND	ug/Kg	1.9	TLL	11/11/2010 / 12:23	
Aldrin	EPA 8081A	ND	ug/Kg	1.9	TLL	11/11/2010 / 12:23	
Dieldrin	EPA 8081A	ND	ug/Kg	1.9	TLL	11/11/2010 / 12:23	
Endrin	EPA 8081A	ND	ug/Kg	1.9	TLL	11/11/2010 / 12:23	
4,4'-DDD	EPA 8081A	ND	ug/Kg	1.9	TLL	11/11/2010 / 12:23	
4,4'-DDE	EPA 8081A	ND	ug/Kg	1.9	TLL	11/11/2010 / 12:23	
4,4'-DDT	EPA 8081A	ND	ug/Kg	1.9	TLL	11/11/2010 / 12:23	
Endosulfan I	EPA 8081A	ND	ug/Kg	1.9	TLL	11/11/2010 / 12:23	
Endosulfan II	EPA 8081A	ND	ug/Kg	1.9	TLL	11/11/2010 / 12:23	
Endosulfan Sulfate	EPA 8081A	ND	ug/Kg	1.9	TLL	11/11/2010 / 12:23	
Endrin Aldehyde	EPA 8081A	ND	ug/Kg	1.9	TLL	11/11/2010 / 12:23	
Methoxychlor	EPA 8081A	ND	ug/Kg	1.9	TLL	11/11/2010 / 12:23	
Endrin Ketone	EPA 8081A	ND	ug/Kg	1.9	TLL	11/11/2010 / 12:23	
Chlordane	EPA 8081A	ND	ug/Kg	37.3	TLL	11/11/2010 / 12:23	
Toxaphene	EPA 8081A	ND	ug/Kg	37.3	TLL	11/11/2010 / 12:23	
TCMX (SURROGATE)		61.1	%		TLL	11/11/2010 / 12:23	
DCB (SURROGATE)		106	%		TLL	11/11/2010 / 12:23	G3
PCB-SOIL/SOLID							
PCB-1016	EPA 8082	ND	ug/Kg	19	TLL	11/09/2010 / 12:40	

Customer: ATC Associates

Workorder No. 1011-00078

Sample: 001 SB01 (0-1)
(Continued)

Parameter	Method	Results	Units	PQL	Tech	Analysis Date/Time	Qual
PCB-1221	EPA 8082	ND	ug/Kg	19	TLL	11/09/2010 / 12:40	
PCB-1232	EPA 8082	ND	ug/Kg	19	TLL	11/09/2010 / 12:40	
PCB-1242	EPA 8082	ND	ug/Kg	19	TLL	11/09/2010 / 12:40	
PCB-1248	EPA 8082	ND	ug/Kg	19	TLL	11/09/2010 / 12:40	
PCB-1254	EPA 8082	ND	ug/Kg	19	TLL	11/09/2010 / 12:40	
PCB-1260	EPA 8082	ND	ug/Kg	19	TLL	11/09/2010 / 12:40	
PCB-1262	EPA 8082	ND	ug/Kg	19	TLL	11/09/2010 / 12:40	
PCB-1268	EPA 8082	ND	ug/Kg	19	TLL	11/09/2010 / 12:40	
TCMX (SURROGATE)		75.1	%		TLL	11/09/2010 / 12:40	
DCB (SURROGATE)		97.0	%		TLL	11/09/2010 / 12:40	
Flame/ICP Solid Digestion					*PH	11/10/2010 / : 0	
Percent Solids	SM 2540G	89.4	%		PDP	11/09/2010 / 11:21	

Sample: 002 SB02 (0-2)
Collection Date: 11/04/2010 Time: 10:15:00AM **Received Date: 11/05/2010 Time: 10:00:00AM**
Matrix: SOIL

Parameter	Method	Results	Units	PQL	Tech	Analysis Date/Time	Qual
TAL Metals-Soil/Solid							
Antimony	6010B, SW-846	ND	mg/Kg	3.8	*PH	11/11/2010 / 12:27	
Aluminum	6010B, SW-846	18900	mg/Kg	57	*PH	11/11/2010 / 12:27	
Arsenic	6010B, SW-846	1.8	mg/Kg	0.8	*PH	11/11/2010 / 12:27	
Barium	6010B, SW-846	73.8	mg/Kg	0.38	*PH	11/11/2010 / 12:27	
Beryllium	6010B, SW-846	0.37	mg/Kg	0.30	*PH	11/11/2010 / 12:27	
Cadmium	6010B, SW-846	ND	mg/Kg	0.38	*PH	11/11/2010 / 12:27	
Chromium	6010B, SW-846	14.2	mg/Kg	0.38	*PH	11/11/2010 / 12:27	
Calcium	6010B, SW-846	2650	mg/Kg	57	*PH	11/11/2010 / 12:27	
Iron	6010B, SW-846	34400	mg/Kg	57	*PH	11/11/2010 / 12:27	
Cobalt	6010B, SW-846	6.86	mg/Kg	0.38	*PH	11/11/2010 / 12:27	
Copper	6010B, SW-846	18.8	mg/Kg	0.38	*PH	11/11/2010 / 12:27	
Lead	6010B, SW-846	55.7	mg/Kg	0.38	*PH	11/11/2010 / 12:27	
Magnesium	6010B, SW-846	10700	mg/Kg	57	*PH	11/11/2010 / 12:27	
Manganese	6010B, SW-846	343	mg/Kg	0.38	*PH	11/11/2010 / 12:27	

Customer: ATC Associates

Workorder No. 1011-00078

Sample: 002 SB02 (0-2)
(Continued)

Parameter	Method	Results	Units	PQL	Tech	Analysis Date/Time	Qual
Mercury	SW-846; 7471A	ND	mg/Kg	0.09	*PH	11/11/2010 / 12:27	
Nickel	6010B, SW-846	13.8	mg/Kg	0.38	*PH	11/11/2010 / 12:27	
Vanadium	6010B, SW-846	19.3	mg/Kg	0.38	*PH	11/11/2010 / 12:27	
Selenium	6010B, SW-846	ND	mg/Kg	1.5	*PH	11/11/2010 / 12:27	
Potassium	6010B, SW-846	2070	mg/Kg	5.7	*PH	11/11/2010 / 12:27	
Silver	6010B, SW-846	ND	mg/Kg	0.38	*PH	11/11/2010 / 12:27	
Sodium	6010B, SW-846	398	mg/Kg	5.7	*PH	11/11/2010 / 12:27	
Thallium	6010B, SW-846	ND	mg/Kg	3.4	*PH	11/11/2010 / 12:27	
Zinc	6010B, SW-846	53.0	mg/Kg	0.38	*PH	11/11/2010 / 12:27	
VOC 8260-Soil/Solid/Oil							
Dichlorodifluoromethane	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	
Vinyl Chloride	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	
Chloromethane	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	
Bromomethane	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	
Chloroethane	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	
Trichlorofluoromethane	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	
Acrolein	EPA 8260B	ND	ug/Kg	57	*PH	11/06/2010 / 15:59	
Acetone	EPA 8260B	ND	ug/Kg	29	*PH	11/06/2010 / 15:59	
1,1-Dichloroethylene	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	
Iodomethane	EPA 8260B	ND	ug/Kg	57	*PH	11/06/2010 / 15:59	
Carbon Disulfide	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	
Methylene Chloride	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	
Acrylonitrile	EPA 8260B	ND	ug/Kg	11	*PH	11/06/2010 / 15:59	
Methyl-Tert-Butyl-Ether	EPA 8260B	ND	ug/Kg	11	*PH	11/06/2010 / 15:59	
trans-1,2-Dichloroethylene	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	
1,1-Dichloroethane	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	
2-Butanone-(MEK)	EPA 8260B	ND	ug/Kg	29	*PH	11/06/2010 / 15:59	
Vinyl Acetate	EPA 8260B	ND	ug/Kg	57	*PH	11/06/2010 / 15:59	
2,2-Dichloropropane	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	
cis-1,2-Dichloroethylene	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	
Chloroform	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	
Bromochloromethane	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	
1,1,1-Trichloroethane	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	
1,1-Dichloropropene	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	

Customer: ATC Associates

Workorder No. 1011-00078

Sample: 002 SB02 (0-2)
(Continued)

Parameter	Method	Results	Units	PQL	Tech	Analysis Date/Time	Qual
Carbon Tetrachloride	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	
Benzene	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	
1,2-Dichloroethane	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	
Trichloroethylene	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	
1,2-Dichloropropane	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	
4-Methyl-2-Pentanone (MIBK)	EPA 8260B	ND	ug/Kg	29	*PH	11/06/2010 / 15:59	
2-Chloroethyl vinyl ether	EPA 8260B	ND	ug/Kg	57	*PH	11/06/2010 / 15:59	
cis-1,3-Dichloropropene	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	
Toluene	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	
trans-1,3-Dichloropropene	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	
Bromodichloromethane	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	
Dibromomethane	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	
1,1,2-Trichloroethane	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	
1,2-Dibromoethane	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	
2-Hexanone	EPA 8260B	ND	ug/Kg	29	*PH	11/06/2010 / 15:59	
1,3-Dichloropropane	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	
Tetrachloroethylene	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	
Dibromochloromethane	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	
Chlorobenzene	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	
1,1,1,2-Tetrachloroethane	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	
Ethylbenzene	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	
M/P-Xylene	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	
O-Xylene	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	
Styrene	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	
Bromoform	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	
Isopropylbenzene	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	
1,1,2,2-Tetrachloroethane	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	
1,2,3-Trichloropropane	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	
n-Propylbenzene	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	
trans-1,4-Dichloro-2-butene	EPA 8260B	ND	ug/Kg	11	*PH	11/06/2010 / 15:59	
Bromobenzene	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	
2-Chlorotoluene	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	
1,3,5-Trimethylbenzene	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	
4-Chlorotoluene	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	

Customer: ATC Associates

Workorder No. 1011-00078

Sample: 002 SB02 (0-2)
(Continued)

Parameter	Method	Results	Units	PQL	Tech	Analysis Date/Time	Qual
tert-Butylbenzene	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	
1,2,4-Trimethylbenzene	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	
sec-Butylbenzene	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	
4-Isopropyltoluene	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	
1,3-Dichlorobenzene	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	
1,4-Dichlorobenzene	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	
n-Butylbenzene	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	
1,2-Dichlorobenzene	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	
1,2-Dibromo-3-Chloropropane	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	
1,2,4-Trichlorobenzene	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	
Hexachlorobutadiene	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	
Naphthalene	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	
1,2,3-Trichlorobenzene	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	
DIBROMOFLUOROMETHANE (SURR)		95	%		*PH	11/06/2010 / 15:59	
TOLUENE-D8 (SURROGATE)		98	%		*PH	11/06/2010 / 15:59	
4-BROMOFLUOROBENZENE (SURR)		88	%		*PH	11/06/2010 / 15:59	
TCL SEMIVOLATILE-SOILS							
bis(2-Chloroethyl)ether	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 12:54	
Phenol	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 12:54	
2-Chlorophenol	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 12:54	
1,3-Dichlorobenzene	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 12:54	
1,4-Dichlorobenzene	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 12:54	
1,2-Dichlorobenzene	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 12:54	
2,2'-oxybis(1-Chloropropane	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 12:54	
2-Methyl Phenol	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 12:54	
Hexachloroethane	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 12:54	
N-Nitroso-di-n-propylamine	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 12:54	
3&4-Methyl Phenol	EPA 8270C	ND	ug/Kg	370	TLL	11/09/2010 / 12:54	
Nitrobenzene	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 12:54	
Isophorone	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 12:54	
2-Nitrophenol	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 12:54	
2,4-Dimethylphenol	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 12:54	
bis(2-Chloroethoxy)methane	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 12:54	
2,4-Dichlorophenol	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 12:54	

Customer: ATC Associates

Workorder No. 1011-00078

Sample: 002 SB02 (0-2)
(Continued)

Parameter	Method	Results	Units	PQL	Tech	Analysis Date/Time	Qual
1,2,4-Trichlorobenzene	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 12:54	
Naphthalene	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 12:54	
4-Chloroaniline	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 12:54	
Hexachlorobutadiene	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 12:54	
4-Chloro-3-methylphenol	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 12:54	
2-Methyl Naphthalene	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 12:54	
Hexachlorocyclopentadiene	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 12:54	
2-Chloronaphthalene	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 12:54	
2,4,6-Trichlorophenol	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 12:54	
2,4,5-Trichlorophenol	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 12:54	
2-Nitroaniline	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 12:54	
Acenaphthylene	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 12:54	
Dimethyl Phthalate	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 12:54	
2,6-Dinitrotoluene	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 12:54	
Acenaphthene	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 12:54	
3-Nitroaniline	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 12:54	
2,4-Dinitrophenol	EPA 8270C	ND	ug/Kg	740	TLL	11/09/2010 / 12:54	
Dibenzofuran	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 12:54	
2,4-Dinitrotoluene	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 12:54	
4-Nitrophenol	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 12:54	
Fluorene	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 12:54	
4-Chlorophenyl Phenyl Ether	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 12:54	
Diethyl Phthalate	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 12:54	
4-Nitroaniline	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 12:54	
2-Methyl-4,6-dinitrophenol	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 12:54	
N-Nitrosodiphenylamine	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 12:54	
4-Bromophenyl Phenyl Ether	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 12:54	
Hexachlorobenzene	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 12:54	
Pentachlorophenol	EPA 8270C	ND	ug/Kg	370	TLL	11/09/2010 / 12:54	
Phenanthrene	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 12:54	
Anthracene	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 12:54	
Di-n-butylphthalate	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 12:54	
Fluoranthene	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 12:54	
Pyrene	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 12:54	

Customer: ATC Associates

Workorder No. 1011-00078

Sample: 002 SB02 (0-2)
(Continued)

Parameter	Method	Results	Units	PQL	Tech	Analysis Date/Time	Qual
Butyl Benzyl Phthalate	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 12:54	
3,3'-Dichlorobenzidine	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 12:54	
Benzo(a)anthracene	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 12:54	
Chrysene	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 12:54	
bis(2-Ethylhexyl)phthalate	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 12:54	
Di-n-octyl phthalate	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 12:54	
Indeno (1,2,3-cd)Pyrene	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 12:54	
Benzo(b)fluoranthene	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 12:54	
Benzo(k)fluoranthene	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 12:54	
Benzo(a)pyrene	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 12:54	
Dibenzo(a,h)Anthracene	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 12:54	
Benzo (g,h,i) perylene	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 12:54	
2-FLUOROPHENOL (SURR)		67.1	%		TLL	11/09/2010 / 12:54	
PHENOL-D5 (SURR)		68.8	%		TLL	11/09/2010 / 12:54	
NITROBENZENE-D5 (SURR)		72.2	%		TLL	11/09/2010 / 12:54	
2-FLUOROBIPHENYL (SURR)		69.5	%		TLL	11/09/2010 / 12:54	
2,4,6-TRIBROMOPHENOL (SURR)		73.2	%		TLL	11/09/2010 / 12:54	
TERPHENYL-D14 (SURR)		77.8	%		TLL	11/09/2010 / 12:54	
Pesticides/PCBs-Soil/Solid							
Pesticides-Soil/Solid							
alpha-BHC	EPA 8081A	ND	ug/Kg	1.8	TLL	11/11/2010 / 12:50	
beta-BHC	EPA 8081A	ND	ug/Kg	1.8	TLL	11/11/2010 / 12:50	
gamma-BHC (Lindane)	EPA 8081A	ND	ug/Kg	1.8	TLL	11/11/2010 / 12:50	
delta-BHC	EPA 8081A	ND	ug/Kg	1.8	TLL	11/11/2010 / 12:50	
Heptachlor	EPA 8081A	ND	ug/Kg	1.8	TLL	11/11/2010 / 12:50	
Heptachlor Epoxide	EPA 8081A	ND	ug/Kg	1.8	TLL	11/11/2010 / 12:50	
Aldrin	EPA 8081A	ND	ug/Kg	1.8	TLL	11/11/2010 / 12:50	
Dieldrin	EPA 8081A	ND	ug/Kg	1.8	TLL	11/11/2010 / 12:50	
Endrin	EPA 8081A	ND	ug/Kg	1.8	TLL	11/11/2010 / 12:50	
4,4'-DDD	EPA 8081A	ND	ug/Kg	1.8	TLL	11/11/2010 / 12:50	
4,4'-DDE	EPA 8081A	ND	ug/Kg	1.8	TLL	11/11/2010 / 12:50	
4,4'-DDT	EPA 8081A	ND	ug/Kg	1.8	TLL	11/11/2010 / 12:50	
Endosulfan I	EPA 8081A	ND	ug/Kg	1.8	TLL	11/11/2010 / 12:50	
Endosulfan II	EPA 8081A	ND	ug/Kg	1.8	TLL	11/11/2010 / 12:50	

Customer: ATC Associates

Workorder No. 1011-00078

Sample: 002 SB02 (0-2)
(Continued)

Parameter	Method	Results	Units	PQL	Tech	Analysis Date/Time	Qual
Endosulfan Sulfate	EPA 8081A	ND	ug/Kg	1.8	TLL	11/11/2010 / 12:50	
Endrin Aldehyde	EPA 8081A	ND	ug/Kg	1.8	TLL	11/11/2010 / 12:50	
Methoxychlor	EPA 8081A	ND	ug/Kg	1.8	TLL	11/11/2010 / 12:50	
Endrin Ketone	EPA 8081A	ND	ug/Kg	1.8	TLL	11/11/2010 / 12:50	
Chlordane	EPA 8081A	ND	ug/Kg	36.5	TLL	11/11/2010 / 12:50	
Toxaphene	EPA 8081A	ND	ug/Kg	36.5	TLL	11/11/2010 / 12:50	
TCMX (SURROGATE)		64.6	%		TLL	11/11/2010 / 12:50	
DCB (SURROGATE)		84.6	%		TLL	11/11/2010 / 12:50	
PCB-SOIL/SOLID							
PCB-1016	EPA 8082	ND	ug/Kg	18	TLL	11/09/2010 / 13:00	
PCB-1221	EPA 8082	ND	ug/Kg	18	TLL	11/09/2010 / 13:00	
PCB-1232	EPA 8082	ND	ug/Kg	18	TLL	11/09/2010 / 13:00	
PCB-1242	EPA 8082	ND	ug/Kg	18	TLL	11/09/2010 / 13:00	
PCB-1248	EPA 8082	ND	ug/Kg	18	TLL	11/09/2010 / 13:00	
PCB-1254	EPA 8082	ND	ug/Kg	18	TLL	11/09/2010 / 13:00	
PCB-1260	EPA 8082	ND	ug/Kg	18	TLL	11/09/2010 / 13:00	
PCB-1262	EPA 8082	ND	ug/Kg	18	TLL	11/09/2010 / 13:00	
PCB-1268	EPA 8082	ND	ug/Kg	18	TLL	11/09/2010 / 13:00	
TCMX (SURROGATE)		84.8	%		TLL	11/09/2010 / 13:00	
DCB (SURROGATE)		83.5	%		TLL	11/09/2010 / 13:00	
Flame/ICP Solid Digestion					*PH	11/10/2010 / : 0	
Percent Solids	SM 2540G	89.1	%		PDP	11/09/2010 / 11:21	

Sample: 003 SB02 (4.5-5.5)
Collection Date: 11/04/2010 Time: 10:25:00AM **Received Date: 11/05/2010 Time: 10:00:00AM**
Matrix: SOIL

Parameter	Method	Results	Units	PQL	Tech	Analysis Date/Time	Qual
TAL Metals-Soil/Solid							
Antimony	6010B, SW-846	4.2	mg/Kg	3.7	*PH	11/11/2010 / 12:27	
Aluminum	6010B, SW-846	9340	mg/Kg	56	*PH	11/11/2010 / 12:27	
Arsenic	6010B, SW-846	ND	mg/Kg	0.7	*PH	11/11/2010 / 12:27	
Barium	6010B, SW-846	168	mg/Kg	0.37	*PH	11/11/2010 / 12:27	

Customer: ATC Associates

Workorder No. 1011-00078

Sample: 003 SB02 (4.5-5.5)
(Continued)

Parameter	Method	Results	Units	PQL	Tech	Analysis Date/Time	Qual
Beryllium	6010B, SW-846	0.33	mg/Kg	0.30	*PH	11/11/2010 / 12:27	
Cadmium	6010B, SW-846	ND	mg/Kg	0.37	*PH	11/11/2010 / 12:27	
Chromium	6010B, SW-846	26.2	mg/Kg	0.37	*PH	11/11/2010 / 12:27	
Calcium	6010B, SW-846	2340	mg/Kg	5.6	*PH	11/11/2010 / 12:27	
Iron	6010B, SW-846	17700	mg/Kg	56	*PH	11/11/2010 / 12:27	
Cobalt	6010B, SW-846	22.7	mg/Kg	0.37	*PH	11/11/2010 / 12:27	
Copper	6010B, SW-846	16.8	mg/Kg	0.37	*PH	11/11/2010 / 12:27	
Lead	6010B, SW-846	8.25	mg/Kg	0.37	*PH	11/11/2010 / 12:27	
Magnesium	6010B, SW-846	3300	mg/Kg	56	*PH	11/11/2010 / 12:27	
Manganese	6010B, SW-846	368	mg/Kg	0.37	*PH	11/11/2010 / 12:27	
Mercury	SW-846; 7471A	ND	mg/Kg	0.07	*PH	11/11/2010 / 12:27	
Nickel	6010B, SW-846	38.2	mg/Kg	0.37	*PH	11/11/2010 / 12:27	
Vanadium	6010B, SW-846	37.3	mg/Kg	0.37	*PH	11/11/2010 / 12:27	
Selenium	6010B, SW-846	ND	mg/Kg	1.5	*PH	11/11/2010 / 12:27	
Potassium	6010B, SW-846	1410	mg/Kg	56	*PH	11/11/2010 / 12:27	
Silver	6010B, SW-846	ND	mg/Kg	0.37	*PH	11/11/2010 / 12:27	
Sodium	6010B, SW-846	682	mg/Kg	5.6	*PH	11/11/2010 / 12:27	
Thallium	6010B, SW-846	ND	mg/Kg	3.3	*PH	11/11/2010 / 12:27	
Zinc	6010B, SW-846	102	mg/Kg	0.37	*PH	11/11/2010 / 12:27	
VOC 8260-Soil/Solid/Oil							
Dichlorodifluoromethane	EPA 8260B	ND	ug/Kg	5.2	*PH	11/06/2010 / 15:59	
Vinyl Chloride	EPA 8260B	ND	ug/Kg	5.2	*PH	11/06/2010 / 15:59	
Chloromethane	EPA 8260B	ND	ug/Kg	5.2	*PH	11/06/2010 / 15:59	
Bromomethane	EPA 8260B	ND	ug/Kg	5.2	*PH	11/06/2010 / 15:59	
Chloroethane	EPA 8260B	ND	ug/Kg	5.2	*PH	11/06/2010 / 15:59	
Trichlorofluoromethane	EPA 8260B	ND	ug/Kg	5.2	*PH	11/06/2010 / 15:59	
Acrolein	EPA 8260B	ND	ug/Kg	52	*PH	11/06/2010 / 15:59	
Acetone	EPA 8260B	ND	ug/Kg	26	*PH	11/06/2010 / 15:59	
1,1-Dichloroethylene	EPA 8260B	ND	ug/Kg	5.2	*PH	11/06/2010 / 15:59	
Iodomethane	EPA 8260B	ND	ug/Kg	52	*PH	11/06/2010 / 15:59	
Carbon Disulfide	EPA 8260B	ND	ug/Kg	5.2	*PH	11/06/2010 / 15:59	
Methylene Chloride	EPA 8260B	ND	ug/Kg	5.2	*PH	11/06/2010 / 15:59	
Acrylonitrile	EPA 8260B	ND	ug/Kg	10	*PH	11/06/2010 / 15:59	
Methyl-Tert-Butyl-Ether	EPA 8260B	ND	ug/Kg	10	*PH	11/06/2010 / 15:59	

Customer: ATC Associates

Workorder No. 1011-00078

Sample: 003 SB02 (4.5-5.5)
(Continued)

Parameter	Method	Results	Units	PQL	Tech	Analysis Date/Time	Qual
trans-1,2-Dichloroethylene	EPA 8260B	ND	ug/Kg	5.2	*PH	11/06/2010 / 15:59	
1,1-Dichloroethane	EPA 8260B	ND	ug/Kg	5.2	*PH	11/06/2010 / 15:59	
2-Butanone-(MEK)	EPA 8260B	ND	ug/Kg	26	*PH	11/06/2010 / 15:59	
Vinyl Acetate	EPA 8260B	ND	ug/Kg	52	*PH	11/06/2010 / 15:59	
2,2-Dichloropropane	EPA 8260B	ND	ug/Kg	5.2	*PH	11/06/2010 / 15:59	
cis-1,2-Dichloroethylene	EPA 8260B	ND	ug/Kg	5.2	*PH	11/06/2010 / 15:59	
Chloroform	EPA 8260B	ND	ug/Kg	5.2	*PH	11/06/2010 / 15:59	
Bromochloromethane	EPA 8260B	ND	ug/Kg	5.2	*PH	11/06/2010 / 15:59	
1,1,1-Trichloroethane	EPA 8260B	ND	ug/Kg	5.2	*PH	11/06/2010 / 15:59	
1,1-Dichloropropene	EPA 8260B	ND	ug/Kg	5.2	*PH	11/06/2010 / 15:59	
Carbon Tetrachloride	EPA 8260B	ND	ug/Kg	5.2	*PH	11/06/2010 / 15:59	
Benzene	EPA 8260B	ND	ug/Kg	5.2	*PH	11/06/2010 / 15:59	
1,2-Dichloroethane	EPA 8260B	ND	ug/Kg	5.2	*PH	11/06/2010 / 15:59	
Trichloroethylene	EPA 8260B	ND	ug/Kg	5.2	*PH	11/06/2010 / 15:59	
1,2-Dichloropropane	EPA 8260B	ND	ug/Kg	5.2	*PH	11/06/2010 / 15:59	
4-Methyl-2-Pentanone (MIBK)	EPA 8260B	ND	ug/Kg	26	*PH	11/06/2010 / 15:59	
2-Chloroethyl vinyl ether	EPA 8260B	ND	ug/Kg	52	*PH	11/06/2010 / 15:59	
cis-1,3-Dichloropropene	EPA 8260B	ND	ug/Kg	5.2	*PH	11/06/2010 / 15:59	
Toluene	EPA 8260B	ND	ug/Kg	5.2	*PH	11/06/2010 / 15:59	
trans-1,3-Dichloropropene	EPA 8260B	ND	ug/Kg	5.2	*PH	11/06/2010 / 15:59	
Bromodichloromethane	EPA 8260B	ND	ug/Kg	5.2	*PH	11/06/2010 / 15:59	
Dibromomethane	EPA 8260B	ND	ug/Kg	5.2	*PH	11/06/2010 / 15:59	
1,1,2-Trichloroethane	EPA 8260B	ND	ug/Kg	5.2	*PH	11/06/2010 / 15:59	
1,2-Dibromoethane	EPA 8260B	ND	ug/Kg	5.2	*PH	11/06/2010 / 15:59	
2-Hexanone	EPA 8260B	ND	ug/Kg	26	*PH	11/06/2010 / 15:59	
1,3-Dichloropropane	EPA 8260B	ND	ug/Kg	5.2	*PH	11/06/2010 / 15:59	
Tetrachloroethylene	EPA 8260B	ND	ug/Kg	5.2	*PH	11/06/2010 / 15:59	
Dibromochloromethane	EPA 8260B	ND	ug/Kg	5.2	*PH	11/06/2010 / 15:59	
Chlorobenzene	EPA 8260B	ND	ug/Kg	5.2	*PH	11/06/2010 / 15:59	
1,1,1,2-Tetrachloroethane	EPA 8260B	ND	ug/Kg	5.2	*PH	11/06/2010 / 15:59	
Ethylbenzene	EPA 8260B	ND	ug/Kg	5.2	*PH	11/06/2010 / 15:59	
M/P-Xylene	EPA 8260B	ND	ug/Kg	5.2	*PH	11/06/2010 / 15:59	
O-Xylene	EPA 8260B	ND	ug/Kg	5.2	*PH	11/06/2010 / 15:59	
Styrene	EPA 8260B	ND	ug/Kg	5.2	*PH	11/06/2010 / 15:59	

Customer: ATC Associates

Workorder No. 1011-00078

Sample: 003 SB02 (4.5-5.5)
(Continued)

Parameter	Method	Results	Units	PQL	Tech	Analysis Date/Time	Qual
Bromoform	EPA 8260B	ND	ug/Kg	5.2	*PH	11/06/2010 / 15:59	
Isopropylbenzene	EPA 8260B	ND	ug/Kg	5.2	*PH	11/06/2010 / 15:59	
1,1,2,2-Tetrachloroethane	EPA 8260B	ND	ug/Kg	5.2	*PH	11/06/2010 / 15:59	
1,2,3-Trichloropropane	EPA 8260B	ND	ug/Kg	5.2	*PH	11/06/2010 / 15:59	
n-Propylbenzene	EPA 8260B	ND	ug/Kg	5.2	*PH	11/06/2010 / 15:59	
trans-1,4-Dichloro-2-butene	EPA 8260B	ND	ug/Kg	10	*PH	11/06/2010 / 15:59	
Bromobenzene	EPA 8260B	ND	ug/Kg	5.2	*PH	11/06/2010 / 15:59	
2-Chlorotoluene	EPA 8260B	ND	ug/Kg	5.2	*PH	11/06/2010 / 15:59	
1,3,5-Trimethylbenzene	EPA 8260B	ND	ug/Kg	5.2	*PH	11/06/2010 / 15:59	
4-Chlorotoluene	EPA 8260B	ND	ug/Kg	5.2	*PH	11/06/2010 / 15:59	
tert-Butylbenzene	EPA 8260B	ND	ug/Kg	5.2	*PH	11/06/2010 / 15:59	
1,2,4-Trimethylbenzene	EPA 8260B	ND	ug/Kg	5.2	*PH	11/06/2010 / 15:59	
sec-Butylbenzene	EPA 8260B	ND	ug/Kg	5.2	*PH	11/06/2010 / 15:59	
4-Isopropyltoluene	EPA 8260B	ND	ug/Kg	5.2	*PH	11/06/2010 / 15:59	
1,3-Dichlorobenzene	EPA 8260B	ND	ug/Kg	5.2	*PH	11/06/2010 / 15:59	
1,4-Dichlorobenzene	EPA 8260B	ND	ug/Kg	5.2	*PH	11/06/2010 / 15:59	
n-Butylbenzene	EPA 8260B	ND	ug/Kg	5.2	*PH	11/06/2010 / 15:59	
1,2-Dichlorobenzene	EPA 8260B	ND	ug/Kg	5.2	*PH	11/06/2010 / 15:59	
1,2-Dibromo-3-Chloropropane	EPA 8260B	ND	ug/Kg	5.2	*PH	11/06/2010 / 15:59	
1,2,4-Trichlorobenzene	EPA 8260B	ND	ug/Kg	5.2	*PH	11/06/2010 / 15:59	
Hexachlorobutadiene	EPA 8260B	ND	ug/Kg	5.2	*PH	11/06/2010 / 15:59	
Naphthalene	EPA 8260B	ND	ug/Kg	5.2	*PH	11/06/2010 / 15:59	
1,2,3-Trichlorobenzene	EPA 8260B	ND	ug/Kg	5.2	*PH	11/06/2010 / 15:59	
DIBROMOFLUOROMETHANE (SURR)		97	%		*PH	11/06/2010 / 15:59	
TOLUENE-D8 (SURROGATE)		95	%		*PH	11/06/2010 / 15:59	
4-BROMOFLUOROBENZENE (SURR)		93	%		*PH	11/06/2010 / 15:59	
TCL SEMIVOLATILE-SOILS							
bis(2-Chloroethyl)ether	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 13:32	
Phenol	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 13:32	
2-Chlorophenol	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 13:32	
1,3-Dichlorobenzene	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 13:32	
1,4-Dichlorobenzene	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 13:32	
1,2-Dichlorobenzene	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 13:32	
2,2'-oxybis(1-Chloropropane	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 13:32	

Customer: ATC Associates

Workorder No. 1011-00078

Sample: 003 SB02 (4.5-5.5)
(Continued)

Parameter	Method	Results	Units	PQL	Tech	Analysis Date/Time	Qual
2-Methyl Phenol	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 13:32	
Hexachloroethane	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 13:32	
N-Nitroso-di-n-propylamine	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 13:32	
3&4-Methyl Phenol	EPA 8270C	ND	ug/Kg	340	TLL	11/09/2010 / 13:32	
Nitrobenzene	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 13:32	
Isophorone	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 13:32	
2-Nitrophenol	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 13:32	
2,4-Dimethylphenol	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 13:32	
bis(2-Chloroethoxy)methane	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 13:32	
2,4-Dichlorophenol	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 13:32	
1,2,4-Trichlorobenzene	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 13:32	
Naphthalene	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 13:32	
4-Chloroaniline	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 13:32	
Hexachlorobutadiene	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 13:32	
4-Chloro-3-methylphenol	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 13:32	
2-Methyl Naphthalene	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 13:32	
Hexachlorocyclopentadiene	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 13:32	
2-Chloronaphthalene	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 13:32	
2,4,6-Trichlorophenol	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 13:32	
2,4,5-Trichlorophenol	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 13:32	
2-Nitroaniline	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 13:32	
Acenaphthylene	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 13:32	
Dimethyl Phthalate	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 13:32	
2,6-Dinitrotoluene	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 13:32	
Acenaphthene	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 13:32	
3-Nitroaniline	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 13:32	
2,4-Dinitrophenol	EPA 8270C	ND	ug/Kg	680	TLL	11/09/2010 / 13:32	
Dibenzofuran	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 13:32	
2,4-Dinitrotoluene	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 13:32	
4-Nitrophenol	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 13:32	
Fluorene	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 13:32	
4-Chlorophenyl Phenyl Ether	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 13:32	
Diethyl Phthalate	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 13:32	
4-Nitroaniline	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 13:32	

Customer: ATC Associates

Workorder No. 1011-00078

Sample: 003 SB02 (4.5-5.5)
(Continued)

Parameter	Method	Results	Units	PQL	Tech	Analysis Date/Time	Qual
2-Methyl-4,6-dinitrophenol	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 13:32	
N-Nitrosodiphenylamine	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 13:32	
4-Bromophenyl Phenyl Ether	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 13:32	
Hexachlorobenzene	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 13:32	
Pentachlorophenol	EPA 8270C	ND	ug/Kg	340	TLL	11/09/2010 / 13:32	
Phenanthrene	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 13:32	
Anthracene	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 13:32	
Di-n-butylphthalate	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 13:32	
Fluoranthene	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 13:32	
Pyrene	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 13:32	
Butyl Benzyl Phthalate	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 13:32	
3,3'-Dichlorobenzidine	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 13:32	
Benzo(a)anthracene	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 13:32	
Chrysene	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 13:32	
bis(2-Ethylhexyl)phthalate	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 13:32	
Di-n-octyl phthalate	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 13:32	
Indeno (1,2,3-cd)Pyrene	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 13:32	
Benzo(b)fluoranthene	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 13:32	
Benzo(k)fluoranthene	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 13:32	
Benzo(a)pyrene	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 13:32	
Dibenzo(a,h)Anthracene	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 13:32	
Benzo (g,h,i) perylene	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 13:32	
2-FLUOROPHENOL (SURR)		52.1	%		TLL	11/09/2010 / 13:32	
PHENOL-D5 (SURR)		61.0	%		TLL	11/09/2010 / 13:32	
NITROBENZENE-D5 (SURR)		64.5	%		TLL	11/09/2010 / 13:32	
2-FLUOROBIPHENYL (SURR)		70.1	%		TLL	11/09/2010 / 13:32	
2,4,6-TRIBROMOPHENOL (SURR)		44.3	%		TLL	11/09/2010 / 13:32	
TERPHENYL-D14 (SURR)		82.3	%		TLL	11/09/2010 / 13:32	
Pesticides/PCBs-Soil/Solid							
Pesticides-Soil/Solid							
alpha-BHC	EPA 8081A	ND	ug/Kg	1.7	TLL	11/11/2010 / 12:13	
beta-BHC	EPA 8081A	ND	ug/Kg	1.7	TLL	11/11/2010 / 12:13	
gamma-BHC (Lindane)	EPA 8081A	ND	ug/Kg	1.7	TLL	11/11/2010 / 12:13	
delta-BHC	EPA 8081A	ND	ug/Kg	1.7	TLL	11/11/2010 / 12:13	

Customer: ATC Associates

Workorder No. 1011-00078

Sample: 003 SB02 (4.5-5.5)
(Continued)

Parameter	Method	Results	Units	PQL	Tech	Analysis Date/Time	Qual
Heptachlor	EPA 8081A	ND	ug/Kg	1.7	TLL	11/11/2010 / 12:13	
Heptachlor Epoxide	EPA 8081A	ND	ug/Kg	1.7	TLL	11/11/2010 / 12:13	
Aldrin	EPA 8081A	ND	ug/Kg	1.7	TLL	11/11/2010 / 12:13	
Dieldrin	EPA 8081A	ND	ug/Kg	1.7	TLL	11/11/2010 / 12:13	
Endrin	EPA 8081A	ND	ug/Kg	1.7	TLL	11/11/2010 / 12:13	
4,4'-DDD	EPA 8081A	ND	ug/Kg	1.7	TLL	11/11/2010 / 12:13	
4,4'-DDE	EPA 8081A	ND	ug/Kg	1.7	TLL	11/11/2010 / 12:13	
4,4'-DDT	EPA 8081A	ND	ug/Kg	1.7	TLL	11/11/2010 / 12:13	
Endosulfan I	EPA 8081A	ND	ug/Kg	1.7	TLL	11/11/2010 / 12:13	
Endosulfan II	EPA 8081A	ND	ug/Kg	1.7	TLL	11/11/2010 / 12:13	
Endosulfan Sulfate	EPA 8081A	ND	ug/Kg	1.7	TLL	11/11/2010 / 12:13	
Endrin Aldehyde	EPA 8081A	ND	ug/Kg	1.7	TLL	11/11/2010 / 12:13	
Methoxychlor	EPA 8081A	ND	ug/Kg	1.7	TLL	11/11/2010 / 12:13	
Endrin Ketone	EPA 8081A	ND	ug/Kg	1.7	TLL	11/11/2010 / 12:13	
Chlordane	EPA 8081A	ND	ug/Kg	34.2	TLL	11/11/2010 / 12:13	
Toxaphene	EPA 8081A	ND	ug/Kg	34.2	TLL	11/11/2010 / 12:13	
TCMX (SURROGATE)		75.6	%		TLL	11/11/2010 / 12:13	
DCB (SURROGATE)		113	%		TLL	11/11/2010 / 12:13	G3
PCB-SOIL/SOLID							
PCB-1016	EPA 8082	ND	ug/Kg	17	TLL	11/09/2010 / 12:40	
PCB-1221	EPA 8082	ND	ug/Kg	17	TLL	11/09/2010 / 12:40	
PCB-1232	EPA 8082	ND	ug/Kg	17	TLL	11/09/2010 / 12:40	
PCB-1242	EPA 8082	ND	ug/Kg	17	TLL	11/09/2010 / 12:40	
PCB-1248	EPA 8082	ND	ug/Kg	17	TLL	11/09/2010 / 12:40	
PCB-1254	EPA 8082	ND	ug/Kg	17	TLL	11/09/2010 / 12:40	
PCB-1260	EPA 8082	ND	ug/Kg	17	TLL	11/09/2010 / 12:40	
PCB-1262	EPA 8082	ND	ug/Kg	17	TLL	11/09/2010 / 12:40	
PCB-1268	EPA 8082	ND	ug/Kg	17	TLL	11/09/2010 / 12:40	
TCMX (SURROGATE)		103	%		TLL	11/09/2010 / 12:40	
DCB (SURROGATE)		107	%		TLL	11/09/2010 / 12:40	
Flame/ICP Solid Digestion					*PH	11/11/2010 / : 0	
Percent Solids	SM 2540G	97.2	%		PDP	11/09/2010 / 11:21	

Customer: ATC Associates

Workorder No. 1011-00078

Sample: 004 SB03 (0-2)
Collection Date: 11/04/2010 Time: 10:40:00AM **Received Date: 11/05/2010 Time: 10:00:00AM**
Matrix: SOIL

Parameter	Method	Results	Units	PQL	Tech	Analysis Date/Time	Qual
TAL Metals-Soil/Solid							
Antimony	6010B, SW-846	ND	mg/Kg	3.9	*PH	11/11/2010 / 12:27	
Aluminum	6010B, SW-846	9690	mg/Kg	59	*PH	11/11/2010 / 12:27	
Arsenic	6010B, SW-846	2.6	mg/Kg	0.8	*PH	11/11/2010 / 12:27	
Barium	6010B, SW-846	90.5	mg/Kg	0.39	*PH	11/11/2010 / 12:27	
Beryllium	6010B, SW-846	0.35	mg/Kg	0.31	*PH	11/11/2010 / 12:27	
Cadmium	6010B, SW-846	ND	mg/Kg	0.39	*PH	11/11/2010 / 12:27	
Chromium	6010B, SW-846	15.7	mg/Kg	0.39	*PH	11/11/2010 / 12:27	
Calcium	6010B, SW-846	3550	mg/Kg	5.9	*PH	11/11/2010 / 12:27	
Iron	6010B, SW-846	18200	mg/Kg	59	*PH	11/11/2010 / 12:27	
Cobalt	6010B, SW-846	7.45	mg/Kg	0.39	*PH	11/11/2010 / 12:27	
Copper	6010B, SW-846	36.4	mg/Kg	0.39	*PH	11/11/2010 / 12:27	
Lead	6010B, SW-846	159	mg/Kg	0.39	*PH	11/11/2010 / 12:27	
Magnesium	6010B, SW-846	3090	mg/Kg	5.9	*PH	11/11/2010 / 12:27	
Manganese	6010B, SW-846	343	mg/Kg	0.39	*PH	11/11/2010 / 12:27	
Mercury	SW-846; 7471A	0.17	mg/Kg	0.07	*PH	11/11/2010 / 12:27	
Nickel	6010B, SW-846	16.6	mg/Kg	0.39	*PH	11/11/2010 / 12:27	
Vanadium	6010B, SW-846	23.8	mg/Kg	0.39	*PH	11/11/2010 / 12:27	
Selenium	6010B, SW-846	ND	mg/Kg	1.6	*PH	11/11/2010 / 12:27	
Potassium	6010B, SW-846	1590	mg/Kg	5.9	*PH	11/11/2010 / 12:27	
Silver	6010B, SW-846	ND	mg/Kg	0.39	*PH	11/11/2010 / 12:27	
Sodium	6010B, SW-846	338	mg/Kg	5.9	*PH	11/11/2010 / 12:27	
Thallium	6010B, SW-846	ND	mg/Kg	3.5	*PH	11/11/2010 / 12:27	
Zinc	6010B, SW-846	154	mg/Kg	0.39	*PH	11/11/2010 / 12:27	
VOC 8260-Soil/Solid/Oil							
Dichlorodifluoromethane	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	
Vinyl Chloride	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	
Chloromethane	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	
Bromomethane	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	
Chloroethane	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	
Trichlorofluoromethane	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	
Acrolein	EPA 8260B	ND	ug/Kg	55	*PH	11/07/2010 / 17:06	
Acetone	EPA 8260B	ND	ug/Kg	27	*PH	11/07/2010 / 17:06	

Customer: ATC Associates

Workorder No. 1011-00078

Sample: 004 SB03 (0-2)
(Continued)

Parameter	Method	Results	Units	PQL	Tech	Analysis Date/Time	Qual
1,1-Dichloroethylene	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	
Iodomethane	EPA 8260B	ND	ug/Kg	55	*PH	11/07/2010 / 17:06	
Carbon Disulfide	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	
Methylene Chloride	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	
Acrylonitrile	EPA 8260B	ND	ug/Kg	11	*PH	11/07/2010 / 17:06	
Methyl-Tert-Butyl-Ether	EPA 8260B	ND	ug/Kg	11	*PH	11/07/2010 / 17:06	
trans-1,2-Dichloroethylene	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	
1,1-Dichloroethane	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	
2-Butanone-(MEK)	EPA 8260B	ND	ug/Kg	27	*PH	11/07/2010 / 17:06	
Vinyl Acetate	EPA 8260B	ND	ug/Kg	55	*PH	11/07/2010 / 17:06	
2,2-Dichloropropane	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	
cis-1,2-Dichloroethylene	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	
Chloroform	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	
Bromochloromethane	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	
1,1,1-Trichloroethane	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	
1,1-Dichloropropene	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	
Carbon Tetrachloride	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	
Benzene	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	
1,2-Dichloroethane	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	
Trichloroethylene	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	
1,2-Dichloropropane	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	
4-Methyl-2-Pentanone (MIBK)	EPA 8260B	ND	ug/Kg	27	*PH	11/07/2010 / 17:06	
2-Chloroethyl vinyl ether	EPA 8260B	ND	ug/Kg	55	*PH	11/07/2010 / 17:06	
cis-1,3-Dichloropropene	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	
Toluene	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	
trans-1,3-Dichloropropene	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	
Bromodichloromethane	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	
Dibromomethane	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	
1,1,2-Trichloroethane	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	
1,2-Dibromoethane	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	
2-Hexanone	EPA 8260B	ND	ug/Kg	27	*PH	11/07/2010 / 17:06	
1,3-Dichloropropane	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	
Tetrachloroethylene	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	
Dibromochloromethane	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	

Customer: ATC Associates

Workorder No. 1011-00078

Sample: 004 SB03 (0-2)
(Continued)

Parameter	Method	Results	Units	PQL	Tech	Analysis Date/Time	Qual
Chlorobenzene	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	
1,1,1,2-Tetrachloroethane	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	
Ethylbenzene	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	
M/P-Xylene	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	
O-Xylene	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	
Styrene	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	
Bromoform	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	
Isopropylbenzene	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	
1,1,2,2-Tetrachloroethane	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	
1,2,3-Trichloropropane	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	
n-Propylbenzene	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	
trans-1,4-Dichloro-2-butene	EPA 8260B	ND	ug/Kg	11	*PH	11/07/2010 / 17:06	
Bromobenzene	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	
2-Chlorotoluene	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	
1,3,5-Trimethylbenzene	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	
4-Chlorotoluene	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	
tert-Butylbenzene	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	
1,2,4-Trimethylbenzene	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	
sec-Butylbenzene	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	
4-Isopropyltoluene	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	
1,3-Dichlorobenzene	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	
1,4-Dichlorobenzene	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	
n-Butylbenzene	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	
1,2-Dichlorobenzene	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	
1,2-Dibromo-3-Chloropropane	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	
1,2,4-Trichlorobenzene	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	
Hexachlorobutadiene	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	
Naphthalene	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	
1,2,3-Trichlorobenzene	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	
DIBROMOFLUOROMETHANE (SURR)		107	%		*PH	11/07/2010 / 17:06	
TOLUENE-D8 (SURROGATE)		97	%		*PH	11/07/2010 / 17:06	
4-BROMOFLUOROBENZENE (SURR)		70	%		*PH	11/07/2010 / 17:06	
TCL SEMIVOLATILE-SOILS							
bis(2-Chloroethyl)ether	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 14:10	

Customer: ATC Associates

Workorder No. 1011-00078

Sample: 004 SB03 (0-2)
(Continued)

Parameter	Method	Results	Units	PQL	Tech	Analysis Date/Time	Qual
Phenol	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 14:10	
2-Chlorophenol	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 14:10	
1,3-Dichlorobenzene	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 14:10	
1,4-Dichlorobenzene	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 14:10	
1,2-Dichlorobenzene	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 14:10	
2,2'-oxybis(1-Chloropropane	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 14:10	
2-Methyl Phenol	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 14:10	
Hexachloroethane	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 14:10	
N-Nitroso-di-n-propylamine	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 14:10	
3&4-Methyl Phenol	EPA 8270C	ND	ug/Kg	360	TLL	11/09/2010 / 14:10	
Nitrobenzene	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 14:10	
Isophorone	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 14:10	
2-Nitrophenol	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 14:10	
2,4-Dimethylphenol	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 14:10	
bis(2-Chloroethoxy)methane	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 14:10	
2,4-Dichlorophenol	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 14:10	
1,2,4-Trichlorobenzene	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 14:10	
Naphthalene	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 14:10	
4-Chloroaniline	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 14:10	
Hexachlorobutadiene	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 14:10	
4-Chloro-3-methylphenol	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 14:10	
2-Methyl Naphthalene	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 14:10	
Hexachlorocyclopentadiene	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 14:10	
2-Chloronaphthalene	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 14:10	
2,4,6-Trichlorophenol	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 14:10	
2,4,5-Trichlorophenol	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 14:10	
2-Nitroaniline	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 14:10	
Acenaphthylene	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 14:10	
Dimethyl Phthalate	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 14:10	
2,6-Dinitrotoluene	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 14:10	
Acenaphthene	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 14:10	
3-Nitroaniline	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 14:10	
2,4-Dinitrophenol	EPA 8270C	ND	ug/Kg	720	TLL	11/09/2010 / 14:10	
Dibenzofuran	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 14:10	

Customer: ATC Associates

Workorder No. 1011-00078

Sample: 004 SB03 (0-2)
(Continued)

Parameter	Method	Results	Units	PQL	Tech	Analysis Date/Time	Qual
2,4-Dinitrotoluene	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 14:10	
4-Nitrophenol	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 14:10	
Fluorene	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 14:10	
4-Chlorophenyl Phenyl Ether	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 14:10	
Diethyl Phthalate	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 14:10	
4-Nitroaniline	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 14:10	
2-Methyl-4,6-dinitrophenol	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 14:10	
N-Nitrosodiphenylamine	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 14:10	
4-Bromophenyl Phenyl Ether	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 14:10	
Hexachlorobenzene	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 14:10	
Pentachlorophenol	EPA 8270C	ND	ug/Kg	360	TLL	11/09/2010 / 14:10	
Phenanthrene	EPA 8270C	280	ug/Kg	180	TLL	11/09/2010 / 14:10	
Anthracene	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 14:10	
Di-n-butylphthalate	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 14:10	
Fluoranthene	EPA 8270C	470	ug/Kg	180	TLL	11/09/2010 / 14:10	
Pyrene	EPA 8270C	440	ug/Kg	180	TLL	11/09/2010 / 14:10	
Butyl Benzyl Phthalate	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 14:10	
3,3'-Dichlorobenzidine	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 14:10	
Benzo(a)anthracene	EPA 8270C	240	ug/Kg	180	TLL	11/09/2010 / 14:10	
Chrysene	EPA 8270C	280	ug/Kg	180	TLL	11/09/2010 / 14:10	
bis(2-Ethylhexyl)phthalate	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 14:10	
Di-n-octyl phthalate	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 14:10	
Indeno (1,2,3-cd)Pyrene	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 14:10	
Benzo(b)fluoranthene	EPA 8270C	210	ug/Kg	180	TLL	11/09/2010 / 14:10	
Benzo(k)fluoranthene	EPA 8270C	190	ug/Kg	180	TLL	11/09/2010 / 14:10	
Benzo(a)pyrene	EPA 8270C	240	ug/Kg	180	TLL	11/09/2010 / 14:10	
Dibenzo(a,h)Anthracene	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 14:10	
Benzo (g,h,i) perylene	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 14:10	
2-FLUOROPHENOL (SURR)		63.5	%		TLL	11/09/2010 / 14:10	
PHENOL-D5 (SURR)		69.1	%		TLL	11/09/2010 / 14:10	
NITROBENZENE-D5 (SURR)		73.7	%		TLL	11/09/2010 / 14:10	
2-FLUOROBIPHENYL (SURR)		73.5	%		TLL	11/09/2010 / 14:10	
2,4,6-TRIBROMOPHENOL (SURR)		76.1	%		TLL	11/09/2010 / 14:10	
TERPHENYL-D14 (SURR)		78.5	%		TLL	11/09/2010 / 14:10	

Customer: ATC Associates

Workorder No. 1011-00078

Sample: 004 SB03 (0-2)
(Continued)

Parameter	Method	Results	Units	PQL	Tech	Analysis Date/Time	Qual
Pesticides/PCBs-Soil/Solid							
Pesticides-Soil/Solid							
alpha-BHC	EPA 8081A	ND	ug/Kg	1.8	TLL	11/11/2010 / 12:28	
beta-BHC	EPA 8081A	ND	ug/Kg	1.8	TLL	11/11/2010 / 12:28	
gamma-BHC (Lindane)	EPA 8081A	ND	ug/Kg	1.8	TLL	11/11/2010 / 12:28	
delta-BHC	EPA 8081A	ND	ug/Kg	1.8	TLL	11/11/2010 / 12:28	
Heptachlor	EPA 8081A	ND	ug/Kg	1.8	TLL	11/11/2010 / 12:28	
Heptachlor Epoxide	EPA 8081A	ND	ug/Kg	1.8	TLL	11/11/2010 / 12:28	
Aldrin	EPA 8081A	ND	ug/Kg	1.8	TLL	11/11/2010 / 12:28	
Dieldrin	EPA 8081A	ND	ug/Kg	1.8	TLL	11/11/2010 / 12:28	
Endrin	EPA 8081A	ND	ug/Kg	1.8	TLL	11/11/2010 / 12:28	
4,4'-DDD	EPA 8081A	ND	ug/Kg	1.8	TLL	11/11/2010 / 12:28	
4,4'-DDE	EPA 8081A	ND	ug/Kg	1.8	TLL	11/11/2010 / 12:28	
4,4'-DDT	EPA 8081A	ND	ug/Kg	1.8	TLL	11/11/2010 / 12:28	
Endosulfan I	EPA 8081A	ND	ug/Kg	1.8	TLL	11/11/2010 / 12:28	
Endosulfan II	EPA 8081A	ND	ug/Kg	1.8	TLL	11/11/2010 / 12:28	
Endosulfan Sulfate	EPA 8081A	ND	ug/Kg	1.8	TLL	11/11/2010 / 12:28	
Endrin Aldehyde	EPA 8081A	ND	ug/Kg	1.8	TLL	11/11/2010 / 12:28	
Methoxychlor	EPA 8081A	ND	ug/Kg	1.8	TLL	11/11/2010 / 12:28	
Endrin Ketone	EPA 8081A	ND	ug/Kg	1.8	TLL	11/11/2010 / 12:28	
Chlordane	EPA 8081A	ND	ug/Kg	36.2	TLL	11/11/2010 / 12:28	
Toxaphene	EPA 8081A	ND	ug/Kg	36.2	TLL	11/11/2010 / 12:28	
TCMX (SURROGATE)		69.9	%		TLL	11/11/2010 / 12:28	
DCB (SURROGATE)		83.8	%		TLL	11/11/2010 / 12:28	
PCB-SOIL/SOLID							
PCB-1016	EPA 8082	ND	ug/Kg	18	TLL	11/09/2010 / 23:00	
PCB-1221	EPA 8082	ND	ug/Kg	18	TLL	11/09/2010 / 23:00	
PCB-1232	EPA 8082	ND	ug/Kg	18	TLL	11/09/2010 / 23:00	
PCB-1242	EPA 8082	ND	ug/Kg	18	TLL	11/09/2010 / 23:00	
PCB-1248	EPA 8082	ND	ug/Kg	18	TLL	11/09/2010 / 23:00	
PCB-1254	EPA 8082	ND	ug/Kg	18	TLL	11/09/2010 / 23:00	
PCB-1260	EPA 8082	ND	ug/Kg	18	TLL	11/09/2010 / 23:00	
PCB-1262	EPA 8082	ND	ug/Kg	18	TLL	11/09/2010 / 23:00	
PCB-1268	EPA 8082	ND	ug/Kg	18	TLL	11/09/2010 / 23:00	

Customer: ATC Associates

Workorder No. 1011-00078

Sample: 004 SB03 (0-2)
(Continued)

Parameter	Method	Results	Units	PQL	Tech	Analysis Date/Time	Qual
TCMX (SURROGATE)		102	%		TLL	11/09/2010 / 23:00	
DCB (SURROGATE)		84.2	%		TLL	11/09/2010 / 23:00	
Flame/ICP Solid Digestion					*PH	11/11/2010 / : 0	
Percent Solids	SM 2540G	89.9	%		PDP	11/09/2010 / 11:21	

Sample: 005 SB03 (8-9)
Collection Date: 11/04/2010 Time: 10:45:00AM **Received Date: 11/05/2010 Time: 10:00:00AM**
Matrix: SOIL

Parameter	Method	Results	Units	PQL	Tech	Analysis Date/Time	Qual
TAL Metals-Soil/Solid							
Antimony	6010B, SW-846	5.6	mg/Kg	3.8	*PH	11/11/2010 / 12:27	
Aluminum	6010B, SW-846	26400	mg/Kg	560	*PH	11/11/2010 / 12:27	
Arsenic	6010B, SW-846	ND	mg/Kg	0.8	*PH	11/11/2010 / 12:27	
Barium	6010B, SW-846	161	mg/Kg	0.38	*PH	11/11/2010 / 12:27	
Beryllium	6010B, SW-846	0.41	mg/Kg	0.30	*PH	11/11/2010 / 12:27	
Cadmium	6010B, SW-846	ND	mg/Kg	0.38	*PH	11/11/2010 / 12:27	
Chromium	6010B, SW-846	36.7	mg/Kg	0.38	*PH	11/11/2010 / 12:27	
Calcium	6010B, SW-846	2720	mg/Kg	5.6	*PH	11/11/2010 / 12:27	
Iron	6010B, SW-846	47500	mg/Kg	56	*PH	11/11/2010 / 12:27	
Cobalt	6010B, SW-846	23.8	mg/Kg	0.38	*PH	11/11/2010 / 12:27	
Copper	6010B, SW-846	123	mg/Kg	0.38	*PH	11/11/2010 / 12:27	
Lead	6010B, SW-846	7.55	mg/Kg	0.38	*PH	11/11/2010 / 12:27	
Magnesium	6010B, SW-846	15900	mg/Kg	56	*PH	11/11/2010 / 12:27	
Manganese	6010B, SW-846	481	mg/Kg	0.38	*PH	11/11/2010 / 12:27	
Mercury	SW-846; 7471A	ND	mg/Kg	0.08	*PH	11/11/2010 / 12:27	
Nickel	6010B, SW-846	40.1	mg/Kg	0.38	*PH	11/11/2010 / 12:27	
Vanadium	6010B, SW-846	45.6	mg/Kg	0.38	*PH	11/11/2010 / 12:27	
Selenium	6010B, SW-846	ND	mg/Kg	1.5	*PH	11/11/2010 / 12:27	
Potassium	6010B, SW-846	7620	mg/Kg	56	*PH	11/11/2010 / 12:27	
Silver	6010B, SW-846	ND	mg/Kg	0.38	*PH	11/11/2010 / 12:27	
Sodium	6010B, SW-846	176	mg/Kg	5.6	*PH	11/11/2010 / 12:27	
Thallium	6010B, SW-846	ND	mg/Kg	3.4	*PH	11/11/2010 / 12:27	

Customer: ATC Associates

Workorder No. 1011-00078

Sample: 005 SB03 (8-9)
(Continued)

Parameter	Method	Results	Units	PQL	Tech	Analysis Date/Time	Qual
Zinc	6010B, SW-846	103	mg/Kg	0.38	*PH	11/11/2010 / 12:27	
VOC 8260-Soil/Solid/Oil							
Dichlorodifluoromethane	EPA 8260B	ND	ug/Kg	5.3	*PH	11/06/2010 / 15:59	
Vinyl Chloride	EPA 8260B	ND	ug/Kg	5.3	*PH	11/06/2010 / 15:59	
Chloromethane	EPA 8260B	ND	ug/Kg	5.3	*PH	11/06/2010 / 15:59	
Bromomethane	EPA 8260B	ND	ug/Kg	5.3	*PH	11/06/2010 / 15:59	
Chloroethane	EPA 8260B	ND	ug/Kg	5.3	*PH	11/06/2010 / 15:59	
Trichlorofluoromethane	EPA 8260B	ND	ug/Kg	5.3	*PH	11/06/2010 / 15:59	
Acrolein	EPA 8260B	ND	ug/Kg	53	*PH	11/06/2010 / 15:59	
Acetone	EPA 8260B	ND	ug/Kg	26	*PH	11/06/2010 / 15:59	
1,1-Dichloroethylene	EPA 8260B	ND	ug/Kg	5.3	*PH	11/06/2010 / 15:59	
Iodomethane	EPA 8260B	ND	ug/Kg	53	*PH	11/06/2010 / 15:59	
Carbon Disulfide	EPA 8260B	ND	ug/Kg	5.3	*PH	11/06/2010 / 15:59	
Methylene Chloride	EPA 8260B	ND	ug/Kg	5.3	*PH	11/06/2010 / 15:59	
Acrylonitrile	EPA 8260B	ND	ug/Kg	11	*PH	11/06/2010 / 15:59	
Methyl-Tert-Butyl-Ether	EPA 8260B	ND	ug/Kg	11	*PH	11/06/2010 / 15:59	
trans-1,2-Dichloroethylene	EPA 8260B	ND	ug/Kg	5.3	*PH	11/06/2010 / 15:59	
1,1-Dichloroethane	EPA 8260B	ND	ug/Kg	5.3	*PH	11/06/2010 / 15:59	
2-Butanone-(MEK)	EPA 8260B	ND	ug/Kg	26	*PH	11/06/2010 / 15:59	
Vinyl Acetate	EPA 8260B	ND	ug/Kg	53	*PH	11/06/2010 / 15:59	
2,2-Dichloropropane	EPA 8260B	ND	ug/Kg	5.3	*PH	11/06/2010 / 15:59	
cis-1,2-Dichloroethylene	EPA 8260B	ND	ug/Kg	5.3	*PH	11/06/2010 / 15:59	
Chloroform	EPA 8260B	ND	ug/Kg	5.3	*PH	11/06/2010 / 15:59	
Bromochloromethane	EPA 8260B	ND	ug/Kg	5.3	*PH	11/06/2010 / 15:59	
1,1,1-Trichloroethane	EPA 8260B	ND	ug/Kg	5.3	*PH	11/06/2010 / 15:59	
1,1-Dichloropropene	EPA 8260B	ND	ug/Kg	5.3	*PH	11/06/2010 / 15:59	
Carbon Tetrachloride	EPA 8260B	ND	ug/Kg	5.3	*PH	11/06/2010 / 15:59	
Benzene	EPA 8260B	ND	ug/Kg	5.3	*PH	11/06/2010 / 15:59	
1,2-Dichloroethane	EPA 8260B	ND	ug/Kg	5.3	*PH	11/06/2010 / 15:59	
Trichloroethylene	EPA 8260B	ND	ug/Kg	5.3	*PH	11/06/2010 / 15:59	
1,2-Dichloropropane	EPA 8260B	ND	ug/Kg	5.3	*PH	11/06/2010 / 15:59	
4-Methyl-2-Pentanone (MIBK)	EPA 8260B	ND	ug/Kg	26	*PH	11/06/2010 / 15:59	
2-Chloroethyl vinyl ether	EPA 8260B	ND	ug/Kg	53	*PH	11/06/2010 / 15:59	
cis-1,3-Dichloropropene	EPA 8260B	ND	ug/Kg	5.3	*PH	11/06/2010 / 15:59	

Customer: ATC Associates

Workorder No. 1011-00078

Sample: 005 SB03 (8-9)
(Continued)

Parameter	Method	Results	Units	PQL	Tech	Analysis Date/Time	Qual
Toluene	EPA 8260B	ND	ug/Kg	5.3	*PH	11/06/2010 / 15:59	
trans-1,3-Dichloropropene	EPA 8260B	ND	ug/Kg	5.3	*PH	11/06/2010 / 15:59	
Bromodichloromethane	EPA 8260B	ND	ug/Kg	5.3	*PH	11/06/2010 / 15:59	
Dibromomethane	EPA 8260B	ND	ug/Kg	5.3	*PH	11/06/2010 / 15:59	
1,1,2-Trichloroethane	EPA 8260B	ND	ug/Kg	5.3	*PH	11/06/2010 / 15:59	
1,2-Dibromoethane	EPA 8260B	ND	ug/Kg	5.3	*PH	11/06/2010 / 15:59	
2-Hexanone	EPA 8260B	ND	ug/Kg	26	*PH	11/06/2010 / 15:59	
1,3-Dichloropropane	EPA 8260B	ND	ug/Kg	5.3	*PH	11/06/2010 / 15:59	
Tetrachloroethylene	EPA 8260B	ND	ug/Kg	5.3	*PH	11/06/2010 / 15:59	
Dibromochloromethane	EPA 8260B	ND	ug/Kg	5.3	*PH	11/06/2010 / 15:59	
Chlorobenzene	EPA 8260B	ND	ug/Kg	5.3	*PH	11/06/2010 / 15:59	
1,1,1,2-Tetrachloroethane	EPA 8260B	ND	ug/Kg	5.3	*PH	11/06/2010 / 15:59	
Ethylbenzene	EPA 8260B	ND	ug/Kg	5.3	*PH	11/06/2010 / 15:59	
M/P-Xylene	EPA 8260B	ND	ug/Kg	5.3	*PH	11/06/2010 / 15:59	
O-Xylene	EPA 8260B	ND	ug/Kg	5.3	*PH	11/06/2010 / 15:59	
Styrene	EPA 8260B	ND	ug/Kg	5.3	*PH	11/06/2010 / 15:59	
Bromoform	EPA 8260B	ND	ug/Kg	5.3	*PH	11/06/2010 / 15:59	
Isopropylbenzene	EPA 8260B	ND	ug/Kg	5.3	*PH	11/06/2010 / 15:59	
1,1,2,2-Tetrachloroethane	EPA 8260B	ND	ug/Kg	5.3	*PH	11/06/2010 / 15:59	
1,2,3-Trichloropropane	EPA 8260B	ND	ug/Kg	5.3	*PH	11/06/2010 / 15:59	
n-Propylbenzene	EPA 8260B	ND	ug/Kg	5.3	*PH	11/06/2010 / 15:59	
trans-1,4-Dichloro-2-butene	EPA 8260B	ND	ug/Kg	11	*PH	11/06/2010 / 15:59	
Bromobenzene	EPA 8260B	ND	ug/Kg	5.3	*PH	11/06/2010 / 15:59	
2-Chlorotoluene	EPA 8260B	ND	ug/Kg	5.3	*PH	11/06/2010 / 15:59	
1,3,5-Trimethylbenzene	EPA 8260B	ND	ug/Kg	5.3	*PH	11/06/2010 / 15:59	
4-Chlorotoluene	EPA 8260B	ND	ug/Kg	5.3	*PH	11/06/2010 / 15:59	
tert-Butylbenzene	EPA 8260B	ND	ug/Kg	5.3	*PH	11/06/2010 / 15:59	
1,2,4-Trimethylbenzene	EPA 8260B	ND	ug/Kg	5.3	*PH	11/06/2010 / 15:59	
sec-Butylbenzene	EPA 8260B	ND	ug/Kg	5.3	*PH	11/06/2010 / 15:59	
4-Isopropyltoluene	EPA 8260B	ND	ug/Kg	5.3	*PH	11/06/2010 / 15:59	
1,3-Dichlorobenzene	EPA 8260B	ND	ug/Kg	5.3	*PH	11/06/2010 / 15:59	
1,4-Dichlorobenzene	EPA 8260B	ND	ug/Kg	5.3	*PH	11/06/2010 / 15:59	
n-Butylbenzene	EPA 8260B	ND	ug/Kg	5.3	*PH	11/06/2010 / 15:59	
1,2-Dichlorobenzene	EPA 8260B	ND	ug/Kg	5.3	*PH	11/06/2010 / 15:59	

Customer: ATC Associates

Workorder No. 1011-00078

Sample: 005 SB03 (8-9)
(Continued)

Parameter	Method	Results	Units	PQL	Tech	Analysis Date/Time	Qual
1,2-Dibromo-3-Chloropropane	EPA 8260B	ND	ug/Kg	5.3	*PH	11/06/2010 / 15:59	
1,2,4-Trichlorobenzene	EPA 8260B	ND	ug/Kg	5.3	*PH	11/06/2010 / 15:59	
Hexachlorobutadiene	EPA 8260B	ND	ug/Kg	5.3	*PH	11/06/2010 / 15:59	
Naphthalene	EPA 8260B	ND	ug/Kg	5.3	*PH	11/06/2010 / 15:59	
1,2,3-Trichlorobenzene	EPA 8260B	ND	ug/Kg	5.3	*PH	11/06/2010 / 15:59	
DIBROMOFLUOROMETHANE (SURR)		101	%		*PH	11/06/2010 / 15:59	
TOLUENE-D8 (SURROGATE)		97	%		*PH	11/06/2010 / 15:59	
4-BROMOFLUOROBENZENE (SURR)		97	%		*PH	11/06/2010 / 15:59	
TCL SEMIVOLATILE-SOILS							
bis(2-Chloroethyl)ether	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 14:48	
Phenol	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 14:48	
2-Chlorophenol	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 14:48	
1,3-Dichlorobenzene	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 14:48	
1,4-Dichlorobenzene	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 14:48	
1,2-Dichlorobenzene	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 14:48	
2,2'-oxybis(1-Chloropropane	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 14:48	
2-Methyl Phenol	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 14:48	
Hexachloroethane	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 14:48	
N-Nitroso-di-n-propylamine	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 14:48	
3&4-Methyl Phenol	EPA 8270C	ND	ug/Kg	350	TLL	11/09/2010 / 14:48	
Nitrobenzene	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 14:48	
Isophorone	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 14:48	
2-Nitrophenol	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 14:48	
2,4-Dimethylphenol	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 14:48	
bis(2-Chloroethoxy)methane	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 14:48	
2,4-Dichlorophenol	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 14:48	
1,2,4-Trichlorobenzene	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 14:48	
Naphthalene	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 14:48	
4-Chloroaniline	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 14:48	
Hexachlorobutadiene	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 14:48	
4-Chloro-3-methylphenol	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 14:48	
2-Methyl Naphthalene	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 14:48	
Hexachlorocyclopentadiene	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 14:48	
2-Chloronaphthalene	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 14:48	

Customer: ATC Associates

Workorder No. 1011-00078

Sample: 005 SB03 (8-9)
(Continued)

Parameter	Method	Results	Units	PQL	Tech	Analysis Date/Time	Qual
2,4,6-Trichlorophenol	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 14:48	
2,4,5-Trichlorophenol	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 14:48	
2-Nitroaniline	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 14:48	
Acenaphthylene	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 14:48	
Dimethyl Phthalate	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 14:48	
2,6-Dinitrotoluene	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 14:48	
Acenaphthene	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 14:48	
3-Nitroaniline	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 14:48	
2,4-Dinitrophenol	EPA 8270C	ND	ug/Kg	700	TLL	11/09/2010 / 14:48	
Dibenzofuran	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 14:48	
2,4-Dinitrotoluene	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 14:48	
4-Nitrophenol	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 14:48	
Fluorene	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 14:48	
4-Chlorophenyl Phenyl Ether	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 14:48	
Diethyl Phthalate	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 14:48	
4-Nitroaniline	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 14:48	
2-Methyl-4,6-dinitrophenol	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 14:48	
N-Nitrosodiphenylamine	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 14:48	
4-Bromophenyl Phenyl Ether	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 14:48	
Hexachlorobenzene	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 14:48	
Pentachlorophenol	EPA 8270C	ND	ug/Kg	350	TLL	11/09/2010 / 14:48	
Phenanthrene	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 14:48	
Anthracene	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 14:48	
Di-n-butylphthalate	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 14:48	
Fluoranthene	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 14:48	
Pyrene	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 14:48	
Butyl Benzyl Phthalate	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 14:48	
3,3'-Dichlorobenzidine	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 14:48	
Benzo(a)anthracene	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 14:48	
Chrysene	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 14:48	
bis(2-Ethylhexyl)phthalate	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 14:48	
Di-n-octyl phthalate	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 14:48	
Indeno (1,2,3-cd)Pyrene	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 14:48	
Benzo(b)fluoranthene	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 14:48	

Customer: ATC Associates

Workorder No. 1011-00078

Sample: 005 SB03 (8-9)
(Continued)

Parameter	Method	Results	Units	PQL	Tech	Analysis Date/Time	Qual
Benzo(k)fluoranthene	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 14:48	
Benzo(a)pyrene	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 14:48	
Dibenzo(a,h)Anthracene	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 14:48	
Benzo (g,h,i) perylene	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 14:48	
2-FLUOROPHENOL (SURR)		51.8	%		TLL	11/09/2010 / 14:48	
PHENOL-D5 (SURR)		56.5	%		TLL	11/09/2010 / 14:48	
NITROBENZENE-D5 (SURR)		57.8	%		TLL	11/09/2010 / 14:48	
2-FLUOROBIPHENYL (SURR)		62.5	%		TLL	11/09/2010 / 14:48	
2,4,6-TRIBROMOPHENOL (SURR)		66.6	%		TLL	11/09/2010 / 14:48	
TERPHENYL-D14 (SURR)		76.9	%		TLL	11/09/2010 / 14:48	
Pesticides/PCBs-Soil/Solid							
Pesticides-Soil/Solid							
alpha-BHC	EPA 8081A	ND	ug/Kg	1.7	TLL	11/11/2010 / 12:49	
beta-BHC	EPA 8081A	ND	ug/Kg	1.7	TLL	11/11/2010 / 12:49	
gamma-BHC (Lindane)	EPA 8081A	ND	ug/Kg	1.7	TLL	11/11/2010 / 12:49	
delta-BHC	EPA 8081A	ND	ug/Kg	1.7	TLL	11/11/2010 / 12:49	
Heptachlor	EPA 8081A	ND	ug/Kg	1.7	TLL	11/11/2010 / 12:49	
Heptachlor Epoxide	EPA 8081A	ND	ug/Kg	1.7	TLL	11/11/2010 / 12:49	
Aldrin	EPA 8081A	ND	ug/Kg	1.7	TLL	11/11/2010 / 12:49	
Dieldrin	EPA 8081A	ND	ug/Kg	1.7	TLL	11/11/2010 / 12:49	
Endrin	EPA 8081A	ND	ug/Kg	1.7	TLL	11/11/2010 / 12:49	
4,4'-DDD	EPA 8081A	ND	ug/Kg	1.7	TLL	11/11/2010 / 12:49	
4,4'-DDE	EPA 8081A	ND	ug/Kg	1.7	TLL	11/11/2010 / 12:49	
4,4'-DDT	EPA 8081A	ND	ug/Kg	1.7	TLL	11/11/2010 / 12:49	
Endosulfan I	EPA 8081A	ND	ug/Kg	1.7	TLL	11/11/2010 / 12:49	
Endosulfan II	EPA 8081A	ND	ug/Kg	1.7	TLL	11/11/2010 / 12:49	
Endosulfan Sulfate	EPA 8081A	ND	ug/Kg	1.7	TLL	11/11/2010 / 12:49	
Endrin Aldehyde	EPA 8081A	ND	ug/Kg	1.7	TLL	11/11/2010 / 12:49	
Methoxychlor	EPA 8081A	ND	ug/Kg	1.7	TLL	11/11/2010 / 12:49	
Endrin Ketone	EPA 8081A	ND	ug/Kg	1.7	TLL	11/11/2010 / 12:49	
Chlordane	EPA 8081A	ND	ug/Kg	34.4	TLL	11/11/2010 / 12:49	
Toxaphene	EPA 8081A	ND	ug/Kg	34.4	TLL	11/11/2010 / 12:49	
TCMX (SURROGATE)		74.4	%		TLL	11/11/2010 / 12:49	
DCB (SURROGATE)		103	%		TLL	11/11/2010 / 12:49	G3

Customer: ATC Associates

Workorder No. 1011-00078

Sample: 005 SB03 (8-9)
(Continued)

Parameter	Method	Results	Units	PQL	Tech	Analysis Date/Time	Qual
PCB-SOIL/SOLID							
PCB-1016	EPA 8082	ND	ug/Kg	17	TLL	11/09/2010 / 12:40	
PCB-1221	EPA 8082	ND	ug/Kg	17	TLL	11/09/2010 / 12:40	
PCB-1232	EPA 8082	ND	ug/Kg	17	TLL	11/09/2010 / 12:40	
PCB-1242	EPA 8082	ND	ug/Kg	17	TLL	11/09/2010 / 12:40	
PCB-1248	EPA 8082	ND	ug/Kg	17	TLL	11/09/2010 / 12:40	
PCB-1254	EPA 8082	ND	ug/Kg	17	TLL	11/09/2010 / 12:40	
PCB-1260	EPA 8082	ND	ug/Kg	17	TLL	11/09/2010 / 12:40	
PCB-1262	EPA 8082	ND	ug/Kg	17	TLL	11/09/2010 / 12:40	
PCB-1268	EPA 8082	ND	ug/Kg	17	TLL	11/09/2010 / 12:40	
TCMX (SURROGATE)		88.8	%		TLL	11/09/2010 / 12:40	
DCB (SURROGATE)		110	%		TLL	11/09/2010 / 12:40	
Flame/ICP Solid Digestion					*PH	11/10/2010 / : 0	
Percent Solids	SM 2540G	94.4	%		PDP	11/09/2010 / 11:21	

Sample: 006 SB04 (0-2)
Collection Date: 11/04/2010 Time: 11:00:00AM **Received Date: 11/05/2010 Time: 10:00:00AM**
Matrix: SOIL

Parameter	Method	Results	Units	PQL	Tech	Analysis Date/Time	Qual
TAL Metals-Soil/Solid							
Antimony	6010B, SW-846	ND	mg/Kg	3.8	*PH	11/11/2010 / 12:27	
Aluminum	6010B, SW-846	15700	mg/Kg	57	*PH	11/11/2010 / 12:27	
Arsenic	6010B, SW-846	ND	mg/Kg	0.8	*PH	11/11/2010 / 12:27	
Barium	6010B, SW-846	121	mg/Kg	0.38	*PH	11/11/2010 / 12:27	
Beryllium	6010B, SW-846	0.47	mg/Kg	0.31	*PH	11/11/2010 / 12:27	
Cadmium	6010B, SW-846	ND	mg/Kg	0.38	*PH	11/11/2010 / 12:27	
Chromium	6010B, SW-846	21.8	mg/Kg	0.38	*PH	11/11/2010 / 12:27	
Calcium	6010B, SW-846	5650	mg/Kg	5.7	*PH	11/11/2010 / 12:27	
Iron	6010B, SW-846	27800	mg/Kg	57	*PH	11/11/2010 / 12:27	
Cobalt	6010B, SW-846	17.0	mg/Kg	0.38	*PH	11/11/2010 / 12:27	
Copper	6010B, SW-846	30.9	mg/Kg	0.38	*PH	11/11/2010 / 12:27	
Lead	6010B, SW-846	38.3	mg/Kg	0.38	*PH	11/11/2010 / 12:27	

Customer: ATC Associates

Workorder No. 1011-00078

Sample: 006 SB04 (0-2)
(Continued)

Parameter	Method	Results	Units	PQL	Tech	Analysis Date/Time	Qual
Magnesium	6010B, SW-846	8030	mg/Kg	57	*PH	11/11/2010 / 12:27	
Manganese	6010B, SW-846	355	mg/Kg	0.38	*PH	11/11/2010 / 12:27	
Mercury	SW-846; 7471A	0.12	mg/Kg	0.08	*PH	11/11/2010 / 12:27	
Nickel	6010B, SW-846	29.5	mg/Kg	0.38	*PH	11/11/2010 / 12:27	
Vanadium	6010B, SW-846	33.1	mg/Kg	0.38	*PH	11/11/2010 / 12:27	
Selenium	6010B, SW-846	ND	mg/Kg	1.5	*PH	11/11/2010 / 12:27	
Potassium	6010B, SW-846	7020	mg/Kg	57	*PH	11/11/2010 / 12:27	
Silver	6010B, SW-846	ND	mg/Kg	0.38	*PH	11/11/2010 / 12:27	
Sodium	6010B, SW-846	704	mg/Kg	5.7	*PH	11/11/2010 / 12:27	
Thallium	6010B, SW-846	ND	mg/Kg	3.4	*PH	11/11/2010 / 12:27	
Zinc	6010B, SW-846	93.9	mg/Kg	0.38	*PH	11/11/2010 / 12:27	
VOC 8260-Soil/Solid/Oil							
Dichlorodifluoromethane	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	
Vinyl Chloride	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	
Chloromethane	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	
Bromomethane	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	
Chloroethane	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	
Trichlorofluoromethane	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	
Acrolein	EPA 8260B	ND	ug/Kg	55	*PH	11/07/2010 / 17:06	
Acetone	EPA 8260B	ND	ug/Kg	27	*PH	11/07/2010 / 17:06	
1,1-Dichloroethylene	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	
Iodomethane	EPA 8260B	ND	ug/Kg	55	*PH	11/07/2010 / 17:06	
Carbon Disulfide	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	
Methylene Chloride	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	
Acrylonitrile	EPA 8260B	ND	ug/Kg	11	*PH	11/07/2010 / 17:06	
Methyl-Tert-Butyl-Ether	EPA 8260B	ND	ug/Kg	11	*PH	11/07/2010 / 17:06	
trans-1,2-Dichloroethylene	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	
1,1-Dichloroethane	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	
2-Butanone-(MEK)	EPA 8260B	ND	ug/Kg	27	*PH	11/07/2010 / 17:06	
Vinyl Acetate	EPA 8260B	ND	ug/Kg	55	*PH	11/07/2010 / 17:06	
2,2-Dichloropropane	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	
cis-1,2-Dichloroethylene	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	
Chloroform	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	
Bromochloromethane	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	

Customer: ATC Associates

Workorder No. 1011-00078

Sample: 006 SB04 (0-2)
(Continued)

Parameter	Method	Results	Units	PQL	Tech	Analysis Date/Time	Qual
1,1,1-Trichloroethane	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	
1,1-Dichloropropene	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	
Carbon Tetrachloride	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	
Benzene	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	
1,2-Dichloroethane	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	
Trichloroethylene	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	
1,2-Dichloropropane	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	
4-Methyl-2-Pentanone (MIBK)	EPA 8260B	ND	ug/Kg	27	*PH	11/07/2010 / 17:06	
2-Chloroethyl vinyl ether	EPA 8260B	ND	ug/Kg	55	*PH	11/07/2010 / 17:06	
cis-1,3-Dichloropropene	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	
Toluene	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	
trans-1,3-Dichloropropene	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	
Bromodichloromethane	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	
Dibromomethane	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	
1,1,2-Trichloroethane	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	
1,2-Dibromoethane	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	
2-Hexanone	EPA 8260B	ND	ug/Kg	27	*PH	11/07/2010 / 17:06	
1,3-Dichloropropane	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	
Tetrachloroethylene	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	
Dibromochloromethane	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	
Chlorobenzene	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	
1,1,1,2-Tetrachloroethane	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	
Ethylbenzene	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	
M/P-Xylene	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	
O-Xylene	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	
Styrene	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	
Bromoform	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	
Isopropylbenzene	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	
1,1,2,2-Tetrachloroethane	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	
1,2,3-Trichloropropane	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	
n-Propylbenzene	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	
trans-1,4-Dichloro-2-butene	EPA 8260B	ND	ug/Kg	11	*PH	11/07/2010 / 17:06	
Bromobenzene	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	
2-Chlorotoluene	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	

Customer: ATC Associates

Workorder No. 1011-00078

Sample: 006 SB04 (0-2)
(Continued)

Parameter	Method	Results	Units	PQL	Tech	Analysis Date/Time	Qual
1,3,5-Trimethylbenzene	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	
4-Chlorotoluene	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	
tert-Butylbenzene	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	
1,2,4-Trimethylbenzene	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	
sec-Butylbenzene	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	
4-Isopropyltoluene	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	
1,3-Dichlorobenzene	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	
1,4-Dichlorobenzene	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	
n-Butylbenzene	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	
1,2-Dichlorobenzene	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	
1,2-Dibromo-3-Chloropropane	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	
1,2,4-Trichlorobenzene	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	
Hexachlorobutadiene	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	
Naphthalene	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	
1,2,3-Trichlorobenzene	EPA 8260B	ND	ug/Kg	5.5	*PH	11/07/2010 / 17:06	
DIBROMOFLUOROMETHANE (SURR)		101	%		*PH	11/07/2010 / 17:06	
TOLUENE-D8 (SURROGATE)		92	%		*PH	11/07/2010 / 17:06	
4-BROMOFLUOROBENZENE (SURR)		82	%		*PH	11/07/2010 / 17:06	
TCL SEMIVOLATILE-SOILS							
bis(2-Chloroethyl)ether	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 15:26	
Phenol	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 15:26	
2-Chlorophenol	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 15:26	
1,3-Dichlorobenzene	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 15:26	
1,4-Dichlorobenzene	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 15:26	
1,2-Dichlorobenzene	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 15:26	
2,2'-oxybis(1-Chloropropane	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 15:26	
2-Methyl Phenol	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 15:26	
Hexachloroethane	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 15:26	
N-Nitroso-di-n-propylamine	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 15:26	
3&4-Methyl Phenol	EPA 8270C	ND	ug/Kg	350	TLL	11/09/2010 / 15:26	
Nitrobenzene	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 15:26	
Isophorone	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 15:26	
2-Nitrophenol	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 15:26	
2,4-Dimethylphenol	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 15:26	

Customer: ATC Associates

Workorder No. 1011-00078

Sample: 006 SB04 (0-2)
(Continued)

Parameter	Method	Results	Units	PQL	Tech	Analysis Date/Time	Qual
bis(2-Chloroethoxy)methane	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 15:26	
2,4-Dichlorophenol	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 15:26	
1,2,4-Trichlorobenzene	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 15:26	
Naphthalene	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 15:26	
4-Chloroaniline	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 15:26	
Hexachlorobutadiene	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 15:26	
4-Chloro-3-methylphenol	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 15:26	
2-Methyl Naphthalene	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 15:26	
Hexachlorocyclopentadiene	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 15:26	
2-Chloronaphthalene	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 15:26	
2,4,6-Trichlorophenol	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 15:26	
2,4,5-Trichlorophenol	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 15:26	
2-Nitroaniline	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 15:26	
Acenaphthylene	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 15:26	
Dimethyl Phthalate	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 15:26	
2,6-Dinitrotoluene	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 15:26	
Acenaphthene	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 15:26	
3-Nitroaniline	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 15:26	
2,4-Dinitrophenol	EPA 8270C	ND	ug/Kg	690	TLL	11/09/2010 / 15:26	
Dibenzofuran	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 15:26	
2,4-Dinitrotoluene	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 15:26	
4-Nitrophenol	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 15:26	
Fluorene	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 15:26	
4-Chlorophenyl Phenyl Ether	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 15:26	
Diethyl Phthalate	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 15:26	
4-Nitroaniline	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 15:26	
2-Methyl-4,6-dinitrophenol	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 15:26	
N-Nitrosodiphenylamine	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 15:26	
4-Bromophenyl Phenyl Ether	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 15:26	
Hexachlorobenzene	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 15:26	
Pentachlorophenol	EPA 8270C	ND	ug/Kg	350	TLL	11/09/2010 / 15:26	
Phenanthrene	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 15:26	
Anthracene	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 15:26	
Di-n-butylphthalate	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 15:26	

Customer: ATC Associates

Workorder No. 1011-00078

Sample: 006 SB04 (0-2)
(Continued)

Parameter	Method	Results	Units	PQL	Tech	Analysis Date/Time	Qual
Fluoranthene	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 15:26	
Pyrene	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 15:26	
Butyl Benzyl Phthalate	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 15:26	
3,3'-Dichlorobenzidine	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 15:26	
Benzo(a)anthracene	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 15:26	
Chrysene	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 15:26	
bis(2-Ethylhexyl)phthalate	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 15:26	
Di-n-octyl phthalate	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 15:26	
Indeno (1,2,3-cd)Pyrene	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 15:26	
Benzo(b)fluoranthene	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 15:26	
Benzo(k)fluoranthene	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 15:26	
Benzo(a)pyrene	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 15:26	
Dibenzo(a,h)Anthracene	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 15:26	
Benzo (g,h,i) perylene	EPA 8270C	ND	ug/Kg	170	TLL	11/09/2010 / 15:26	
2-FLUOROPHENOL (SURR)		65.4	%		TLL	11/09/2010 / 15:26	
PHENOL-D5 (SURR)		69.9	%		TLL	11/09/2010 / 15:26	
NITROBENZENE-D5 (SURR)		72.4	%		TLL	11/09/2010 / 15:26	
2-FLUOROBIPHENYL (SURR)		74.8	%		TLL	11/09/2010 / 15:26	
2,4,6-TRIBROMOPHENOL (SURR)		73.1	%		TLL	11/09/2010 / 15:26	
TERPHENYL-D14 (SURR)		85.8	%		TLL	11/09/2010 / 15:26	
Pesticides/PCBs-Soil/Solid							
Pesticides-Soil/Solid							
alpha-BHC	EPA 8081A	ND	ug/Kg	1.7	TLL	11/11/2010 / 12:08	
beta-BHC	EPA 8081A	ND	ug/Kg	1.7	TLL	11/11/2010 / 12:08	
gamma-BHC (Lindane)	EPA 8081A	ND	ug/Kg	1.7	TLL	11/11/2010 / 12:08	
delta-BHC	EPA 8081A	ND	ug/Kg	1.7	TLL	11/11/2010 / 12:08	
Heptachlor	EPA 8081A	ND	ug/Kg	1.7	TLL	11/11/2010 / 12:08	
Heptachlor Epoxide	EPA 8081A	ND	ug/Kg	1.7	TLL	11/11/2010 / 12:08	
Aldrin	EPA 8081A	ND	ug/Kg	1.7	TLL	11/11/2010 / 12:08	
Dieldrin	EPA 8081A	ND	ug/Kg	1.7	TLL	11/11/2010 / 12:08	
Endrin	EPA 8081A	ND	ug/Kg	1.7	TLL	11/11/2010 / 12:08	
4,4'-DDD	EPA 8081A	ND	ug/Kg	1.7	TLL	11/11/2010 / 12:08	
4,4'-DDE	EPA 8081A	ND	ug/Kg	1.7	TLL	11/11/2010 / 12:08	
4,4'-DDT	EPA 8081A	ND	ug/Kg	1.7	TLL	11/11/2010 / 12:08	

Customer: ATC Associates

Workorder No. 1011-00078

Sample: 006 SB04 (0-2)
(Continued)

Parameter	Method	Results	Units	PQL	Tech	Analysis Date/Time	Qual
Endosulfan I	EPA 8081A	ND	ug/Kg	1.7	TLL	11/11/2010 / 12:08	
Endosulfan II	EPA 8081A	ND	ug/Kg	1.7	TLL	11/11/2010 / 12:08	
Endosulfan Sulfate	EPA 8081A	ND	ug/Kg	1.7	TLL	11/11/2010 / 12:08	
Endrin Aldehyde	EPA 8081A	ND	ug/Kg	1.7	TLL	11/11/2010 / 12:08	
Methoxychlor	EPA 8081A	ND	ug/Kg	1.7	TLL	11/11/2010 / 12:08	
Endrin Ketone	EPA 8081A	ND	ug/Kg	1.7	TLL	11/11/2010 / 12:08	
Chlordane	EPA 8081A	ND	ug/Kg	34.4	TLL	11/11/2010 / 12:08	
Toxaphene	EPA 8081A	ND	ug/Kg	34.4	TLL	11/11/2010 / 12:08	
TCMX (SURROGATE)		71.5	%		TLL	11/11/2010 / 12:08	
DCB (SURROGATE)		101	%		TLL	11/11/2010 / 12:08	G3
PCB-SOIL/SOLID							
PCB-1016	EPA 8082	ND	ug/Kg	17	TLL	11/09/2010 / 12:40	
PCB-1221	EPA 8082	ND	ug/Kg	17	TLL	11/09/2010 / 12:40	
PCB-1232	EPA 8082	ND	ug/Kg	17	TLL	11/09/2010 / 12:40	
PCB-1242	EPA 8082	ND	ug/Kg	17	TLL	11/09/2010 / 12:40	
PCB-1248	EPA 8082	ND	ug/Kg	17	TLL	11/09/2010 / 12:40	
PCB-1254	EPA 8082	ND	ug/Kg	17	TLL	11/09/2010 / 12:40	
PCB-1260	EPA 8082	ND	ug/Kg	17	TLL	11/09/2010 / 12:40	
PCB-1262	EPA 8082	ND	ug/Kg	17	TLL	11/09/2010 / 12:40	
PCB-1268	EPA 8082	ND	ug/Kg	17	TLL	11/09/2010 / 12:40	
TCMX (SURROGATE)		85.2	%		TLL	11/09/2010 / 12:40	
DCB (SURROGATE)		106	%		TLL	11/09/2010 / 12:40	
Flame/ICP Solid Digestion					*PH	11/10/2010 / : 0	
Percent Solids	SM 2540G	96.3	%		PDP	11/09/2010 / 11:21	

Sample: 007 SB05 (0-1)
Collection Date: 11/04/2010 Time: 11:10:00AM **Received Date: 11/05/2010 Time: 10:00:00AM**
Matrix: SOIL

Parameter	Method	Results	Units	PQL	Tech	Analysis Date/Time	Qual
TAL Metals-Soil/Solid							
Antimony	6010B, SW-846	ND	mg/Kg	3.8	*PH	11/11/2010 / 12:27	
Aluminum	6010B, SW-846	10800	mg/Kg	57	*PH	11/11/2010 / 12:27	

Customer: ATC Associates

Workorder No. 1011-00078

Sample: 007 SB05 (0-1)
(Continued)

Parameter	Method	Results	Units	PQL	Tech	Analysis Date/Time	Qual
Arsenic	6010B, SW-846	1.7	mg/Kg	0.8	*PH	11/11/2010 / 12:27	
Barium	6010B, SW-846	90.2	mg/Kg	0.38	*PH	11/11/2010 / 12:27	
Beryllium	6010B, SW-846	0.53	mg/Kg	0.30	*PH	11/11/2010 / 12:27	
Cadmium	6010B, SW-846	ND	mg/Kg	0.38	*PH	11/11/2010 / 12:27	
Chromium	6010B, SW-846	21.5	mg/Kg	0.38	*PH	11/11/2010 / 12:27	
Calcium	6010B, SW-846	17200	mg/Kg	57	*PH	11/11/2010 / 12:27	
Iron	6010B, SW-846	17600	mg/Kg	57	*PH	11/11/2010 / 12:27	
Cobalt	6010B, SW-846	8.57	mg/Kg	0.38	*PH	11/11/2010 / 12:27	
Copper	6010B, SW-846	19.6	mg/Kg	0.38	*PH	11/11/2010 / 12:27	
Lead	6010B, SW-846	14.0	mg/Kg	0.38	*PH	11/11/2010 / 12:27	
Magnesium	6010B, SW-846	4550	mg/Kg	5.7	*PH	11/11/2010 / 12:27	
Manganese	6010B, SW-846	635	mg/Kg	3.8	*PH	11/11/2010 / 12:27	
Mercury	SW-846; 7471A	ND	mg/Kg	0.07	*PH	11/11/2010 / 12:27	
Nickel	6010B, SW-846	21.7	mg/Kg	0.38	*PH	11/11/2010 / 12:27	
Vanadium	6010B, SW-846	34.6	mg/Kg	0.38	*PH	11/11/2010 / 12:27	
Selenium	6010B, SW-846	ND	mg/Kg	1.5	*PH	11/11/2010 / 12:27	
Potassium	6010B, SW-846	2530	mg/Kg	5.7	*PH	11/11/2010 / 12:27	
Silver	6010B, SW-846	ND	mg/Kg	0.38	*PH	11/11/2010 / 12:27	
Sodium	6010B, SW-846	619	mg/Kg	5.7	*PH	11/11/2010 / 12:27	
Thallium	6010B, SW-846	ND	mg/Kg	3.4	*PH	11/11/2010 / 12:27	
Zinc	6010B, SW-846	37.3	mg/Kg	0.38	*PH	11/11/2010 / 12:27	
VOC 8260-Soil/Solid/Oil							
Dichlorodifluoromethane	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	
Vinyl Chloride	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	
Chloromethane	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	
Bromomethane	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	
Chloroethane	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	
Trichlorofluoromethane	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	
Acrolein	EPA 8260B	ND	ug/Kg	57	*PH	11/06/2010 / 15:59	
Acetone	EPA 8260B	ND	ug/Kg	29	*PH	11/06/2010 / 15:59	
1,1-Dichloroethylene	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	
Iodomethane	EPA 8260B	ND	ug/Kg	57	*PH	11/06/2010 / 15:59	
Carbon Disulfide	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	
Methylene Chloride	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	

Customer: ATC Associates

Workorder No. 1011-00078

Sample: 007 SB05 (0-1)
(Continued)

Parameter	Method	Results	Units	PQL	Tech	Analysis Date/Time	Qual
Acrylonitrile	EPA 8260B	ND	ug/Kg	11	*PH	11/06/2010 / 15:59	
Methyl-Tert-Butyl-Ether	EPA 8260B	ND	ug/Kg	11	*PH	11/06/2010 / 15:59	
trans-1,2-Dichloroethylene	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	
1,1-Dichloroethane	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	
2-Butanone-(MEK)	EPA 8260B	ND	ug/Kg	29	*PH	11/06/2010 / 15:59	
Vinyl Acetate	EPA 8260B	ND	ug/Kg	57	*PH	11/06/2010 / 15:59	
2,2-Dichloropropane	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	
cis-1,2-Dichloroethylene	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	
Chloroform	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	
Bromochloromethane	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	
1,1,1-Trichloroethane	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	
1,1-Dichloropropene	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	
Carbon Tetrachloride	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	
Benzene	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	
1,2-Dichloroethane	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	
Trichloroethylene	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	
1,2-Dichloropropane	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	
4-Methyl-2-Pentanone (MIBK)	EPA 8260B	ND	ug/Kg	29	*PH	11/06/2010 / 15:59	
2-Chloroethyl vinyl ether	EPA 8260B	ND	ug/Kg	57	*PH	11/06/2010 / 15:59	
cis-1,3-Dichloropropene	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	
Toluene	EPA 8260B	15	ug/Kg	5.7	*PH	11/06/2010 / 15:59	
trans-1,3-Dichloropropene	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	
Bromodichloromethane	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	
Dibromomethane	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	
1,1,2-Trichloroethane	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	
1,2-Dibromoethane	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	
2-Hexanone	EPA 8260B	ND	ug/Kg	29	*PH	11/06/2010 / 15:59	
1,3-Dichloropropane	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	
Tetrachloroethylene	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	
Dibromochloromethane	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	
Chlorobenzene	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	
1,1,1,2-Tetrachloroethane	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	
Ethylbenzene	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	
M/P-Xylene	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	

Customer: ATC Associates

Workorder No. 1011-00078

Sample: 007 SB05 (0-1)
(Continued)

Parameter	Method	Results	Units	PQL	Tech	Analysis Date/Time	Qual
O-Xylene	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	
Styrene	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	
Bromoform	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	
Isopropylbenzene	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	
1,1,2,2-Tetrachloroethane	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	
1,2,3-Trichloropropane	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	
n-Propylbenzene	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	
trans-1,4-Dichloro-2-butene	EPA 8260B	ND	ug/Kg	11	*PH	11/06/2010 / 15:59	
Bromobenzene	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	
2-Chlorotoluene	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	
1,3,5-Trimethylbenzene	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	
4-Chlorotoluene	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	
tert-Butylbenzene	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	
1,2,4-Trimethylbenzene	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	
sec-Butylbenzene	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	
4-Isopropyltoluene	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	
1,3-Dichlorobenzene	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	
1,4-Dichlorobenzene	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	
n-Butylbenzene	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	
1,2-Dichlorobenzene	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	
1,2-Dibromo-3-Chloropropane	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	
1,2,4-Trichlorobenzene	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	
Hexachlorobutadiene	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	
Naphthalene	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	
1,2,3-Trichlorobenzene	EPA 8260B	ND	ug/Kg	5.7	*PH	11/06/2010 / 15:59	
DIBROMOFLUOROMETHANE (SURR)		65	%		*PH	11/06/2010 / 15:59	
TOLUENE-D8 (SURROGATE)		93	%		*PH	11/06/2010 / 15:59	
4-BROMOFLUOROBENZENE (SURR)		89	%		*PH	11/06/2010 / 15:59	
TCL SEMIVOLATILE-SOILS							
bis(2-Chloroethyl)ether	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 16:04	
Phenol	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 16:04	
2-Chlorophenol	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 16:04	
1,3-Dichlorobenzene	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 16:04	
1,4-Dichlorobenzene	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 16:04	

Customer: ATC Associates

Workorder No. 1011-00078

Sample: 007 SB05 (0-1)
(Continued)

Parameter	Method	Results	Units	PQL	Tech	Analysis Date/Time	Qual
1,2-Dichlorobenzene	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 16:04	
2,2'-oxybis(1-Chloropropane	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 16:04	
2-Methyl Phenol	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 16:04	
Hexachloroethane	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 16:04	
N-Nitroso-di-n-propylamine	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 16:04	
3&4-Methyl Phenol	EPA 8270C	ND	ug/Kg	360	TLL	11/09/2010 / 16:04	
Nitrobenzene	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 16:04	
Isophorone	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 16:04	
2-Nitrophenol	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 16:04	
2,4-Dimethylphenol	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 16:04	
bis(2-Chloroethoxy)methane	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 16:04	
2,4-Dichlorophenol	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 16:04	
1,2,4-Trichlorobenzene	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 16:04	
Naphthalene	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 16:04	
4-Chloroaniline	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 16:04	
Hexachlorobutadiene	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 16:04	
4-Chloro-3-methylphenol	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 16:04	
2-Methyl Naphthalene	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 16:04	
Hexachlorocyclopentadiene	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 16:04	
2-Chloronaphthalene	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 16:04	
2,4,6-Trichlorophenol	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 16:04	
2,4,5-Trichlorophenol	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 16:04	
2-Nitroaniline	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 16:04	
Acenaphthylene	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 16:04	
Dimethyl Phthalate	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 16:04	
2,6-Dinitrotoluene	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 16:04	
Acenaphthene	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 16:04	
3-Nitroaniline	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 16:04	
2,4-Dinitrophenol	EPA 8270C	ND	ug/Kg	720	TLL	11/09/2010 / 16:04	
Dibenzofuran	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 16:04	
2,4-Dinitrotoluene	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 16:04	
4-Nitrophenol	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 16:04	
Fluorene	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 16:04	
4-Chlorophenyl Phenyl Ether	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 16:04	

Customer: ATC Associates

Workorder No. 1011-00078

Sample: 007 SB05 (0-1)
(Continued)

Parameter	Method	Results	Units	PQL	Tech	Analysis Date/Time	Qual
Diethyl Phthalate	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 16:04	
4-Nitroaniline	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 16:04	
2-Methyl-4,6-dinitrophenol	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 16:04	
N-Nitrosodiphenylamine	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 16:04	
4-Bromophenyl Phenyl Ether	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 16:04	
Hexachlorobenzene	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 16:04	
Pentachlorophenol	EPA 8270C	ND	ug/Kg	360	TLL	11/09/2010 / 16:04	
Phenanthrene	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 16:04	
Anthracene	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 16:04	
Di-n-butylphthalate	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 16:04	
Fluoranthene	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 16:04	
Pyrene	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 16:04	
Butyl Benzyl Phthalate	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 16:04	
3,3'-Dichlorobenzidine	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 16:04	
Benzo(a)anthracene	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 16:04	
Chrysene	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 16:04	
bis(2-Ethylhexyl)phthalate	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 16:04	
Di-n-octyl phthalate	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 16:04	
Indeno (1,2,3-cd)Pyrene	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 16:04	
Benzo(b)fluoranthene	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 16:04	
Benzo(k)fluoranthene	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 16:04	
Benzo(a)pyrene	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 16:04	
Dibenzo(a,h)Anthracene	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 16:04	
Benzo (g,h,i) perylene	EPA 8270C	ND	ug/Kg	180	TLL	11/09/2010 / 16:04	
2-FLUOROPHENOL (SURR)		57.3	%		TLL	11/09/2010 / 16:04	
PHENOL-D5 (SURR)		63.4	%		TLL	11/09/2010 / 16:04	
NITROBENZENE-D5 (SURR)		67.8	%		TLL	11/09/2010 / 16:04	
2-FLUOROBIPHENYL (SURR)		72.6	%		TLL	11/09/2010 / 16:04	
2,4,6-TRIBROMOPHENOL (SURR)		52.3	%		TLL	11/09/2010 / 16:04	
TERPHENYL-D14 (SURR)		81.5	%		TLL	11/09/2010 / 16:04	
Pesticides/PCBs-Soil/Solid							
Pesticides-Soil/Solid							
alpha-BHC	EPA 8081A	ND	ug/Kg	1.8	TLL	11/11/2010 / 19:11	
beta-BHC	EPA 8081A	ND	ug/Kg	1.8	TLL	11/11/2010 / 19:11	

Customer: ATC Associates

Workorder No. 1011-00078

Sample: 007 SB05 (0-1)
(Continued)

Parameter	Method	Results	Units	PQL	Tech	Analysis Date/Time	Qual
gamma-BHC (Lindane)	EPA 8081A	ND	ug/Kg	1.8	TLL	11/11/2010 / 19:11	
delta-BHC	EPA 8081A	ND	ug/Kg	1.8	TLL	11/11/2010 / 19:11	
Heptachlor	EPA 8081A	ND	ug/Kg	1.8	TLL	11/11/2010 / 19:11	
Heptachlor Epoxide	EPA 8081A	ND	ug/Kg	1.8	TLL	11/11/2010 / 19:11	
Aldrin	EPA 8081A	ND	ug/Kg	1.8	TLL	11/11/2010 / 19:11	
Dieldrin	EPA 8081A	ND	ug/Kg	1.8	TLL	11/11/2010 / 19:11	
Endrin	EPA 8081A	ND	ug/Kg	1.8	TLL	11/11/2010 / 19:11	
4,4'-DDD	EPA 8081A	ND	ug/Kg	1.8	TLL	11/11/2010 / 19:11	
4,4'-DDE	EPA 8081A	ND	ug/Kg	1.8	TLL	11/11/2010 / 19:11	
4,4'-DDT	EPA 8081A	ND	ug/Kg	1.8	TLL	11/11/2010 / 19:11	
Endosulfan I	EPA 8081A	ND	ug/Kg	1.8	TLL	11/11/2010 / 19:11	
Endosulfan II	EPA 8081A	ND	ug/Kg	1.8	TLL	11/11/2010 / 19:11	
Endosulfan Sulfate	EPA 8081A	ND	ug/Kg	1.8	TLL	11/11/2010 / 19:11	
Endrin Aldehyde	EPA 8081A	ND	ug/Kg	1.8	TLL	11/11/2010 / 19:11	
Methoxychlor	EPA 8081A	ND	ug/Kg	1.8	TLL	11/11/2010 / 19:11	
Endrin Ketone	EPA 8081A	ND	ug/Kg	1.8	TLL	11/11/2010 / 19:11	
Chlordane	EPA 8081A	ND	ug/Kg	36.0	TLL	11/11/2010 / 19:11	
Toxaphene	EPA 8081A	ND	ug/Kg	36.0	TLL	11/11/2010 / 19:11	
TCMX (SURROGATE)		61.3	%		TLL	11/11/2010 / 19:11	
DCB (SURROGATE)		85.7	%		TLL	11/11/2010 / 19:11	
PCB-SOIL/SOLID							
PCB-1016	EPA 8082	ND	ug/Kg	18	TLL	11/09/2010 / 19:00	
PCB-1221	EPA 8082	ND	ug/Kg	18	TLL	11/09/2010 / 19:00	
PCB-1232	EPA 8082	ND	ug/Kg	18	TLL	11/09/2010 / 19:00	
PCB-1242	EPA 8082	ND	ug/Kg	18	TLL	11/09/2010 / 19:00	
PCB-1248	EPA 8082	ND	ug/Kg	18	TLL	11/09/2010 / 19:00	
PCB-1254	EPA 8082	ND	ug/Kg	18	TLL	11/09/2010 / 19:00	
PCB-1260	EPA 8082	ND	ug/Kg	18	TLL	11/09/2010 / 19:00	
PCB-1262	EPA 8082	ND	ug/Kg	18	TLL	11/09/2010 / 19:00	
PCB-1268	EPA 8082	ND	ug/Kg	18	TLL	11/09/2010 / 19:00	
TCMX (SURROGATE)		94.3	%		TLL	11/09/2010 / 19:00	
DCB (SURROGATE)		88.0	%		TLL	11/09/2010 / 19:00	
Flame/ICP Solid Digestion					*PH	11/10/2010 / : 0	
Percent Solids	SM 2540G	91.5	%		PDP	11/09/2010 / 11:21	

Customer: ATC Associates

Workorder No. 1011-00078

Sample: 008 SB06 (0-2)
Collection Date: 11/04/2010 Time: 11:30:00AM **Received Date: 11/05/2010 Time: 10:00:00AM**
Matrix: SOIL

Parameter	Method	Results	Units	PQL	Tech	Analysis Date/Time	Qual
TAL Metals-Soil/Solid							
Antimony	6010B, SW-846	ND	mg/Kg	3.9	*PH	11/11/2010 / 12:27	
Aluminum	6010B, SW-846	9830	mg/Kg	58	*PH	11/11/2010 / 12:27	
Arsenic	6010B, SW-846	3.2	mg/Kg	0.8	*PH	11/11/2010 / 12:27	
Barium	6010B, SW-846	119	mg/Kg	0.39	*PH	11/11/2010 / 12:27	
Beryllium	6010B, SW-846	0.35	mg/Kg	0.31	*PH	11/11/2010 / 12:27	
Cadmium	6010B, SW-846	ND	mg/Kg	0.39	*PH	11/11/2010 / 12:27	
Chromium	6010B, SW-846	16.7	mg/Kg	0.39	*PH	11/11/2010 / 12:27	
Calcium	6010B, SW-846	9170	mg/Kg	5.8	*PH	11/11/2010 / 12:27	
Iron	6010B, SW-846	20800	mg/Kg	58	*PH	11/11/2010 / 12:27	
Cobalt	6010B, SW-846	7.89	mg/Kg	0.39	*PH	11/11/2010 / 12:27	
Copper	6010B, SW-846	76.0	mg/Kg	0.39	*PH	11/11/2010 / 12:27	
Lead	6010B, SW-846	243	mg/Kg	0.39	*PH	11/11/2010 / 12:27	
Magnesium	6010B, SW-846	5250	mg/Kg	5.8	*PH	11/11/2010 / 12:27	
Manganese	6010B, SW-846	403	mg/Kg	0.39	*PH	11/11/2010 / 12:27	
Mercury	SW-846; 7471A	0.24	mg/Kg	0.09	*PH	11/11/2010 / 12:27	
Nickel	6010B, SW-846	16.6	mg/Kg	0.39	*PH	11/11/2010 / 12:27	
Vanadium	6010B, SW-846	20.4	mg/Kg	0.39	*PH	11/11/2010 / 12:27	
Selenium	6010B, SW-846	ND	mg/Kg	1.5	*PH	11/11/2010 / 12:27	
Potassium	6010B, SW-846	1920	mg/Kg	5.8	*PH	11/11/2010 / 12:27	
Silver	6010B, SW-846	ND	mg/Kg	0.39	*PH	11/11/2010 / 12:27	
Sodium	6010B, SW-846	878	mg/Kg	5.8	*PH	11/11/2010 / 12:27	
Thallium	6010B, SW-846	ND	mg/Kg	3.5	*PH	11/11/2010 / 12:27	
Zinc	6010B, SW-846	132	mg/Kg	0.39	*PH	11/11/2010 / 12:27	
VOC 8260-Soil/Solid/Oil							
Dichlorodifluoromethane	EPA 8260B	ND	ug/Kg	6.0	*PH	11/06/2010 / 15:59	
Vinyl Chloride	EPA 8260B	ND	ug/Kg	6.0	*PH	11/06/2010 / 15:59	
Chloromethane	EPA 8260B	ND	ug/Kg	6.0	*PH	11/06/2010 / 15:59	
Bromomethane	EPA 8260B	ND	ug/Kg	6.0	*PH	11/06/2010 / 15:59	
Chloroethane	EPA 8260B	ND	ug/Kg	6.0	*PH	11/06/2010 / 15:59	
Trichlorofluoromethane	EPA 8260B	ND	ug/Kg	6.0	*PH	11/06/2010 / 15:59	

Customer: ATC Associates

Workorder No. 1011-00078

Sample: 008 SB06 (0-2)
(Continued)

Parameter	Method	Results	Units	PQL	Tech	Analysis Date/Time	Qual
Acrolein	EPA 8260B	ND	ug/Kg	60	*PH	11/06/2010 / 15:59	
Acetone	EPA 8260B	ND	ug/Kg	30	*PH	11/06/2010 / 15:59	
1,1-Dichloroethylene	EPA 8260B	ND	ug/Kg	6.0	*PH	11/06/2010 / 15:59	
Iodomethane	EPA 8260B	ND	ug/Kg	60	*PH	11/06/2010 / 15:59	
Carbon Disulfide	EPA 8260B	ND	ug/Kg	6.0	*PH	11/06/2010 / 15:59	
Methylene Chloride	EPA 8260B	ND	ug/Kg	6.0	*PH	11/06/2010 / 15:59	
Acrylonitrile	EPA 8260B	ND	ug/Kg	12	*PH	11/06/2010 / 15:59	
Methyl-Tert-Butyl-Ether	EPA 8260B	ND	ug/Kg	12	*PH	11/06/2010 / 15:59	
trans-1,2-Dichloroethylene	EPA 8260B	ND	ug/Kg	6.0	*PH	11/06/2010 / 15:59	
1,1-Dichloroethane	EPA 8260B	ND	ug/Kg	6.0	*PH	11/06/2010 / 15:59	
2-Butanone-(MEK)	EPA 8260B	ND	ug/Kg	30	*PH	11/06/2010 / 15:59	
Vinyl Acetate	EPA 8260B	ND	ug/Kg	60	*PH	11/06/2010 / 15:59	
2,2-Dichloropropane	EPA 8260B	ND	ug/Kg	6.0	*PH	11/06/2010 / 15:59	
cis-1,2-Dichloroethylene	EPA 8260B	ND	ug/Kg	6.0	*PH	11/06/2010 / 15:59	
Chloroform	EPA 8260B	ND	ug/Kg	6.0	*PH	11/06/2010 / 15:59	
Bromochloromethane	EPA 8260B	ND	ug/Kg	6.0	*PH	11/06/2010 / 15:59	
1,1,1-Trichloroethane	EPA 8260B	ND	ug/Kg	6.0	*PH	11/06/2010 / 15:59	
1,1-Dichloropropene	EPA 8260B	ND	ug/Kg	6.0	*PH	11/06/2010 / 15:59	
Carbon Tetrachloride	EPA 8260B	ND	ug/Kg	6.0	*PH	11/06/2010 / 15:59	
Benzene	EPA 8260B	ND	ug/Kg	6.0	*PH	11/06/2010 / 15:59	
1,2-Dichloroethane	EPA 8260B	ND	ug/Kg	6.0	*PH	11/06/2010 / 15:59	
Trichloroethylene	EPA 8260B	ND	ug/Kg	6.0	*PH	11/06/2010 / 15:59	
1,2-Dichloropropane	EPA 8260B	ND	ug/Kg	6.0	*PH	11/06/2010 / 15:59	
4-Methyl-2-Pentanone (MIBK)	EPA 8260B	ND	ug/Kg	30	*PH	11/06/2010 / 15:59	
2-Chloroethyl vinyl ether	EPA 8260B	ND	ug/Kg	60	*PH	11/06/2010 / 15:59	
cis-1,3-Dichloropropene	EPA 8260B	ND	ug/Kg	6.0	*PH	11/06/2010 / 15:59	
Toluene	EPA 8260B	ND	ug/Kg	6.0	*PH	11/06/2010 / 15:59	
trans-1,3-Dichloropropene	EPA 8260B	ND	ug/Kg	6.0	*PH	11/06/2010 / 15:59	
Bromodichloromethane	EPA 8260B	ND	ug/Kg	6.0	*PH	11/06/2010 / 15:59	
Dibromomethane	EPA 8260B	ND	ug/Kg	6.0	*PH	11/06/2010 / 15:59	
1,1,2-Trichloroethane	EPA 8260B	ND	ug/Kg	6.0	*PH	11/06/2010 / 15:59	
1,2-Dibromoethane	EPA 8260B	ND	ug/Kg	6.0	*PH	11/06/2010 / 15:59	
2-Hexanone	EPA 8260B	ND	ug/Kg	30	*PH	11/06/2010 / 15:59	
1,3-Dichloropropane	EPA 8260B	ND	ug/Kg	6.0	*PH	11/06/2010 / 15:59	

Customer: ATC Associates

Workorder No. 1011-00078

Sample: 008 SB06 (0-2)
(Continued)

Parameter	Method	Results	Units	PQL	Tech	Analysis Date/Time	Qual
Tetrachloroethylene	EPA 8260B	ND	ug/Kg	6.0	*PH	11/06/2010 / 15:59	
Dibromochloromethane	EPA 8260B	ND	ug/Kg	6.0	*PH	11/06/2010 / 15:59	
Chlorobenzene	EPA 8260B	ND	ug/Kg	6.0	*PH	11/06/2010 / 15:59	
1,1,1,2-Tetrachloroethane	EPA 8260B	ND	ug/Kg	6.0	*PH	11/06/2010 / 15:59	
Ethylbenzene	EPA 8260B	ND	ug/Kg	6.0	*PH	11/06/2010 / 15:59	
M/P-Xylene	EPA 8260B	ND	ug/Kg	6.0	*PH	11/06/2010 / 15:59	
O-Xylene	EPA 8260B	ND	ug/Kg	6.0	*PH	11/06/2010 / 15:59	
Styrene	EPA 8260B	ND	ug/Kg	6.0	*PH	11/06/2010 / 15:59	
Bromoform	EPA 8260B	ND	ug/Kg	6.0	*PH	11/06/2010 / 15:59	
Isopropylbenzene	EPA 8260B	ND	ug/Kg	6.0	*PH	11/06/2010 / 15:59	
1,1,2,2-Tetrachloroethane	EPA 8260B	ND	ug/Kg	6.0	*PH	11/06/2010 / 15:59	
1,2,3-Trichloropropane	EPA 8260B	ND	ug/Kg	6.0	*PH	11/06/2010 / 15:59	
n-Propylbenzene	EPA 8260B	ND	ug/Kg	6.0	*PH	11/06/2010 / 15:59	
trans-1,4-Dichloro-2-butene	EPA 8260B	ND	ug/Kg	12	*PH	11/06/2010 / 15:59	
Bromobenzene	EPA 8260B	ND	ug/Kg	6.0	*PH	11/06/2010 / 15:59	
2-Chlorotoluene	EPA 8260B	ND	ug/Kg	6.0	*PH	11/06/2010 / 15:59	
1,3,5-Trimethylbenzene	EPA 8260B	ND	ug/Kg	6.0	*PH	11/06/2010 / 15:59	
4-Chlorotoluene	EPA 8260B	ND	ug/Kg	6.0	*PH	11/06/2010 / 15:59	
tert-Butylbenzene	EPA 8260B	ND	ug/Kg	6.0	*PH	11/06/2010 / 15:59	
1,2,4-Trimethylbenzene	EPA 8260B	ND	ug/Kg	6.0	*PH	11/06/2010 / 15:59	
sec-Butylbenzene	EPA 8260B	ND	ug/Kg	6.0	*PH	11/06/2010 / 15:59	
4-Isopropyltoluene	EPA 8260B	ND	ug/Kg	6.0	*PH	11/06/2010 / 15:59	
1,3-Dichlorobenzene	EPA 8260B	ND	ug/Kg	6.0	*PH	11/06/2010 / 15:59	
1,4-Dichlorobenzene	EPA 8260B	ND	ug/Kg	6.0	*PH	11/06/2010 / 15:59	
n-Butylbenzene	EPA 8260B	ND	ug/Kg	6.0	*PH	11/06/2010 / 15:59	
1,2-Dichlorobenzene	EPA 8260B	ND	ug/Kg	6.0	*PH	11/06/2010 / 15:59	
1,2-Dibromo-3-Chloropropane	EPA 8260B	ND	ug/Kg	6.0	*PH	11/06/2010 / 15:59	
1,2,4-Trichlorobenzene	EPA 8260B	ND	ug/Kg	6.0	*PH	11/06/2010 / 15:59	
Hexachlorobutadiene	EPA 8260B	ND	ug/Kg	6.0	*PH	11/06/2010 / 15:59	
Naphthalene	EPA 8260B	ND	ug/Kg	6.0	*PH	11/06/2010 / 15:59	
1,2,3-Trichlorobenzene	EPA 8260B	ND	ug/Kg	6.0	*PH	11/06/2010 / 15:59	
DIBROMOFLUOROMETHANE (SURR)		103	%		*PH	11/06/2010 / 15:59	
TOLUENE-D8 (SURROGATE)		101	%		*PH	11/06/2010 / 15:59	
4-BROMOFLUOROBENZENE (SURR)		96	%		*PH	11/06/2010 / 15:59	

Customer: ATC Associates

Workorder No. 1011-00078

Sample: 008 SB06 (0-2)
(Continued)

Parameter	Method	Results	Units	PQL	Tech	Analysis Date/Time	Qual
TCL SEMIVOLATILE-SOILS							
bis(2-Chloroethyl)ether	EPA 8270C	ND	ug/Kg	190	TLL	11/10/2010 / 10:17	
Phenol	EPA 8270C	ND	ug/Kg	190	TLL	11/10/2010 / 10:17	
2-Chlorophenol	EPA 8270C	ND	ug/Kg	190	TLL	11/10/2010 / 10:17	
1,3-Dichlorobenzene	EPA 8270C	ND	ug/Kg	190	TLL	11/10/2010 / 10:17	
1,4-Dichlorobenzene	EPA 8270C	ND	ug/Kg	190	TLL	11/10/2010 / 10:17	
1,2-Dichlorobenzene	EPA 8270C	ND	ug/Kg	190	TLL	11/10/2010 / 10:17	
2,2'-oxybis(1-Chloropropane	EPA 8270C	ND	ug/Kg	190	TLL	11/10/2010 / 10:17	
2-Methyl Phenol	EPA 8270C	ND	ug/Kg	190	TLL	11/10/2010 / 10:17	
Hexachloroethane	EPA 8270C	ND	ug/Kg	190	TLL	11/10/2010 / 10:17	
N-Nitroso-di-n-propylamine	EPA 8270C	ND	ug/Kg	190	TLL	11/10/2010 / 10:17	
3&4-Methyl Phenol	EPA 8270C	ND	ug/Kg	380	TLL	11/10/2010 / 10:17	
Nitrobenzene	EPA 8270C	ND	ug/Kg	190	TLL	11/10/2010 / 10:17	
Isophorone	EPA 8270C	ND	ug/Kg	190	TLL	11/10/2010 / 10:17	
2-Nitrophenol	EPA 8270C	ND	ug/Kg	190	TLL	11/10/2010 / 10:17	
2,4-Dimethylphenol	EPA 8270C	ND	ug/Kg	190	TLL	11/10/2010 / 10:17	
bis(2-Chloroethoxy)methane	EPA 8270C	ND	ug/Kg	190	TLL	11/10/2010 / 10:17	
2,4-Dichlorophenol	EPA 8270C	ND	ug/Kg	190	TLL	11/10/2010 / 10:17	
1,2,4-Trichlorobenzene	EPA 8270C	ND	ug/Kg	190	TLL	11/10/2010 / 10:17	
Naphthalene	EPA 8270C	220	ug/Kg	190	TLL	11/10/2010 / 10:17	
4-Chloroaniline	EPA 8270C	ND	ug/Kg	190	TLL	11/10/2010 / 10:17	
Hexachlorobutadiene	EPA 8270C	ND	ug/Kg	190	TLL	11/10/2010 / 10:17	
4-Chloro-3-methylphenol	EPA 8270C	ND	ug/Kg	190	TLL	11/10/2010 / 10:17	
2-Methyl Naphthalene	EPA 8270C	ND	ug/Kg	190	TLL	11/10/2010 / 10:17	
Hexachlorocyclopentadiene	EPA 8270C	ND	ug/Kg	190	TLL	11/10/2010 / 10:17	
2-Chloronaphthalene	EPA 8270C	ND	ug/Kg	190	TLL	11/10/2010 / 10:17	
2,4,6-Trichlorophenol	EPA 8270C	ND	ug/Kg	190	TLL	11/10/2010 / 10:17	
2,4,5-Trichlorophenol	EPA 8270C	ND	ug/Kg	190	TLL	11/10/2010 / 10:17	
2-Nitroaniline	EPA 8270C	ND	ug/Kg	190	TLL	11/10/2010 / 10:17	
Acenaphthylene	EPA 8270C	ND	ug/Kg	190	TLL	11/10/2010 / 10:17	
Dimethyl Phthalate	EPA 8270C	ND	ug/Kg	190	TLL	11/10/2010 / 10:17	
2,6-Dinitrotoluene	EPA 8270C	ND	ug/Kg	190	TLL	11/10/2010 / 10:17	
Acenaphthene	EPA 8270C	320	ug/Kg	190	TLL	11/10/2010 / 10:17	
3-Nitroaniline	EPA 8270C	ND	ug/Kg	190	TLL	11/10/2010 / 10:17	

Customer: ATC Associates

Workorder No. 1011-00078

Sample: 008 SB06 (0-2)
(Continued)

Parameter	Method	Results	Units	PQL	Tech	Analysis Date/Time	Qual
2,4-Dinitrophenol	EPA 8270C	ND	ug/Kg	750	TLL	11/10/2010 / 10:17	
Dibenzofuran	EPA 8270C	190	ug/Kg	190	TLL	11/10/2010 / 10:17	
2,4-Dinitrotoluene	EPA 8270C	ND	ug/Kg	190	TLL	11/10/2010 / 10:17	
4-Nitrophenol	EPA 8270C	ND	ug/Kg	190	TLL	11/10/2010 / 10:17	
Fluorene	EPA 8270C	300	ug/Kg	190	TLL	11/10/2010 / 10:17	
4-Chlorophenyl Phenyl Ether	EPA 8270C	ND	ug/Kg	190	TLL	11/10/2010 / 10:17	
Diethyl Phthalate	EPA 8270C	ND	ug/Kg	190	TLL	11/10/2010 / 10:17	
4-Nitroaniline	EPA 8270C	ND	ug/Kg	190	TLL	11/10/2010 / 10:17	
2-Methyl-4,6-dinitrophenol	EPA 8270C	ND	ug/Kg	190	TLL	11/10/2010 / 10:17	
N-Nitrosodiphenylamine	EPA 8270C	ND	ug/Kg	190	TLL	11/10/2010 / 10:17	
4-Bromophenyl Phenyl Ether	EPA 8270C	ND	ug/Kg	190	TLL	11/10/2010 / 10:17	
Hexachlorobenzene	EPA 8270C	ND	ug/Kg	190	TLL	11/10/2010 / 10:17	
Pentachlorophenol	EPA 8270C	ND	ug/Kg	380	TLL	11/10/2010 / 10:17	
Phenanthrene	EPA 8270C	2800	ug/Kg	190	TLL	11/10/2010 / 10:17	
Anthracene	EPA 8270C	680	ug/Kg	190	TLL	11/10/2010 / 10:17	
Di-n-butylphthalate	EPA 8270C	ND	ug/Kg	190	TLL	11/10/2010 / 10:17	
Fluoranthene	EPA 8270C	4800	ug/Kg	940	TLL	11/10/2010 / 10:17	
Pyrene	EPA 8270C	3000	ug/Kg	190	TLL	11/10/2010 / 10:17	
Butyl Benzyl Phthalate	EPA 8270C	ND	ug/Kg	190	TLL	11/10/2010 / 10:17	
3,3'-Dichlorobenzidine	EPA 8270C	ND	ug/Kg	190	TLL	11/10/2010 / 10:17	
Benzo(a)anthracene	EPA 8270C	1600	ug/Kg	190	TLL	11/10/2010 / 10:17	
Chrysene	EPA 8270C	1600	ug/Kg	190	TLL	11/10/2010 / 10:17	
bis(2-Ethylhexyl)phthalate	EPA 8270C	ND	ug/Kg	190	TLL	11/10/2010 / 10:17	
Di-n-octyl phthalate	EPA 8270C	ND	ug/Kg	190	TLL	11/10/2010 / 10:17	
Indeno (1,2,3-cd)Pyrene	EPA 8270C	800	ug/Kg	190	TLL	11/10/2010 / 10:17	
Benzo(b)fluoranthene	EPA 8270C	1400	ug/Kg	190	TLL	11/10/2010 / 10:17	
Benzo(k)fluoranthene	EPA 8270C	1200	ug/Kg	190	TLL	11/10/2010 / 10:17	
Benzo(a)pyrene	EPA 8270C	1500	ug/Kg	190	TLL	11/10/2010 / 10:17	
Dibenzo(a,h)Anthracene	EPA 8270C	270	ug/Kg	190	TLL	11/10/2010 / 10:17	
Benzo (g,h,i) perylene	EPA 8270C	910	ug/Kg	190	TLL	11/10/2010 / 10:17	
2-FLUOROPHENOL (SURR)		62.2	%		TLL	11/10/2010 / 10:17	
PHENOL-D5 (SURR)		67.5	%		TLL	11/10/2010 / 10:17	
NITROBENZENE-D5 (SURR)		71.2	%		TLL	11/10/2010 / 10:17	
2-FLUOROBIPHENYL (SURR)		71.3	%		TLL	11/10/2010 / 10:17	

Customer: ATC Associates

Workorder No. 1011-00078

Sample: 008 SB06 (0-2)
(Continued)

Parameter	Method	Results	Units	PQL	Tech	Analysis Date/Time	Qual
2,4,6-TRIBROMOPHENOL (SURR)		65.5	%		TLL	11/10/2010 / 10:17	
TERPHENYL-D14 (SURR)		74.9	%		TLL	11/10/2010 / 10:17	
Pesticides/PCBs-Soil/Solid							
Pesticides-Soil/Solid							
alpha-BHC	EPA 8081A	ND	ug/Kg	1.9	TLL	11/11/2010 / 12:22	
beta-BHC	EPA 8081A	ND	ug/Kg	1.9	TLL	11/11/2010 / 12:22	
gamma-BHC (Lindane)	EPA 8081A	ND	ug/Kg	1.9	TLL	11/11/2010 / 12:22	
delta-BHC	EPA 8081A	ND	ug/Kg	1.9	TLL	11/11/2010 / 12:22	
Heptachlor	EPA 8081A	ND	ug/Kg	1.9	TLL	11/11/2010 / 12:22	
Heptachlor Epoxide	EPA 8081A	ND	ug/Kg	1.9	TLL	11/11/2010 / 12:22	
Aldrin	EPA 8081A	ND	ug/Kg	1.9	TLL	11/11/2010 / 12:22	
Dieldrin	EPA 8081A	ND	ug/Kg	1.9	TLL	11/11/2010 / 12:22	
Endrin	EPA 8081A	ND	ug/Kg	1.9	TLL	11/11/2010 / 12:22	
4,4'-DDD	EPA 8081A	ND	ug/Kg	1.9	TLL	11/11/2010 / 12:22	
4,4'-DDE	EPA 8081A	ND	ug/Kg	1.9	TLL	11/11/2010 / 12:22	
4,4'-DDT	EPA 8081A	ND	ug/Kg	1.9	TLL	11/11/2010 / 12:22	
Endosulfan I	EPA 8081A	ND	ug/Kg	1.9	TLL	11/11/2010 / 12:22	
Endosulfan II	EPA 8081A	ND	ug/Kg	1.9	TLL	11/11/2010 / 12:22	
Endosulfan Sulfate	EPA 8081A	ND	ug/Kg	1.9	TLL	11/11/2010 / 12:22	
Endrin Aldehyde	EPA 8081A	ND	ug/Kg	1.9	TLL	11/11/2010 / 12:22	
Methoxychlor	EPA 8081A	ND	ug/Kg	1.9	TLL	11/11/2010 / 12:22	
Endrin Ketone	EPA 8081A	ND	ug/Kg	1.9	TLL	11/11/2010 / 12:22	
Chlordane	EPA 8081A	ND	ug/Kg	37.6	TLL	11/11/2010 / 12:22	
Toxaphene	EPA 8081A	ND	ug/Kg	37.6	TLL	11/11/2010 / 12:22	
TCMX (SURROGATE)		67.7	%		TLL	11/11/2010 / 12:22	
DCB (SURROGATE)		88.7	%		TLL	11/11/2010 / 12:22	
PCB-SOIL/SOLID							
PCB-1016	EPA 8082	ND	ug/Kg	19	TLL	11/09/2010 / 12:40	
PCB-1221	EPA 8082	ND	ug/Kg	19	TLL	11/09/2010 / 12:40	
PCB-1232	EPA 8082	ND	ug/Kg	19	TLL	11/09/2010 / 12:40	
PCB-1242	EPA 8082	ND	ug/Kg	19	TLL	11/09/2010 / 12:40	
PCB-1248	EPA 8082	ND	ug/Kg	19	TLL	11/09/2010 / 12:40	
PCB-1254	EPA 8082	ND	ug/Kg	19	TLL	11/09/2010 / 12:40	
PCB-1260	EPA 8082	ND	ug/Kg	19	TLL	11/09/2010 / 12:40	

Customer: ATC Associates

Workorder No. 1011-00078

Sample: 008 SB06 (0-2)
(Continued)

Parameter	Method	Results	Units	PQL	Tech	Analysis Date/Time	Qual
PCB-1262	EPA 8082	ND	ug/Kg	19	TLL	11/09/2010 / 12:40	
PCB-1268	EPA 8082	ND	ug/Kg	19	TLL	11/09/2010 / 12:40	
TCMX (SURROGATE)		76.8	%		TLL	11/09/2010 / 12:40	
DCB (SURROGATE)		115	%		TLL	11/09/2010 / 12:40	
Flame/ICP Solid Digestion					*PH	11/10/2010 / : 0	
Percent Solids	SM 2540G	86.0	%		PDP	11/09/2010 / 11:21	

G3 Surrogate recovery was above the acceptance limits. Data not impacted.

*PH = Phoenix Environmental Laboratories (NELAP: 11301 MA: M-CT007)

To the best of my knowledge this report is true and accurate.

Authorized By: Tanya Luongo Date: 11/12/10

Tanya Luongo, Env. Laboratory Manager

NOTE: All solid results are reported on a dry weight basis unless otherwise noted.

Certifications: MA: MA069 NY:10982 CT: PH0119 RI:LAO00201 NJ: MA744 NH: 2011

ND = Not Detected **PQL= Practical Quantitation Limit**

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888.724.5221 Toll Free
781.337.9334 Phone ~ 781.337.7642 Fax

AMERISCI JOB NO: 1011-078
PAGE ____ OF ____
DUE DATE: ☐ 1 DAY ☐ 2 DAY ☐ 3 DAY ☐ 5 DAY ☐ 7 DAY ☐ 10 DAY
TEMP UPON RECEIPT: 5.4°C
DATA PACKAGE:
P.O.#

COMPANY: ATC ASSOCIATES INC
ADDRESS: 104 EAST 25TH ST, NY NY 10010
PHONE: 212 353 828 X34 FAX 1: 212 979 8447 FAX 2:
CLIENT CONTACT: denise.degennaro@atcassociates.com EMAIL:
PROJECT NAME: PARKING GARAGE PROJECT NUMBER: PROJECT STATE: NY

MATRIX: A-WATER S-SOIL/SOLIDS SL-SLUDGE OIL-OIL CH-CHIPS WI-WIPES C-CASSETTES W-WASTE O-OTHER
CONTAINER: P-PLASTIC G-GLASS V-VOA

LAB ID	CLIENT SAMPLE IDENTIFICATION	MATRIX	CONTAINER SIZE	CONTAINER TYPE	CONTAINER #	SAMPLING INFORMATION DATE	SAMPLING INFORMATION TIME	SAMPLING INFORMATION TECH	GRAB (G) OR COMPOSITE (C)	PRESERVATIVES	SAMPLE pH AT LOGIN	VOCS	MTBE	TCL SVOCS	TAL METALS	PCBS	Pesticides	Notes:
1	SB01 (0-1)	S		G	2	11.4.10	10:05	DD				X	X	X	X	X	X	
2	SB02 (0-2)	S		G	2	11.4.10	10:15	↓				X	X	X	X	X	X	
3	SB02 (4.5-5.5)	S		G	2	11.4.10	10:25	↓				X	X	X	X	X	X	
4	SB03 (0-2)	S		G	2	11.4.10	10:40	↓				X	X	X	X	X	X	
5	SB03 (8-9)	S		G	2	11.4.10	10:45	↓				X	X	X	X	X	X	
6	SB04 (0-2)	S		G	2	11.4.10	11:00	↓				X	X	X	X	X	X	
7	SB05 (0-1)	S		G	2	11.4.10	11:10	↓				X	X	X	X	X	X	
8	SB06 (0-2)	S		G	2	11.4.10	11:30	↓				X	X	X	X	X	X	

SAMPLED BY: (PRINT) Denise DeGennaro	DATE: 11.4.10	RECEIVED BY: (PRINT)	DATE:
(SIGN)	TIME: 11:50	(SIGN)	TIME:
RELINQUISHED BY: (PRINT)	DATE:	RECEIVED BY: (PRINT)	DATE:
(SIGN)	TIME:	(SIGN)	TIME:
RELINQUISHED BY: (PRINT)	DATE:	RECEIVED FOR LABORATORY BY: (PRINT) MARK POMA	DATE: 11/5/10
(SIGN)	TIME:	(SIGN)	TIME: 10:00

Eastern Connection

(800) 877-4745
www.ecdelivers.com

BOL # 49351094

Pick-up Date	Pick-up Time	Pick-up Agent	1 ACCOUNT #	Service Level	Route
1/4/10			63218 7	1	

2 FROM (YOUR NAME) Phone (800) 705-5227

Company AMERI SCI

Street Address 117 EAST 30TH STREET Room/Floor

City NEW YORK State NY Zip Code 10016

3 SHIPPER BILLING REFERENCE

4 TO (RECIPIENT'S NAME) Phone (888) 724-5221

Company AMERI SCI

Exact Street Address CANNOT DELIVER TO P.O. BOX Room/Floor 8 SCHOOL STREET

City WEYMOUTH State MA Zip Code 02189

5 RELEASE SIGNATURE

By signing here, sender authorizes Eastern Connection to deliver this shipment without obtaining a delivery signature and shall hold harmless Eastern Connection from any claims resulting therefrom.

49351094

6 EC GUARANTEED EXPRESS PARCEL SERVICE

- ☑ **Express Priority Overnight** Next business morning by 10:30. Consult service guide for specific delivery times.
- ☐ **Early A.M** Next business morning by _____ a.m. **Fees apply.**
- ☐ **Fast Freight** indicate number of pallets tendered _____ **Call for rates.**
- ☐ **Same Day/Fleet Leasing** Nationwide Next Flight or Door to Door Direct Drive. **Call for rates.**
- ☐ **Ground Delivery Service** Must call for rates and prior arrangements.
- ☐ **Saturday Service** Not avail. all Locations. **Fees apply.** Pick up ☐ Delivery ☐
- ☐ **Sunday/Holiday Service** Not avail. all Locations. **Fees apply.** Pick up ☐ Delivery ☐

 # Of Pieces 1

Weight (Round up to Nearest lb) 25 lbs.

(Subject to Reweigh and Dimensional Calculations)

7 DECLARED VALUE ($10,000 MAX.)

Special Instructions

Routing Code ~~RED~~ OWD

8 C.O.D. SHIPPING

This Bill of Lading is Subject to *(Terms & Conditions of Contract) Set Forth on REVERSE of Shipper's Copy. Do Not Send Cash or Cash Equivalent.

SHIPPER'S COPY

REORDER FROM CSM GROUP, INC. 508-643-4010

AmeriSci Boston

SCI-SOP-1003

Sample Receiving Form

CLIENT:	ATC Associates, Inc	WORKORDER:	1011-078
CLIENTS JOB:	Parking Garage	RECEIVED BY:	MP
RECEIVED DATE:	11/5/10	SHIPPING METHOD:	EASTERN CONNECTION
TEMP UPON RECEIPT:	5.4 °C		

"No" responses must be explained in the comment section below.

Checklist	YES	NO	NA
Were custody seals on shipping container(s) intact? Check "NA" if no seals, or if containers were hand delivered.			X
Were Chain of Custody Forms included with the samples?	X		
Were Chain of Custody Forms properly filled out (ink, signed, etc.)	X		
Were all containers received in good condition (Check for breakage/ leaks)?	X		
Were all containers labeled with required information (Sample Id, date, signed, analysis, preservation)?	X		
Were the correct containers used for the tests indicated?	X		
Were proper preservation techniques indicated?			X
Were samples received within holding times? If "NO" nonconformance form is required.	X		
Were all VOA bottles checked for the presence of air bubbles? If bubbles were found please note in the comment section.			X
Were samples in direct contact with wet ice? If "NO" check one: ☐ Blue Ice ☐ No Ice	X		
Is sample temperature recorded ? If "NO" check one: ☐ Unable to record ☐ Temp taken near samples	X		
Were pHs of samples checked and recorded on the COC forms?			X
Did the laboratory accept samples?	X		
Will samples be subcontracted? If "yes" list subcontractor and tests in specified sections below.	X		

Subcontractor:	Phoenix	Date Sent Out:	11/5/10
Analyses Sent:	METALS, VOC		

Login Technician: MP	Login Review:
Comments:	

HEALTH AND SAFETY PLAN

Phase II Environmental Site Investigation at
Parking Garage
414 West 155th Street
New York, NY 10032
DEP Tracking #10DCP031M / 10DEPTECH074M

Prepared By:
ATC Associates Inc.
104 East 25th Street, 10th Floor
New York, New York 10010

Prepared For:
Ms. Mary Ann Villari
Broadway Housing Development Fund Company, Inc.
583 Riverside Drive, 7th Floor
New York, NY 10031

THINK SAFETY First!

ATC ASSOCIATES, INC.
HEALTH AND SAFETY PLAN (HASP)
REVIEW AND APPROVAL

CLIENT: Broadway Housing Development Fund Company, Inc.

PROJECT NUMBER: 015.26789.0003

SITE NAME/LOCATION: Parking Garage
414 West 155th Street
New York, NY 10032

PROJECT DESCRIPTION: Collection of soil and groundwater using Geoprobe direct push technology

PREPARED BY: Matthew Mankovich
TITLE: Senior Project Manager

Matthew Mankovich		September 10, 2010
Senior Project Manger	Signature	Date
Michael G. Donovan, CIH		September 10, 2010
Reviewer's Name	Signature	Date

This Health and Safety Plan (Plan) has been written for the use of ATC Associates Inc. (ATC) and its employees. It may also be used as a guidance document by properly trained and experienced ATC subcontractors. However, ATC does not guarantee the health or safety of any person entering this Site.

Due to the potential hazardous nature of this Site and the activity occurring thereon, it is not possible to discover, evaluate, and provide protection for all possible hazards which may be encountered. Strict adherence to the health and safety guidelines set forth herein will reduce, but not eliminate, the potential for injury at this Site. The health and safety guidelines in this Plan were prepared specifically for this Site and should not be used on any other Site without prior research by trained health and safety specialists.

ATC claims no responsibility for use of this Plan by others. The Plan is written for the specific Site conditions, purposes, dates, and personnel specified and must be amended if these conditions change.

TABLE OF CONTENTS

TABLE OF CONTENTS

EMERGENCY INFORMATION

Site Emergencies Call:

Ambulance	**911**
Fire:	**911**
Police:	**911**
Nationwide Call Before You Dig	**811**
COMP-CARE (24 hour First-Aid)	**(800) 756-1130**
Poison Control Center:	**(800) 222-1222**
National Response Center:	**(800) 424-8802**

Spills:	**NYSDEC Office**	**800-457-7362**
	State Health Department	
	Environmental Health	**800-458-1158**

Hospital (212) 927-0112
New York Presbyterian Hospital
61 Haven Avenue, New York, NY 10032-2720

1. Head northwest on W 155th St toward St Nicholas Ave – 0.3 mile
2. Take the 3rd right onto Broadway – 0.8 mile
3. Turn left at W 171st St – 0.2 mile
4. Turn left at Haven Ave and Arrive at New York Presbyterian Hospital

Approximate distance: 1.4 mile
Approximate travel time: 4 minutes

EMERGENCY ASSEMBLY LOCATION: Parking lot along St. Nicholas Avenue adjacent to P.S. 28.

FIRST-AID MEASURES

The following contaminants may be present in the soil and/or groundwater at the site: Petroleum and non-petroleum related VOCs, SVOCs, metals, PCBs, and pesticides.

The following procedures will be used:

Eye Contact: Flush eye immediately with copious amount of water for a minimum of 15 minutes. Repeat until irritation is eliminated and seek medical attention.

Skin Contact: Wash exposed area with soap and water for at least 15 minutes. If dermatitis or severe reddening occurs, seek medical attention.

Inhalation: Move the person into fresh air. If symptoms persist, seek medical attention.

Ingestion: Do not induce vomiting. Seek immediate medical attention.

Important Numbers:

Project Manager: ……..	Matt Mankovich	718-490-4556
Site Safety and Health Officer: ……	John Mascioli	516-987-0354
Site Supervisor: ……...	John Mascioli	516-987-0354
Branch Safety Coordinator: ……..	Michael Donovan	917-578-0730
Regional Safety Coordinator ……..	Dave Reinbold	610-313-3100
Client Contact: ……	Mary Ann Villari	(212) 568-2030
Client Contact: ……	Trevor Adler	(212) 568-2030
State Utility Locate Service: ……...	Dig Safely New York	800-962-7962
Site Utility Repair Contractor: ……	Consolidated Edison	800-752-6633
ATC Lifelines: ……	CompCare	800-756-1133

NOTE: For additional emergencies/important contacts, refer to your ATC Lifelines Card.

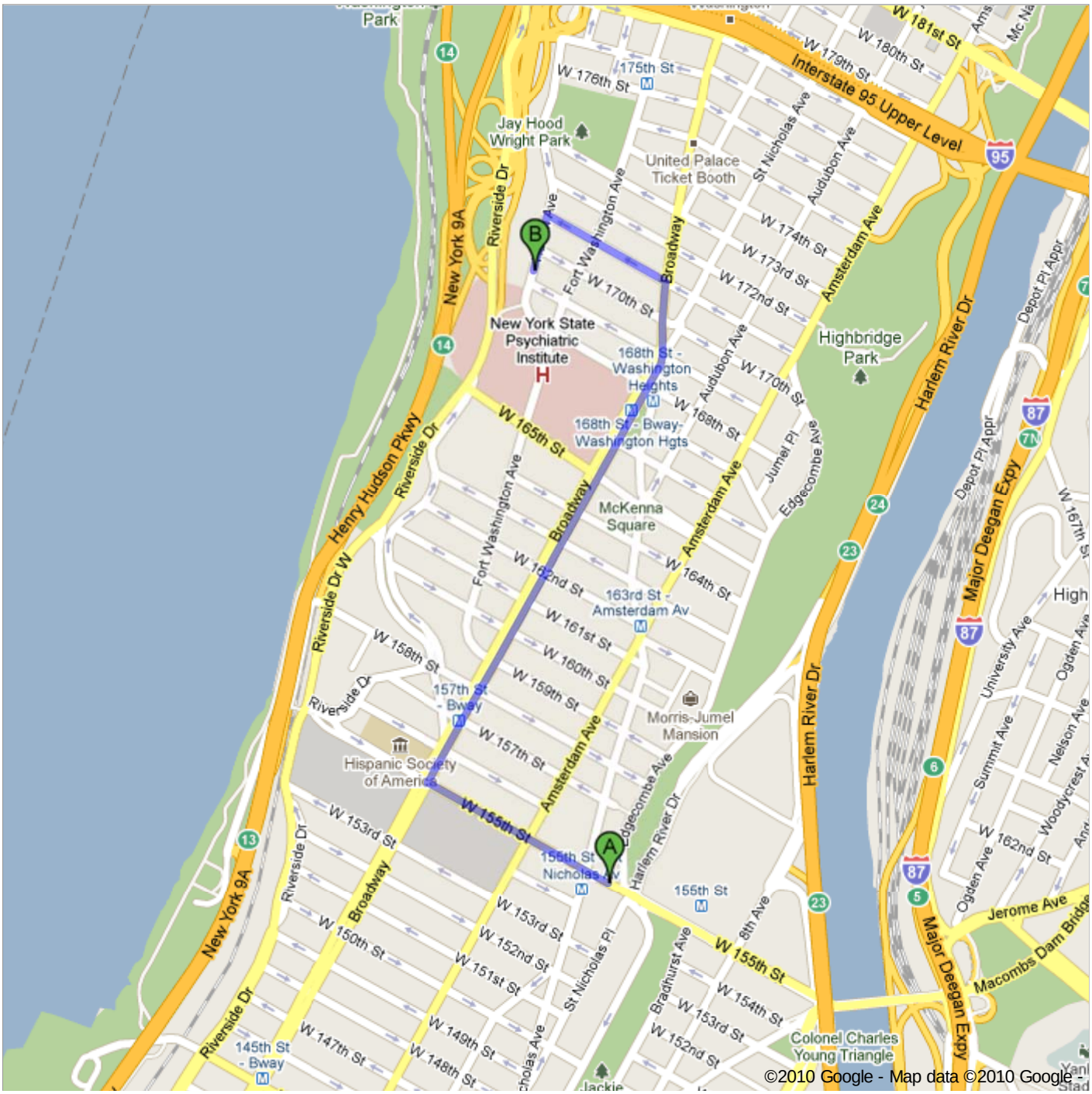
Important Numbers:

EMERGENCY MEDICAL ROUTE TO HOSPITAL

Google maps

Directions to 61 Haven Ave, New York, NY 10032
1.4 mi – about **4 mins**

Save trees. Go green!
Download Google Maps on your phone at **google.com/gmm**



414 W 155th St, New York, NY 10032

1.	Head **northwest** on **W 155th St** toward **St Nicholas Ave** About 1 min	go 0.3 mi total 0.3 mi
2.	Take the 3rd **right** onto **Broadway** About 2 mins	go 0.8 mi total 1.1 mi
3.	Turn **left** at **W 171st St** About 1 min	go 0.2 mi total 1.3 mi
4.	Turn **left** at **Haven Ave**	go 440 ft total 1.4 mi

61 Haven Ave, New York, NY 10032

These directions are for planning purposes only. You may find that construction projects, traffic, weather, or other events may cause conditions to differ from the map results, and you should plan your route accordingly. You must obey all signs or notices regarding your route.

Map data ©2010 Google

Directions weren't right? Please find your route on maps.google.com and click "Report a problem" at the bottom left.

1.0 - INTRODUCTION

1.1 Scope and Applicability of the Site Health and Safety Plan

This Health and Safety Plan (HASP) has been prepared by ATC Associates, Inc. (ATC) for the activities associated with the soil and groundwater investigation that will include, drilling and sampling of soils and groundwater at 414 West 155th Street, New York, NY (hereinafter referred to as the "Site).

The health and safety protocols established in this Plan are based on the ATC Employee Health and Safety Policy Manual, the Occupational Safety and Health Administration (OSHA) Regulations, past field experiences, specific Site conditions, and chemical hazards known or anticipated to be present from available Site data. The following Site Health and Safety Plan (HASP) are intended solely for use during the proposed activities described in the project documents and technical specifications. Specifications herein are subject to review and revision based on actual conditions encountered in the field during Site characterization activities. Such changes may be instituted by using the HASP List of Approved Amendments and/or Changes (see Appendix C).

Before Site operations begin, all employees, including subcontractors for ATC covered by this plan, involved in these operations will have read and understood this HASP and all revisions. All Site personnel have the authority to "Stop Work" if unsafe conditions are present or discovered during Site activities. Before work begins, all affected workers will sign the Heath and Safety Plan Acknowledgment Form (see Appendix C). By signing this form, all individuals recognize the requirements of the HASP, known or suspected hazards, and will adhere to the protocols required for the project Site.

1.2 Historical Overview

The Site is developed with a two-story building with a cellar that is utilized as a parking garage. The Site consists of an approximately 21,685 square feet lot. The Site building encompasses approximately 65,070 square feet, and based on the review of historical records, the Site building was constructed in 1929.

1.3 Visitors

All visitors to the Site must be instructed about the hazards of the activities that ATC or its subcontractors are performing. All visitors must sign the ATC Visitors Log (see Appendix C).

1.4 Subcontractor Activities

All subcontractors used at the Site have been Pre-Approved in the ATC Subcontractor Prequalification System.

The proposed drilling method is with a Geoprobe. Petroleum and non-petroleum related VOCs and SVOCs and metals impacted soil and may be encountered. Decontaminated water will be contained/discharged on-site. Investigation derived waste (IDW) is not anticipated. Drill cuttings will be placed back into the borehole. If IDW is generated, it will be containerized in appropriate storage vessels. Transportation and disposal of IDW may be arranged by ATC and performed by a designated subcontractor.

2.0 - PROJECT ORGANIZATION

All personnel and visitors who may enter work areas on this Site must comply with the requirements of this HASP. All Site personnel have the authority to "Stop Work" if unsafe conditions are present. The specific responsibilities and authority of management, safety and health, and other personnel on this Site are detailed in the following sections.

2.1 Site Safety and Health Officer (SSHO)

The Site Safety and Health Officer (SSHO) has the responsibility and authority to develop and implement this HASP and to verify compliance. The SSHO reports to the Project Manager; both must be designated prior to commencement of work. The SSHO is on-site during all work operations and has the responsibility to halt Site work if unsafe conditions are detected. The responsibilities of the SSHO at the Site include the following:

- Managing the health and safety functions on the Site;
- Ensuring Site monitoring, worker training, and effective selection and use of PPE;
- Conducting daily Tailgate Safety Meetings for Site personnel and subcontractors and summarize the training on the Tailgate Meeting Form (see Appendix C). The following topics should be covered during safety meetings:
  - Hazard Communication (i.e., MSDS location, and container labeling, chemical hazards of non-routine tasks)
  - Determine applicability of Standard Operating Procedures (SOP) in Section 8 and communicate procedures
  - Review Site safety requirements
  - Give refresher training on heat or cold stress (Section 5.2 and 5.3) when appropriate
  - Review Site emergency procedures
  - Discuss location and use of a rig kill switch for drilling/boring operations
- Conducting daily safety inspections of the Site looking for unsafe acts or conditions and providing corrective action as appropriate.

2.2 Site Supervisor

The Site Supervisor is responsible for field operations and reports to the Project Manager. The Site Supervisor is the On-site Coordinator and overseer of operations; both must be designated prior to commencement of work. It is the Site Supervisor's duty to maintain Site security, supervise the personnel on the Site, coordinate the activities of the subcontractor personnel, and check that the HASP is followed and modified when necessary. The Site Supervisor's specific responsibilities include:

- Executing the work plan and schedule as detailed by the Project Manger
- Coordination with the SSHO on health and safety issues
- Ensuring Site work compliance with the requirements of the HASP
- Before Site activities, contact the hospital emergency room, local fire department, and local police department, as applicable. If outside town, contact county officials and local emergency services.

2.3 Project Manager (PM)

The Project Manager (PM) has the primary responsibility for the fulfillment of the terms of the contract and overseeing operations for the purpose that includes meeting legal and safety requirements. It is the PM's responsibility to keep the project on schedule, within budget, and communicate with the Client regarding the progress toward specified goals.

The PM will inform the Regional Safety Coordinator of all HASP modifications, violations, injuries, exposures, and near-miss situations. The PM responsibilities include:

- Provide personnel time to read and understand the Site Health and Safety Plan (HASP) before fieldwork.
- Conduct project start-up health and safety briefing for: Field personnel, the Site Supervisor, the project team.
- Check that each subcontractor is pre-approved and that each subcontractor's Site workers have appropriate HAZWOPER Training Certificates.
- Check that Site personnel, if required, have received Respiratory Protection Training, Fit testing, and physician's approval to wear a respirator.
- That hazards identified during any Site audits are corrected. If necessary for immediate hazards, shut down field operations if hazards can not be corrected or the hazards present an immediate threat to life and health.

2.4 Regional Safety Coordinator (RSC)

The Regional Safety Coordinator (RSC) is responsible for providing professional health and safety advice and oversight management to the project. The RSC will review and provide support for concerns regarding the health and safety of field personnel assigned to this project, including:

- If requested by the Project Manager, approval of Routine HASP;
- Approval of all Non-Routine HASP;
- Review of incident reports, inspections, and air monitoring results;
- When required, the RSC will conduct a field audit of the Site to evaluate the adequacy of the program and implement the necessary changes through the HASP.

2.5 Project Field Team

The Project Team includes technicians, engineers, scientists, geologists, and possibly subcontractors who perform field activities. Each individual team member will be responsible for understanding and personally complying with the HASP and Site health and safety requirements. Project Team members will report health and safety violations to either the Site Supervisor or the SSHO. Health and safety responsibilities, as discussed in this Plan, which are shared by all Site personnel include:

- Complying with the requirements of the HASP.
- Reporting unsafe acts or conditions
- Retain copies at the Site of the following health and safety records:
  - Current HAZWOPER Training Certificate.
  - Respiratory Protection Training Certificate and current fit test record for potential respirator users.
  - Physician's approval for hazardous-waste fieldwork and/or respirator use.
  - First-aid/CPR and bloodborne pathogens training certificate.

3.0 – TASK/OPERATION HEALTH AND SAFETY RISK ANALYSIS SUMMARY

This chapter of the HASP describes the safety and health hazards associated with the Site work and control measures selected to protect workers. The purpose of the Job Safety Analysis (JSA) is to identify the routine safety and health hazards associated with the routine Site tasks and operations. Using this information, appropriate control methods are selected to eliminate the identified risks or effectively control them.

3.1 Job Safety Analysis (JSA)

Each specific JSA appears on a separate copy of the spreadsheets in Appendix A. A single JSA may be used for a task/operation performed in multiple locations if the hazards, potential exposures, and controls are the same at each location.

3.2 Health Analysis and Chemical Risk Assessment

Chemicals may be purchased and transported to the Site to support Site characterization and remediation operations. The principal chemical contaminants at the Site are expected to be VOCs, SVOCs, Pesticides, PCBs, and metals. Appendix B contains information from the National Institute for Occupational Safety and Health (NIOSH) Pocket Guide to Chemical Hazards about each of these chemicals. Additionally, the Hazard Communication Program (Policy No. 21) requires ATC to provide employees, contractors, subcontractors, and visitors with information on the health effects of these chemicals and necessary actions to protect against exposure. This information is transmitted through Material Safety Data Sheets (MSDS), the NIOSH Pocket Guide, container labels, training, and a written Hazard Communication program.

Site activities will adhere to the ATC Hazard Communication Program as described in the Policy. All Site personnel, including subcontractors, will be briefed on this Program as part of the Site orientation training before starting work. In accordance with this Program, the PM and Site Supervisor will check that each chemical brought to the Site is accompanied by its MSDS. A copy of each MSDS will be made available to each Site employee who may be potentially exposed to the chemical. In addition, the Site Supervisor will check that all subcontractors bring at least one copy of MSDS for each chemical they bring onto the Site. The Site Supervisor will also check that all chemical containers brought to the Site to determine if they are labeled as to its contents and appropriate hazard warnings.

3.3 Risks Associated With Drilling Activities

Drilling operations will conform to the Job Safety Analysis and Subsurface Investigation (ATC (Policy No. 33). Contaminated soil may be brought to the surface, creating a potential for exposure through skin contact and inhalation of vapors. The open borings also creates a conduit for vapors to be released to the atmosphere. However, the amount of vapors released to the atmosphere is relatively small and vapors are usually quickly diluted and dispersed in air. Air monitoring is required to determine if protective equipment is necessary, as described in Section 4.0 of this HASP.

In addition to these chemical risks, the risk of excavating a buried utility, such as a gas, water, electric line, or underground storage tank or other structures, is always present. Complete the Checklist for Subsurface Clearance prior to any subsurface work (see Appendix C) and follow the procedures in Table 3-1 for at least the first 5 feet of penetration:

TABLE 3-1
DRILLING PROCEDURES

Step 1 - Site Walk	Conduct Site walk. Verify that the Checklist for Subsurface Clearance has been fully completed.
Step 2 - Locate Markouts	Locate all utility markouts and borehole locations. Start intrusive activities at least five (5) feet away and perpendicular to all marked utility lines. A sub-surface utility markout will be performed by a certified subcontractor prior to the commencement of drilling activities. The markout will identify locations of existing sub-surface utilities so that they may be avoided during the drilling activities.
Step 3 - Drilling	All borings will be drilled using a Geoprobe® drilling rig. Soil borings to be advanced on the sidewalk or within vacant lots. For each boring, a description of soils encountered will be logged by a qualified scientist. Continuous soil quality field screening will be performed at all boring locations. Visual and olfactory methods of screening will be used during the field efforts to identify evidence of contamination. Additionally, a portable photo ionization detector (PID) will be used to obtain qualitative measurements of volatile organic vapors.
Step 5 - Soil Sampling	Soil and groundwater samples will be collected by a qualified environmental professional. The samples will be analyzed for VOCs, SVOCs, metals, PCBs, and pesticides.

Risks of injury associated with the drilling operation itself also exist. The risks of working near overhead electrical lines may also present a safety hazard. The SSHO will check for the presence of overhead lines and other obstructions. No drilling operations will be performed within 10 feet of overhead lines with voltages 0-50 kV. For other voltages refer to ATC Electrical Safety Policy (No. 12) and Equipment (Drill Rigs, Mobile Equipment) Policy (No. 15).

Whenever possible, stay at least two feet from machinery. This includes excavators, drilling rigs, dump trucks and front end loaders. Learn where the rig kill switch is to shut the rig off in case of an emergency. A discussion should be held with the operator at the startup of the field work to discuss the location and use of the kill switch and for documentation of a Safety Inspection such as the Monthly Heavy Equipment Safety Inspection Checklist found in Appendix C.

3.4 Noise Hazards and Controls

Exposure to high levels of noise may occur when working near heavy equipment. Also, depending upon where the work is being performed, local equipment (e.g., airports, factory machines, etc.) may produce high levels of noise. Employees exposed to noise levels in excess of the action level of 85 decibels (A-weighted, Slow Response) will be included into the ATC Policy on Hearing Conservation (Policy No. 34). The SSHO may evaluate employee noise exposures using a Noise Survey Meter or a Noise Dosimeter. The RSC may conduct additional noise monitoring to determine the appropriate response to be taken. Employees will be provided with ear plugs and/or earmuffs when exposed to noise levels in excess of the 8-hour Permissible Exposure Limit (PEL) of 90 decibel (A-weighted, Slow Response). This hearing protection shall have a Noise Reduction Rating (NRR) to protect hearing in accordance with Policy No. 34, including the NRR de-rating factor of [(NRR-7)/2].

3.5 Biological Hazards

Site activities on this Site may expose workers to other hazards such as poisonous plants, insects, animals, and indigenous pathogens. Protective clothing and respiratory protection equipment, and being capable of identifying poisonous plants, animals, and insects, can greatly reduce the chances of exposure. Thoroughly washing any exposed body parts, clothing, and equipment will also protect against infections. If working in wooded/grassy areas, use appropriate insect repellants (containing DEET and/or Permethrin) and apply them per the manufacturers' directions.

3.6 Other Hazards

The demolition of the building will be completed in December 2010. As part of the demolition, asbestos abatement may be occurring within the building under contained conditions. All ATC employees working on this task should not enter the containment(s) under any circumstances, unless otherwise expressly authorized, and should follow all signs and posted precautions in the area.

4.0 - AIR MONITORING AND PERSONAL PROTECTIVE EQUIPMENT

4.1 Site Air Monitoring Requirements

To prevent exposure to hazardous conditions and aid in the selection of personal protective equipment, monitoring for the presence of airborne contaminants will occur when knowledge of the Site indicates their potential presence. One or more of the following direct-reading instruments may be used to aid in this determination. Photoionization Detectors (PID) and Flame Ionization Detectors (FID) measures non-specific organic gases and vapors. Combustible Gas Indicators (CGI) will detect explosive atmospheres. Oxygen (O_2) meters will detect fluctuations in oxygen concentrations. These instruments should be calibrated or bump tested daily and whenever the readings may be erratic. All readings should be recorded in the field log books.

Colorimetric detector tubes supplement PID and/or FID readings to measure specific gases and vapors. Other direct-reading instruments are available for use to monitor for the presence of specific airborne Site contaminants.

The breathing zone of the employee(s) anticipated to have the highest potential for exposure for each task will be monitored using an appropriate combination of some or all of these direct-reading instruments. Air monitoring should occur every 15 minutes during non-intrusive activities, or every 5 feet of penetration during intrusive activities. Site tasks and air monitoring requirements are shown in Table 4-1. Additional Site monitoring may occur at the descretion of the SSHO, Site Supervisor, or RSC.

NOTE: All air monitoring equipment must be calibrated as per manufacturer's instructions.

Table 4-1
Site Air Monitoring Requirements

Site Activity	Instrument	Frequency	Location	Caution
Soil sampling	PID	Every 15 minutes (during drilling activities)	In breathing zone of person nearest activity	Communicate with equipment operator before sampling (if sampling is deemed necessary)

Air monitoring will be performed during the periodic Site visits. Air monitoring results obtained from the breathing zone during field activities will be recorded in field logbooks and the Air Quality Monitoring Record (see Appendix C). All such records will also include the location, date/time, weather conditions, person monitored, background concentration, and identification of specific contaminant whenever possible. Air monitoring information will be utilized to evaluate personnel exposure and assess the appropriateness of PPE for Site conditions. The PPE for the Site are discussed in Section 4.2. Photoionization detector (PID) readings measured in the employees breathing zone will be used to determine the level of protection required. PID readings refer to readings above background, which are sustained for at least 5 minutes and are measured during the performance of field tasks. PID readings are used for general screening.

4.2 Action Levels for Personal Protection Equipment

The first and foremost means of protecting employees from injuries or exposures is to eliminate the exposure. The general hierarchy for controlling potential exposures is: (1) Engineering Controls; (2) Administrative Controls; and (3) the use of PPE. PPE is a means of preventing injury or exposure when exposure elimination and/or other control means are not feasible.

The initial level of protection and the Action Levels at which the PPE will be upgraded are determined based on the identification of specific chemicals expected to be present at a Site and the established OSHA Permissible Exposure Levels (PEL) or ACGIH Threshold Limit Values (TLVs), whichever is lower. In the event more than one chemical is expected or exists at a Site, the most hazardous chemical will dictate the level of personal protection required. Table 4-2 shows the action levels for levels of personal protection equipment.

Table 4-2
Action Levels for Personal Protection Equipment

Monitoring Equipment	Hazard	Action Level Above Background	Action
PID	Organic gas/vapor	< 10 ppm	Level D.
		10 to 50 ppm	Level C. Move upwind and continue air monitoring, cease operations, or use detector tube(s) for (contaminant) and reference Table 4-3 below.
		> 50 ppm	Immediate Withdrawal. Contact the PM and RSC for further instructions to proceed.

Detector tubes to be used are indicated for given ranges based upon the PID readings (Table 4-2). As appropriate, PID readings in conjunction with detector tubes will be utilized during the field activity and location anticipated having the highest level of contamination. This location will be selected by the Site Supervisor. If these measurements indicate exposure levels appropriate for Level D work, the use of detector tubes will be limited to situations where field conditions or activities have changed. Detector tubes will be available for use at the discretion of the Site Supervisor and the SSHO.

Any upgrading to higher levels of protection may require additional personal sampling using National Institute for Occupational Safety and Health (NIOSH) or Occupational Safety and Health Administration (OSHA) methods for the collection and analysis of airborne contaminants.

Air monitoring equipment used on the Site should be calibrated with the following:

Calibration/Response Check

Types	Frequency	Gas Standard
PID	Daily	100 ppm isobutylene in air

Field personnel, in conjunction with the Site Supervisor and SSHO, may choose to allow ventilation of vapors before resuming work (rather than using higher levels of PPE). If ventilation is conducted, additional air monitoring will be performed prior to the resumption of work to determine the level of PPE required.

4.3 Levels of Protection

Levels of protection for Site activities are described on the Site Air Monitoring Summary. The protection levels may include all or some of the following, based on work scope.

Level D:

- Work uniform – Long pants and shirt with sleeves (no tank tops) – refer to Policy No. 25 Personal Protective Equipment (Section 5.5)
- Disposable, inner nitrile gloves
- Chemical-resistant boots with steel toe
- Safety glasses with side shields
- High Visibility Reflective Vest Class 1, Class 2, or Class 3 (select based on Traffic speed)
- Hard hat
- Disposable, chemical-resistant outer boot covers*
- Hearing protection*

LEVEL C:

- Half-face or full-face, air purifying respirator (NIOSH approved)
- Disposable, hooded, chemical-resistant clothing
- Disposable, chemical-resistant outer gloves
- Disposable, inner nitrile gloves
- Chemical-resistant boots with steel toe
- Disposable boot covers
- Hard hat
- Safety Glasses with side shields
- High Visibility Reflective Vest Class 1, Class 2, or Class 3 (select based on Traffic speed)
- Coveralls*
- Hearing protection*

(* Optional Equipment, depending on conditions/exposures)

4.4 Respiratory Protection

Respiratory protection requirements are described in detail in the ATC Respiratory Protection Program. Basic rules of respiratory usage are listed below:

- Facial hair that interferes with a satisfactory fit of the mask-to-face seal is not allowed on personnel required to wear respirators.
- Respirator cartridges should be replaced after approximately 8-hours of continuous or intermittent usage, unless otherwise noted. Cartridges should also be replaced if they become damaged, after the expiration date is exceeded, if vapor smell breakthrough occurs, or if filters become clogged causing resistance to breathing.
- Contact lenses may be worn when respiratory protection is required, in conjunction with additional eye protection to protect against particles or splashes, provided there is no interference with the respirator seal.
- Respirators shall be cleaned and disinfected after each day's use or more often, if necessary.
- Prior to donning, respirators will be inspected for worn or deteriorated parts. Emergency respirators or self-contained devices will be inspected at least once a month and after each use.
- After donning, personnel should perform a positive and negative user fit-check to determine if a good seal has been achieved.
- Each employee shall make sure that they have an annual respirator fit test and respiratory protection training.

5.0 - HEALTH SURVEILLANCE PROGRAM

5.1 Employee Medical Examinations

All ATC employees involved in work at the Site will participate in ATC's Medical Surveillance Program administered by Health Resources. Additionally, when respirators are required (as determined by the SSHO and project manager), each employee will also have current respirator clearance.

A post project, follow-up exam may be required if an exposure incident is reported or an employee shows specific symptoms associated with the known or suspected hazardous chemicals. The RSC and the Project Manager will determine when post project exams are required.

5.2 Heat Stress Program

This procedure applies to all employees when heat stress conditions exist at project sites.

5.2.1 Training

The SSHO will have received acceptable training in first-aid and Cardiopulmonary Resuscitation (CPR), including training in heat-related illnesses. The SSHO shall also be trained on the requirements of the ATC Policy for Industrial Hygiene (Policy No. 23), which contains the requirement for Heat Stress monitoring. All workers should be capable of recognizing and treating the signs and symptoms of heat stress conditions. During potential heat stress conditions, ice should be readily available to rapidly cool victims.

5.2.2 Fluid Replacement

Water will be made available at the Site for employee fluid replacement. When heat stress is determined to be a problem by the SSHO, employees will be provided with balanced, electrolyte solutions to replace fluid and electrolyte loss. Employees will be provided with replacement fluids at a minimum rate of 8 ounces every 15 to 20 minutes per person.

5.2.3 Acclimatization

Acclimatization is a gradual physiological adaptation that improves an individual's ability to tolerate heat stress. Full-heat acclimatization requires up to 3 weeks of continued physical activity under heat-stress conditions similar to those anticipated for the work. Its loss begins when the work activity in the heat stress conditions is discontinued. A noticeable loss usually occurs within 3 – 4 days.

5.2.4 Rest Breaks

When heat stress conditions are applicable, all rest breaks should be taken out of the zone of exclusion into a cooler, shaded, rest area. If these conditions are not available, more frequent rest breaks will be taken.

5.2.5 Heat Stress Monitoring

Heat Stress and heat strain are conditions resulting from environmental factors including temperature, relative humidity, radiant heat transfer, and air movement, as they are affected by clothing. The primary objective of the heat stress management program is to prevent heat stroke which is life threatening and the most serious of the heat-induced disabilities. Extra caution should be taken for workers who are not acclimated to working in the heat.

The following Heat Stress Index (refer to ATC Policy No. 23) should be used as a guide to evaluate heat stress situations. If the Heat Stress exceeds 105° F, contact the RSC prior to work for detailed guidance.

Heat Stress Index

Temp. °F	Relative Humidity 10%	20%	30%	40%	50%	60%	70%	80%	90%
105	98	104	110	120	132				
102	97	101	108	117	125				
100	95	99	105	110	120	132			
98	93	97	101	106	110	125			
96	91	95	98	104	108	120	128		
94	89	93	95	100	105	111	122		
92	87	90	92	96	100	106	114	122	
90	85	88	90	92	96	100	106	114	122
88	82	86	87	89	93	95	100	106	115
86	80	84	85	87	90	92	96	100	109
84	78	81	83	85	86	89	91	95	99
82	77	79	80	81	84	86	89	91	95
80	75	77	78	79	81	83	85	86	89
78	72	75	77	78	79	80	81	83	85
76	70	72	75	76	77	77	77	78	79
74	68	70	73	74	75	75	75	76	77

NOTES: Add 10° F when protective clothing is being used; Add 10° F when in direct sunlight

HSI Temp	Category	Injury Threat
Above 130° F	Extreme Danger	No work unless emergency exists. Contact ATC RSC and Corporate Risk Management Department prior to proceeding. Heat cramps or exhaustion likely, heat stroke possible if exposure is prolonged and there is physical activity.
105° to 130° F	Danger	Contact RSC prior to proceeding. Requires strict adherence to ACGIH Heat Stress Guidelines, including use of on-site WBGT equipment. Heat cramps or exhaustion likely, heat stroke possible if exposure is prolonged and there is physical activity.
90° to 105° F	Extreme Caution	Heat cramps or exhaustion likely, heat stroke possible if exposure is prolonged and there is physical activity.
80° to 90° F	Caution	Heat cramps or exhaustion likely, heat stroke possible if exposure is prolonged and there is physical activity.
Below 80° F	Normal Range	Typical conditions for time of year. Little or no danger under normal circumstances. As always, anticipate problems and work safely.

5.3 Cold Stress Program

This procedure applies to all employees who perform field work in cold environments at risk of cold stress injury and intended to protect workers from the most severe effects of cold stress.

5.3.1 Training

ATC Site employees have been trained in cold stress as part of their HAZWOPER 40-hour initial training. Site workers will receive refresher training by the SSHO in cold stress safety and health procedures. The training program will include, as a minimum, instruction in the following areas:

- Proper first-aid treatment
- Proper clothing practices
- Proper eating and drinking habits
- Recognition of impending frostbite
- Recognition of the signs and symptoms of impending hypothermia or excessive cooling of the body when shivering does not occur
- Safe working practices

The SSHO will be trained in first-aid, CPR, and cold stress conditions.

5.3.2 Environmental Monitoring

Frostbite and hypothermia are two types of cold injury that personnel must be protected against during the performance of field duties. The objective is to prevent the deep body temperature from falling below 96.8° F and to prevent cold injury to body extremities. Two factors influence the development of a cold injury the ambient temperature, and wind velocity.

The SSHO will monitor environmental conditions by recording ambient temperature and estimated wind-speed. Information contained in Tables 5-1 and 5-2 will be used to evaluate the possibility of hypothermia among workers on-site.

5.3.3 Protective Clothing and Rest Breaks

Use appropriate cold weather clothing when temperatures are at or below 40°F as exposed skin surfaces must be protected. These protective items can include facemask, hand wear, and foot wear. Workers handling evaporative solvents during cold stress conditions will take special precautions to avoid soaking gloves and clothing because of the added danger of prolonged skin contact and evaporative cooling. Personnel will wear protective clothing appropriate for the level of cold and planned physical activity. The objective is to protect all parts of the body, with emphasis on the hands and feet. Eye protection against glare and ultraviolet light should be worn in snowy and icy conditions.

The work rate should not be so great as to cause heavy sweating that could result in wet clothing. If heavy work must be done, opportunities for rest breaks will be provided where workers have the opportunity to change into dry clothing. Conversely, plan work activities to minimize time spent sitting or standing still. Rest breaks should be taken in a warm, dry area. Windbreaks can also be used to shield the work area from the cooling effects of wind.

5.3.4 Identification and Treatment of Cold Stress

When frostbite, hypothermia, or other cold stress symptoms are suspected, treat the patient to relieve symptoms or transport them to the medical facility identified on page TC-4.

TABLE 5-1
Threshold Limit Values Work/Warm-up Schedule
for Four-Hour Shift*

Air-Temperature--Sunny Sky		No Noticeable Wind		5 mph Wind		10 mph Wind		15 mph Wind		20 mph Wind	
°C (approx.)	°F (approx.)	Max. Work Period	No. of Breaks	Max. Work Period	No. of Breaks	Max. Work Period	No. of Breaks	Max. Work Period	No. of Breaks	Max. Work Period	No. of Breaks
-26° to -28°	-15° to -19°	(Norm. Breaks) 1		(Norm. Breaks) 1		75 min	2	55 min	3	40 min	4
-29° to -31°	-20° to -24°	(Norm. Breaks) 1		75 min	2	55 min	3	40 min	4	30 min	5
-32° to -34°	-25° to -29°	75 min	2	55 min	3	40 min	4	30 min	5	Non-emergency work should cease	
-35° to -37°	-30° to -34°	55 min	3	40 min	4	30 min	5	Non-emergency work should cease		Non-emergency work should cease	
-38° to -39°	-35° to -39°	40 min	4	30 min	5	Non-emergency work should cease		Non-emergency work should cease		Non-emergency work should cease	
-40° to -42°	-40° to -44°	30 min	5	Non-emergency work should cease		Non-emergency work should cease		Non-emergency work should cease		Non-emergency work should cease	
-43° & below	-45° & below	Non-emergency work should cease		Non-emergency work should cease		Non-emergency work should cease		Non-emergency work should cease		Non-emergency work should cease	

*1. Schedule applies to any 4-hour work period with moderate to heavy work activity, with warm-up periods of ten. (10) Minutes in a warm location and with an extended break (e.g., lunch) at the end of the 4-hour work period in a warm location. For Light-to-Moderate Work (limited physical movement): apply the schedule on step lower. For example, at -35°C (-30°F) with no noticeable wind (Step 4), a worker at a job with little physical movement should have a maximum work period of 40 minutes with 4 breaks in a 4-hour period (Step 5).

2. The following is suggested as a guide for estimating wind velocity if accurate information is not available: 5 mph: light flag moves; 10 mph: light flag fully extended: 15 mph: raises a newspaper sheet: 20 mph: blowing and drifting snow.

3. If only the wind chill cooling rate is available, a rough rule of thumb for applying it rather than the temperature and wind velocity factors given above would be 1) special warm-up breaks should be initiated at a wind chill cooling rate of about 1750 watts per square meter (W/m^2); 2) all non-emergency work should have ceased at or before a wind chill of 2250 W/m^2. In general, the warm-up schedule provided above slightly under-compensates for the wind at the warmer temperatures, assuming acclimatization and clothing appropriate for winter work. On the other hand, the chart slightly overcompensates for the actual temperatures in the cooler ranges because windy conditions rarely prevail at extremely low temperatures.

4. TLVs apply only for workers in dry clothing.

* Adapted from Occupational Health & Safety Division, Saskatchewan Department of Labor.

TABLE 5-2
Cooling Power of Wind on Exposed Flesh Expressed as Equivalent Temperature (under calm conditions)*

Estimated Wind Speed (mph)	Actual Temperature Reading (degrees F)											
	50	40	30	20	10	0	-10	-20	-30	-40	-50	-60
	Equivalent chill Temperature (degrees F)											
calm	50	40	30	20	10	0	-10	-20	-30	-40	-50	-60
5	48	37	27	16	6	-5	-15	-26	-36	-47	-57	-68
10	40	28	16	4	-9	-24	-33	-46	-58	-70	-83	-95
15	36	22	9	-5	-18	-32	-45	-58	-72	-85	-99	-112
20	32	18	4	-10	-25	-39	-53	-67	-82	-96	-110	-121
25	30	16	0	-15	-29	-44	-59	-74	-88	-104	-118	-133
30	28	13	-2	-18	-33	-48	-63	-79	-94	-109	-125	-140
35	27	11	-4	-20	-35	-51	-67	-82	-98	-113	-129	-145
40	26	10	-6	-21	-37	-53	-69	-85	-100	-116	-132	-148
(Wind speeds > 40 mph have little additional effect)	LITTLE DANGER If < hr with dry skin. Maximum danger of false sense of security				INCREASING DANGER Danger from freezing of exposed flesh within one minute.			GREAT DANGER Flesh may freeze within 30 seconds.				
	Trench foot and immersion foot may occur at any point on this chart.											

* Developed by U.S. Army Research Institute of Environmental Medicine, Natick, MA

6.0 - SITE SECURITY AND CONTROL

6.1 Work Zones

Restricted Site areas will include, but not necessarily be limited to, the following zones:

- **Exclusion Zone or Hot Zone -** any area where contamination is either known or likely to be present in concentrations that could pose a threat to human health and safety or that potential for harm to personnel exists because of the type of work activities being conducted. Appropriate PPE and warning signs should be utilized in this area.
- **Contamination Reduction Zone -** any area where workers conduct personal and equipment decontamination.
- **Support Zone -** areas where access is controlled, but the chance to encounter hazardous materials or conditions are minimal.

Access to the work zones will be controlled by work zone delineators (e.g. traffic cones, flags, vehicles, DOT approved devices, temporary or permanent fencing, and/or safety barrier tape). Figure 6-1 is an example of a work zone. Additionally ATC employees should follow the requirements of the Employee Health and Safety Policy Manual, Policy No. 36, Work Zones in Traffic Areas for additional information.

In the event on-site personnel must upgrade their personal protective equipment, the work zones may require substantial modification in order to provide for the safety of nearby personnel not associated with this work. Any upgrade level will be communicated by the Site Supervisor to the PM. The PM will then inform the RSC of this occurrence.

Work Zone	Level of Protection	Required Protective Equipment (specify exact type, e.g. nitrile gloves)	
Exclusion Zone	_____	Respirator:	Yes
		Filters/Cartridges:	Organic – N/A
		Boots:	Yes
		Inner Gloves:	Nitrile
		Outer Gloves:	Nitrile
		Protective Coverall:	Tyvek
		Hard Hat:	Yes
		Eye Protection:	Yes
		Other:	Reflective Vests, Hearing Protection where needed

Contamination		Respirator:	
Reduction Zone		Filters/Cartridges:	
		Boots:	Yes
		Inner Gloves:	
		Outer Gloves:	
		Protective Coverall:	
		Hard Hat:	Yes
		Eye Protection:	Yes
		Other:	

Exceptions and Modifications:

6.2 Buddy System

The Buddy System will be used at all times by field personnel in the Exclusion Zones. The Buddy System means that personnel work in pairs and stay in close visual contact to be able to observe one another and summon rapid assistance in case of emergency. No one is to perform fieldwork without the approval of the Branch Safety Officer and/or the Regional Safety Officer.

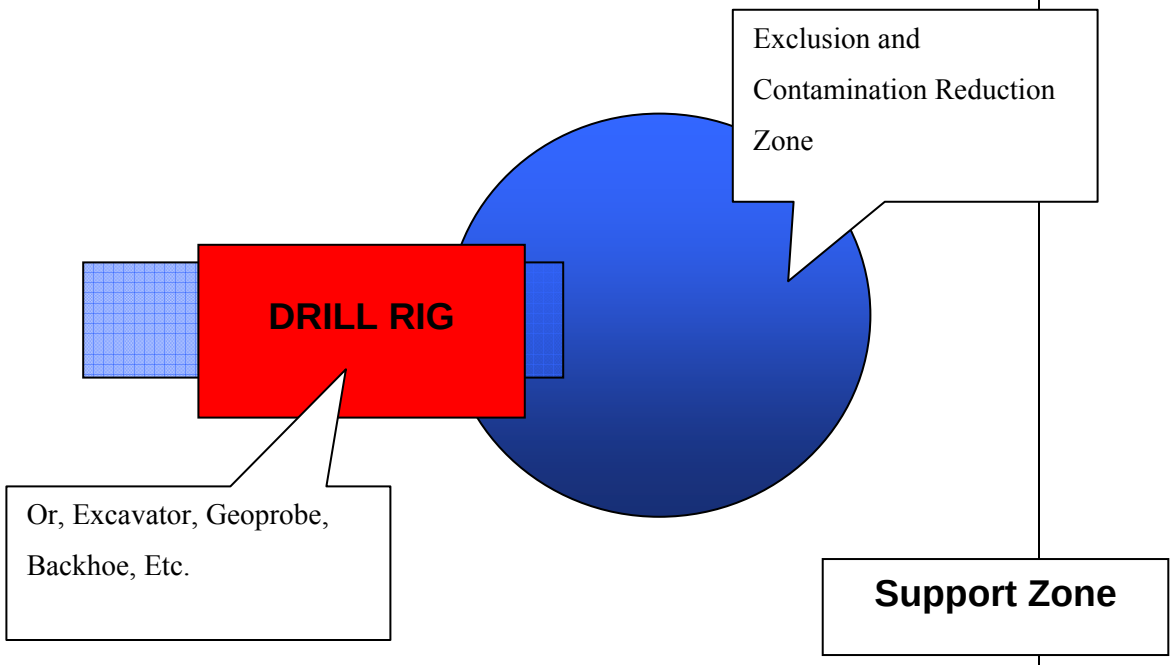
6.3 Site Communication

A loud and clear form of communication should be made available for Site personnel entering the work zones. Site communication may be in the form of hand signals, voice, or other communication devices. All forms of communication should be understood by all workers on the Site prior to starting work.

6.4 Roadway Work Zones

When ATC employee and subcontractors are required to perform Site operation in a city street or public right-of-way, a Traffic Control Plan may be required and included with this HASP. Check with the State or local government Department of Transportation for when a traffic control plan is required. Traffic Control Plans will include Transition Areas, Activity Areas, and Termination Areas.

FIGURE 6-1
TYPICAL EXCLUSION ZONE



7.0 - DECONTAMINATION PROCEDURES

7.1 Personnel Decontamination

All personnel must complete appropriate decontamination procedures in a way that is responsive to actual Site conditions before leaving the Site. The decontamination of personnel and equipment will be performed within the exclusion and contamination reduction zones. Wash tubs containing an appropriate decon solution and soft bristle brushes will be used to decontaminate personal protective clothing and boots. Deionized water will be used for the final rinse. The SSHO will visually inspect all PPE and other equipment once decontamination procedures are completed. In general, the four types of decontamination solutions to be considered for PPE include:

- Water for removal of low-molecular weight hydrocarbons, inorganic compounds, salts, some organic acids, and other polar compounds.
- Dilute acids (vinegar) for removal of basic (caustic) compounds, amines, and hydrazines.
- Dilute bases (soaps and detergents) for removal of acidic compounds, phenols, thiols, and some nitro and sulfonic compounds.
- Organic solvents for removal of nonpolar compounds (organic).

LEVEL D/LEVEL C

- Establish a segregated equipment drop
- Remove disposable, outer boot covers, if applicable
- Remove chemical resistant, outer gloves, if applicable
- Remove hard hat and goggles, safety glasses, or face shield
- Remove disposable, inner gloves
- Remove full-face air purifying respirator (Level C only)

Each individual will be responsible for inspecting and decontaminating their own respirator in accordance with the ATC Respiratory Protection Program (Policy No. 27).

At a minimum the hands and face of each employee must be thoroughly washed upon leaving the work area. Trash receptacles will be provided for all disposable clothing. Commercial laundries or cleaning establishments that decontaminate clothing or equipment will be informed of the potentially harmful effects of exposure.

Decontamination Solution: Soap and water, fresh rinse

STATION #1: Wash hands, dispose of outer gloves and coveralls

Equipment Required: Wash basin

STATION #2: NA

Equipment Required: NA

STATION #3: NA

Equipment Required: NA

STATION #4: NA

Equipment Required: NA

7.2 Equipment Decontamination

The subcontractor will decontaminate field equipment according to the work plan. This may include manual removal of gross contamination with shovels or other tools, followed by a high-pressure, hot water sprayer. Because decontamination at the high-pressure, hot water station poses the possibility of a splash and/or mist inhalation hazard, the task should be performed using Level D personal protective equipment at a minimum.

Field tool including split-barrel soil samplers, brass liners, and sample knives and trowels will be decontaminated. The field tools may be scrubbed visually clean using a detergent solution (Alconox/Liquinox) with water and a stiff, long-bristled scrub brush. Following the solution scrubbing, the tools may be rinsed with distilled water or isopropyl alcohol.

Equipment Decontamination

Gross Removal By:

X	Hand Scrubbing	
	Cold High Pressure Wash	
	Hot High Pressure Wash	
	Steam Cleaning	
	Other (specify)	
	Clean Rinse	
X	Decon solution (specify)	ALCONOX

7.3 Disposition of Decontamination Wastes

All materials and equipment used for decontamination should be disposed of in accordance with local, State, and/or Federal Regulations. Clothing, tools, buckets, brushes, and all other equipment that is contaminated must be properly packaged and stored on the Site until disposal arrangements are finalized. Clothing not completely decontaminated on-site should be secured in plastic bags before being removed from the Site.

Decontamination Waste Water

Collection (specify how): Wash basin

Direct Discharge (specify how and where): 55-gallon drum

Pre-Treatment (specify): None

Disposal (specify how and where): Contractor

8.0 - STANDARD OPERATING PROCEDURES

The following Standard Operating Procedures (SOPs) will be applied to each location and activity where work is performed on a hazardous chemical site. As hazards increase or decrease on the Site, the applicability of each SOP must be determined by the SSHO with the approval of any changes by the Project Manager or the RSC.

8.1 Personnel Precautions

1. Eating, drinking, chewing gum or tobacco, smoking, and any practice that increases the probability of hand-to-mouth transfer and ingestion of material is prohibited in the exclusion and contamination reduction zone or in any area known to be contaminated.

2. When decontamination procedures for outer garments are in effect, the entire body should be thoroughly washed as soon as possible after the protective garment is removed.

3. Contact with contaminated or suspected contaminated surfaces should be avoided. When possible, do not walk through puddles, leachate, or discolored surfaces; kneel on the ground; or lean, sit, or place equipment on drums, containers, or the ground.

4. Medicines and alcohol can increase the effects from exposure to toxic chemicals. Personnel should not take prescribed drugs at hazardous waste operations where the potential for absorption, inhalation, or ingestion of toxic substances exists unless specifically approved by a qualified physician. Alcoholic beverage intake should be minimized or avoided.

5. All personnel must be familiar with Standard Operating Procedures and any additional instructions and information contained in this HASP. All visitors and subcontractors will read the HASP before entering the Site.

6. All personnel will be aware of symptoms for heat or cold stress.

7. All personnel will be familiar with the chemicals used on-site and the associated hazards as described in each respective MSDS. The MSDS for the chemicals on-site will be available and located in the company vehicle.

8.2 Operations

1. All personnel going to the Site must be adequately trained and thoroughly briefed on anticipated hazards, equipment, safety practices, emergency procedures, and communications.

2. Personnel on the Site must use the Buddy System when engaged in Level C work as specified in ATC Policy No. 35 (Hazwoper). The purpose of the Buddy System is to provide rapid assistance to employees in the event of an emergency.

3. Visual contact must be maintained between pairs of Site and safety personnel. Entry team members should remain close to assist each other during emergencies.

4. Personnel should practice unfamiliar operations before the actual procedure.

5. Entrance and exit locations must be designated, and emergency escape routes delineated. Warning signals for Site evacuation must be established by the SSHO before field activities.

6. Communications using radios, hand signals, or other means, must be maintained between initial entry members at all times. Emergency communications should be prearranged in case of radio failure, the necessity for evacuating the Site, or other reasons.

7. Wind indicators visible to all personnel should be strategically located throughout the Site.

8. Personnel and equipment in the contaminated area should be minimized, consistent with effective Site operations.

9. Work areas for various operational activities will be established.

10. Procedures for leaving a contaminated area will be planned and implemented before going to the Site. Work areas and decontamination procedures will be established based on expected Site conditions.

11. Frequent and regular inspections of Site operations will be conducted by the SSHO to check compliance with this HASP. If changes in operation occur, the HASP must be modified to reflect these changes.

12. All electrical equipment (power tools, extension cords, instruments, radios, etc.) will conform with ATC Policy No. 12 (Electrical) The SSHO will ensure that electrical equipment is free from recognized hazards that may cause physical harm to employees.

13. Fire prevention and protection (appropriate signs for flammable liquids, smoking areas, storage areas of combustible or flammable materials, etc.) will be according to ATC Policy No. 18, Fire Protection.

14. Site Tailgate Safety Meetings will be held daily to discuss anticipated Site conditions and daily activities. This meeting will be summarized in field logbooks and the Tailgate Safety Meeting Form (see Appendix C).

9.0 - CONTINGENCY PLAN

This chapter of the HASP describes potential emergencies at this Site and the procedures for responding to those emergencies.

9.1 Medical Emergencies

1. The name, address, telephone number, travel distance, and travel time to the nearest medical treatment facility are found in the Emergency Information section (see Page TC-4) of this HASP. A map and direction for locating the facility is available in the Emergency Information section (see Page TC-6) of this HASP.

2. Emergency routes will be verified and driven before any Site activities. It may be quicker to transport a person with minor injuries than to wait for Emergency Medical Services (EMS) to respond. Check with the local authorities for response times. Life threatening emergency situations will only be handled by emergency medical services.

3. Before mobilization on-site, the Site Supervisor will contact the local hospital emergency room personnel, local fire department, and local police department to brief them regarding the scope and hazards associated with the scheduled fieldwork. If the Site is outside an established town, contact will be made with county officials and local emergency services.

4. An emergency first-aid kit with contents per ATC Policy No. 20 (First-Aid) will be readily available (if corrosive materials are present) on the Site, and personnel will have first-aid training. The first-aid kit also contains equipment necessary to protect first-aid providers against exposure to bloodborne pathogens. All first-aid providers will have received Bloodborne Pathogens training and can receive Hepatitis B vaccinations according to the ATC Policy No. 09 (Bloodborne Pathogens) if exposed to bodily fluids.

5. Any person who becomes ill or injured in the exclusion zone must be decontaminated as well as possible with consideration to which risk will be greater, the spread of contamination or the health of the individual. If the injury or illness is minor, full decontamination (remove contaminated clothing and wash hands and face with soap and water, See Section 7.0) should be completed and first-aid administered before transport. If the patient's condition is serious, at least partial decontamination should be completed (i.e., complete disrobing of the victim and redressing in clean coveralls or wrapping in a blanket). First-aid should be administered while awaiting an ambulance or paramedics.

6. The following steps should be followed if an injury or illness case occurs:

   - Check the Scene.
   - If safe to do so, check the condition of the injured.
   - Call 911 if the victim is unconscious or your training dictates to do so.
   - Care for the injured. Always use “Universal Precautions”.
   - Call COMP-CARE (800) 756-1130, if the injury is non-life threatening. COMP-CARE will assist you with the location of the nearest clinic, if referral is needed.

7. Provisions must be made to identify the substance to which the worker has been exposed. This information must be given to medical personnel.

9.2 Emergency Equipment

1. A personal eyewash unit that meets ANSI Z358.1-1998, Section 6 will be available in each ATC field vehicle at the Site if corrosive chemicals (chemicals with a pH of <3 or >11) will be on-site.

2. An emergency first-aid kit with contents as per ATC Policy No. 20 (First-Aid). The Site Supervisor shall be trained and certified in first-aid and CPR.

3. An emergency spill cleanup kit will be available at the Site at all times. Unplanned releases will be reported to the SSHO and/or Site Supervisor as soon as possible.

4. Sufficient water and/or multipurpose dry chemical (Class A, B, and C) fire extinguishers, rated not less than 2A:10B:C, will be maintained on the Site to cope with any situation until emergency services arrive.

9.3 Flammable Conditions

In the event that combustible vapors exceed 10 percent of the LEL or strong odors are detected in the borehole, the following actions should be taken:

- Continue investigation using extreme caution. Personal protective equipment may need to be upgraded.
- Allow vapors to dissipate or use intrinsically-safe mechanical ventilation.
- If atmospheric conditions do not change, call in the listed sequence:
  - Project Manager
  - Regional Safety Coordinator
  - Fire Department
- Provide answering personnel with the call back numbers, locations, directions, and situation assessment.

9.4 Site Evacuation Conditions

The following conditions will necessitate the cessation of field work in the area of concern, withdrawal from the work area, and revisions to this HASP:

- Fires and/or explosions
- Unexploded ordnance is detected
- A major incident or injury occurs
- Flammable atmosphere readings above 10 percent LEL
- Oxygen readings above 23.5 percent oxygen concentration
- Oxygen readings at or below 19.5 percent oxygen concentration
- PID readings over 50 ppm sustained for more than 5 minutes

9.5 Emergency Communication System

Emergency contacts and telephone numbers are provided at the beginning of this HASP. Field crews will have some communication device at each active work location. These may include radios, mobile telephones, or walkie-talkies. Such communication devices will have sufficient range to contact the field office and/or emergency services. If an emergency occurs on-site, the Site Supervisor is responsible for checking that appropriate emergency contact has been notified. At the time of the emergency response, the Site Supervisor or designee will brief the emergency personnel on the status of the emergency, including Site conditions.

Field personnel will use hand signals if there are noisy working conditions on the Site. The hand signals that will be used are shown below and will be reviewed by the SSHO during the on-site safety briefing.

Signal	**Meaning**
Hands on top of head	Need assistance
Grip partner′s wrist or place both hands around partner′s arm	Leave area immediately
Thumbs up	OK; I am all right
Thumbs down	No; Negative
Hand gripping throat	Cannot breathe; Out of air

9.6 Emergency Response Follow-Up

If there is an incident, near-miss, or emergency response, the SSHO will notify the Project Manager and Regional Safety Coordinator. The Project Manager or the Branch Safety Officer will complete a Supervisor's Investigation Report (SIR) (Policy No. 51; Appendix 51-1) and submit to the appropriate Regional distribution list. Prior to resuming work, a Site safety meeting should be held to discuss the circumstances surrounding the incident and what should be done to prevent a re-occurrence.

10.0 - EMPLOYEE TRAINING

10.1 Pre-Assignment and Annual Refresher Training

All ATC Employees and Subcontractors will participate in routine health and safety education and training programs. These programs are designed to provide employees with a thorough knowledge of hazardous materials, health and safety hazard potential, and Federal Occupational Safety and Health Administration (OSHA) requirements published in 29 Code of Federal Regulations (CFR) Part 1910. According to 29 CFR 1910.120(e), Site employees will have received 40 hours of initial Hazardous Waste Operations & Emergency Response (HAZWOPER) instruction and 24 hours of supervised field experience. Attending an annual 8-hour HAZWOPER refresher training session maintains this initial training. It is the responsibility of the Project Manager and each subcontractor's supervising manager to determine if the subcontractor staff meets these training requirements.

10.2 Site Supervisor's Training

On-site Managers and Supervisors on hazardous waste sites who are directly responsible for or who supervise workers engaged in hazardous wastes operations receive, in addition to the initial 40 HAZWOPER training, 8 additional hours of specialized supervisory training in compliance with the OSHA regulations. This training includes training on the employer's safety and health program and the associated employee training program, personal protective equipment program, spill containment program, and health hazards monitoring procedure and techniques.

10.3 Site Safety Training and Briefing Topics

The SSHO will conduct Site-specific health and safety briefing for field personnel before the start of all field work. Briefing attendees will include the Site Supervisor, the Project Team, and Subcontractor personnel. At the conclusion of the meeting, personnel are to sign the HASP Agreement and Acknowledgement Form in the Appendices. As additional people are assigned to the Site, it is the responsibility of the SHSO to ensure that new personnel are briefed on health and safety protocols and ensure that they have reviewed and signed the HASP Agreement and Acknowledgement Form. Items to be covered include:

- Site-specific health and safety rules
- Client-specific health and safety rules
- Health effects of various chemicals used on the Site
- Emergency response actions pertaining to operations on-Site

Additionally, daily Site Tailgate Safety Meetings will be conducted to review past activities, plan ahead for new or changed operations, to understand any near-miss and "lessons learned, establish safe working procedures for anticipated hazards, and provide pertinent safety and health training and motivation. The SSHO will complete the Tailgate Safety Meeting Form located in the Appendices.

10.4 Visitors

All visitors entering the designated work zones will be subject to all applicable health and safety requirements during field operations at the Site. All visitors to a work Site will be given the opportunity to review the HASP, will be escorted at all times, and will be required to stay a safe distance from Site activities. The Site Supervisor and/or the SSHO will be responsible for briefing all visitors on the Site hazards, Site safety precautions, and the Site emergency response plan.

APPENDIX A
Job Safety Analysis (JSA)

Job Safety Analysis (JSA)

Date of Analysis: __9/10/2010_____ JSA Conducted By: __Matthew Mankovich_____ JSA No. _1_

Job Title: Senior Project Manager_____ Department: _Environmental_____

Job Description: __Drilling of borings and soil and groundwater sample collection_____

Job Location: 414 West 155th Street, New York, NY

(1) Job Segments & Steps	(2) Potential Hazards	(3) Safe Procedures & Preventive Measures
Walking around job site	• Vehicles	• Wear reflective vest • Don't assume the operator sees you
	• Tripping hazards	• Maintain a clear path between the sample location and the preparation area. • Walk pathway prior to collecting samples. • Limit the amount of tools or supplies that are carried so that you can still see the ground.
	• Heavy equipment	• Only approach after the spotter indicates it is safe to do so. • Wear a reflective vest • Don't assume that the operator sees you.
Working near Geoprobe operator	• Being hit by equipment	• Only approach after the spotter indicates it is safe to do so. • Wear a reflective vest
Soil Sampling	• Heavy Equipment	• Only approach after the spotter indicates it is safe to do so. • Wear a reflective vest • Only sample when the operator has removed their hands from the controls.
	• Excavation – falls and collapse	• Do not enter the excavation • Stay back at least 2 feet from the edge of the excavation.
	• All utilities will be marked out prior to drilling activities using NYC one call	• All soil borings will be cleared by a geophysical survey.
	• Hand injuries	• Always watch hand placement – do not place your hand in direct path of a tool.
	• Back injuries	• Follow safe lifting procedures of lifting with the legs not the back. • Avoid setting tools and other equipment on the ground. Set at waist level. • If over 50 pounds or awkward ask for assistance.
	• Tripping hazards	• Housekeeping.

Job Safety Analysis (JSA)

(1) Job Segments & Steps	(2) Potential Hazards	(3) Safe Procedures & Preventive Measures
		• Maintain a clear path between the sample location and the preparation area.
	• Chemical contact	• Wear nitrile gloves.

APPENDIX B
Chemical Hazard Information

CHEMICAL LISTING

A

Acetaldehyde

Formula:	CAS#:	RTECS#:	IDLH:
CH_3CHO	75-07-0	AB1925000	Ca [2000 ppm]

Conversion: 1 ppm = 1.80 mg/m^3 **DOT:** 1089 129

Synonyms/Trade Names: Acetic aldehyde, Ethanal, Ethyl aldehyde

Exposure Limits:
NIOSH REL: Ca **OSHA PEL†:** TWA 200 ppm (360 mg/m^3)
See Appendix A
See Appendix C (Aldehydes)

Measurement Methods (see Table 1):
NIOSH 2018, 2538, 3507
OSHA 68

Physical Description: Colorless liquid or gas (above 69°F) with a pungent, fruity odor.

Chemical & Physical Properties:
MW: 44.1
BP: 69°F
Sol: Miscible
Fl.P: -36°F
IP: 10.22 eV
Sp.Gr: 0.79
VP: 740 mmHg
FRZ: -190°F
UEL: 60%
LEL: 4.0%
Class IA Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, acids, bases, alcohols, ammonia & amines, phenols, ketones, HCN, H_2S [**Note:** Prolonged contact with air may cause formation of peroxides that may explode and burst containers; easily undergoes polymerization.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, nose, throat; eye, skin burns; derm; conj; cough; CNS depres; delayed pulm edema; in animals: kidney, repro, terato effects; [carc]
TO: Eyes, skin, resp sys, kidneys, CNS, repro sys [in animals: nasal cancer]

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush prompt
Breath: Resp support
Swallow: Medical attention immed

Acetic acid

Formula:	CAS#:	RTECS#:	IDLH:
CH_3COOH	64-19-7	AF1225000	50 ppm

Conversion: 1 ppm = 2.46 mg/m^3 **DOT:** 2790 153 (10-80% acid); 2789 132 (>80% acid)

Synonyms/Trade Names: Acetic acid (aqueous), Ethanoic acid, Glacial acetic acid (pure compound), Methanecarboxylic acid [**Note:** Can be found in concentrations of 5-8% in vinegar.]

Exposure Limits:
NIOSH REL: TWA 10 ppm (25 mg/m^3) **OSHA PEL:** TWA 10 ppm (25 mg/m^3)
ST 15 ppm (37 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1603
OSHA ID186SG

Physical Description: Colorless liquid or crystals with a sour, vinegar-like odor. [**Note:** Pure compound is a solid below 62°F. Often used in an aqueous solution.]

Chemical & Physical Properties:
MW: 60.1
BP: 244°F
Sol: Miscible
Fl.P: 103°F
IP: 10.66 eV
Sp.Gr: 1.05
VP: 11 mmHg
FRZ: 62°F
UEL(200°F): 19.9%
LEL: 4.0%
Class II Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact (>10%)
Eyes: Prevent eye contact
Wash skin: When contam (>10%)
Remove: When wet or contam (>10%)
Change: N.R.
Provide: Eyewash (>5%)
Quick drench (>50%)

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
50 ppm: Sa:Cf£/PaprOv£/CcrFOv/GmFOv/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers (especially chromic acid, sodium peroxide & nitric acid), strong caustics [**Note:** Corrosive to metals.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Irrit eyes, skin, nose, throat; eye, skin burns; skin sens; dental erosion; black skin, hyperkeratosis; conj, lac; phar edema, chronic bron
TO: Eyes, skin, resp sys, teeth

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

Acetic anhydride	Formula: $(CH_3CO)_2O$	CAS#: 108-24-7	RTECS#: AK1925000	IDLH: 200 ppm

Conversion: 1 ppm = 4.18 mg/m^3 **DOT:** 1715 137

Synonyms/Trade Names: Acetic acid anhydride, Acetic oxide, Acetyl oxide, Ethanoic anhydride

Exposure Limits:
NIOSH REL: C 5 ppm (20 mg/m^3)
OSHA PEL†: TWA 5 ppm (20 mg/m^3)

Physical Description: Colorless liquid with a strong, pungent, vinegar-like odor.

Measurement Methods (see Table 1):
NIOSH 3506
OSHA 82, 102

Chemical & Physical Properties:
MW: 102.1
BP: 282°F
Sol: 12%
Fl.P: 120°F
IP: 10.00 eV
Sp.Gr: 1.08
VP: 4 mmHg
FRZ: -99°F
UEL: 10.3%
LEL: 2.7%
Class II Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
125 ppm: Sa:Cf£/PaprOv£
200 ppm: CcrFOv/GmFOv/PaprTOv£/ ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Water, alcohols, strong oxidizers (especially chromic acid), amines, strong caustics [**Note:** Corrosive to iron, steel & other metals. Reacts with water to form acetic acid.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Conj, lac, corn edema, opac, photo; nasal, phar irrit; cough, dysp, bron; skin burns, vesic, sens derm
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

Acetone	Formula: $(CH_3)_2CO$	CAS#: 67-64-1	RTECS#: AL3150000	IDLH: 2500 ppm [10%LEL]

Conversion: 1 ppm = 2.38 mg/m^3 **DOT:** 1090 127

Synonyms/Trade Names: Dimethyl ketone, Ketone propane, 2-Propanone

Exposure Limits:
NIOSH REL: TWA 250 ppm (590 mg/m^3)
OSHA PEL†: TWA 1000 ppm (2400 mg/m^3)

Physical Description: Colorless liquid with a fragrant, mint-like odor.

Measurement Methods (see Table 1):
NIOSH 1300, 2555, 3800
OSHA 69

Chemical & Physical Properties:
MW: 58.1
BP: 133°F
Sol: Miscible
Fl.P: 0°F
IP: 9.69 eV
Sp.Gr: 0.79
VP: 180 mmHg
FRZ: -140°F
UEL: 12.8%
LEL: 2.5%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
2500 ppm: CcrOv*/PaprOv*/GmFOv/ Sa*/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Oxidizers, acids

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, nose, throat; head, dizz, CNS depres; derm
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Acetone cyanohydrin

Formula:	CAS#:	RTECS#:	IDLH:
$CH_3C(OH)CNCH_3$	75-86-5	OD9275000	N.D.

Conversion: 1 ppm = 3.48 mg/m^3

DOT: 1541 155 (stabilized)

Synonyms/Trade Names: Cyanohydrin-2-propanone, 2-Cyano-2-propanol, α-Hydroxyisobutyronitrile, 2-Hydroxy-2-methyl-propionitrile, 2-Methyllactonitrile

Exposure Limits:
NIOSH REL: C 1 ppm (4 mg/m^3) [15-minute]
OSHA PEL: none

Measurement Methods (see Table 1):
NIOSH 2506

Physical Description: Colorless liquid with a faint odor of bitter almond. [**Note:** Forms cyanide in the body.]

Chemical & Physical Properties:
MW: 85.1
BP: 203°F
Sol: Miscible
Fl.P: 165°F
IP: ?
Sp.Gr(77°F): 0.93
VP: 0.8 mmHg
FRZ: -4°F
UEL: 12.0%
LEL: 2.2%
Class IIIA Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
10 ppm: Sa
25 ppm: Sa:Cf
50 ppm: ScbaF/SaF
250 ppm: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Sulfuric acid, caustics [**Note:** Slowly decomposes to acetone & HCN at room temperatures; rate is accelerated by an increase in pH, water content, or temperature.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, resp sys; dizz, lass, head, conf, convuls; liver, kidney inj; pulm edema, asphy
TO: Eyes, skin, resp sys, CNS, CVS, liver, kidneys, GI tract

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

Acetonitrile

Formula:	CAS#:	RTECS#:	IDLH:
CH_3CN	75-05-8	AL7700000	500 ppm

Conversion: 1 ppm = 1.68 mg/m^3

DOT: 1648 127

Synonyms/Trade Names: Cyanomethane, Ethyl nitrile, Methyl cyanide [**Note:** Forms cyanide in the body.]

Exposure Limits:
NIOSH REL: TWA 20 ppm (34 mg/m^3)
OSHA PEL†: TWA 40 ppm (70 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1606

Physical Description: Colorless liquid with an aromatic odor.

Chemical & Physical Properties:
MW: 41.1
BP: 179°F
Sol: Miscible
Fl.P(oc): 42°F
IP: 12.20 eV
Sp.Gr: 0.78
VP: 73 mmHg
FRZ: -49°F
UEL: 16.0%
LEL: 3.0%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.
Provide: Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
200 ppm: CcrOv/Sa
500 ppm: Sa:Cf/PaprOv/CcrFOv/GmFOv/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit nose, throat; asphy; nau, vomit; chest pain; lass; stupor, convuls; in animals: liver, kidney damage
TO: Resp sys, CVS, CNS, liver, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

2-Acetylaminofluorene	Formula: $C_{15}H_{13}NO$	CAS#: 53-96-3	RTECS#: AB9450000	IDLH: Ca [N.D.]
Conversion:	**DOT:**			

Synonyms/Trade Names: AAF, 2-AAF, 2-Acetaminofluorene, N-Acetyl-2-aminofluorene, FAA, 2-FAA, 2-Fluorenylacetamide

Exposure Limits:
NIOSH REL: Ca
See Appendix A
OSHA PEL: [1910.1014] See Appendix B

Measurement Methods (see Table 1):
None available

Physical Description: Tan, crystalline powder.

Chemical & Physical Properties:
MW: 223.3
BP: ?
Sol: Insoluble
Fl.P: ?
IP:?
Sp.Gr: ?
VP: ?
MLT: 381°F
UEL: ?
LEL: ?
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

See Appendix E (page 351)

Incompatibilities and Reactivities: None reported

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Reduced function of liver, kidneys, bladder, pancreas; [carc]
TO: Liver, bladder, kidneys, pancreas, skin [in animals: tumors of the liver, bladder, lungs, skin & pancreas]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Acetylene	Formula: HC≡CH	CAS#: 74-86-2	RTECS#: AO9600000	IDLH: N.D.
Conversion: 1 ppm = 1.06 mg/m^3	**DOT:** 1001 116			

Synonyms/Trade Names: Ethine, Ethyne [**Note:** A compressed gas used in the welding & cutting of metals.]

Exposure Limits:
NIOSH REL: C 2500 ppm (2662 mg/m^3)
OSHA PEL: none

Measurement Methods (see Table 1):
NIOSH
Acetylene Criteria Document

Physical Description: Colorless gas with a faint, ethereal odor. [**Note:** Commercial grade has a garlic-like odor. Shipped under pressure dissolved in acetone.]

Chemical & Physical Properties:
MW: 26.0
BP: Sublimes
Sol: 2%
Fl.P: NA (Gas)
IP: 11.40 eV
RGasD: 0.91
VP: 44.2 atm
FRZ: -119°F (Sublimes)
UEL: 100%
LEL: 2.5%
Flammable Gas

Personal Protection/Sanitation (see Table 2):
Skin: Frostbite
Eyes: Frostbite
Wash skin: N.R.
Remove: When wet (flamm)
Change: N.R.
Provide: Frostbite wash

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Zinc; oxygen & other oxidizing agents such as halogens [**Note:** Forms explosive acetylide compounds with copper, mercury, silver & brasses (containing more than 66% copper).]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con (liquid)
SY: Head, dizz; asphy; liquid: frostbite
TO: CNS, resp sys

First Aid (see Table 6):
Eye: Frostbite
Skin: Frostbite
Breath: Fresh air

Acetylene tetrabromide

Formula: $CHBr_2CHBr_2$ | **CAS#:** 79-27-6 | **RTECS#:** KI8225000 | **IDLH:** 8 ppm

Conversion: 1 ppm = 14.14 mg/m^3 | **DOT:** 2504 159

Synonyms/Trade Names: Symmetrical tetrabromoethane, TBE, Tetrabromoacetylene, Tetrabromoethane, 1,1,2,2-Tetrabromoethane

Exposure Limits:
NIOSH REL: See Appendix D
OSHA PEL: TWA 1 ppm (14 mg/m^3)

Physical Description: Pale-yellow liquid with a pungent odor similar to camphor or iodoform. [**Note:** A solid below 32°F.]

Measurement Methods (see Table 1):
NIOSH 2003

Chemical & Physical Properties:
MW: 345.7
BP: 474°F (Decomposes)
Sol: 0.07%
Fl.P: NA
IP: ?
Sp.Gr: 2.97
VP: 0.02 mmHg
FRZ: 32°F
UEL: NA
LEL: NA
Noncombustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
OSHA
8 ppm: Sa/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong caustics; hot iron; reducing metals such as aluminum, magnesium, and zinc

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, nose; anor, nau; head; abdom pain; jaun; leucyt; CNS depres
TO: Eyes, resp sys, liver, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush prompt
Breath: Resp support
Swallow: Medical attention immed

Acetylsalicyclic acid

Formula: $CH_3COOC_6H_4COOH$ | **CAS#:** 50-78-2 | **RTECS#:** VO0700000 | **IDLH:** N.D.

Conversion: | **DOT:**

Synonyms/Trade Names: o-Acetoxybenzoic acid, 2-Acetoxybenzoic acid, Aspirin

Exposure Limits:
NIOSH REL: TWA 5 mg/m^3
OSHA PEL†: none

Physical Description: Odorless, colorless to white, crystal-line powder. [aspirin]
[**Note:** Develops the vinegar-like odor of acetic acid on contact with moisture.]

Measurement Methods (see Table 1):
NIOSH 0500

Chemical & Physical Properties:
MW: 180.2
BP: 284°F (Decomposes)
Sol(77°F): 0.3%
Fl.P: NA
IP: NA
Sp.Gr: 1.35
VP: 0 mmHg (approx)
MLT: 275°F
UEL: NA
LEL: NA
MEC: 40 g/m^3
Combustible Powder; explosion hazard if dispersed in air.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: N.R.
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Solutions of alkali hydroxides or carbonates, strong oxidizers, moisture
[**Note:** Slowly hydrolyzes in moist air to salicyclic & acetic acids.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, upper resp sys; incr blood clotting time; nau, vomit; liver, kidney inj
TO: Eyes, skin, resp sys, blood, liver, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Resp support
Swallow: Medical attention immed

Acrolein	Formula: CH_2=CHCHO	CAS#: 107-02-8	RTECS#: AS1050000	IDLH: 2 ppm
Conversion: 1 ppm = 2.29 mg/m^3	**DOT:** 1092 131P (inhibited)			

Synonyms/Trade Names: Acraldehyde, Acrylaldehyde, Acrylic aldehyde, Allyl aldehyde, Propenal, 2-Propenal

Exposure Limits:
NIOSH REL: TWA 0.1 ppm (0.25 mg/m^3)
ST 0.3 ppm (0.8 mg/m^3)
See Appendix C (Aldehydes)
OSHA PEL†: TWA 0.1 ppm (0.25 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 2501
OSHA 52

Physical Description: Colorless or yellow liquid with a piercing, disagreeable odor.

Chemical & Physical Properties:
MW: 56.1
BP: 127°F
Sol: 40%
Fl.P: -15°F
IP: 10.13 eV
Sp.Gr: 0.84
VP: 210 mmHg
FRZ: -126°F
UEL: 31%
LEL: 2.8%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
2 ppm: Sa:Cf*/PaprOv*/CcrFOv/GmFOv/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Oxidizers, acids, alkalis, ammonia, amines [**Note:** Polymerizes readily unless inhibited--usually with hydroquinone. May form shock-sensitive peroxides over time.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, muc memb; decr pulm func; delayed pulm edema; chronic resp disease
TO: Eyes, skin, resp sys, heart

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

Acrylamide	Formula: CH_2=$CHCONH_2$	CAS#: 79-06-1	RTECS#: AS3325000	IDLH: Ca [60 mg/m^3]
Conversion:	**DOT:** 2074 153P			

Synonyms/Trade Names: Acrylamide monomer, Acrylic amide, Propenamide, 2-Propenamide

Exposure Limits:
NIOSH REL: Ca
TWA 0.03 mg/m^3 [skin]
See Appendix A
OSHA PEL†: TWA 0.3 mg/m^3 [skin]

Measurement Methods (see Table 1):
OSHA 21, PV2004

Physical Description: White crystalline, odorless solid.

Chemical & Physical Properties:
MW: 71.1
BP: 347-572°F (Decomposes)
Sol(86°F): 216%
Fl.P: 280°F
IP: 9.50 eV
Sp.Gr: 1.12
VP: 0.007 mmHg
MLT: 184°F
UEL: ?
LEL: ?
Combustible Solid (may also be dissolved in flammable liquids).

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers
[**Note:** May polymerize violently upon melting.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin; ataxia, numb limbs, pares; musc weak; absent deep tendon reflex; hand sweat; lass, drow; repro effects; [carc]
TO: Eyes, skin, CNS, PNS, repro sys [in animals: tumors of the lungs, testes, thyroid & adrenal glands]

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

Acrylic acid

Formula: CH_2=CHCOOH | **CAS#:** 79-10-7 | **RTECS#:** AS4375000 | **IDLH:** N.D.

Conversion: 1 ppm = 2.95 mg/m^3 | **DOT:** 2218 132P (inhibited)

Synonyms/Trade Names: Acroleic acid, Aqueous acrylic acid (technical grade is 94%), Ethylenecarboxylic acid, Glacial acrylic acid (98% in aqueous solution), 2-Propenoic acid

Exposure Limits:
NIOSH REL: TWA 2 ppm (6 mg/m^3) [skin]
OSHA PEL†: none

Measurement Methods (see Table 1):
OSHA 28, PV2005

Physical Description: Colorless liquid or solid (below 55°F) with a distinctive, acrid odor. [**Note:** Shipped with an inhibitor (e.g., hydroquinone) since it readily polymerizes.]

Chemical & Physical Properties:
MW: 72.1
BP: 286°F
Sol: Miscible
Fl.P: 121°F
IP: ?
Sp.Gr: 1.05
VP: 3 mmHg
FRZ: 55°F
UEL: 8.02%
LEL: 2.4%
Class II Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Oxidizers, amines, alkalis, ammonium hydroxide, chloro-sulfonic acid, oleum, ethylene diamine, ethyleneimine, 2-aminoethanol [**Note:** Corrosive to many metals.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, resp sys; eye, skin burns; skin sens; in animals: lung, liver, kidney inj
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

Acrylonitrile

Formula: CH_2=CHCN | **CAS#:** 107-13-1 | **RTECS#:** AT5250000 | **IDLH:** Ca [85 ppm]

Conversion: 1 ppm = 2.17 mg/m^3 | **DOT:** 1093 131P (inhibited)

Synonyms/Trade Names: Acrylonitrile monomer, AN, Cyanoethylene, Propenenitrile, 2-Propenenitrile, VCN, Vinyl cyanide

Exposure Limits:
NIOSH REL: Ca
TWA 1 ppm
C 10 ppm [15-minute] [skin]
See Appendix A
OSHA PEL: [1910.1045] TWA 2 ppm
C 10 ppm [15-minute] [skin]

Measurement Methods (see Table 1):
NIOSH 1604
OSHA 37

Physical Description: Colorless to pale-yellow liquid with an unpleasant odor. [**Note:** Odor can only be detected above the PEL.]

Chemical & Physical Properties:
MW: 53.1
BP: 171°F
Sol: 7%
Fl.P: 30°F
IP: 10.91 eV
Sp.Gr: 0.81
VP: 83 mmHg
FRZ: -116°F
UEL: 17%
LEL: 3.0%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

See Appendix E (page 351)

Incompatibilities and Reactivities: Strong oxidizers, acids & alkalis; bromine; amines [**Note:** Unless inhibited (usually with methylhydroquinone), may polymerize spontaneously or when heated or in presence of strong alkali. Attacks copper.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin; asphy; head; sneez; nau, vomit; lass, dizz; skin vesic; scaling derm; [carc]
TO: Eyes, skin, CVS, liver, kidneys, CNS [brain tumors, lung & bowel cancer]

First Aid (see Table 6):
Eye: Irr immed
Skin: Water wash immed
Breath: Resp support
Swallow: Medical attention immed

Adiponitrile

Formula: $NC(CH_2)_4CN$ | **CAS#:** 111-69-3 | **RTECS#:** AV2625000 | **IDLH:** N.D.

Conversion: 1 ppm = 4.43 mg/m^3 | **DOT:** 2205 153

Synonyms/Trade Names: 1,4-Dicyanobutane, Hexanedinitrile, Tetramethylene cyanide

Exposure Limits:
NIOSH REL: TWA 4 ppm (18 mg/m^3) **OSHA PEL:** none

Physical Description: Water-white, practically odorless, oily liquid.
[**Note:** A solid below 34°F. Forms cyanide in the body.]

Measurement Methods (see Table 1):
NIOSH
Nitriles Criteria Document

Chemical & Physical Properties:
MW: 108.2
BP: 563°F
Sol: 4.5%
Fl.P(oc): 199°F
IP: ?
Sp.Gr: 0.97
VP: 0.002 mmHg
FRZ: 34°F
UEL: 5.0%
LEL: 1.7%
Class IIIA Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH
40 ppm: Sa
100 ppm: Sa:Cf
200 ppm: ScbaF/SaF
250 ppm: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Oxidizers (e.g., perchlorates, nitrates), strong acids (e.g., sulfuric acid)
[**Note:** Decomposes above 194°F, forming hydrogen cyanide.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, resp sys; head, dizz, lass, conf, convuls; blurred vision; dysp; abdom pain, nau, vomit
TO: Eyes, skin, resp sys, CNS, CVS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Aldrin

Formula: $C_{12}H_8Cl_6$ | **CAS#:** 309-00-2 | **RTECS#:** IO2100000 | **IDLH:** Ca [25 mg/m^3]

Conversion: | **DOT:** 2761 151

Synonyms/Trade Names: HHDN, Octalene, 1,2,3,4,10,10-Hexachloro-1,4,4a,5,8,8a-hexahydro-endo-1,4-exo-5,8-dimethanonaphthalene

Exposure Limits:
NIOSH REL: Ca
TWA 0.25 mg/m^3 [skin]
See Appendix A
OSHA PEL: TWA 0.25 mg/m^3 [skin]

Physical Description: Colorless to dark-brown crystalline solid with a mild chemical odor. [**Note:** Formerly used as an insecticide.]

Measurement Methods (see Table 1):
NIOSH 5502

Chemical & Physical Properties:
MW: 364.9
BP: Decomposes
Sol: 0.003%
Fl.P: NA
IP: ?
Sp.Gr: 1.60
VP: 0.00008 mmHg
MLT: 219°F
UEL: NA
LEL: NA
Noncombustible Solid, but may be dissolved in flammable liquids.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Concentrated mineral acids, active metals, acid catalysts, acid oxidizing agents, phenol

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Head, dizz; nau, vomit, mal; myoclonic jerks of limbs; clonic, tonic convuls; coma; hema, azotemia; [carc]
TO: CNS, liver, kidneys, skin [in animals: tumors of the lungs, liver, thyroid & adrenal glands]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Allyl alcohol

Formula:	CAS#:	RTECS#:	IDLH:
$CH_2=CHCH_2OH$	107-18-6	BA5075000	20 ppm

Conversion: 1 ppm = 2.38 mg/m^3

DOT: 1098 131

Synonyms/Trade Names: AA, Allylic alcohol, Propenol, 1-Propen-3-ol, 2-Propenol, Vinyl carbinol

Exposure Limits:
NIOSH REL: TWA 2 ppm (5 mg/m^3)
ST 4 ppm (10 mg/m^3) [skin]
OSHA PEL†: TWA 2 ppm (5 mg/m^3) [skin]

Measurement Methods (see Table 1):
NIOSH 1402, 1405

Physical Description: Colorless liquid with a pungent, mustard-like odor.

Chemical & Physical Properties:
MW: 58.1
BP: 205°F
Sol: Miscible
Fl.P: 70°F
IP: 9.63 eV
Sp.Gr: 0.85
VP: 17 mmHg
FRZ: -200°F
UEL: 18.0%
LEL: 2.5%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.
Provide: Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
20 ppm: Sa:Cf*/PaprOv*/CcrFOv/GmFOv/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, acids, carbon tetrachloride
[**Note:** Polymerization may be caused by elevated temperatures, oxidizers, or peroxides.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Eye irrit, tissue damage; irrit upper resp sys, skin; pulm edema
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

Allyl chloride

Formula:	CAS#:	RTECS#:	IDLH:
$CH_2=CHCH_2Cl$	107-05-1	UC7350000	250 ppm

Conversion: 1 ppm = 3.13 mg/m^3

DOT: 1100 131

Synonyms/Trade Names: 3-Chloropropene, 1-Chloro-2-propene, 3-Chloropropylene

Exposure Limits:
NIOSH REL: TWA 1 ppm (3 mg/m^3)
ST 2 ppm (6 mg/m^3)
OSHA PEL†: TWA 1 ppm (3 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1000
OSHA 7

Physical Description: Colorless, brown, yellow, or purple liquid with a pungent, unpleasant odor.

Chemical & Physical Properties:
MW: 76.5
BP: 113°F
Sol: 0.4%
Fl.P: -25°F
IP: 10.05 eV
Sp.Gr: 0.94
VP: 295 mmHg
MLT: -210°F
UEL: 11.1%
LEL: 2.9%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.
Provide: Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
25 ppm: Sa:Cf*
50 ppm: ScbaF/SaF
250 ppm: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, acids, amines, iron & aluminum chlorides, magnesium, zinc

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, nose, muc memb; pulm edema; in animals: liver, kidney inj
TO: Eyes, skin, resp sys, liver, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Allyl glycidyl ether

Formula:	CAS#:	RTECS#:	IDLH:
$C_6H_{10}O_2$	106-92-3	RR0875000	50 ppm

Conversion: 1 ppm = 4.67 mg/m^3 **DOT:** 2219 129

Synonyms/Trade Names: AGE, 1-Allyloxy-2,3-epoxypropane, Glycidyl allyl ether, [(2-Propenyloxy)methyl] oxirane

Exposure Limits:
NIOSH REL: TWA 5 ppm (22 mg/m^3) [skin]
ST 10 ppm (44 mg/m^3)
OSHA PEL†: C 10 ppm (45 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 2545

Physical Description: Colorless liquid with a pleasant odor.

Chemical & Physical Properties:
MW: 114.2
BP: 309°F
Sol: 14%
Fl.P: 135°F
IP: ?
Sp.Gr: 0.97
VP: 2 mmHg
FRZ: -148°F [forms glass]
UEL: ?
LEL: ?
Class II Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash

Respirator Recommendations (see Tables 3 and 4):
NIOSH
50 ppm: CcrOv/PaprOv/
GmFOv/Sa/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, nose, resp sys; derm; pulm edema; narco; possible hemato, repro effects
TO: Eyes, skin, resp sys, blood, repro sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush prompt
Breath: Resp support
Swallow: Medical attention immed

Allyl propyl disulfide

Formula:	CAS#:	RTECS#:	IDLH:
$H_2C{=}CHCH_2S_2CH_2CH_2CH_3$	2179-59-1	JO0350000	N.D.

Conversion: 1 ppm = 6.07 mg/m^3 **DOT:**

Synonyms/Trade Names: 4,5-Dithia-1-octene, Onion oil, 2-Propenyl propyl disulfide, Propyl allyl disulfide

Exposure Limits:
NIOSH REL: TWA 2 ppm (12 mg/m^3)
ST 3 ppm (18 mg/m^3)
OSHA PEL†: TWA 2 ppm (12 mg/m^3)

Measurement Methods (see Table 1):
OSHA PV2086

Physical Description: Pale-yellow liquid with a strong & irritating onion-like odor. [**Note:** The chief volatile component of onion oil.]

Chemical & Physical Properties:
MW: 148.3
BP: ?
Sol: Insoluble
Fl.P: ?
IP: ?
Sp.Gr(59°F): 0.93
VP: ?
FRZ: 5°F
UEL: ?
LEL: ?
Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: Prevent eye contact
Wash skin: N.R.
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, nose, resp sys; lac
TO: Eyes, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

α-Alumina

Formula:	CAS#:	RTECS#:	IDLH:
Al_2O_3	1344-28-1	BD1200000	N.D.

Conversion:

DOT:

Synonyms/Trade Names: Alumina, Aluminum oxide, Aluminum trioxide [**Note:** α-Alumina is the main component of technical grade alumina. Corundum is natural Al_2O_3. Emery is an impure crystalline variety of Al_2O_3.]

Exposure Limits:
NIOSH REL: See Appendix D
OSHA PEL†: TWA 15 mg/m^3 (total)
TWA 5 mg/m^3 (resp)

Measurement Methods (see Table 1):
NIOSH 0500, 0600
OSHA ID109SG, ID198SG

Physical Description: White, odorless, crystalline powder.

Chemical & Physical Properties:
MW: 101.9
BP: 5396°F
Sol: Insoluble
Fl.P: NA
IP: NA
Sp.Gr: 4.0
VP: 0 mmHg (approx)
MLT: 3632°F
UEL: NA
LEL: NA
Noncombustible solid, but dusts may form explosive mixtures in air.

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Chlorine trifluoride, hot chlorinated rubber, acids, oxidizers [**Note:** Hydrogen gas may be formed when finely divided iron contacts moisture during crushing & milling operations.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, resp sys
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Blot/brush away
Breath: Fresh air
Swallow: Medical attention immed

Aluminum

Formula:	CAS#:	RTECS#:	IDLH:
Al	7429-90-5	BD0330000	N.D.

Conversion:

DOT: 1309 170 (powder, coated); 1396 138 (powder, uncoated); 9260 169 (molten)

Synonyms/Trade Names: Aluminium, Aluminum metal, Aluminum powder, Elemental aluminum

Exposure Limits:
NIOSH REL: TWA 10 mg/m^3 (total)
TWA 5 mg/m^3 (resp)
OSHA PEL: TWA 15 mg/m^3 (total)
TWA 5 mg/m^3 (resp)

Measurement Methods (see Table 1):
NIOSH 7013, 7300, 7301, 7303
OSHA ID121

Physical Description: Silvery-white, malleable, ductile, odorless metal.

Chemical & Physical Properties:
MW: 27.0
BP: 4221°F
Sol: Insoluble
Fl.P: NA
IP: NA
Sp.Gr: 2.70
VP: 0 mmHg (approx)
MLT: 1220°F
UEL: NA
LEL: NA
Combustible Solid, finely divided dust is easily ignited; may cause explosions.

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Strong oxidizers & acids, halogenated hydrocarbons
[**Note:** Corrodes in contact with acids & other metals. Ignition may occur if powders are mixed with halogens, carbon disulfide, or methyl chloride.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Irrit eyes, skin, resp sys
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Breath: Fresh air

Aluminum (pyro powders and welding fumes, as Al)	Formula:	CAS#:	RTECS#:	IDLH: N.D.
Conversion:	**DOT:** 1383 135 (powder, pyrophoric)			
Synonyms/Trade Names: Synonyms vary depending upon the specific aluminum compound.				
Exposure Limits: **NIOSH REL:** TWA 5 mg/m^3 **OSHA PEL†:** none				**Measurement Methods (see Table 1):** **NIOSH** 7300, 7301, 7303
Physical Description: Appearance and odor vary depending upon the specific aluminum compound.				
Chemical & Physical Properties: Properties vary depending upon the specific aluminum compound.	**Personal Protection/Sanitation (see Table 2):** **Skin:** N.R. **Eyes:** N.R. **Wash skin:** N.R. **Remove:** N.R. **Change:** N.R.		**Respirator Recommendations (see Tables 3 and 4):** Not available.	
Incompatibilities and Reactivities: Varies				
Exposure Routes, Symptoms, Target Organs (see Table 5): **ER:** Inh, Ing, Con **SY:** Irrit skin, resp sys; pulm fib **TO:** Skin, resp sys		**First Aid (see Table 6):** **Eye:** Irr immed **Skin:** Water flush immed **Breath:** Resp support **Swallow:** Medical attention immed		

Aluminum (soluble salts and alkyls, as Al)	Formula:	CAS#:	RTECS#:	IDLH: N.D.
Conversion:	**DOT:** 3051 135 (Aluminum alkyls)			
Synonyms/Trade Names: Synonyms vary depending upon the specific aluminum compound.				
Exposure Limits: **NIOSH REL:** TWA 2 mg/m^3 **OSHA PEL†:** none				**Measurement Methods (see Table 1):** **NIOSH** 7013, 7300, 7301, 7303 **OSHA** ID121
Physical Description: Appearance and odor vary depending upon the specific aluminum compound.				
Chemical & Physical Properties: Properties vary depending upon the specific aluminum compound.	**Personal Protection/Sanitation (see Table 2):** **Skin:** Prevent skin contact **Eyes:** Prevent eye contact **Wash skin:** When contam **Remove:** When wet or contam **Change:** Daily		**Respirator Recommendations (see Tables 3 and 4):** Not available.	
Incompatibilities and Reactivities: Varies				
Exposure Routes, Symptoms, Target Organs (see Table 5): **ER:** Inh, Ing, Con **SY:** Irrit skin, resp sys; skin burns **TO:** Skin, resp sys		**First Aid (see Table 6):** **Eye:** Irr immed **Skin:** Water flush immed **Breath:** Resp support **Swallow:** Medical attention immed		

4-Aminodiphenyl

Formula:	CAS#:	RTECS#:	IDLH:
$C_6H_5C_6H_4NH_2$	92-67-1	DU8925000	Ca [N.D.]

Conversion: **DOT:**

Synonyms/Trade Names: 4-Aminobiphenyl, p-Aminobiphenyl, p-Aminodiphenyl, 4-Phenylaniline

Exposure Limits:
NIOSH REL: Ca
See Appendix A
OSHA PEL: [1910.1011] See Appendix B

Measurement Methods (see Table 1):
NIOSH P&CAM269 (II-4)
OSHA 93

Physical Description: Colorless crystals with a floral odor.
[**Note:** Turns purple on contact with air.]

Chemical & Physical Properties:
MW: 169.2
BP: 576°F
Sol: Slight
Fl.P: ?
IP: ?
Sp.Gr: 1.16
VP(227°F): 1 mmHg
MLT: 127°F
UEL: ?
LEL: ?
Combustible Solid, but must be preheated before ignition possible.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

See Appendix E (page 351)

Incompatibilities and Reactivities: Oxidized by air

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Head, dizz; drow, dysp; ataxia, lass; methemo; urinary burning; acute hemorrhagic cystitis; [carc]
TO: Bladder, skin [bladder cancer]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

2-Aminopyridine

Formula:	CAS#:	RTECS#:	IDLH:
$NH_2C_5H_4N$	504-29-0	US1575000	5 ppm

Conversion: 1 ppm = 3.85 mg/m^3 **DOT:** 2671 153

Synonyms/Trade Names: α-Aminopyridine, α-Pyridylamine

Exposure Limits:
NIOSH REL: TWA 0.5 ppm (2 mg/m^3)
OSHA PEL: TWA 0.5 ppm (2 mg/m^3)

Measurement Methods (see Table 1):
NIOSH S158 (II-4)

Physical Description: White powder, leaflets, or crystals with a characteristic odor.

Chemical & Physical Properties:
MW: 94.1
BP: 411°F
Sol: >100%
Fl.P: 154°F
IP: 8.00 eV
Sp.Gr: ?
VP(77°F): 0.8 mmHg
MLT: 137°F
UEL: ?
LEL: ?
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
5 ppm: Sa*/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, nose, throat; head, dizz; excitement; nau; high BP; resp distress; lass; convuls; stupor
TO: CNS, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

Amitrole

Formula: $C_2H_4N_4$
CAS#: 61-82-5
RTECS#: XZ3850000
IDLH: Ca [N.D.]

Conversion:
DOT:

Synonyms/Trade Names: Aminotriazole; 3-Aminotriazole; 2-Amino-1,3,4-triazole; 3-Amino-1,2,4-triazole

Exposure Limits:
NIOSH REL: Ca
TWA 0.2 mg/m^3
See Appendix A
OSHA PEL†: none

Measurement Methods (see Table 1):
NIOSH 0500
OSHA PV2006

Physical Description: Colorless to white, crystalline powder. [herbicide]
[**Note:** Odorless when pure.]

Chemical & Physical Properties:
MW: 84.1
BP: ?
Sol(77°F): 28%
Fl.P: NA
IP: ?
Sp.Gr: 1.14
VP: <0.000008 mmHg
MLT: 318°F
UEL: NA
LEL: NA
Noncombustible Solid, but may be dissolved in flammable liquids.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: Daily
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Light (decomposes), strong oxidizers
[**Note:** Corrosive to iron, aluminum & copper.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin; dysp, musc spasms, ataxia, anor, salv, incr body temperature; lass, skin dryness, depres (thyroid func suppression)
TO: Eyes, skin, thyroid [in animals: liver, thyroid & pituitary gland tumors]

First Aid (see Table 6):
Eye: Irr immed
Skin: Water wash immed
Breath: Resp support
Swallow: Medical attention immed

Ammonia

Formula: NH_3
CAS#: 7664-41-7
RTECS#: BO0875000
IDLH: 300 ppm

Conversion: 1 ppm = 0.70 mg/m^3
DOT: 1005 125 (anhydrous); 2672 154 (10-35% solution); 2073 125 (>35-50% solution); 1005 125 (>50% solution)

Synonyms/Trade Names: Anhydrous ammonia, Aqua ammonia, Aqueous ammonia
[**Note:** Often used in an aqueous solution.]

Exposure Limits:
NIOSH REL: TWA 25 ppm (18 mg/m^3)
ST 35 ppm (27 mg/m^3)
OSHA PEL†: TWA 50 ppm (35 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 3800, 6015, 6016
OSHA ID188

Physical Description: Colorless gas with a pungent, suffocating odor.
[**Note:** Shipped as a liquefied compressed gas. Easily liquefied under pressure.]

Chemical & Physical Properties:
MW: 17.0
BP: -28°F
Sol: 34%
Fl.P: NA (Gas)
IP: 10.18 eV
RGasD: 0.60
VP: 8.5 atm
FRZ: -108°F
UEL: 28%
LEL: 15%
[**Note:** Although NH_3 does not meet the DOT definition of a Flammable Gas (for labeling purposes), it should be treated as one.]

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam (solution)
Remove: When wet or contam (solution)
Change: N.R.
Provide: Eyewash (>10%)
Quick drench (>10%)

Respirator Recommendations (see Tables 3 and 4):
NIOSH
250 ppm: CcrS*/Sa*
300 ppm: Sa:Cf*/PaprS*/CcrFS/GmFS/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, acids, halogens, salts of silver & zinc
[**Note:** Corrosive to copper & galvanized surfaces.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing (solution), Con (solution/liquid)
SY: Irrit eyes, nose, throat; dysp, wheez, chest pain; pulm edema; pink frothy sputum; skin burns, vesic; liquid: frostbite
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed (solution/liquid)
Skin: Water flush immed (solution/liquid)
Breath: Resp support
Swallow: Medical attention immed (solution)

Ammonium chloride fume

Formula:	CAS#:	RTECS#:	IDLH:
NH_4Cl	12125-02-9	BP4550000	N.D.

Conversion: **DOT:**

Synonyms/Trade Names: Ammonium chloride, Ammonium muriate fume, Sal ammoniac fume

Exposure Limits:
NIOSH REL: TWA 10 mg/m^3
ST 20 mg/m^3
OSHA PEL†: none

Measurement Methods (see Table 1):
OSHA ID188

Physical Description: Finely divided, odorless, white particulate dispersed in air.

Chemical & Physical Properties:
MW: 53.5
BP: Sublimes
Sol: 37%
Fl.P: NA
IP: NA
Sp.Gr: 1.53
VP(321°F): 1 mmHg
MLT: 662°F (Sublimes)
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Alkalis & their carbonates, lead & silver salts, strong oxidizers, ammonium nitrate, potassium chlorate, bromine trifluoride [**Note:** Corrodes most metals at high (i.e., fire) temperatures.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Irrit eyes, skin, resp sys; cough, dysp, pulm sens
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support

Ammonium sulfamate

Formula:	CAS#:	RTECS#:	IDLH:
$NH_4OSO_2NH_2$	7773-06-0	WO6125000	1500 mg/m^3

Conversion: **DOT:**

Synonyms/Trade Names: Ammate herbicide, Ammonium amidosulfonate, AMS, Monoammonium salt of sulfamic acid, Sulfamate

Exposure Limits:
NIOSH REL: TWA 10 mg/m^3 (total)
TWA 5 mg/m^3 (resp)
OSHA PEL†: TWA 15 mg/m^3 (total)
TWA 5 mg/m^3 (resp)

Measurement Methods (see Table 1):
NIOSH S348 (II-5)

Physical Description: Colorless to white crystalline, odorless solid. [herbicide]

Chemical & Physical Properties:
MW: 114.1
BP: 320°F (Decomposes)
Sol: 200%
Fl.P: NA
IP: ?
Sp.Gr: 1.77
VP: 0 mmHg (approx)
MLT: 268°F
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
50 mg/m^3: Qm
100 mg/m^3: 95XQ/Sa
250 mg/m^3: Sa:Cf/PaprHie
500 mg/m^3: SaT:Cf/PaprTHie/100F/ScbaF/SaF
1500 mg/m^3: Sa:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Acids, hot water
[**Note:** Elevated temperatures cause a highly exothermic reaction with water.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Irrit eyes, nose, throat; cough, dysp
TO: Eyes, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

n-Amyl acetate	Formula: $CH_3COO[CH_2]_4CH_3$	CAS#: 628-63-7	RTECS#: AJ9250000	IDLH: 1000 ppm
Conversion: 1 ppm = 5.33 mg/m^3	**DOT:** 1104 129			

Synonyms/Trade Names: Amyl acetic ester, Amyl acetic ether, 1-Pentanol acetate, Pentyl ester of acetic acid, Primary amyl acetate

Exposure Limits:
NIOSH REL: TWA 100 ppm (525 mg/m^3)
OSHA PEL: TWA 100 ppm (525 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1450, 2549
OSHA 7

Physical Description: Colorless liquid with a persistent banana-like odor.

Chemical & Physical Properties:
MW: 130.2
BP: 301°F
Sol: 0.2%
Fl.P: 77°F
IP: ?
Sp.Gr: 0.88
VP: 4 mmHg
FRZ: -95°F
UEL: 7.5%
LEL: 1.1%
Class IC Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
1000 ppm: CcrOv*/GmFOv/PaprOv*/Sa*/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Nitrates; strong oxidizers, alkalis & acids

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, nose; derm; possible CNS depres, narco
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush prompt
Breath: Resp support
Swallow: Medical attention immed

sec-Amyl acetate	Formula: $CH_3COOCH(CH_3)C_3H_7$	CAS#: 626-38-0	RTECS#: AJ2100000	IDLH: 1000 ppm
Conversion: 1 ppm = 5.33 mg/m^3	**DOT:** 1104 129			

Synonyms/Trade Names: 1-Methylbutyl acetate, 2-Pentanol acetate, 2-Pentyl ester of acetic acid

Exposure Limits:
NIOSH REL: TWA 125 ppm (650 mg/m^3)
OSHA PEL: TWA 125 ppm (650 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1450, 2549
OSHA 7

Physical Description: Colorless liquid with a mild odor.

Chemical & Physical Properties:
MW: 130.2
BP: 249°F
Sol: Slight
Fl.P: 89°F
IP: ?
Sp.Gr: 0.87
VP: 7 mmHg
FRZ: -109°F
UEL: 7.5%
LEL: 1%
Class IC Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
1000 ppm: CcrOv*/GmFOv/PaprOv*/Sa*/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Nitrates; strong oxidizers, alkalis & acids

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose; narco; derm; possible kidney, liver inj; possible CNS depres
TO: Eyes, skin, resp sys, kidneys, liver, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush prompt
Breath: Resp support
Swallow: Medical attention immed

Aniline (and homologs)

Formula: $C_6H_5NH_2$ | **CAS#:** 62-53-3 | **RTECS#:** BW6650000 | **IDLH:** Ca [100 ppm]

Conversion: 1 ppm = 3.81 mg/m^3 | **DOT:** 1547 153

Synonyms/Trade Names: Aminobenzene, Aniline oil, Benzenamine, Phenylamine

Exposure Limits:
NIOSH REL: Ca
See Appendix A
OSHA PEL†: TWA 5 ppm (19 mg/m^3) [skin]

Measurement Methods (see Table 1):
NIOSH 2002, 2017, 8317
OSHA PV2079

Physical Description: Colorless to brown, oily liquid with an aromatic amine-like odor. [**Note:** A solid below 21°F.]

Chemical & Physical Properties:
MW: 93.1
BP: 363°F
Sol: 4%
Fl.P: 158°F
IP: 7.70 eV
Sp.Gr: 1.02
VP: 0.6 mmHg
FRZ: 21°F
UEL: 11%
LEL: 1.3%
Class IIIA Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, strong acids, toluene diisocyanate, alkalis

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Head, lass, dizz; cyan; ataxia; dysp on effort; tacar; irrit eyes; methemo; cirr; [carc]
TO: Blood, CVS, eyes, liver, kidneys, resp sys [bladder cancer]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

o-Anisidine

Formula: $NH_2C_6H_4OCH_3$ | **CAS#:** 90-04-0 | **RTECS#:** BZ5410000 | **IDLH:** Ca [50 mg/m^3]

Conversion: | **DOT:** 2431 153

Synonyms/Trade Names: ortho-Aminoanisole, 2-Anisidine, o-Methoxyaniline
[**Note:** o-Anisidine has been used as a basis for many dyes.]

Exposure Limits:
NIOSH REL: Ca
0.5 mg/m^3 [skin]
See Appendix A
OSHA PEL: TWA 0.5 mg/m^3 [skin]

Measurement Methods (see Table 1):
NIOSH 2514

Physical Description: Red or yellow, oily liquid with an amine-like odor. [**Note:** A solid below 41°F.]

Chemical & Physical Properties:
MW: 123.2
BP: 437°F
Sol(77°F): 1%
Fl.P(oc): 244°F
IP: 7.44 eV
Sp.Gr: 1.10
VP: <0.1 mmHg
FRZ: 41°F
UEL: ?
LEL: ?
Class IIIB Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Head, dizz; cyan; RBC Heinz bodies; [carc]
TO: Blood, kidneys, liver, CVS, CNS [in animals: tumors of the thyroid gland, bladder & kidneys]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

p-Anisidine

Formula: $NH_2C_6H_4OCH_3$
CAS#: 104-94-9
RTECS#: BZ5450000
IDLH: 50 mg/m^3

Conversion:
DOT: 2431 153

Synonyms/Trade Names: para-Aminoanisole, 4-Anisidine, p-Methoxyaniline

Exposure Limits:
NIOSH REL: TWA 0.5 mg/m^3 [skin]
OSHA PEL: TWA 0.5 mg/m^3 [skin]

Measurement Methods (see Table 1):
NIOSH 2514

Physical Description: Yellow to brown, crystalline solid with an amine-like odor.

Chemical & Physical Properties:
MW: 123.2
BP: 475°F
Sol: Moderate
Fl.P: ?
IP: 7.44 eV
Sp.Gr: 1.07
VP(77°F): 0.006 mmHg
MLT: 135°F
UEL: ?
LEL: ?
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
5 mg/m^3: 95XQ/Sa
12.5 mg/m^3: Sa:Cf/PaprHie
25 mg/m^3: 100F/PaprTHie*/ScbaF/SaF
50 mg/m^3: Sa:Pd,Pp*
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Head, dizz; cyan; RBC Heinz bodies
TO: Blood, kidneys, liver, CVS, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Antimony

Formula: Sb
CAS#: 7440-36-0
RTECS#: CC4025000
IDLH: 50 mg/m^3 (as Sb)

Conversion:
DOT: 1549 157 (inorganic compounds, n.o.s.); 2871 170 (powder); 3141 157 (inorganic liquid compounds, n.o.s.)

Synonyms/Trade Names: Antimony metal, Antimony powder, Stibium

Exposure Limits:
NIOSH REL*: TWA 0.5 mg/m^3
OSHA PEL*: TWA 0.5 mg/m^3
[***Note:** The REL and PEL also apply to other antimony compounds (as Sb).]

Measurement Methods (see Table 1):
NIOSH 7301, 7303, P&CAM 261 (II-4)
OSHA ID121, ID125G, ID206

Physical Description: Silver-white, lustrous, hard, brittle solid; scale-like crystals; or a dark-gray, lustrous powder.

Chemical & Physical Properties:
MW: 121.8
BP: 2975°F
Sol: Insoluble
Fl.P: NA
IP: NA
Sp.Gr: 6.69
VP: 0 mmHg (approx)
MLT: 1166°F
UEL: NA
LEL: NA

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
5 mg/m^3: 95XQ/Sa
12.5 mg/m^3: Sa:Cf/PaprHie
25 mg/m^3: 100F/SaT:Cf/PaprTHie/ScbaF/SaF
50 mg/m^3: Sa:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Noncombustible Solid in bulk form, but a moderate explosion hazard in the form of dust when exposed to flame.

Incompatibilities and Reactivities: Strong oxidizers, acids, halogenated acids
[**Note:** Stibine is formed when antimony is exposed to nascent (freshly formed) hydrogen.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose, throat, mouth; cough; dizz; head; nau, vomit, diarr; stomach cramps; insom; anor; unable to smell properly
TO: Eyes, skin, resp sys, CVS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

ANTU	Formula: $C_{10}H_7NHC(NH_2)S$	CAS#: 86-88-4	RTECS#: YT9275000	IDLH: 100 mg/m^3
Conversion:	DOT: 1651 153			

Synonyms/Trade Names: α-Naphthyl thiocarbamide, 1-Naphthyl thiourea, α-Naphthyl thiourea

Exposure Limits:
NIOSH REL: TWA 0.3 mg/m^3
OSHA PEL: TWA 0.3 mg/m^3

Measurement Methods (see Table 1):
NIOSH S276 (II-5)

Physical Description: White crystalline or gray, odorless powder. [rodenticide]

Chemical & Physical Properties:
MW: 202.3
BP: Decomposes
Sol: 0.06%
Fl.P: NA
IP: ?
Sp.Gr: ?
VP: Low
MLT: 388°F
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
3 mg/m^3: CcrOv95/Sa
7.5 mg/m^3: Sa:Cf/PaprOvHie
15 mg/m^3: CcrFOv100/GmFOv100/ PaprTOvHie/SaT:Cf/ScbaF/SaF
100 mg/m^3: Sa:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, silver nitrate

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing
SY: After ingestion of large doses: vomit, dysp, cyan, coarse pulm rales; liver damage
TO: Resp sys, blood, liver

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

Arsenic (inorganic compounds, as As)	Formula: As (metal)	CAS#: 7440-38-2 (metal)	RTECS#: CG0525000 (metal)	IDLH: Ca [5 mg/m^3 (as As)]
Conversion:	DOT: 1558 152 (metal); 1562 152 (dust)			

Synonyms/Trade Names: **Arsenic metal:** Arsenia
Other synonyms vary depending upon the specific As compound. [**Note:** OSHA considers "Inorganic Arsenic" to mean copper acetoarsenite & all inorganic compounds containing arsenic except ARSINE.]

Exposure Limits:
NIOSH REL: Ca
C 0.002 mg/m^3 [15-minute]
See Appendix A
OSHA PEL: [1910.1018] TWA 0.010 mg/m^3

Measurement Methods (see Table 1):
NIOSH 7300, 7301, 7303, 9102, 7900
OSHA ID105

Physical Description: Metal: Silver-gray or tin-white, brittle, odorless solid.

Chemical & Physical Properties:
MW: 74.9
BP: Sublimes
Sol: Insoluble
Fl.P: NA
IP: NA
Sp.Gr: 5.73 (metal)
VP: 0 mmHg (approx)
MLT: 1135°F (Sublimes)
UEL: NA
LEL: NA

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFAg100/ScbaE

See Appendix E (page 351)

Metal: Noncombustible Solid in bulk form, but a slight explosion hazard in the form of dust when exposed to flame.

Incompatibilities and Reactivities: Strong oxidizers, bromine azide
[**Note:** Hydrogen gas can react with inorganic arsenic to form the highly toxic gas arsine.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Con, Ing
SY: Ulceration of nasal septum, derm, GI disturbances, peri neur, resp irrit, hyperpig of skin, [carc]
TO: Liver, kidneys, skin, lungs, lymphatic sys [lung & lymphatic cancer]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Arsenic (organic compounds, as As)	Formula:	CAS#:	RTECS#:	IDLH: N.D.
Conversion:	**DOT:**			

Synonyms/Trade Names: Synonyms vary depending upon the specific organic arsenic compound.

Exposure Limits:
NIOSH REL: none
OSHA PEL: TWA 0.5 mg/m^3

Physical Description: Appearance and odor vary depending upon the specific organic arsenic compound.

Measurement Methods (see Table 1):
NIOSH 5022

Chemical & Physical Properties:
Properties vary depending upon the specific organic arsenic compound.

Personal Protection/Sanitation (see Table 2):
Recommendations regarding personal protective clothing vary depending upon the specific compound.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Varies

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: In animals: irrit skin, possible derm; resp distress; diarr; kidney damage; musc tremor, convuls; possible GI tract, repro effects; possible liver damage
TO: Skin, resp sys, kidneys, CNS, liver, GI tract, repro sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Arsine	Formula: AsH_3	CAS#: 7784-42-1	RTECS#: CG6475000	IDLH: Ca [3 ppm]
Conversion: 1 ppm = 3.19 mg/m^3	**DOT:** 2188 119			

Synonyms/Trade Names: Arsenic hydride, Arsenic trihydride, Arseniuretted hydrogen, Arsenous hydride, Hydrogen arsenide

Exposure Limits:
NIOSH REL: Ca
C 0.002 mg/m^3 [15-minute]
See Appendix A
OSHA PEL: TWA 0.05 ppm (0.2 mg/m^3)

Physical Description: Colorless gas with a mild, garlic-like odor.
[**Note:** Shipped as a liquefied compressed gas.]

Measurement Methods (see Table 1):
NIOSH 6001
OSHA ID105

Chemical & Physical Properties:
MW: 78.0
BP: -81°F
Sol: 20%
Fl.P: NA (Gas)
IP: 9.89 eV
RGasD: 2.69
VP(70°F): 14.9 atm
FRZ: -179°F
UEL: 78%
LEL: 5.1%
Flammable Gas

Personal Protection/Sanitation (see Table 2):
Skin: Frostbite
Eyes: Frostbite
Wash skin: N.R.
Remove: When wet (flamm)
Change: N.R.
Provide: Frostbite wash

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, chlorine, nitric acid
[**Note:** Decomposes above 446°F. There is a high potential for the generation of arsine gas when inorganic arsenic is exposed to nascent (freshly formed) hydrogen.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con (liquid)
SY: Head, mal, lass, dizz; dysp; abdom, back pain; nau, vomit; bronze skin; hema; jaun; peri neur; liquid: frostbite; [carc]
TO: Blood, kidneys, liver [lung & lymphatic cancer]

First Aid (see Table 6):
Eye: Frostbite
Skin: Frostbite
Breath: Resp support

Asbestos

Formula: Hydrated mineral silicates
CAS#: 1332-21-4
RTECS#: CI6475000
IDLH: Ca [N.D.]

Conversion:
DOT: 2212 171 (blue, brown); 2590 171 (white)

Synonyms/Trade Names: Actinolite, Actinolite asbestos, Amosite (cummingtonite-grunerite), Anthophyllite, Anthophyllite asbestos, Chrysotile, Crocidolite (Riebeckite), Tremolite, Tremolite asbestos

Exposure Limits:
NIOSH REL: Ca
See Appendix A
See Appendix C
OSHA PEL: [1910.1001] [1926.1101] See Appendix C

Measurement Methods (see Table 1):
NIOSH 7400, 7402
OSHA ID160, ID191

Physical Description: White or greenish (chrysotile), blue (crocidolite), or gray-green (amosite) fibrous, odorless solids.

Chemical & Physical Properties:
MW: Varies
BP: Decomposes
Sol: Insoluble
Fl.P: NA
IP: NA
Sp.Gr: ?
VP: 0 mmHg (approx)
MLT: 1112°F (Decomposes)
UEL: NA
LEL: NA
Noncombustible Solids

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: Daily
Remove: N.R.
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

See Appendix E (page 351)

Incompatibilities and Reactivities: None reported

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Asbestosis (chronic exposure): dysp, interstitial fib, restricted pulm function, finger clubbing; irrit eyes; [carc]
TO: Resp sys, eyes [lung cancer]

First Aid (see Table 6):
Eye: Irr immed
Breath: Fresh air

Asphalt fumes

Formula:
CAS#: 8052-42-4
RTECS#: CI9900000
IDLH: Ca [N.D.]

Conversion:
DOT: 1999 130 (asphalt)

Synonyms/Trade Names: **Asphalt:** Asphaltum, Bitumen (European term), Petroleum asphalt, Petroleum bitumen, Road asphalt, Roofing asphalt

Exposure Limits:
NIOSH REL: Ca
C 5 mg/m^3 [15-minute]
See Appendix A
OSHA PEL: none

Measurement Methods (see Table 1):
NIOSH 5042

Physical Description: Fumes generated during the production or application of asphalt (a dark-brown to black cement-like substance manufactured by the vacuum distillation of crude petroleum oil).

Chemical & Physical Properties:
Properties vary depending upon the specific asphalt formulation or mixture.

Asphalt: Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: Daily
Remove: N.R.
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: None reported [**Note:** Asphalt becomes molten at about 200°F.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Con
SY: Irrit eyes, resp sys; [carc]
TO: Eyes, resp sys [in animals: skin tumors]

First Aid (see Table 6):
Eye: Irr immed
Breath: Resp support

Atrazine	Formula: $C_8H_{14}ClN_5$	CAS#: 1912-24-9	RTECS#: XY5600000	IDLH: N.D.
Conversion:	**DOT:** 2763 151 (triazine pesticide)			

Synonyms/Trade Names: 2-Chloro-4-ethylamino-6-isopropylamino-s-triazine; 6-Chloro-N-ethyl-N'-(1-methylethyl)-1,3,5-triazine-2,4-diamine

Exposure Limits:
NIOSH REL: TWA 5 mg/m^3
OSHA PEL†: none

Measurement Methods (see Table 1):
NIOSH 5602, 8315

Physical Description: Colorless or white, odorless, crystalline powder. [herbicide]

Chemical & Physical Properties:
MW: 215.7
BP: Decomposes
Sol: 0.003%
Fl.P: NA
IP: NA
Sp.Gr: 1.19
VP: 0.0000003 mmHg
MLT: 340°F
UEL: NA
LEL: NA
Noncombustible Solid, but may be mixed with flammable liquids.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Strong acids, strong bases

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin; derm, sens skin; dysp, lass, inco, salv; hypothermia; liver inj
TO: Eyes, skin, resp sys, CNS, liver

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Azinphos-methyl	Formula: $C_{10}H_{12}O_3PS_2N_3$ [$(CH_3O)_2P(S)SCH_2(N_3C_7H_4O)$]	CAS#: 86-50-0	RTECS#: TE1925000	IDLH: 10 mg/m^3
Conversion:	**DOT:** 2783 152 (organophosphorus pesticide, solid, toxic)			

Synonyms/Trade Names: O,O-Dimethyl-S-4-oxo-1,2,3-benzotriazin-3(4H)-ylmethyl phosphorodithioate; Guthion®; Methyl azinphos

Exposure Limits:
NIOSH REL: TWA 0.2 mg/m^3 [skin]
OSHA PEL: TWA 0.2 mg/m^3 [skin]

Measurement Methods (see Table 1):
NIOSH 5600
OSHA PV2087

Physical Description: Colorless crystals or a brown, waxy solid. [insecticide]

Chemical & Physical Properties:
MW: 317.3
BP: Decomposes
Sol: 0.003%
Fl.P: NA
IP: ?
Sp.Gr: 1.44
VP: 8 x 10^{-9} mmHg
MLT: 163°F
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
2 mg/m^3: CcrOv95/Sa
5 mg/m^3: Sa:Cf/PaprOvHie
10 mg/m^3: CcrFOv100/GmFOv100/ PaprTOvHie/SaT:Cf/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, acids

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Miosis; ache eyes; blurred vision, lac, rhin; head; chest tight, wheez, lar spasm; salv; cyan; anor; nau, vomit, diarr; sweat; twitch, para, convuls; low BP, card irreg
TO: Resp sys, CNS, CVS, blood chol

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

B

Barium chloride (as Ba)

Formula:	CAS#:	RTECS#:	IDLH:
$BaCl_2$	10361-37-2	CQ8750000	50 mg/m^3 (as Ba)

Conversion: **DOT:** 1564 154 (barium compound, n.o.s.)

Synonyms/Trade Names: Barium dichloride

Exposure Limits:
NIOSH REL*: TWA 0.5 mg/m^3
OSHA PEL*: TWA 0.5 mg/m^3
[***Note:** The REL and PEL also apply to other soluble barium compounds (as Ba) except Barium sulfate.]

Measurement Methods (see Table 1):
NIOSH 7056, 7303
OSHA ID121

Physical Description: White, odorless solid.

Chemical & Physical Properties:
MW: 208.2
BP: 2840°F
Sol: 38%
Fl.P: NA
IP: ?
Sp.Gr: 3.86
VP: Low
MLT: 1765°F
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
5 mg/m^3: 95XQ/Sa
12.5 mg/m^3: Sa:Cf/PaprHie
25 mg/m^3: 100F/SaT:Cf/PaprTHie/ ScbaF/SaF
50 mg/m^3: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Acids, oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, upper resp sys; skin burns; gastroenteritis; musc spasm; slow pulse, extrasystoles; hypokalemia
TO: Eyes, skin, resp sys, heart, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

Barium nitrate (as Ba)

Formula:	CAS#:	RTECS#:	IDLH:
$Ba(NO_3)_2$	10022-31-8	CQ9625000	50 mg/m^3 (as Ba)

Conversion: **DOT:** 1446 141

Synonyms/Trade Names: Barium dinitrate, Barium(II) nitrate (1:2), Barium salt of nitric acid

Exposure Limits:
NIOSH REL*: TWA 0.5 mg/m^3
OSHA PEL*: TWA 0.5 mg/m^3
[***Note:** The REL and PEL also apply to other soluble barium compounds (as Ba) except Barium sulfate.]

Measurement Methods (see Table 1):
NIOSH 7056
OSHA ID121

Physical Description: White, odorless solid.

Chemical & Physical Properties:
MW: 261.4
BP: Decomposes
Sol: 9%
Fl.P: NA
IP: ?
Sp.Gr: 3.24
VP: Low
MLT: 1094°F
UEL: NA
LEL: NA
Noncombustible Solid, but will accelerate the burning of combustible materials.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
5 mg/m^3: 95XQ/Sa
12.5 mg/m^3: Sa:Cf/PaprHie
25 mg/m^3: 100F/SaT:Cf/PaprTHie/ ScbaF/SaF
50 mg/m^3: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Acids, oxidizers, aluminum-magnesium alloys, (barium dioxide + zinc)
[**Note:** Contact with combustible material may cause fire.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, upper resp sys; skin burns; gastroenteritis; musc spasm; slow pulse, extrasystoles; hypokalemia
TO: Eyes, skin, resp sys, heart, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

Barium sulfate	Formula: $BaSO_4$	CAS#: 7727-43-7	RTECS#: CR0600000	IDLH: N.D.

Conversion: **DOT:** 1564 154 (barium compound, n.o.s.)

Synonyms/Trade Names: Artificial barite, Barite, Barium salt of sulfuric acid, Barytes (natural)

Exposure Limits:
NIOSH REL: TWA 10 mg/m^3 (total)
TWA 5 mg/m^3 (resp)
OSHA PEL†: TWA 15 mg/m^3 (total)
TWA 5 mg/m^3 (resp)

Measurement Methods (see Table 1):
NIOSH 0500, 0600

Physical Description: White or yellowish, odorless powder.

Chemical & Physical Properties:
MW: 233.4
BP: 2912°F (Decomposes)
Sol(64°F): 0.0002%
Fl.P: NA
IP: NA
Sp.Gr: 4.25-4.5
VP: 0 mmHg (approx)
MLT: 2876°F
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: Daily
Remove: N.R.
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Phosphorus, aluminum
[**Note:** Aluminum in the presence of heat can cause an explosion.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Irrit eyes, nose, upper resp sys; benign pneumoconiosis (baritosis)
TO: Eyes, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Resp support
Swallow: Medical attention immed

Benomyl	Formula: $C_{14}H_{18}N_4O_3$	CAS#: 17804-35-2	RTECS#: DD6475000	IDLH: N.D.

Conversion: **DOT:** 2757 151 (carbamate pesticide, solid)

Synonyms/Trade Names: Methyl 1-(butylcarbamoyl)-2-benzimidazolecarbamate

Exposure Limits:
NIOSH REL: See Appendix D
OSHA PEL†: TWA 15 mg/m^3 (total)
TWA 5 mg/m^3 (resp)

Measurement Methods (see Table 1):
NIOSH 0500, 0600
OSHA PV2107

Physical Description: White crystalline solid with a faint, acrid odor. [fungicide]
[**Note:** Decomposes without melting above 572°F.]

Chemical & Physical Properties:
MW: 290.4
BP: Decomposes
Sol: 0.0004%
Fl.P: NA
IP: NA
Sp.Gr: ?
VP: <0.00001 mmHg
MLT: >572°F (Decomposes)
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Heat, strong acids, strong alkalis

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, upper resp sys; skin sens; possible repro, terato effects
TO: Eyes, skin, resp sys, repro sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

B

Benzene

Formula:	CAS#:	RTECS#:	IDLH:
C_6H_6	71-43-2	CY1400000	Ca [500 ppm]

Conversion: 1 ppm = 3.19 mg/m^3 **DOT:** 1114 130

Synonyms/Trade Names: Benzol, Phenyl hydride

Exposure Limits:
NIOSH REL: Ca
TWA 0.1 ppm
ST 1 ppm
See Appendix A

OSHA PEL: [1910.1028]
TWA 1 ppm
ST 5 ppm
See Appendix F

Measurement Methods (see Table 1):
NIOSH 1500, 1501, 3700, 3800
OSHA 12, 1005

Physical Description: Colorless to light-yellow liquid with an aromatic odor. [**Note:** A solid below 42°F.]

Chemical & Physical Properties:
MW: 78.1
BP: 176°F
Sol: 0.07%
Fl.P: 12°F
IP: 9.24 eV
Sp.Gr: 0.88
VP: 75 mmHg
FRZ: 42°F
UEL: 7.8%
LEL: 1.2%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

See Appendix E (page 351)

Incompatibilities and Reactivities: Strong oxidizers, many fluorides & perchlorates, nitric acid

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, nose, resp sys; dizz; head, nau, staggered gait; anor, lass; derm; bone marrow depres; [carc]
TO: Eyes, skin, resp sys, blood, CNS, bone marrow [leukemia]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Benzenethiol

Formula:	CAS#:	RTECS#:	IDLH:
C_6H_5SH	108-98-5	DC0525000	N.D.

Conversion: 1 ppm = 4.51 mg/m^3 **DOT:** 2337 131

Synonyms/Trade Names: Mercaptobenzene, Phenyl mercaptan, Thiophenol

Exposure Limits:
NIOSH REL: C 0.1 ppm (0.5 mg/m^3) [15-minute]
OSHA PEL†: none

Measurement Methods (see Table 1):
OSHA PV2075

Physical Description: Water-white liquid with an offensive, garlic-like odor. [**Note:** A solid below 5°F.]

Chemical & Physical Properties:
MW: 110.2
BP: 336°F
Sol(77°F): 0.08%
Fl.P: 132°F
IP: 8.33 eV
Sp.Gr: 1.08
VP(65°F): 1 mmHg
FRZ: 5°F
UEL: ?
LEL: ?
Class II Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
1 ppm: CcrOv/Sa
2.5 ppm: Sa:Cf/PaprOv
5 ppm: CcrFOv/GmFOv/PaprTOv/ ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong acids & bases, calcium hypochlorite, alkali metals
[**Note:** Oxidizes on exposure to air.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, resp sys; derm; cyan; cough, wheez, dysp, pulm edema, pneu; head, dizz, CNS depres; nau, vomit; kidney, liver, spleen damage
TO: Eyes, skin, resp sys, CNS, kidneys, liver, spleen

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Benzidine

Formula: $NH_2C_6H_4C_6H_4NH_2$ | **CAS#:** 92-87-5 | **RTECS#:** DC9625000 | **IDLH:** Ca [N.D.]

Conversion: | **DOT:** 1885 153

Synonyms/Trade Names: Benzidine-based dyes; 4,4'-Bianiline; 4,4'-Biphenyldiamine; 1,1'-Biphenyl-4,4'-diamine; 4,4'-Diaminobiphenyl; p-Diaminodiphenyl [**Note:** Benzidine has been used as a basis for many dyes.]

Exposure Limits:
NIOSH REL: Ca
See Appendix A
See Appendix C

OSHA PEL: [1910.1010]
See Appendix B
See Appendix C

Measurement Methods (see Table 1):
NIOSH 5509
OSHA 65

Physical Description: Grayish-yellow, reddish-gray, or white crystalline powder. [**Note:** Darkens on exposure to air and light.]

Chemical & Physical Properties:
MW: 184.3
BP: 752°F
Sol(54°F): 0.04%
Fl.P: ?
IP: ?
Sp.Gr: 1.25
VP: Low
MLT: 239°F
UEL: ?
LEL: ?
Combustible Solid, but difficult to burn.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

See Appendix E (page 351)

Incompatibilities and Reactivities: Red fuming nitric acid

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Hema; secondary anemia from hemolysis; acute cystitis; acute liver disorders; derm; painful, irreg urination; [carc]
TO: Bladder, skin, kidneys, liver, blood [liver, kidney & bladder cancer]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Benzoyl peroxide

Formula: $(C_6H_5CO)_2O_2$ | **CAS#:** 94-36-0 | **RTECS#:** DM8575000 | **IDLH:** 1500 mg/m^3

Conversion: | **DOT:**

Synonyms/Trade Names: Benzoperoxide, Dibenzoyl peroxide

Exposure Limits:
NIOSH REL: TWA 5 mg/m^3
OSHA PEL: TWA 5 mg/m^3

Measurement Methods (see Table 1):
NIOSH 5009

Physical Description: Colorless to white crystals or a granular powder with a faint, benzaldehyde-like odor.

Chemical & Physical Properties:
MW: 242.2
BP: Decomposes explosively
Sol: <1%
Fl.P: 176°F
IP: ?
Sp.Gr: 1.33
VP: <1 mmHg
MLT: 217°F
UEL: ?
LEL: ?
Combustible Solid (easily ignited and burns very rapidly).

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
50 mg/m^3: 95XQ*/Sa*
125 mg/m^3: Sa:Cf*/PaprHie*
250 mg/m^3: 100F/PaprTHie*/ScbaF/SaF
1500 mg/m^3: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Combustible substances (wood, paper, etc.), acids, alkalis, alcohols, amines, ethers [**Note:** Containers may explode when heated. Extremely explosion-sensitive to shock, heat & friction.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, muc memb; sens derm
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

B

Benzyl chloride

Formula:	CAS#:	RTECS#:	IDLH:
$C_6H_5CH_2Cl$	100-44-7	XS8925000	10 ppm

Conversion: 1 ppm = 5.18 mg/m^3 **DOT:** 1738 156

Synonyms/Trade Names: Chloromethylbenzene, α-Chlorotoluene

Exposure Limits:
NIOSH REL: C 1 ppm (5 mg/m^3) [15-minute]
OSHA PEL: TWA 1 ppm (5 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1003
OSHA 7

Physical Description: Colorless to slightly yellow liquid with a pungent, aromatic odor.

Chemical & Physical Properties:
MW: 126.6
BP: 354°F
Sol: 0.05%
Fl.P: 153°F
IP: ?
Sp.Gr: 1.10
VP: 1 mmHg
FRZ: -38°F
UEL: ?
LEL: 1.1%
Class IIIA Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
10 ppm: CcrOvAg*/GmFOvAg/
PaprOvAg*/Sa*/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOvAg/ScbaE

Incompatibilities and Reactivities: Oxidizers, acids, copper, aluminum, magnesium, iron, zinc, tin [**Note:** Can polymerize when in contact with all common metals except nickel & lead. Hydrolyzes in H_2O to benzyl alcohol.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose; lass; irrity; head; skin eruption; pulm edema
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Beryllium & beryllium compounds (as Be)

Formula:	CAS#:	RTECS#:	IDLH:
Be (metal)	7440-41-7 (metal)	DS1750000 (metal)	Ca [4 mg/m^3 (as Be)]

Conversion: **DOT:** 1566 154 (compounds); 1567 134 (powder)

Synonyms/Trade Names: **Beryllium metal:** Beryllium
Other synonyms vary depending upon the specific beryllium compound.

Exposure Limits:
NIOSH REL: Ca
Not to exceed 0.0005 mg/m^3
See Appendix A
OSHA PEL: TWA 0.002 mg/m^3
C 0.005 mg/m^3 0.025 mg/m^3 [30-minute maximum peak]

Measurement Methods (see Table 1):
NIOSH 7102, 7300, 7301, 7303, 9102
OSHA ID125G, ID206

Physical Description: Metal: A hard, brittle, gray-white solid.

Chemical & Physical Properties:
MW: 9.0
BP: 4532°F
Sol: Insoluble
Fl.P: NA
IP: NA
Sp.Gr: 1.85 (metal)
VP: 0 mmHg (approx)
MLT: 2349°F
UEL: NA
LEL: NA

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: Daily
Remove: When wet or contam
Change: Daily
Provide: Eyewash

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Metal: Noncombustible Solid in bulk form, but a slight explosion hazard in the form of a powder or dust.

Incompatibilities and Reactivities: Acids, caustics, chlorinated hydrocarbons, oxidizers, molten lithium

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Berylliosis (chronic exposure): anor, low-wgt, lass, chest pain, cough, clubbing of fingers, cyan, pulm insufficiency; irrit eyes; derm; [carc]
TO: Eyes, skin, resp sys [lung cancer]

First Aid (see Table 6):
Eye: Irr immed
Breath: Fresh air

Bismuth telluride, doped with Selenium sulfide (as Bi_2Te_3)	Formula:	CAS#:	RTECS#:	IDLH: N.D.
Conversion:	DOT:			

Synonyms/Trade Names: Doped bismuth sesquitelluride, Doped bismuth telluride, Doped bismuth tritelluride, Doped tellurobismuthite [**Note:** Doped with selenium sulfide. Commercial mix may contain 80% Bi_2Te_3, 20% stannous telluride, plus some tellurium.]

Exposure Limits:
NIOSH REL: TWA 5 mg/m^3
OSHA PEL†: none

Measurement Methods (see Table 1):
NIOSH 0500
OSHA ID121

Physical Description: Gray, crystalline solid that has been enhanced (doped) with a small amount of selenium sulfide (SeS).
[**Note:** Doping alters the conductivity of a semiconductor.]

Chemical & Physical Properties:
Properties are unavailable but should be similar to Bismuth telluride, undoped.

Sp.Gr: ?

Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Strong oxidizers, moisture

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Irrit eyes, skin, upper resp sys; garlic breath; in animals: pulm lesions (nonfibrotic)
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Bismuth telluride, undoped	Formula: Bi_2Te_3	CAS#: 1304-82-1	RTECS#: EB3110000	IDLH: N.D.
Conversion:	DOT:			

Synonyms/Trade Names: Bismuth sesquitelluride, Bismuth telluride, Bismuth tritelluride, Tellurobismuthite

Exposure Limits:
NIOSH REL: TWA 10 mg/m^3 (total)
TWA 5 mg/m^3 (resp)
OSHA PEL: TWA 15 mg/m^3 (total)
TWA 5 mg/m^3 (resp)

Measurement Methods (see Table 1):
NIOSH 0500, 0600
OSHA ID121

Physical Description: Gray, crystalline solid.

Chemical & Physical Properties:
MW: 800.8
BP: ?
Sol: Insoluble
Fl.P: NA
IP: NA
Sp.Gr: 7.7
VP: 0 mmHg (approx)
MLT: 1063°F
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Strong oxidizers (e.g., bromine, chlorine, or fluorine), moisture, nitric acid (decomposes)

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Irrit eyes, skin, upper resp sys; garlic breath
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

B

Borates, tetra, sodium salts (Anhydrous)	Formula: $Na_2B_4O_7$	CAS#: 1330-43-4	RTECS#: ED4588000	IDLH: N.D.
Conversion:	DOT:			

Synonyms/Trade Names: Anhydrous borax, Borax dehydrated, Disodium salt of boric acid, Disodium tetrabromate, Fused borax, Sodium borate (anhydrous), Sodium tetraborate

Exposure Limits:
NIOSH REL: TWA 1 mg/m^3
OSHA PEL†: none

Physical Description: White to gray, odorless powder. [herbicide]
[**Note:** Becomes opaque on exposure to air.]

Measurement Methods (see Table 1):
NIOSH 0500
OSHA ID125G

Chemical & Physical Properties:
MW: 201.2
BP: 2867°F (Decomposes)
Sol: 4%
Fl.P: NA
IP: NA
Sp.Gr: 2.37
VP: 0 mmHg (approx)
MLT: 1366°F
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: Daily
Remove: N.R.
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Moisture [**Note:** Forms partial hydrate in moist air.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, upper resp sys; derm; epis; cough, dysp
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Resp support
Swallow: Medical attention immed

Borates, tetra, sodium salts (Decahydrate)	Formula: $Na_2B_4O_7{\times}10H_2O$	CAS#: 1303-96-4	RTECS#: VZ2275000	IDLH: N.D.
Conversion:	DOT:			

Synonyms/Trade Names: Borax, Borax decahydrate, Sodium borate decahydrate, Sodium tetraborate decahydrate

Exposure Limits:
NIOSH REL: TWA 5 mg/m^3
OSHA PEL†: none

Physical Description: White, odorless, crystalline solid. [herbicide]
[**Note:** Becomes anhydrous at 608°F.]

Measurement Methods (see Table 1):
NIOSH 0500
OSHA ID125G

Chemical & Physical Properties:
MW: 381.4
BP: 608°F
Sol: 6%
Fl.P: NA
IP: NA
Sp.Gr: 1.73
VP: 0 mmHg (approx)
MLT: 167°F
UEL: NA
LEL: NA
Noncombustible Solid (an inherent fire retardant).

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: Daily
Remove: N.R.
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Zirconium, strong acids, metallic salts

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, upper resp sys; derm; epis; cough, dysp
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Resp support
Swallow: Medical attention immed

Borates, tetra, sodium salts (Pentahydrate)	Formula: $Na_2B_4O_7 \times 5H_2O$	CAS#: 12179-04-3	RTECS#: VZ2540000	IDLH: N.D.
Conversion:	**DOT:**			

Synonyms/Trade Names: Borax pentahydrate, Sodium borate pentahydrate, Sodium tetraborate pentahydrate

Exposure Limits:
NIOSH REL: TWA 1 mg/m^3
OSHA PEL†: none

Physical Description: Colorless or white, odorless crystals or free-flowing powder. [herbicide] [**Note:** Begins to lose water of hydration at 252°F.]

Measurement Methods (see Table 1):
NIOSH 0500
OSHA ID125G

Chemical & Physical Properties:
MW: 291.4
BP: ?
Sol: 3%
Fl.P: NA
IP: NA
Sp.Gr: 1.82
VP: 0 mmHg (approx)
MLT: 392°F
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: Daily
Remove: N.R.
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: None reported
[**Note:** See the reactivities & incompatibilities reported for the related substance Borax decahydrate above.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, upper resp sys; derm; epis; cough, dysp
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Resp support
Swallow: Medical attention immed

Boron oxide	Formula: B_2O_3	CAS#: 1303-86-2	RTECS#: ED7900000	IDLH: 2000 mg/m^3
Conversion:	**DOT:**			

Synonyms/Trade Names: Boric anhydride, Boric oxide, Boron trioxide

Exposure Limits:
NIOSH REL: TWA 10 mg/m^3
OSHA PEL†: TWA 15 mg/m^3

Physical Description: Colorless, semitransparent lumps or hard, white, odorless crystals.

Measurement Methods (see Table 1):
NIOSH 0500

Chemical & Physical Properties:
MW: 69.6
BP: 3380°F
Sol: 3%
Fl.P: NA
IP: 13.50 eV
Sp.Gr: 2.46
VP: 0 mmHg (approx)
MLT: 842°F
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
50 mg/m^3: Qm*
100 mg/m^3: 95XQ*/Sa*
250 mg/m^3: Sa:Cf*/PaprHie*
500 mg/m^3: 100F/PaprTHie*/ScbaF/SaF
2000 mg/m^3: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Water [**Note:** Reacts slowly with water to form boric acid.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, resp sys; cough; conj; skin eryt
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush prompt
Breath: Fresh air
Swallow: Medical attention immed

B

Boron tribromide	Formula: BBr_3	CAS#: 10294-33-4	RTECS#: ED7400000	IDLH: N.D.
Conversion: 1 ppm = 10.25 mg/m^3	**DOT:** 2692 157			

Synonyms/Trade Names: Boron bromide, Tribromoborane

Exposure Limits:
NIOSH REL: C 1 ppm (10 mg/m^3)
OSHA PEL†: none

Measurement Methods (see Table 1):
None available

Physical Description: Colorless, fuming liquid with a sharp, irritating odor.

Chemical & Physical Properties:
MW: 250.5
BP: 194°F
Sol: Decomposes
Fl.P: NA
IP: 9.70 eV
Sp.Gr(65°F): 2.64
VP(57°F): 40 mmHg
FRZ: -51°F
UEL: NA
LEL: NA
Noncombustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Moisture, water, heat, potassium, sodium, alcohols
[**Note:** Attacks metals, wood & rubber. Reacts with water to form boric acid and hydrogen bromide.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, resp sys; eye, skin burns; dysp, pulm edema
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

Boron trifluoride	Formula: BF_3	CAS#: 7637-07-2	RTECS#: ED2275000	IDLH: 25 ppm
Conversion: 1 ppm = 2.77 mg/m^3	**DOT:** 1008 125			

Synonyms/Trade Names: Boron fluoride, Trifluoroborane

Exposure Limits:
NIOSH REL: C 1 ppm (3 mg/m^3)
OSHA PEL: C 1 ppm (3 mg/m^3)

Measurement Methods (see Table 1):
None available

Physical Description: Colorless gas with a pungent, suffocating odor.
[**Note:** Forms dense white fumes in moist air. Shipped as a nonliquefied compressed gas.]

Chemical & Physical Properties:
MW: 67.8
BP: -148°F
Sol: 106% (in cold H_2O)
Fl.P: NA
IP: 15.50 eV
RGasD: 2.38
VP: >50 atm
FRZ: -196°F
UEL: NA
LEL: NA
Nonflammable Gas

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
10 ppm: Sa*
25 ppm: Sa:Cf*/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS/ScbaE

Incompatibilities and Reactivities: Alkali metals, calcium oxide
[**Note:** Hydrolyzes in moist air or hot water to form boric acid, hydrogen fluoride & fluoboric acid.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Irrit eyes, skin, nose, resp sys; epis; eye, skin burns; in animals: pneu; kidney damage
TO: Eyes, skin, resp sys, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support

Bromacil

Formula: $C_9H_{13}BrN_2O_2$ | **CAS#:** 314-40-9 | **RTECS#:** YQ9100000 | **IDLH:** N.D.

Conversion: 1 ppm = 10.68 mg/m^3 | **DOT:**

Synonyms/Trade Names: 5-Bromo-3-sec-butyl-6-methyluracil, 5-Bromo-6-methyl-3-(1-methylpropyl)uracil

Exposure Limits:
NIOSH REL: TWA 1 ppm (10 mg/m^3)
OSHA PEL†: none

Measurement Methods (see Table 1):
NIOSH 0500

Physical Description: Odorless, colorless to white, crystalline solid. [herbicide]
[**Note:** Commercially available as a wettable powder or in liquid formulations.]

Chemical & Physical Properties:
MW: 261.2
BP: Sublimes
Sol(77°F): 0.08%
Fl.P: NA
IP: ?
Sp.Gr: 1.55
VP(212°F): 0.0008 mmHg
MLT: 317°F (Sublimes)
UEL: NA
LEL: NA
Noncombustible Solid, but may be dissolved in flammable liquids.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Strong acids (decomposes slowly), oxidizers, heat, sparks, open flames

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, upper resp sys; in animals: thyroid inj
TO: Eyes, skin, resp sys, thyroid

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Bromine

Formula: Br_2 | **CAS#:** 7726-95-6 | **RTECS#:** EF9100000 | **IDLH:** 3 ppm

Conversion: 1 ppm = 6.54 mg/m^3 | **DOT:** 1744 154

Synonyms/Trade Names: Molecular bromine

Exposure Limits:
NIOSH REL: TWA 0.1 ppm (0.7 mg/m^3)
ST 0.3 ppm (2 mg/m^3)
OSHA PEL†: TWA 0.1 ppm (0.7 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 6011
OSHA ID108

Physical Description: Dark reddish-brown, fuming liquid with suffocating, irritating fumes.

Chemical & Physical Properties:
MW: 159.8
BP: 139°F
Sol: 4%
Fl.P: NA
IP: 10.55 eV
Sp.Gr: 3.12
VP: 172 mmHg
FRZ: 19°F
UEL: NA
LEL: NA
Noncombustible Liquid, but accelerates the burning of combustibles.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
2.5 ppm: Sa:Cf£/PaprS¿£
3 ppm: CcrFS¿/GmFS¿/PaprTS¿£/ ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS¿/ScbaE

Incompatibilities and Reactivities: Combustible organics (sawdust, wood, cotton, straw, etc.), aluminum, readily oxidizable materials, ammonia, hydrogen, acetylene, phosphorus, potassium, sodium
[**Note:** Corrodes iron, steel, stainless steel & copper.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Dizz, head; lac, epis; cough, feeling of oppression, pulm edema, pneu; abdom pain, diarr; measle-like eruptions; eye, skin burns
TO: Resp sys, eyes, CNS, skin

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

B

Bromine pentafluoride

Formula:	CAS#:	RTECS#:	IDLH:
BrF_5	7789-30-2	EF9350000	N.D.

Conversion: 1 ppm = 7.15 mg/m^3 **DOT:** 1745 144

Synonyms/Trade Names: Bromine fluoride

Exposure Limits:
NIOSH REL: TWA 0.1 ppm (0.7 mg/m^3)
OSHA PEL†: none

Physical Description: Colorless to pale-yellow, fuming liquid with a pungent odor. [**Note:** A colorless gas above 105°F. Shipped as a compressed gas.]

Measurement Methods (see Table 1):
None available

Chemical & Physical Properties:
MW: 174.9
BP: 105°F
Sol: Reacts violently
Fl.P: NA
IP: ?
Sp.Gr: 2.48
VP: 328 mmHg
FRZ: -77°F
UEL: NA
LEL: NA
Noncombustible Liquid, but a very powerful oxidizer.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Acids, halogens, arsenic, selenium, sulfur, glass, organic materials, water [**Note:** Reacts with all elements except inert gases, nitrogen & oxygen.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, resp sys; corn nec; skin burns; cough, dysp, pulm edema; liver, kidney inj
TO: Eyes, skin, resp sys, liver, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

Bromoform

Formula:	CAS#:	RTECS#:	IDLH:
$CHBr_3$	75-25-2	PB5600000	850 ppm

Conversion: 1 ppm = 10.34 mg/m^3 **DOT:** 2515 159

Synonyms/Trade Names: Methyl tribromide, Tribromomethane

Exposure Limits:
NIOSH REL: TWA 0.5 ppm (5 mg/m^3) [skin]
OSHA PEL: TWA 0.5 ppm (5 mg/m^3) [skin]

Physical Description: Colorless to yellow liquid with a chloroform-like odor. [**Note:** A solid below 47°F.]

Measurement Methods (see Table 1):
NIOSH 1003
OSHA 7

Chemical & Physical Properties:
MW: 252.8
BP: 301°F
Sol: 0.1%
Fl.P: NA
IP: 10.48 eV
Sp.Gr: 2.89
VP: 5 mmHg
FRZ: 47°F
UEL: NA
LEL: NA
Noncombustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
12.5 ppm: Sa:Cf£/PaprOv£
25 ppm: CcrFOv/GmFOv/PaprTOv£/ ScbaF/SaF
850 ppm: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Lithium, sodium, potassium, calcium, aluminum, zinc, magnesium, strong caustics, acetone [**Note:** Gradually decomposes, acquiring yellow color; air & light accelerate decomposition.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, resp sys; CNS depres; liver, kidney damage
TO: Eyes, skin, resp sys, CNS, liver, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

1,3-Butadiene

Formula: $CH_2=CHCH=CH_2$
CAS#: 106-99-0
RTECS#: EI9275000
IDLH: Ca [2000 ppm] [10%LEL]

Conversion: 1 ppm = 2.21 mg/m^3
DOT: 1010 116P (inhibited)

Synonyms/Trade Names: Biethylene, Bivinyl, Butadiene, Divinyl, Erythrene, Vinylethylene

Exposure Limits:
NIOSH REL: Ca
See Appendix A
OSHA PEL: [1910.1051] TWA 1 ppm
ST 5 ppm

Measurement Methods (see Table 1):
NIOSH 1024
OSHA 56

Physical Description: Colorless gas with a mild aromatic or gasoline-like odor.
[**Note:** A liquid below 24°F. Shipped as a liquefied compressed gas.]

Chemical & Physical Properties:
MW: 54.1
BP: 24°F
Sol: Insoluble
Fl.P: NA (Gas)
-105°F (Liquid)
IP: 9.07 eV
RGasD: 1.88
Sp.Gr: 0.65 (Liquid at 24°F)
VP: 2.4 atm
FRZ: -164°F
UEL: 12.0%
LEL: 2.0%
Flammable Gas

Personal Protection/Sanitation (see Table 2):
Skin: Frostbite
Eyes: Frostbite
Wash skin: N.R.
Remove: When wet (flamm)
Change: N.R.
Provide: Frostbite wash

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS/ScbaE

See Appendix E (page 351)

Incompatibilities and Reactivities: Phenol, chlorine dioxide, copper, crotonaldehyde [**Note:** May contain inhibitors (e.g., tributylcatechol) to prevent self-polymerization. May form explosive peroxides upon exposure to air.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con (liquid)
SY: Irrit eyes, nose, throat; drow, dizz; liquid: frostbite; terato, repro effects; [carc]
TO: Eyes, resp sys, CNS, repro sys [hemato cancer]

First Aid (see Table 6):
Eye: Frostbite
Skin: Frostbite
Breath: Resp support

n-Butane

Formula: $CH_3CH_2CH_2CH_3$
CAS#: 106-97-8
RTECS#: EJ4200000
IDLH: N.D.

Conversion: 1 ppm = 2.38 mg/m^3
DOT: 1011 115; 1075 115

Synonyms/Trade Names: normal-Butane, Butyl hydride, Diethyl, Methylethylmethane
[**Note:** Also see specific listing for Isobutane.]

Exposure Limits:
NIOSH REL: TWA 800 ppm (1900 mg/m^3)
OSHA PEL†: none

Measurement Methods (see Table 1):
OSHA 56

Physical Description: Colorless gas with a gasoline-like or natural gas odor.
[**Note:** Shipped as a liquefied compressed gas. A liquid below 31°F.]

Chemical & Physical Properties:
MW: 58.1
BP: 31°F
Sol: Slight
Fl.P: NA (Gas)
IP: 10.63 eV
RGasD: 2.11
Sp.Gr: 0.6 (Liquid at 31°F)
VP: 2.05 atm
FRZ: -217°F
UEL: 8.4%
LEL: 1.6%
Flammable Gas

Personal Protection/Sanitation (see Table 2):
Skin: Frostbite
Eyes: Frostbite
Wash skin: N.R.
Remove: When wet (flamm)
Change: N.R.
Provide: Frostbite wash

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Strong oxidizers (e.g., nitrates and perchlorates), chlorine, fluorine, (nickel carbonyl + oxygen)

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con (liquid)
SY: Drow, narco, asphy; liquid: frostbite
TO: CNS

First Aid (see Table 6):
Eye: Frostbite
Skin: Frostbite
Breath: Resp support

B

2-Butanone

Formula:	CAS#:	RTECS#:	IDLH:
$CH_3COCH_2CH_3$	78-93-3	EL6475000	3000 ppm

Conversion: 1 ppm = 2.95 mg/m^3 **DOT:** 1193 127

Synonyms/Trade Names: Ethyl methyl ketone, MEK, Methyl acetone, Methyl ethyl ketone

Exposure Limits:
NIOSH REL: TWA 200 ppm (590 mg/m^3)
ST 300 ppm (885 mg/m^3)
OSHA PEL†: TWA 200 ppm (590 mg/m^3)

Physical Description: Colorless liquid with a moderately sharp, fragrant, mint- or acetone-like odor.

Measurement Methods (see Table 1):
NIOSH 2500, 2555, 3800
OSHA 16, 84, 1004

Chemical & Physical Properties:
MW: 72.1
BP: 175°F
Sol: 28%
Fl.P: 16°F
IP: 9.54 eV
Sp.Gr: 0.81
VP: 78 mmHg
FRZ: -123°F
UEL(200°F): 11.4%
LEL(200°F): 1.4%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.
Provide: Eyewash

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
3000 ppm: Sa:Cf£/PaprOv£/CcrFOv/GmFOv/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, amines, ammonia, inorganic acids, caustics, isocyanates, pyridines

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose; head; dizz; vomit; derm
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water wash immed
Breath: Fresh air
Swallow: Medical attention immed

2-Butoxyethanol

Formula:	CAS#:	RTECS#:	IDLH:
$C_4H_9OCH_2CH_2OH$	111-76-2	KJ8575000	700 ppm

Conversion: 1 ppm = 4.83 mg/m^3 **DOT:** 2369 152

Synonyms/Trade Names: Butyl Cellosolve®, Butyl oxitol, Dowanol® EB, EGBE, Ektasolve EB®, Ethylene glycol monobutyl ether, Jeffersol EB

Exposure Limits:
NIOSH REL: TWA 5 ppm (24 mg/m^3) [skin]
OSHA PEL†: TWA 50 ppm (240 mg/m^3) [skin]

Physical Description: Colorless liquid with a mild, ether-like odor.

Measurement Methods (see Table 1):
NIOSH 1403
OSHA 83

Chemical & Physical Properties:
MW: 118.2
BP: 339°F
Sol: Miscible
Fl.P: 143°F
IP: 10.00 eV
Sp.Gr: 0.90
VP: 0.8 mmHg
FRZ: -107°F
UEL(275°F): 12.7%
LEL(200°F): 1.1%
Class IIIA Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
50 ppm: CcrOv*/Sa*
125 ppm: Sa:Cf*/PaprOv*
250 ppm: CcrFOv/GmFOv/PaprTOv*/ScbaF/SaF
700 ppm: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, strong caustics

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, nose, throat; hemolysis, hema; CNS depres, head; vomit
TO: Eyes, skin, resp sys, CNS, hemato sys, blood, kidneys, liver, lymphoid sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

2-Butoxyethanol acetate

Formula: $C_4H_9O(CH_2)_2OCOCH_3$
CAS#: 112-07-2
RTECS#: KJ8925000
IDLH: N.D.

Conversion: 1 ppm = 6.55 mg/m^3
DOT:

Synonyms/Trade Names: 2-Butoxyethyl acetate, Butyl Cellosolve® acetate, Butyl glycol acetate, EGBEA, Ektasolve EB® acetate, Ethylene glycol monobutyl ether acetate

Exposure Limits:
NIOSH REL: TWA 5 ppm (33 mg/m^3)
OSHA PEL: none

Measurement Methods (see Table 1):
OSHA 83

Physical Description: Colorless liquid with a pleasant, sweet, fruity odor.

Chemical & Physical Properties:
MW: 160.2
BP: 378°F
Sol: 1.5%
Fl.P: 160°F
IP: ?
Sp.Gr: 0.94
VP: 0.3 mmHg
FRZ: -82°F
UEL(275°F): 8.54%
LEL(200°F): 0.88%
Class IIIA Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
50 ppm: CcrOv*/Sa*
125 ppm: Sa:Cf*/PaprOv*
250 ppm: CcrFOv/GmFOv/PaprTOv*/ ScbaF/SaF
700 ppm: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, nose, throat; hemolysis, hema; CNS depres, head; vomit
TO: Eyes, skin, resp sys, CNS, hemato sys, blood, kidneys, liver, lymphoid sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

n-Butyl acetate

Formula: $CH_3COO[CH_2]_3CH_3$
CAS#: 123-86-4
RTECS#: AF7350000
IDLH: 1700 ppm [10%LEL]

Conversion: 1 ppm = 4.75 mg/m^3
DOT: 1123 129

Synonyms/Trade Names: Butyl acetate, n-Butyl ester of acetic acid, Butyl ethanoate

Exposure Limits:
NIOSH REL: TWA 150 ppm (710 mg/m^3)
ST 200 ppm (950 mg/m^3)
OSHA PEL†: TWA 150 ppm (710 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1450
OSHA 7

Physical Description: Colorless liquid with a fruity odor.

Chemical & Physical Properties:
MW: 116.2
BP: 258°F
Sol: 1%
Fl.P: 72°F
IP: 10.00 eV
Sp.Gr: 0.88
VP: 10 mmHg
FRZ: -107°F
UEL: 7.6%
LEL: 1.7%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
1500 ppm: CcrOv*/Sa*
1700 ppm: Sa:Cf*/PaprOv*/CcrFOv/ GmFOv/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Nitrates; strong oxidizers, alkalis & acids

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, upper resp sys; head, drow, narco
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush prompt
Breath: Resp support
Swallow: Medical attention immed

B

sec-Butyl acetate	Formula: $CH_3COOCH(CH_3)CH_2CH_3$	CAS#: 105-46-4	RTECS#: AF7380000	IDLH: 1700 ppm [10%LEL]
Conversion: 1 ppm = 4.75 mg/m^3	**DOT:** 1123 129			

Synonyms/Trade Names: sec-Butyl ester of acetic acid, 1-Methylpropyl acetate

Exposure Limits:
NIOSH REL: TWA 200 ppm (950 mg/m^3)
OSHA PEL: TWA 200 ppm (950 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1450
OSHA 7

Physical Description: Colorless liquid with a pleasant, fruity odor.

Chemical & Physical Properties:
MW: 116.2
BP: 234°F
Sol: 0.8%
Fl.P: 62°F
IP: 9.91 eV
Sp.Gr: 0.86
VP: 10 mmHg
FRZ: -100°F
UEL: 9.8%
LEL: 1.7%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
1700 ppm: Sa:Cf£/PaprOv£/CcrFOv/GmFOv/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Nitrates; strong oxidizers, alkalis & acids

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes; head; drow; dryness upper resp sys, skin; narco
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush prompt
Breath: Resp support
Swallow: Medical attention immed

tert-Butyl acetate	Formula: $CH_3COOC(CH_3)_3$	CAS#: 540-88-5	RTECS#: AF7400000	IDLH: 1500 ppm [10%LEL]
Conversion: 1 ppm = 4.75 mg/m^3	**DOT:** 1123 129			

Synonyms/Trade Names: tert-Butyl ester of acetic acid

Exposure Limits:
NIOSH REL: TWA 200 ppm (950 mg/m^3)
OSHA PEL: TWA 200 ppm (950 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1450
OSHA 7

Physical Description: Colorless liquid with a fruity odor.

Chemical & Physical Properties:
MW: 116.2
BP: 208°F
Sol: Insoluble
Fl.P: 72°F
IP: ?
Sp.Gr: 0.87
VP: ?
FRZ: ?
UEL: ?
LEL: 1.5%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
1500 ppm: Sa:Cf£/PaprOv£/CcrFOv/GmFOv/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Nitrates; strong oxidizers, alkalis & acids

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Itch, inflamm eyes; irrit upper resp tract; head; narco; derm
TO: Resp sys, eyes, skin, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush prompt
Breath: Resp support
Swallow: Medical attention immed

Butyl acrylate	Formula: $CH_2=CHCOOC_4H_9$	CAS#: 141-32-2	RTECS#: UD3150000	IDLH: N.D.
Conversion: 1 ppm = 5.24 mg/m^3	**DOT:** 2348 130P			

Synonyms/Trade Names: n-Butyl acrylate, Butyl ester of acrylic acid, Butyl-2-propenoate

Exposure Limits:
NIOSH REL: TWA 10 ppm (55 mg/m^3)
OSHA PEL†: none

Measurement Methods (see Table 1):
OSHA PV2011

Physical Description: Clear, colorless liquid with a strong, fruity odor. [**Note:** Highly reactive; may contain an inhibitor to prevent spontaneous polymerization.]

Chemical & Physical Properties:
MW: 128.2
BP: 293°F
Sol: 0.1%
Fl.P: 103°F
IP: ?
Sp.Gr: 0.89
VP: 4 mmHg
FRZ: -83°F
UEL: 9.9%
LEL: 1.5%
Class II Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Strong acids & alkalis, amines, halogens, hydrogen compounds, oxidizers, heat, flame, sunlight [**Note:** Polymerizes readily on heating.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, upper resp sys; sens derm; dysp
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

n-Butyl alcohol	Formula: $CH_3CH_2CH_2CH_2OH$	CAS#: 71-36-3	RTECS#: EO1400000	IDLH: 1400 ppm [10%LEL]
Conversion: 1 ppm = 3.03 mg/m^3	**DOT:** 1120 129			

Synonyms/Trade Names: 1-Butanol, n-Butanol, Butyl alcohol, 1-Hydroxybutane, n-Propyl carbinol

Exposure Limits:
NIOSH REL: C 50 ppm (150 mg/m^3) [skin]
OSHA PEL†: TWA 100 ppm (300 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1401, 1405
OSHA 7

Physical Description: Colorless liquid with a strong, characteristic, mildly alcoholic odor.

Chemical & Physical Properties:
MW: 74.1
BP: 243°F
Sol: 9%
Fl.P: 84°F
IP: 10.04 eV
Sp.Gr: 0.81
VP: 6 mmHg
FRZ: -129°F
UEL: 11.2%
LEL: 1.4%
Class IC Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
1250 ppm: Sa:Cf£/PaprOv£
1400 ppm: CcrFOv/GmFOv/PaprTOv£/ ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, strong mineral acids, alkali metals, halogens

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, nose, throat; head, dizz, drow; corn inflamm, blurred vision, lac, photo; derm; possible auditory nerve damage, hearing loss; CNS depres
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush prompt
Breath: Resp support
Swallow: Medical attention immed

B

sec-Butyl alcohol

Formula:	CAS#:	RTECS#:	IDLH:
$CH_3CH(OH)CH_2CH_3$	78-92-2	EO1750000	2000 ppm

Conversion: 1 ppm = 3.03 mg/m^3 **DOT:** 1120 129

Synonyms/Trade Names: 2-Butanol, Butylene hydrate, 2-Hydroxybutane, Methyl ethyl carbinol

Exposure Limits:
NIOSH REL: TWA 100 ppm (305 mg/m^3)
ST 150 ppm (455 mg/m^3)
OSHA PEL†: TWA 150 ppm (450 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1401, 1405
OSHA 7

Physical Description: Colorless liquid with a strong, pleasant odor.

Chemical & Physical Properties:
MW: 74.1
BP: 211°F
Sol: 16%
Fl.P: 75°F
IP: 10.10 eV
Sp.Gr: 0.81
VP: 12 mmHg
FRZ: -175°F
UEL(212°F): 9.8%
LEL(212°F): 1.7%
Class IC Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
1000 ppm: CcrOv*/Sa*
2000 ppm: Sa:Cf*/PaprOv*/CcrFOv/GmFOv/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, organic peroxides, perchloric & permonosulfuric acids

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose, throat; narco
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush prompt
Breath: Resp support
Swallow: Medical attention immed

tert-Butyl alcohol

Formula:	CAS#:	RTECS#:	IDLH:
$(CH_3)_3COH$	75-65-0	EO1925000	1600 ppm

Conversion: 1 ppm = 3.03 mg/m^3 **DOT:** 1120 129

Synonyms/Trade Names: 2-Methyl-2-propanol, Trimethyl carbinol

Exposure Limits:
NIOSH REL: TWA 100 ppm (300 mg/m^3)
ST 150 ppm (450 mg/m^3)
OSHA PEL†: TWA 100 ppm (300 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1400
OSHA 7

Physical Description: Colorless solid or liquid (above 77°F) with a camphor-like odor. [**Note:** Often used in aqueous solutions.]

Chemical & Physical Properties:
MW: 74.1
BP: 180°F
Sol: Miscible
Fl.P: 52°F
IP: 9.70 eV
Sp.Gr: 0.79 (Solid)
VP(77°F): 42 mmHg
FRZ: 78°F
UEL: 8.0%
LEL: 2.4%
Combustible Solid
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
1600 ppm: Sa:Cf£/PaprOv£/CcrFOv/GmFOv/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong mineral acids, strong hydrochloric acid, oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose, throat; drow, narco
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush prompt
Breath: Resp support
Swallow: Medical attention immed

n-Butylamine

Formula: $CH_3CH_2CH_2CH_2NH_2$ | **CAS#:** 109-73-9 | **RTECS#:** EO2975000 | **IDLH:** 300 ppm

Conversion: 1 ppm = 2.99 mg/m^3 | **DOT:** 1125 132

Synonyms/Trade Names: 1-Aminobutane, Butylamine

Exposure Limits:
NIOSH REL: C 5 ppm (15 mg/m^3) [skin]
OSHA PEL: C 5 ppm (15 mg/m^3) [skin]

Measurement Methods (see Table 1):
NIOSH 2012

Physical Description: Colorless liquid with a fishy, ammonia-like odor.

Chemical & Physical Properties:
MW: 73.2
BP: 172°F
Sol: Miscible
Fl.P: 10°F
IP: 8.71 eV
Sp.Gr: 0.74
VP: 82 mmHg
FRZ: -58°F
UEL: 9.8%
LEL: 1.7%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
50 ppm: CcrS*/Sa*
125 ppm: Sa:Cf*/PaprS*
250 ppm: CcrFS/GmFS/PaprTS*/ ScbaF/SaF
300 ppm: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, strong acids
[**Note:** May corrode some metals in presence of water.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, nose, throat; head; skin flush, burns
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

tert-Butyl chromate

Formula: $[(CH_3)_3CO]_2CrO_2$ | **CAS#:** 1189-85-1 | **RTECS#:** GB2900000 | **IDLH:** Ca [15 mg/m^3 {as Cr(VI)}]

Conversion: | **DOT:**

Synonyms/Trade Names: di-tert-Butyl ester of chromic acid

Exposure Limits:
NIOSH REL: Ca
TWA 0.001 mg Cr(VI)/m^3
See Appendix A
See Appendix C
OSHA PEL: C 0.1 mg CrO_3/m^3 [skin]
See Appendix C

Measurement Methods (see Table 1):
NIOSH 7604
OSHA ID103, ID215

Physical Description: Liquid. [**Note:** Solidifies at 32-23°F.]

Chemical & Physical Properties:
MW: 230.3
BP: ?
Sol: ?
Fl.P: ?
IP: ?
Sp.Gr: ?
VP: ?
FRZ: 32-23°F
UEL: ?
LEL: ?

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Reducing agents, moisture, acids, alcohols, hydrazine, combustible materials

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, resp sys; eye, skin burns; drow, musc weak; skin ulcers; lung changes; [carc]
TO: Eyes, skin, resp sys, CNS [lung cancer]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

B

n-Butyl glycidyl ether

Formula:	CAS#:	RTECS#:	IDLH:
$C_7H_{14}O_2$	2426-08-6	TX4200000	250 ppm

Conversion: 1 ppm = 5.33 mg/m^3 **DOT:**

Synonyms/Trade Names: BGE; 1,2-Epoxy-3-butoxypropane

Exposure Limits:
NIOSH REL: C 5.6 ppm (30 mg/m^3) [15-minute]
OSHA PEL†: TWA 50 ppm (270 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1616
OSHA 7

Physical Description: Colorless liquid with an irritating odor.

Chemical & Physical Properties:
MW: 130.2
BP: 327°F
Sol: 2%
Fl.P: 130°F
IP: ?
Sp.Gr: 0.91
VP(77°F): 3 mmHg
FRZ: ?
UEL: ?
LEL: ?
Class II Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
56 ppm: CcrOv*/Sa*
140 ppm: Sa:Cf*/PaprOv*
250 ppm: CcrFOv/GmFOv/PaprTOv*/ ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, strong caustics

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose; skin sens; narco; possible hemato effects; CNS depres
TO: Eyes, skin, resp sys, CNS, blood

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

n-Butyl lactate

Formula:	CAS#:	RTECS#:	IDLH:
$CH_3CH(OH)COOC_4H_9$	138-22-7	OD4025000	N.D.

Conversion: 1 ppm = 5.98 mg/m^3 **DOT:** 1993 128 (combustible liquid, n.o.s.)

Synonyms/Trade Names: Butyl ester of 2-hydroxypropanoic acid, Butyl ester of lactic acid, Butyl lactate

Exposure Limits:
NIOSH REL: TWA 5 ppm (25 mg/m^3)
OSHA PEL†: none

Measurement Methods (see Table 1):
None available

Physical Description: Clear, colorless to white liquid with a mild, transient odor.

Chemical & Physical Properties:
MW: 146.2
BP: 370°F
Sol: Slight
Fl.P: 160°F
IP: ?
Sp.Gr: 0.98
VP: 0.4 mmHg
FRZ: -45°F
UEL: ?
LEL: 1.15%
Class IIIA Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Strong acids & bases, strong oxidizers, heat, sparks, open flames

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose, throat; drow, head, CNS depres; nau, vomit
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

n-Butyl mercaptan

Formula:	CAS#:	RTECS#:	IDLH:
$CH_3CH_2CH_2CH_2SH$	109-79-5	EK6300000	500 ppm

Conversion: 1 ppm = 3.69 mg/m^3

DOT: 2347 130

Synonyms/Trade Names: Butanethiol, 1-Butanethiol, n-Butanethiol, 1-Mercaptobutane

Exposure Limits:
NIOSH REL: C 0.5 ppm (1.8 mg/m^3) [15-minute]
OSHA PEL†: TWA 10 ppm (35 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 2525, 2542

Physical Description: Colorless liquid with a strong, garlic-, cabbage-, or skunk-like odor.

Chemical & Physical Properties:
MW: 90.2
BP: 209°F
Sol: 0.06%
Fl.P: 35°F
IP: 9.15 eV
Sp.Gr: 0.83
VP: 35 mmHg
FRZ: -176°F
UEL: ?
LEL: ?
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
5 ppm: CcrOv/Sa
12.5 ppm: Sa:Cf/PaprOv
25 ppm: CcrFOv/GmFOv/PaprTOv/ScbaF/SaF
500 ppm: Sa:Pd,Pp*
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers (such as dry bleaches), acids

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin; musc weak, mal, sweat, nau, vomit, head, conf; in animals: narco, inco, lass; cyan, pulm irrit; liver, kidney damage
TO: Eyes, skin, resp sys, CNS, liver, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

o-sec-Butylphenol

Formula:	CAS#:	RTECS#:	IDLH:
$CH_3CH_2CH(CH_3)C_6H_4OH$	89-72-5	SJ8920000	N.D.

Conversion: 1 ppm = 6.14 mg/m^3

DOT:

Synonyms/Trade Names: 2-sec-Butylphenol; 2-(1-Methylpropyl)phenol

Exposure Limits:
NIOSH REL: TWA 5 ppm (30 mg/m^3) [skin]
OSHA PEL†: none

Measurement Methods (see Table 1):
None available

Physical Description: Colorless liquid or solid (below 61°F).

Chemical & Physical Properties:
MW: 150.2
BP: 227°F
Sol: Insoluble
Fl.P: 225°F
IP: ?
Sp.Gr: 0.89
VP: Low
FRZ: 61°F
UEL: ?
LEL: ?
Class IIB Combustible Liquid
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: None reported

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, resp sys; skin burns
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap flush immed
Breath: Resp support
Swallow: Medical attention immed

B

p-tert-Butyltoluene

Formula:	CAS#:	RTECS#:	IDLH:
$(CH_3)_3CC_6H_4CH_3$	98-51-1	XS8400000	100 ppm

Conversion: 1 ppm = 6.07 mg/m^3 **DOT:** 2667 152

Synonyms/Trade Names: 4-tert-Butyltoluene, 1-Methyl-4-tert-butylbenzene

Exposure Limits:
NIOSH REL: TWA 10 ppm (60 mg/m^3)
ST 20 ppm (120 mg/m^3)
OSHA PEL†: TWA 10 ppm (60 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1501
OSHA 7

Physical Description: Colorless liquid with a distinct aromatic odor, somewhat like gasoline.

Chemical & Physical Properties:
MW: 148.3
BP: 379°F
Sol: Insoluble
Fl.P: 155°F
IP: 8.28 eV
Sp.Gr: 0.86
VP(77°F): 0.7 mmHg
FRZ: -62°F
UEL: ?
LEL: ?
Class IIIA Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
100 ppm: Sa:Cf£/PaprOv£/CcrFOv/GmFOv/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin; dry nose, throat; head; low BP, tacar, abnor CVS stress; CNS, hemato depres; metallic taste; liver, kidney inj
TO: Eyes, skin, resp sys, CVS, CNS, bone marrow, liver, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush prompt
Breath: Resp support
Swallow: Medical attention immed

n-Butyronitrile

Formula:	CAS#:	RTECS#:	IDLH:
$CH_3CH_2CH_2CN$	109-74-0	ET8750000	N.D.

Conversion: 1 ppm = 2.83 mg/m^3 **DOT:** 2411 131

Synonyms/Trade Names: Butanenitrile, Butyronitrile, 1-Cyanopropane, Propyl cyanide, n-Propyl cyanide

Exposure Limits:
NIOSH REL: TWA 8 ppm (22 mg/m^3)
OSHA PEL: none

Measurement Methods (see Table 1):
NIOSH 1606 (adapt)

Physical Description: Colorless liquid with a sharp, suffocating odor.
[**Note:** Forms cyanide in the body.]

Chemical & Physical Properties:
MW: 69.1
BP: 244°F
Sol(77°F): 3%
Fl.P: 62°F
IP: 11.67 eV
Sp.Gr: 0.81
VP: 14 mmHg
FRZ: -170°F
UEL: ?
LEL: 1.65%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.
Provide: Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
80 ppm: CcrOv/Sa
200 ppm: Sa:Cf/PaprOv
400 ppm: CcrFOv/GmFOv/PaprTOv/ScbaF/SaF
1000 ppm: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers & reducing agents, strong acids & bases

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, resp sys; head, dizz, lass, conf, convuls; dysp; abdom pain, nau, vomit
TO: Eyes, skin, resp sys, CNS, CVS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

C

Cadmium dust (as Cd)	Formula: Cd (metal)	CAS#: 7440-43-9 (metal)	RTECS#: EU9800000 (metal)	IDLH: Ca [9 mg/m^3 (as Cd)]
Conversion:	**DOT:** 2570 154 (cadmium compound)			

Synonyms/Trade Names: **Cadmium metal:** Cadmium
Other synonyms vary depending upon the specific cadmium compound.

Exposure Limits:
NIOSH REL*: Ca
See Appendix A
OSHA PEL*: [1910.1027] TWA 0.005 mg/m^3
[***Note:** The REL and PEL apply to all Cadmium compounds (as Cd).]

Measurement Methods (see Table 1):
NIOSH 7048, 7300, 7301, 7303, 9102
OSHA ID121, ID125G, ID189, ID206

Physical Description: Metal: Silver-white, blue-tinged lustrous, odorless solid.

Chemical & Physical Properties:
MW: 112.4
BP: 1409°F
Sol: Insoluble
Fl.P: NA
IP: NA
Sp.Gr: 8.65 (metal)
VP: 0 mmHg (approx)
MLT: 610°F
UEL: NA
LEL: NA
Metal: Noncombustible Solid in bulk form, but will burn in powder form.

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: Daily
Remove: N.R.
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

See Appendix E (page 351)

Incompatibilities and Reactivities: Strong oxidizers; elemental sulfur, selenium & tellurium

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing
SY: Pulm edema, dysp, cough, chest tight, subs pain; head; chills, musc aches; nau, vomit, diarr; anos, emphy, prot, mild anemia; [carc]
TO: Resp sys, kidneys, prostate, blood [prostatic & lung cancer]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Resp support
Swallow: Medical attention immed

Cadmium fume (as Cd)	Formula: CdO/Cd	CAS#: 1306-19-0 (CdO)	RTECS#: EV1930000 (CdO)	IDLH: Ca [9 mg/m^3 (as Cd)]
Conversion:	**DOT:**			

Synonyms/Trade Names: **CdO:** Cadmium monoxide, Cadmium oxide fume **Cd:** Cadmium

Exposure Limits:
NIOSH REL*: Ca
See Appendix A
OSHA PEL*: [1910.1027] TWA 0.005 mg/m^3
[***Note:** The REL and PEL apply to all Cadmium compounds (as Cd).]

Measurement Methods (see Table 1):
NIOSH 7048, 7300, 7301, 7303
OSHA ID121, ID125G, ID189, ID206

Physical Description: Odorless, yellow-brown, finely divided particulate dispersed in air. [**Note:** See listing for Cadmium dust for properties of Cd.]

Chemical & Physical Properties:
MW: 128.4
BP: Decomposes
Sol: Insoluble
Fl.P: NA
IP: NA
Sp.Gr: 8.15 (crystalline form)
6.95 (amorphous form)
VP: 0 mmHg (approx)
MLT: 2599°F
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: Daily
Remove: N.R.
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

See Appendix E (page 351)

Incompatibilities and Reactivities: Not applicable

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh
SY: Pulm edema, dysp, cough, chest tight, subs pain; head; chills, musc aches; nau, vomit, diarr; emphy, prot, anos, mild anemia; [carc]
TO: Resp sys, kidneys, blood [prostatic & lung cancer]

First Aid (see Table 6):
Breath: Resp support

C

Calcium arsenate (as As)	Formula: $Ca_3(AsO_4)_2$	CAS#: 7778-44-1	RTECS#: CG0830000	IDLH: Ca [5 mg/m^3 (as As)]
Conversion:	DOT: 1573 151			

Synonyms/Trade Names: Calcium salt (2:3) of arsenic acid, Cucumber dust, Tricalcium arsenate, Tricalcium ortho-arsenate [**Note:** Also see specific listing for Arsenic (inorganic compounds, as As).]

Exposure Limits:
NIOSH REL: Ca
C 0.002 mg/m^3 [15-minute]
See Appendix A
OSHA PEL: [1910.1018] TWA 0.010 mg/m^3

Measurement Methods (see Table 1):
NIOSH 7900
OSHA ID105

Physical Description: Colorless to white, odorless solid. [insecticide/herbicide]

Chemical & Physical Properties:
MW: 398.1
BP: Decomposes
Sol(77°F): 0.01%
Fl.P: NA
IP: NA
Sp.Gr: 3.62
VP: 0 mmHg (approx)
MLT: ?
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: None reported
[**Note:** Produces toxic fumes of arsenic when heated to decomposition.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Lass; GI dist; peri neur; skin hyperpig, palmar planter hyperkeratoses; derm; [carc]; in animals: liver damage
TO: Eyes, resp sys, liver, skin, CNS, lymphatic sys [lymphatic & lung cancer]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

Calcium carbonate	Formula: $CaCO_3$	CAS#: 1317-65-3	RTECS#: EV9580000	IDLH: N.D.
Conversion:	DOT:			

Synonyms/Trade Names: Calcium salt of carbonic acid
[**Note:** Occurs in nature as as limestone, chalk, marble, dolomite, aragonite, calcite & oyster shells.]

Exposure Limits:
NIOSH REL: TWA 10 mg/m^3 (total)
TWA 5 mg/m^3 (resp)
OSHA PEL: TWA 15 mg/m^3 (total)
TWA 5 mg/m^3 (resp)

Measurement Methods (see Table 1):
NIOSH 7020, 7303
OSHA ID121

Physical Description: White, odorless powder or colorless crystals.

Chemical & Physical Properties:
MW: 100.1
BP: Decomposes
Sol: 0.001%
Fl.P: NA
IP: NA
Sp.Gr: 2.7-2.95
VP: 0 mmHg (approx)
MLT: 1517-2442°F (Decomposes)
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Acids, alum, ammonium salts, mercury & hydrogen, fluorine, magnesium

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Irrit eyes, skin, resp sys; cough
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Fresh air

Calcium cyanamide

Formula: $CaCN_2$ | **CAS#:** 156-62-7 | **RTECS#:** GS6000000 | **IDLH:** N.D.

Conversion: | **DOT:** 1403 138 (with >0.1% calcium carbide)

Synonyms/Trade Names: Calcium carbimide, Cyanamide, Lime nitrogen, Nitrogen lime
[**Note:** Cyanamide is also a synonym for Hydrogen cyanamide, NH_2CN.]

Exposure Limits:
NIOSH REL: TWA 0.5 mg/m^3
OSHA PEL†: none

Measurement Methods (see Table 1):
NIOSH 0500

Physical Description: Colorless, gray, or black crystals or powder. [fertilizer]
[**Note:** Commercial grades may contain calcium carbide.]

Chemical & Physical Properties:
MW: 80.1
BP: Sublimes
Sol: Insoluble
Fl.P: NA
IP: NA
Sp.Gr: 2.29
VP: 0 mmHg (approx)
MLT: 2444°F
UEL: NA
LEL: NA
Noncombustible Solid, but a fire risk if it contains calcium carbide.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Water
[**Note:** May polymerize in water or alkaline solutions to dicyanamide. Decomposes in water to form acetylene & ammonia.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, resp sys; head, dizz, rapid breath, low BP, nau, vomit; skin burns, sens; cough; Antabuse-like effects
TO: Eyes, skin, resp sys, vasomotor sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap flush immed
Breath: Resp support
Swallow: Medical attention immed

Calcium hydroxide

Formula: $Ca(OH)_2$ | **CAS#:** 1305-62-0 | **RTECS#:** EW2800000 | **IDLH:** N.D.

Conversion: | **DOT:**

Synonyms/Trade Names: Calcium hydrate, Caustic lime, Hydrated lime, Slaked lime

Exposure Limits:
NIOSH REL: TWA 5 mg/m^3
OSHA PEL: TWA 15 mg/m^3 (total)
TWA 5 mg/m^3 (resp)

Measurement Methods (see Table 1):
NIOSH 7020
OSHA ID121

Physical Description: White, odorless powder.
[**Note:** Readily absorbs CO_2 from the air to form calcium carbonate.]

Chemical & Physical Properties:
MW: 74.1
BP: Decomposes
Sol(32°F): 0.2%
Fl.P: NA
IP: NA
Sp.Gr: 2.24
VP: 0 mmHg (approx)
MLT: 1076°F (Decomposes) (Loses H_2O)
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Maleic anhydride, phosphorus, nitroethane, nitromethane, nitroparaffins, nitropropane [**Note:** Attacks some metals.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, upper resp sys; eye, skin burns; skin vesic; cough, bron, pneu
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap flush immed
Breath: Resp support
Swallow: Medical attention immed

C

Calcium oxide	Formula: CaO	CAS#: 1305-78-8	RTECS#: EW3100000	IDLH: 25 mg/m^3

Conversion: **DOT:** 1910 157

Synonyms/Trade Names: Burned lime, Burnt lime, Lime, Pebble lime, Quick lime, Unslaked lime

Exposure Limits:
NIOSH REL: TWA 2 mg/m^3
OSHA PEL: TWA 5 mg/m^3

Physical Description: White or gray, odorless lumps or granular powder.

Measurement Methods (see Table 1):
NIOSH 7020, 7303
OSHA ID121

Chemical & Physical Properties:
MW: 56.1
BP: 5162°F
Sol: Reacts
Fl.P: NA
IP: NA
Sp.Gr: 3.34
VP: 0 mmHg (approx)
MLT: 4662°F
UEL: NA
LEL: NA
Noncombustible Solid, but will support combustion by liberation of oxygen.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
10 mg/m^3: Qm
20 mg/m^3: 95XQ/Sa
25 mg/m^3: Sa:Cf/PaprHie/100F/ ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Water (liberates heat), fluorine, ethanol
[**Note:** Reacts with water to form calcium hydroxide.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, upper resp tract; ulcer, perf nasal septum; pneu; derm
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

Calcium silicate	Formula: $CaSiO_3$	CAS#: 1344-95-2	RTECS#: VV9150000	IDLH: N.D.

Conversion: **DOT:**

Synonyms/Trade Names: Calcium hydrosilicate, Calcium metasilicate, Calcium monosilicate, Calcium salt of silicic acid, Wollastonite (mineral)

Exposure Limits:
NIOSH REL: TWA 10 mg/m^3 (total)
TWA 5 mg/m^3 (resp)
OSHA PEL: TWA 15 mg/m^3 (total)
TWA 5 mg/m^3 (resp)

Physical Description: White or cream-colored, free-flowing powder.
[**Note:** The commercial product is prepared from diatomaceous earth & lime.]

Measurement Methods (see Table 1):
NIOSH 7020
OSHA ID121

Chemical & Physical Properties:
MW: 116.2
BP: ?
Sol: 0.01%
Fl.P: NA
IP: NA
Sp.Gr: 2.9
VP: 0 mmHg (approx)
MLT: 2804°F
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: None reported
[**Note:** After prolonged contact with water, solution reverts to soluble calcium salts & amorphous silica.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Irrit eyes, skin, upper resp sys
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Fresh air

C

Calcium sulfate	Formula: $CaSO_4$	CAS#: 7778-18-9	RTECS#: WS6920000	IDLH: N.D.
Conversion:	DOT:			

Synonyms/Trade Names: Anhydrous calcium sulfate, Anhydrous gypsum, Anhydrous sulfate of lime, Calcium salt of sulfuric acid [**Note:** Gypsum is the dihydrate form & Plaster of Paris is the hemihydrate form.]

Exposure Limits:
NIOSH REL: TWA 10 mg/m^3 (total)
TWA 5 mg/m^3 (resp)
OSHA PEL: TWA 15 mg/m^3 (total)
TWA 5 mg/m^3 (resp)

Measurement Methods (see Table 1):
NIOSH 0500, 0600

Physical Description: Odorless, white powder or colorless, crystalline solid. [**Note:** May have blue, gray, or reddish tinge.]

Chemical & Physical Properties:
MW: 136.1
BP: Decomposes
Sol: 0.3%
Fl.P: NA
IP: NA
Sp.Gr: 2.96
VP: 0 mmHg (approx)
MLT: 2840°F (Decomposes)
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Diazomethane, aluminum, phosphorus, water
[**Note:** Hygroscopic (i.e., absorbs moisture from the air). Reacts with water to form Gypsum & Plaster of Paris.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Irrit eyes, skin, upper resp sys; conj; rhinitis, epis
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Fresh air

Camphor (synthetic)	Formula: $C_{10}H_{16}O$	CAS#: 76-22-2	RTECS#: EX1225000	IDLH: 200 mg/m^3
Conversion:	DOT: 2717 133			

Synonyms/Trade Names: 2-Camphonone, Gum camphor, Laurel camphor, Synthetic camphor

Exposure Limits:
NIOSH REL: TWA 2 mg/m^3
OSHA PEL: TWA 2 mg/m^3

Measurement Methods (see Table 1):
NIOSH 1301, 2553
OSHA 7

Physical Description: Colorless or white crystals with a penetrating, aromatic odor.

Chemical & Physical Properties:
MW: 152.3
BP: 399°F
Sol: Insoluble
Fl.P: 150°F
IP: 8.76 eV
Sp.Gr: 0.99
VP: 0.2 mmHg
MLT: 345°F
UEL: 3.5%
LEL: 0.6%
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
50 mg/m^3: Sa:Cf£/PaprOvHie£
100 mg/m^3: CcrFOv100/GmFOv100/ PaprTOvHie£/ScbaF/SaF
200 mg/m^3: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Strong oxidizers (especially chromic anhydride & potassium permanganate)

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, muc memb; nau, vomit, diarr; head, dizz, excitement, epilep convuls
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

C

Caprolactam

Formula:	CAS#:	RTECS#:	IDLH:
$C_2H_{11}NO$	105-60-2	CM3675000	N.D.

Conversion: 1 ppm = 4.63 mg/m^3

DOT:

Synonyms/Trade Names: Aminocaproic lactam, epsilon-Caprolactam, Hexahydro-2H-azepin-2-one, 2-Oxohexamethyleneimine

Exposure Limits:
NIOSH REL: Dust: TWA 1 mg/m^3
ST 3 mg/m^3
Vapor: TWA 0.22 ppm (1 mg/m^3)
ST 0.66 ppm (3 mg/m^3)
OSHA PEL†: none

Measurement Methods (see Table 1):
OSHA PV2012

Physical Description: White, crystalline solid or flakes with an unpleasant odor.
[**Note:** Significant vapor concentrations would be expected only at elevated temperatures.]

Chemical & Physical Properties:
MW: 113.2
BP: 515°F
Sol: 53%
Fl.P: 282°F
IP: ?
Sp.Gr: 1.01
VP: 0.00000008 mmHg
MLT: 156°F
UEL: 8.0%
LEL: 1.4%
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Strong oxidizers, (acetic acid + dinitrogen trioxide)

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit skin, eyes, resp sys; epis; derm, skin sens; asthma; irrity, conf, dizz, head; abdom cramps, diarr, nau, vomit; liver, kidney inj
TO: Eyes, skin, resp sys, CNS, CVS, liver, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water wash immed
Breath: Resp support
Swallow: Medical attention immed

Captafol

Formula:	CAS#:	RTECS#:	IDLH:
$C_{10}H_9Cl_{14}NO_2S$	2425-06-1	GW4900000	Ca [N.D.]

Conversion:

DOT:

Synonyms/Trade Names: Captofol; Difolatan®; N-((1,1,2,2-Tetrachloroethyl)thio)-4-cyclohexene-1,2-dicarboximide

Exposure Limits:
NIOSH REL: Ca
TWA 0.1 mg/m^3 [skin]
See Appendix A
OSHA PEL†: none

Measurement Methods (see Table 1):
NIOSH 0500

Physical Description: White, crystalline solid with a slight, characteristic pungent odor. [fungicide]
[**Note:** Available commercially as a wettable powder or in liquid form.]

Chemical & Physical Properties:
MW: 349.1
BP: Decomposes
Sol: 0.0001%
Fl.P: NA
IP: NA
Sp.Gr: ?
VP: 0.000008 mmHg
MLT: 321°F (Decomposes)
UEL: NA
LEL: NA
Noncombustible Solid, but may be dissolved in flammable liquids.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Acids, acid vapors, strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, resp sys; derm, skin sens; conj; bron, wheez; diarr, vomit; liver, kidney inj; high BP; in animals: terato effects; [carc]
TO: Eyes, skin, resp sys, CNS, liver, kidneys, CVS [in animals: tumors at many sites]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

C

Captan	**Formula:** $C_9H_8Cl_3NO_2S$	**CAS#:** 133-06-2	**RTECS#:** GW5075000	**IDLH:** Ca [N.D.]
Conversion:	**DOT:**			

Synonyms/Trade Names: Captane; N-Trichloromethylmercapto-4-cyclohexene-1,2-dicarboximide

Exposure Limits:
NIOSH REL: Ca
TWA 5 mg/m^3
See Appendix A
OSHA PEL†: none

Measurement Methods (see Table 1):
NIOSH 5601, 9202, 9205

Physical Description: Odorless, white, crystalline powder. [fungicide]
[**Note:** Commercial product is a yellow powder with a pungent odor.]

Chemical & Physical Properties:
MW: 300.6
BP: Decomposes
Sol(77°F): 0.0003%
Fl.P: ?
IP: NA
Sp.Gr: 1.74
VP: 0 mmHg (approx)
MLT: 352°F (Decomposes)
UEL: ?
LEL: ?
Combustible Solid; may be dissolved in flammable liquids.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong alkaline materials (e.g., hydrated lime) [**Note:** Corrosive to metals.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, upper resp sys; blurred vision; derm, skin sens; dysp; diarr, vomit; [carc]
TO: Eyes, skin, resp sys, GI tract, liver, kidneys [in animals: duodenal tumors]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Carbaryl	**Formula:** $CH_3NHCOOC_{10}H_7$	**CAS#:** 63-25-2	**RTECS#:** EC5950000	**IDLH:** 100 mg/m^3
Conversion:	**DOT:** 2757 151			

Synonyms/Trade Names: α-Naphthyl N-methyl-carbamate, 1-Naphthyl N-Methyl-carbamate, Sevin®

Exposure Limits:
NIOSH REL: TWA 5 mg/m^3
OSHA PEL: TWA 5 mg/m^3

Measurement Methods (see Table 1):
NIOSH 5006, 5601
OSHA 63

Physical Description: White or gray, odorless solid. [pesticide]

Chemical & Physical Properties:
MW: 201.2
BP: Decomposes
Sol: 0.01%
Fl.P: NA
IP: ?
Sp.Gr: 1.23
VP(77°F): <0.00004 mmHg
MLT: 293°F
UEL: NA
LEL: NA
Noncombustible Solid, but may be dissolved in flammable liquids.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
50 mg/m^3: Sa*
100 mg/m^3: Sa:Cf*/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, strongly alkaline pesticides

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Miosis, blurred vision, tear; rhin, salv; sweat; abdom cramps, nau, vomit, diarr; tremor; cyan; convuls; irrit skin; possible repro effects
TO: Resp sys, CNS, CVS, skin, blood chol, repro sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

C

Carbofuran	Formula: $C_{12}H_{15}NO_3$	CAS#: 1563-66-2	RTECS#: FB9450000	IDLH: N.D.
Conversion:	DOT: 2757 151			

Synonyms/Trade Names: 2,3-Dihydro-2,2-dimethyl-7-benzofuranyl methylcarbamate; Furacarb®; Furadan®

Exposure Limits:
NIOSH REL: TWA 0.1 mg/m^3
OSHA PEL†: none

Physical Description: Odorless, white or grayish, crystalline solid. [insecticide]
[**Note:** May be dissolved in a liquid carrier.]

Measurement Methods (see Table 1):
NIOSH 5601

Chemical & Physical Properties:
MW: 221.3
BP: ?
Sol(77°F): 0.07%
Fl.P: NA
IP: NA
Sp.Gr: 1.18
VP(77°F): 0.000003 mmHg
MLT: 304°F
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Alkaline substances, acid, strong oxidizers (e.g., perchlorates, peroxides, chlorates, nitrates, permanganates)

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Miosis, blurred vision; sweat, salv, abdom cramps, diarr, head, nau, vomit; lass, musc twitch, inco, convuls
TO: CNS, PNS, blood chol

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap flush immed
Breath: Fresh air
Swallow: Medical attention immed

Carbon black	Formula: C	CAS#: 1333-86-4	RTECS#: FF5800000	IDLH: 1750 mg/m^3
Conversion:	DOT:			

Synonyms/Trade Names: Acetylene black, Channel black, Furnace black, Lamp black, Thermal black

Exposure Limits:
NIOSH REL: TWA 3.5 mg/m^3
Carbon black in presence of polycyclic aromatic hydrocarbons (PAHs):
Ca
TWA 0.1 mg PAHs/m^3
See Appendix A
See Appendix C
OSHA PEL: TWA 3.5 mg/m^3

Physical Description: Black, odorless solid.

Measurement Methods (see Table 1):
NIOSH 5000
OSHA ID196

Chemical & Physical Properties:
MW: 12.0
BP: Sublimes
Sol: Insoluble
Fl.P: NA
IP: NA
Sp.Gr: 1.8-2.1
VP: 0 mmHg (approx)
MLT: Sublimes
UEL: NA
LEL: NA
Combustible Solid that may contain flammable hydrocarbons.

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: Prevent eye contact
Wash skin: Daily
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
17.5 mg/m^3: Qm
35 mg/m^3: 95XQ/Sa
87.5 mg/m^3: Sa:Cf/PaprHie
175 mg/m^3: 100F/PaprTHie/ScbaF/SaF
1750 mg/m^3: Sa:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

In presence of polycyclic aromatic hydrocarbons:
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Strong oxidizers such as chlorates, bromates & nitrates

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Cough; irrit eyes; in presence of polycyclic aromatic hydrocarbons: [carc]
TO: Resp sys, eyes [lymphatic cancer (in presence of PAHs)]

First Aid (see Table 6):
Eye: Irr prompt
Breath: Fresh air

Carbon dioxide

Formula: CO_2 | **CAS#:** 124-38-9 | **RTECS#:** FF6400000 | **IDLH:** 40,000 ppm

Conversion: 1 ppm = 1.80 mg/m^3

DOT: 1013 120; 1845 120 (dry ice); 2187 120 (liquid)

Synonyms/Trade Names: Carbonic acid gas, Dry ice [**Note:** Normal constituent of air (about 300 ppm)].

Exposure Limits:
NIOSH REL: TWA 5000 ppm (9000 mg/m^3)
ST 30,000 ppm (54,000 mg/m^3)
OSHA PEL†: TWA 5000 ppm (9000 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 6603
OSHA ID172

Physical Description: Colorless, odorless gas.
[**Note:** Shipped as a liquefied compressed gas. Solid form is utilized as dry ice.]

Chemical & Physical Properties:
MW: 44.0
BP: Sublimes
Sol(77°F): 0.2%
Fl.P: NA
IP: 13.77 eV
RGasD: 1.53
VP: 56.5 atm
MLT: -109°F (Sublimes)
UEL: NA
LEL: NA
Nonflammable Gas

Personal Protection/Sanitation (see Table 2):
Skin: Frostbite
Eyes: Frostbite
Wash skin: N.R.
Remove: N.R.
Change: N.R.
Provide: Frostbite wash

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
40,000 ppm: Sa/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: ScbaE

Incompatibilities and Reactivities: Dusts of various metals, such as magnesium, zirconium, titanium, aluminum, chromium & manganese are ignitable and explosive when suspended in carbon dioxide. Forms carbonic acid in water.

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con (liquid/solid)
SY: Head, dizz, restless, pares; dysp; sweat, mal; incr heart rate, card output, BP; coma; asphy; convuls; frostbite (liq, dry ice)
TO: Resp sys, CVS

First Aid (see Table 6):
Eye: Frostbite
Skin: Frostbite
Breath: Resp support

Carbon disulfide

Formula: CS_2 | **CAS#:** 75-15-0 | **RTECS#:** FF6650000 | **IDLH:** 500 ppm

Conversion: 1 ppm = 3.11 mg/m^3

DOT: 1131 131

Synonyms/Trade Names: Carbon bisulfide

Exposure Limits:
NIOSH REL: TWA 1 ppm (3 mg/m^3)
ST 10 ppm (30 mg/m^3) [skin]
OSHA PEL†: TWA 20 ppm
C 30 ppm
100 ppm (30-minute maximum peak)

Measurement Methods (see Table 1):
NIOSH 1600, 3800

Physical Description: Colorless to faint-yellow liquid with a sweet ether-like odor.
[**Note:** Reagent grades are foul smelling.]

Chemical & Physical Properties:
MW: 76.1
BP: 116°F
Sol: 0.3%
Fl.P: -22°F
IP: 10.08 eV
Sp.Gr: 1.26
VP: 297 mmHg
FRZ: -169°F
UEL: 50.0%
LEL: 1.3%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
10 ppm: CcrOv/Sa
25 ppm: Sa:Cf/PaprOv
50 ppm: CcrFOv/GmFOv/PaprTOv/ ScbaF/SaF
500 ppm: Sa:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers; chemically-active metals such as sodium, potassium & zinc; azides; rust; halogens; amines
[**Note:** Vapors may be ignited by contact with an ordinary light bulb.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Dizz, head, poor sleep, lass, anxi, anor, low-wgt; psychosis; polyneur; Parkinson-like syndrome; ocular changes; coronary heart disease; gastritis; kidney, liver inj; eye, skin burns; derm; repro effects
TO: CNS, PNS, CVS, eyes, kidneys, liver, skin, repro sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

C

Carbon monoxide	Formula: CO	CAS#: 630-08-0	RTECS#: FG3500000	IDLH: 1200 ppm

Conversion: 1 ppm = 1.15 mg/m^3

DOT: 1016 119; 9202 168 (cryogenic liquid)

Synonyms/Trade Names: Carbon oxide, Flue gas, Monoxide

Exposure Limits:
NIOSH REL: TWA 35 ppm (40 mg/m^3)
C 200 ppm (229 mg/m^3)
OSHA PEL†: TWA 50 ppm (55 mg/m^3)

Physical Description: Colorless, odorless gas.
[**Note:** Shipped as a nonliquefied or liquefied compressed gas.]

Measurement Methods (see Table 1):
NIOSH 6604
OSHA ID209, ID210

Chemical & Physical Properties:
MW: 28.0
BP: -313°F
Sol: 2%
Fl.P: NA (Gas)
IP: 14.01 eV
RGasD: 0.97
VP: >35 atm
MLT: -337°F
UEL: 74%
LEL: 12.5%
Flammable Gas

Personal Protection/Sanitation (see Table 2):
Skin: Frostbite
Eyes: Frostbite
Wash skin: N.R.
Remove: When wet (flamm)
Change: N.R.
Provide: Frostbite wash

Respirator Recommendations (see Tables 3 and 4):
NIOSH
350 ppm: Sa
875 ppm: Sa:Cf
1200 ppm: GmFS†/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS†/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, bromine trifluoride, chlorine trifluoride, lithium

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con (liquid)
SY: Head, tachypnea, nau, lass, dizz, conf, halu; cyan; depres S-T segment of electrocardiogram, angina, syncope
TO: CVS, lungs, blood, CNS

First Aid (see Table 6):
Eye: Frostbite
Skin: Frostbite
Breath: Resp support

Carbon tetrabromide	Formula: CBr_4	CAS#: 558-13-4	RTECS#: FG4725000	IDLH: N.D.

Conversion: 1 ppm = 13.57 mg/m^3

DOT: 2516 151

Synonyms/Trade Names: Carbon bromide, Methane tetrabromide, Tetrabromomethane

Exposure Limits:
NIOSH REL: TWA 0.1 ppm (1.4 mg/m^3)
ST 0.3 ppm (4 mg/m^3)
OSHA PEL†: none

Physical Description: Colorless to yellow-brown crystals with a slight odor.

Measurement Methods (see Table 1):
None available

Chemical & Physical Properties:
MW: 331.7
BP: 374°F
Sol: 0.02%
Fl.P: NA
IP: 10.31 eV
Sp.Gr: 3.42
VP(205°F): 40 mmHg
MLT: 194°F
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: Prevent eye contact
Wash skin: Daily
Remove: N.R.
Change: Daily
Provide: Eyewash

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Strong oxidizers, hexacyclohexyldilead, lithium

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, resp sys; lac; lung, liver, kidney inj; in animals: corn damage
TO: Eyes, skin, resp sys, liver, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

Carbon tetrachloride

Formula: CCl_4 | **CAS#:** 56-23-5 | **RTECS#:** FG4900000 | **IDLH:** Ca [200 ppm]

Conversion: 1 ppm = 6.29 mg/m^3 | **DOT:** 1846 151

Synonyms/Trade Names: Carbon chloride, Carbon tet, Freon® 10, Halon® 104, Tetrachloromethane

Exposure Limits:
NIOSH REL: Ca
ST 2 ppm (12.6 mg/m^3) [60-minute]
See Appendix A
OSHA PEL†: TWA 10 ppm
C 25 ppm
200 ppm (5-minute maximum peak in any 4 hours)

Measurement Methods (see Table 1):
NIOSH 1003
OSHA 7

Physical Description: Colorless liquid with a characteristic ether-like odor.

Chemical & Physical Properties:
MW: 153.8
BP: 170°F
Sol: 0.05%
Fl.P: NA
IP: 11.47 eV
Sp.Gr: 1.59
VP: 91 mmHg
FRZ: -9°F
UEL: NA
LEL: NA
Noncombustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Chemically-active metals such as sodium, potassium & magnesium; fluorine; aluminum [**Note:** Forms highly toxic phosgene gas when exposed to flames or welding arcs.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin; CNS depres; nau, vomit; liver, kidney inj; drow, dizz, inco; [carc]
TO: CNS, eyes, lungs, liver, kidneys, skin [in animals: liver cancer]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Carbonyl fluoride

Formula: COF_2 | **CAS#:** 353-50-4 | **RTECS#:** FG6125000 | **IDLH:** N.D.

Conversion: 1 ppm = 2.70 mg/m^3 | **DOT:** 2417 125

Synonyms/Trade Names: Carbon difluoride oxide, Carbon fluoride oxide, Carbon oxyfluoride, Carbonyl difluoride, Fluoroformyl fluoride, Fluorophosgene

Exposure Limits:
NIOSH REL: TWA 2 ppm (5 mg/m^3)
ST 5 ppm (15 mg/m^3)
OSHA PEL†: none

Measurement Methods (see Table 1):
None available

Physical Description: Colorless gas with a pungent and very irritating odor. [**Note:** Shipped as a liquefied compressed gas.]

Chemical & Physical Properties:
MW: 66.0
BP: -118°F
Sol: Reacts
Fl.P: NA
IP: 13.02 eV
RGasD: 2.29
VP: 55.4 atm
FRZ: -173°F
UEL: NA
LEL: NA
Nonflammable Gas

Personal Protection/Sanitation (see Table 2):
Skin: Frostbite
Eyes: Frostbite
Wash skin: N.R.
Remove: N.R.
Change: N.R.
Provide: Frostbite wash

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Heat, moisture, hexafluoroisopropylideneamino-lithium
[**Note:** Reacts with water to form hydrogen fluoride & carbon dioxide.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Irrit eyes, skin, muc memb, resp sys; eye, skin burns; lac; cough, pulm edema, dysp; chronic exposure: GI pain, musc fib, skeletal fluorosis; liquid: frostbite
TO: Eyes, skin, resp sys, bone

First Aid (see Table 6):
Eye: Frostbite
Skin: Frostbite
Breath: Resp support

C

Catechol	Formula: $C_6H_4(OH)_2$	CAS#: 120-80-9	RTECS#: UX1050000	IDLH: N.D.
Conversion: 1 ppm = 4.50 mg/m^3	**DOT:**			

Synonyms/Trade Names: 1,2-Benzenediol; o-Benzenediol; 1,2-Dihydroxybenzene; o-Dihydroxybenzene; 2-Hydroxyphenol; Pyrocatechol

Exposure Limits:
NIOSH REL: TWA 5 ppm (20 mg/m^3) [skin]
OSHA PEL†: none

Measurement Methods (see Table 1):
OSHA PV2014

Physical Description: Colorless, crystalline solid with a faint odor.
[**Note:** Discolors to brown in air & light.]

Chemical & Physical Properties:
MW: 110.1
BP: 474°F
Sol: 44%
Fl.P: 261°F
IP: ?
Sp.Gr: 1.34
VP(244°F): 10 mmHg
MLT: 221°F
UEL: ?
LEL: 1.4%
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Strong oxidizers, nitric acid

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, resp sys; skin sens, derm; lac, burns eyes; convuls, incr BP, kidney inj
TO: Eyes, skin, resp sys, CNS, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water wash immed
Breath: Resp support
Swallow: Medical attention immed

Cellulose	Formula: $(C_6H_{10}O_5)_n$	CAS#: 9004-34-6	RTECS#: FJ5691460	IDLH: N.D.
Conversion:	**DOT:**			

Synonyms/Trade Names: Hydroxycellulose, Pyrocellulose

Exposure Limits:
NIOSH REL: TWA 10 mg/m^3 (total)
TWA 5 mg/m^3 (resp)
OSHA PEL: TWA 15 mg/m^3 (total)
TWA 5 mg/m^3 (resp)

Measurement Methods (see Table 1):
NIOSH 0500, 0600, 7404

Physical Description: Odorless, white substance.
[**Note:** The principal fiber cell wall material of vegetable tissues (wood, cotton, flax, grass, etc.).]

Chemical & Physical Properties:
MW: 160,000-560,000
BP: Decomposes
Sol: Insoluble
Fl.P: NA
IP: NA
Sp.Gr: 1.27-1.61
VP: 0 mmHg (approx)
MLT: 500-518°F (Decomposes)
UEL: NA
LEL: NA
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Water, bromine pentafluoride, sodium nitrate, fluorine, strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Irrit eyes, skin, muc memb
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Fresh air

Cesium hydroxide	**Formula:** CsOH	**CAS#:** 21351-79-1	**RTECS#:** FK9800000	**IDLH:** N.D.
Conversion:	**DOT:** 2682 157; 2681 154 (solution)			

Synonyms/Trade Names: Cesium hydrate, Cesium hydroxide dimer

Exposure Limits:
NIOSH REL: TWA 2 mg/m^3
OSHA PEL†: none

Measurement Methods (see Table 1):
None available

Physical Description: Colorless or yellowish, crystalline solid.
[**Note:** Hygroscopic (i.e., absorbs moisture from the air).]

Chemical & Physical Properties:
MW: 149.9
BP: ?
Sol(59°F): 395%
Fl.P: NA
IP: NA
Sp.Gr: 3.68
VP: 0 mmHg (approx)
MLT: 522°F
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Water, acids, CO_2, metals (e.g., Al, Pb, Sn, Zn), oxygen
[**Note:** CsOH is a strong base, causing the generation of considerable heat in contact with water or moisture.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, upper resp sys; eye, skin burns
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

Chlordane	**Formula:** $C_{10}H_6Cl_8$	**CAS#:** 57-74-9	**RTECS#:** PB9800000	**IDLH:** Ca [100 mg/m^3]
Conversion:	**DOT:** 2996 151			

Synonyms/Trade Names: Chlordan; Chlordano;
1,2,4,5,6,7,8,8-Octachloro-3a,4,7,7a-tetrahydro-4,7-methanoindane

Exposure Limits:
NIOSH REL: Ca
TWA 0.5 mg/m^3 [skin]
See Appendix A
OSHA PEL: TWA 0.5 mg/m^3 [skin]

Measurement Methods (see Table 1):
NIOSH 5510
OSHA 67

Physical Description: Amber-colored, viscous liquid with a pungent, chlorine-like odor. [insecticide]

Chemical & Physical Properties:
MW: 409.8
BP: Decomposes
Sol: 0.0001%
Fl.P: NA
IP: ?
Sp.Gr(77°F): 1.6
VP: 0.00001 mmHg
FRZ: 217-228°F
UEL: NA
LEL: NA
Noncombustible Liquid, but may be utilized in flammable solutions.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, alkaline reagents

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Blurred vision; conf; ataxia, delirium; cough; abdom pain, nau, vomit, diarr; irrity, tremor, convuls; anuria; in animals: lung, liver, kidney damage; [carc]
TO: CNS, eyes, lungs, liver, kidneys [in animals: liver cancer]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

C

Chlorinated camphene	Formula: $C_{10}H_{10}Cl_8$	CAS#: 8001-35-2	RTECS#: XW5250000	IDLH: Ca [200 mg/m^3]
Conversion:	DOT: 2761 151			

Synonyms/Trade Names: Chlorocamphene, Octachlorocamphene, Polychlorocamphene, Toxaphene

Exposure Limits:
NIOSH REL: Ca [skin]
See Appendix A
OSHA PEL†: TWA 0.5 mg/m^3 [skin]

Physical Description: Amber, waxy solid with a mild, piney, chlorine- and camphor-like odor. [insecticide]

Measurement Methods (see Table 1):
NIOSH 5039

Chemical & Physical Properties:
MW: 413.8
BP: Decomposes
Sol: 0.0003%
Fl.P: NA
IP: ?
Sp.Gr: 1.65
VP(77°F): 0.4 mmHg
MLT: 149-194°F
UEL: NA
LEL: NA
Noncombustible Solid, but may be dissolved in flammable liquids.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Strong oxidizers [**Note:** Slightly corrosive to metals under moist conditions.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Nau, conf, agitation, tremor, convuls, uncon; dry, red skin; [carc]
TO: CNS, skin [in animals: liver cancer]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

Chlorinated diphenyl oxide	Formula: $C_{12}H_{10-n}Cl_nO$	CAS#:	RTECS#:	IDLH: 5 mg/m^3
Conversion:	DOT:			

Synonyms/Trade Names: Synonyms depend on the degree of chlorination of diphenyl oxide [$(C_6H_5)_2O$], ranging from monochlorodiphenyl oxide [$(C_6H_4Cl)O(C_6H_5)$] to decachlorodiphenyl oxide [$(C_6Cl_5)O(C_6Cl_5)$].

Exposure Limits:
NIOSH REL: TWA 0.5 mg/m^3
OSHA PEL: TWA 0.5 mg/m^3

Physical Description: Appearance and odor vary depending upon the specific compound.

Measurement Methods (see Table 1):
NIOSH 5025

Chemical & Physical Properties:
Properties vary depending upon the specific compound.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
5 mg/m^3: Sa/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOvAg100/ScbaE

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Acne-form derm, liver damage
TO: Skin, liver

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

C

Chlorine

Formula: Cl_2 | **CAS#:** 7782-50-5 | **RTECS#:** FO2100000 | **IDLH:** 10 ppm

Conversion: 1 ppm = 2.90 mg/m^3 | **DOT:** 1017 124

Synonyms/Trade Names: Molecular chlorine

Exposure Limits:
NIOSH REL: C 0.5 ppm (1.45 mg/m^3) [15-minute]
OSHA PEL†: C 1 ppm (3 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 6011
OSHA ID101, ID126SGX

Physical Description: Greenish-yellow gas with a pungent, irritating odor. [**Note:** Shipped as a liquefied compressed gas.]

Chemical & Physical Properties:
MW: 70.9
BP: -29°F
Sol: 0.7%
Fl.P: NA
IP: 11.48 eV
RGasD: 2.47
VP: 6.8 atm
FRZ: -150°F
UEL: NA
LEL: NA
Nonflammable Gas, but a strong oxidizer.

Personal Protection/Sanitation (see Table 2):
Skin: Frostbite
Eyes: Frostbite
Wash skin: N.R.
Remove: N.R.
Change: N.R.
Provide: Frostbite wash

Respirator Recommendations (see Tables 3 and 4):
NIOSH
5 ppm: CcrS*/Sa*
10 ppm: Sa:Cf*/PaprS*/CcrFS/GmFS/ ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS/ScbaE

Incompatibilities and Reactivities: Reacts explosively or forms explosive compounds with many common substances such as acetylene, ether, turpentine, ammonia, fuel gas, hydrogen & finely divided metals.

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Burning of eyes, nose, mouth; lac, rhin; cough, choking, subs pain; nau, vomit; head, dizz; syncope; pulm edema; pneu; hypox; derm; liquid: frostbite
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Frostbite
Skin: Frostbite
Breath: Resp support

Chlorine dioxide

Formula: ClO_2 | **CAS#:** 10049-04-4 | **RTECS#:** FO3000000 | **IDLH:** 5 ppm

Conversion: 1 ppm = 2.76 mg/m^3 | **DOT:** 9191 143 (hydrate, frozen)

Synonyms/Trade Names: Chlorine oxide, Chlorine peroxide

Exposure Limits:
NIOSH REL: TWA 0.1 ppm (0.3 mg/m^3)
ST 0.3 ppm (0.9 mg/m^3)
OSHA PEL†: TWA 0.1 ppm (0.3 mg/m^3)

Measurement Methods (see Table 1):
OSHA ID126SGX, ID202

Physical Description: Yellow to red gas or a red-brown liquid (below 52°F) with an unpleasant odor similar to chlorine and nitric acid.

Chemical & Physical Properties:
MW: 67.5
BP: 52°F
Sol(77°F): 0.3%
Fl.P: NA (Gas) ? (Liquid)
IP: 10.36 eV
RGasD: 2.33
Sp.Gr: 1.6 (Liquid at 32°F)
VP: >1 atm
FRZ: -74°F
UEL: ?
LEL: ?
Flammable Gas, Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact (liquid)
Eyes: Prevent eye contact (liquid)
Wash skin: When contam (liquid)
Remove: When wet (flamm)
Change: N.R.
Provide: Eyewash (liquid)
Quick drench (liquid)

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
1 ppm: CcrS/Sa
2.5 ppm: Sa:Cf£/PaprS£
5 ppm: CcrFS/GmFS/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS¿/ScbaE

Incompatibilities and Reactivities: Organic materials, heat, phosphorus, potassium hydroxide, sulfur, mercury, carbon monoxide [**Note:** Unstable in light. A powerful oxidizer.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing (liquid), Con
SY: Irrit eyes, nose, throat; cough, wheez, bron, pulm edema; chronic bron
TO: Eyes, resp sys

First Aid (see Table 6):
Eye: Irr immed (liquid)
Skin: Soap wash immed (liquid)
Breath: Resp support
Swallow: Medical attention immed (liquid)

C

Chlorine trifluoride	Formula: ClF_3	CAS#: 7790-91-2	RTECS#: FO2800000	IDLH: 20 ppm
Conversion: 1 ppm = 3.78 mg/m^3	**DOT:** 1749 124			

Synonyms/Trade Names: Chlorine fluoride, Chlorotrifluoride

Exposure Limits:
NIOSH REL: C 0.1 ppm (0.4 mg/m^3)
OSHA PEL: C 0.1 ppm (0.4 mg/m^3)

Measurement Methods (see Table 1):
None available

Physical Description: Colorless gas or a greenish-yellow liquid (below 53°F) with a somewhat sweet, suffocating odor. [**Note:** Shipped as a liquefied compressed gas.]

Chemical & Physical Properties:
MW: 92.5
BP: 53°F
Sol: Reacts
Fl.P: NA
IP: 13.00 eV
RGasD: 3.21
Sp.Gr: 1.77 (Liquid at 53°F)
VP: 1.4 atm
FRZ: -105°F
UEL: NA
LEL: NA
Nonflammable Gas
Noncombustible Liquid, but contact with organic materials may result in SPONTANEOUS ignition.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam (liquid)
Remove: When wet or contam (liquid)
Change: N.R.
Provide: Eyewash (liquid)
Quick drench (liquid)

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
2.5 ppm: Sa:Cf£
5 ppm: ScbaF/SaF
20 ppm: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS/ScbaE

Incompatibilities and Reactivities: Oxidizers, water, acids, combustible materials, sand, glass, metals (corrosive)
[**Note:** Reacts with water to form chlorine & hydrofluoric acid.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing (liquid), Con
SY: Eye, skin burns (liq or high vap conc); resp irrit; in animals: lac, corn ulcer; pulm edema
TO: Skin, eyes, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed (liquid)

Chloroacetaldehyde	Formula: $ClCH_2CHO$	CAS#: 107-20-0	RTECS#: AB2450000	IDLH: 45 ppm
Conversion: 1 ppm = 3.21 mg/m^3	**DOT:** 2232 153			

Synonyms/Trade Names: Chloroacetaldehyde (40% aqueous solution), 2-Chloroacetaldehyde, 2-Chloroethanal

Exposure Limits:
NIOSH REL: C 1 ppm (3 mg/m^3)
OSHA PEL: C 1 ppm (3 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 2015
OSHA 76

Physical Description: Colorless liquid with an acrid, penetrating odor.
[**Note:** Typically found as a 40% aqueous solution.]

Chemical & Physical Properties:
MW: 78.5
BP: 186°F
Sol: Miscible
Fl.P: 190°F (40% solution)
IP: 10.61 eV
Sp.Gr: 1.19 (40% solution)
VP: 100 mmHg
FRZ: -3°F (40% solution)
UEL: ?
LEL: ?
Class IIIA Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
10 ppm: CcrOv*/Sa*
25 ppm: Sa:Cf*/PaprOv*
45 ppm: CcrFOv/GmFOv/PaprTOv*/ ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Oxidizers, acids

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit skin, eyes, muc memb; skin burns; eye damage; pulm edema; skin, resp sys sens
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

α-Chloroacetophenone

Formula:	CAS#:	RTECS#:	IDLH:
$C_6H_5COCH_2Cl$	532-27-4	AM6300000	15 mg/m^3

Conversion: 1 ppm = 6.32 mg/m^3

DOT: 1697 153

Synonyms/Trade Names: 2-Chloroacetophenone, Chloromethyl phenyl ketone, Mace®, Phenacyl chloride, Phenyl chloromethyl ketone, Tear gas

Exposure Limits:
NIOSH REL: TWA 0.3 mg/m^3 (0.05 ppm)
OSHA PEL: TWA 0.3 mg/m^3 (0.05 ppm)

Measurement Methods (see Table 1):
NIOSH P&CAM291 (II-5)

Physical Description: Colorless to gray crystalline solid with a sharp, irritating odor.

Chemical & Physical Properties:
MW: 154.6
BP: 472°F
Sol: Insoluble
Fl.P: 244°F
IP: 9.44 eV
Sp.Gr: 1.32
VP: 0.005 mmHg
MLT: 134°F
UEL: ?
LEL: ?
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
3 mg/m^3: CcrOv95/Sa
7.5 mg/m^3: Sa:Cf£/PaprOvHie£
15 mg/m^3: CcrFOv100/GmFS100/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS100/ScbaE

Incompatibilities and Reactivities: Water, steam, strong oxidizers [**Note:** Slowly corrodes metals.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, resp sys; pulm edema
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Chloroacetyl chloride

Formula:	CAS#:	RTECS#:	IDLH:
$ClCH_2COCl$	79-04-9	AO6475000	N.D.

Conversion: 1 ppm = 4.62 mg/m^3

DOT: 1752 156

Synonyms/Trade Names: Chloroacetic acid chloride, Chloroacetic chloride, Monochloroacetyl chloride

Exposure Limits:
NIOSH REL: TWA 0.05 ppm (0.2 mg/m^3)
OSHA PEL†: none

Measurement Methods (see Table 1):
None available

Physical Description: Colorless to yellowish liquid with a strong, pungent odor.

Chemical & Physical Properties:
MW: 112.9
BP: 223°F
Sol: Decomposes
Fl.P: NA
IP: 10.30 eV
Sp.Gr: 1.42
VP: 19 mmHg
FRZ: -7°F
UEL: NA
LEL: NA
Noncombustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Water, alcohols, bases, metals (corrosive), amines
[**Note:** Decomposes in water to form chloroacetic acid & hydrogen chloride gas.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, resp sys; eye, skin burns; cough, wheez, dysp; lac
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

C

Chlorobenzene	Formula: C_6H_5Cl	CAS#: 108-90-7	RTECS#: CZ0175000	IDLH: 1000 ppm
Conversion: 1 ppm = 4.61 mg/m^3	**DOT:** 1134 130			

Synonyms/Trade Names: Benzene chloride, Chlorobenzol, MCB, Monochlorobenzene, Phenyl chloride

Exposure Limits:
NIOSH REL: See Appendix D
OSHA PEL: TWA 75 ppm (350 mg/m^3)

Physical Description: Colorless liquid with an almond-like odor.

Measurement Methods (see Table 1):
NIOSH 1003
OSHA 7

Chemical & Physical Properties:
MW: 112.6
BP: 270°F
Sol: 0.05%
Fl.P: 82°F
IP: 9.07 eV
Sp.Gr: 1.11
VP: 9 mmHg
FRZ: -50°F
UEL: 9.6%
LEL: 1.3%
Class IC Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
OSHA
1000 ppm: Sa:Cf£/PaprOv£/CcrFOv/GmFOv/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose; drow, inco; CNS depres; in animals: liver, lung, kidney inj
TO: Eyes, skin, resp sys, CNS, liver

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

o-Chlorobenzylidene malononitrile	Formula: $ClC_6H_4CH{=}C(CN)_2$	CAS#: 2698-41-1	RTECS#: OO3675000	IDLH: 2 mg/m^3
Conversion: 1 ppm = 7.71 mg/m^3	**DOT:** 2810 153			

Synonyms/Trade Names: 2-Chlorobenzalmalonitrile, CS, OCBM

Exposure Limits:
NIOSH REL: C 0.05 ppm (0.4 mg/m^3) [skin]
OSHA PEL†: TWA 0.05 ppm (0.4 mg/m^3)

Physical Description: White crystalline solid with a pepper-like odor.

Measurement Methods (see Table 1):
NIOSH P&CAM304 (II-5)

Chemical & Physical Properties:
MW: 188.6
BP: 590-599°F
Sol: Insoluble
Fl.P: ?
IP: ?
Sp.Gr: ?
VP: 0.00003 mmHg
MLT: 203-205°F
UEL: ?
LEL: ?
MEC: 25 g/m^3
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
2 mg/m^3: Sa:Cf£/GmFS100/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS100/ScbaE

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Pain, burn eyes, lac, conj; eryt eyelids, blepharospasm; irrit throat, cough, chest tight; head; eryt, vesic skin
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

C

Chlorobromomethane

Formula: CH_2BrCl | **CAS#:** 74-97-5 | **RTECS#:** PA5250000 | **IDLH:** 2000 ppm

Conversion: 1 ppm = 5.29 mg/m^3 | **DOT:** 1887 160

Synonyms/Trade Names: Bromochloromethane, CB, CBM, Fluorocarbon 1011, Halon® 1011, Methyl chlorobromide

Exposure Limits:
NIOSH REL: TWA 200 ppm (1050 mg/m^3)
OSHA PEL: TWA 200 ppm (1050 mg/m^3)

Physical Description: Colorless to pale-yellow liquid with a chloroform-like odor. [**Note:** May be used as a fire extinguishing agent.]

Measurement Methods (see Table 1):
NIOSH 1003

Chemical & Physical Properties:
MW: 129.4
BP: 155°F
Sol: Insoluble
Fl.P: NA
IP: 10.77 eV
Sp.Gr: 1.93
VP: 115 mmHg
FRZ: -124°F
UEL: NA
LEL: NA
Noncombustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
2000 ppm: Sa:Cf£/PaprOv£/CcrFOv/GmFOv/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Chemically-active metals such as calcium, powdered aluminum, zinc, and magnesium

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, throat; conf, dizz, CNS depres; pulm edema
TO: Eyes, skin, resp sys, liver, kidneys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

Chlorodifluoromethane

Formula: $CHClF_2$ | **CAS#:** 75-45-6 | **RTECS#:** PA6390000 | **IDLH:** N.D.

Conversion: 1 ppm = 3.54 mg/m^3 | **DOT:** 1018 126

Synonyms/Trade Names: Difluorochloromethane, Fluorocarbon-22, Freon® 22, Genetron® 22, Monochlorodifluoromethane, Refrigerant 22

Exposure Limits:
NIOSH REL: TWA 1000 ppm (3500 mg/m^3)
ST 1250 ppm (4375 mg/m^3)
OSHA PEL†: none

Physical Description: Colorless gas with a faint, sweetish odor. [**Note:** Shipped as a liquefied compressed gas.]

Measurement Methods (see Table 1):
NIOSH 1018

Chemical & Physical Properties:
MW: 86.5
BP: -41°F
Sol(77°F): 0.3%
Fl.P: NA
IP: 12.45 eV
RGasD: 3.11
VP: 9.4 atm
FRZ: -231°F
UEL: NA
LEL: NA
Nonflammable Gas

Personal Protection/Sanitation (see Table 2):
Skin: Frostbite
Eyes: Frostbite
Wash skin: N.R.
Remove: N.R.
Change: N.R.
Provide: Frostbite wash

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Alkalis, alkaline earth metals (e.g., powdered aluminum, sodium, potassium, zinc)

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con (liquid)
SY: Irrit resp sys; conf, drow, ringing in ears; heart palp, card arrhy; asphy; liver, kidney, spleen inj; liquid: frostbite
TO: Resp sys, CVS, CNS, liver, kidneys, spleen

First Aid (see Table 6):
Eye: Frostbite
Skin: Frostbite
Breath: Resp support

C

Chlorodiphenyl (42% chlorine)	Formula: $C_6H_4ClC_6H_3Cl_2$ (approx)	CAS#: 53469-21-9	RTECS#: TQ1356000	IDLH: Ca [5 mg/m^3]
Conversion:	DOT: 2315 171			

Synonyms/Trade Names: Aroclor® 1242, PCB, Polychlorinated biphenyl

Exposure Limits:
NIOSH REL*: Ca
TWA 0.001 mg/m^3
See Appendix A
[***Note:** The REL also applies to other PCBs.]
OSHA PEL: TWA 1 mg/m^3 [skin]

Measurement Methods (see Table 1):
NIOSH 5503
OSHA PV2089

Physical Description: Colorless to light-colored, viscous liquid with a mild, hydrocarbon odor.

Chemical & Physical Properties:
MW: 258 (approx)
BP: 617-691°F
Sol: Insoluble
Fl.P: NA
IP: ?
Sp.Gr(77°F): 1.39
VP: 0.001 mmHg
FRZ: -2°F
UEL: NA
LEL: NA

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Nonflammable Liquid, but exposure in a fire results in the formation of a black soot containing PCBs, polychlorinated dibenzofurans & chlorinated dibenzo-p-dioxins.

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes; chloracne; liver damage; repro effects; [carc]
TO: Skin, eyes, liver, repro sys [in animals: tumors of the pituitary gland & liver, leukemia]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Chlorodiphenyl (54% chlorine)	Formula: $C_6H_3Cl_2C_6H_2Cl_3$ (approx)	CAS#: 11097-69-1	RTECS#: TQ1360000	IDLH: Ca [5 mg/m^3]
Conversion:	DOT: 2315 171			

Synonyms/Trade Names: Aroclor® 1254, PCB, Polychlorinated biphenyl

Exposure Limits:
NIOSH REL*: Ca
TWA 0.001 mg/m^3
See Appendix A
[***Note:** The REL also applies to other PCBs.]
OSHA PEL: TWA 0.5 mg/m^3 [skin]

Measurement Methods (see Table 1):
NIOSH 5503
OSHA PV2088

Physical Description: Colorless to pale-yellow, viscous liquid or solid (below 50°F) with a mild, hydrocarbon odor.

Chemical & Physical Properties:
MW: 326 (approx)
BP: 689-734°F
Sol: Insoluble
Fl.P: NA
IP: ?
Sp.Gr(77°F): 1.38
VP: 0.00006 mmHg
FRZ: 50°F
UEL: NA
LEL: NA

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Nonflammable Liquid, but exposure in a fire results in the formation of a black soot containing PCBs, polychlorinated dibenzofurans, and chlorinated dibenzo-p-dioxins.

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, chloracne; liver damage; repro effects; [carc]
TO: Skin, eyes, liver, repro sys [in animals: tumors of the pituitary gland & liver, leukemia]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

C

Chloroform	Formula: $CHCl_3$	CAS#: 67-66-3	RTECS#: FS9100000	IDLH: Ca [500 ppm]
Conversion: 1 ppm = 4.88 mg/m^3	**DOT:** 1888 151			

Synonyms/Trade Names: Methane trichloride, Trichloromethane

Exposure Limits:
NIOSH REL: Ca
ST 2 ppm (9.78 mg/m^3) [60-minute]
See Appendix A
OSHA PEL†: C 50 ppm (240 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1003

Physical Description: Colorless liquid with a pleasant odor.

Chemical & Physical Properties:
MW: 119.4
BP: 143°F
Sol(77°F): 0.5%
Fl.P: NA
IP: 11.42 eV
Sp.Gr: 1.48
VP: 160 mmHg
FRZ: -82°F
UEL: NA
LEL: NA
Noncombustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong caustics; chemically-active metals such as aluminum or magnesium powder, sodium & potassium; strong oxidizers [**Note:** When heated to decomposition, forms phosgene gas.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin; dizz, mental dullness, nau, conf; head, lass; anes; enlarged liver; [carc]
TO: Liver, kidneys, heart, eyes, skin, CNS [in animals: liver & kidney cancer]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

bis-Chloromethyl ether	Formula: $(CH_2Cl)_2O$	CAS#: 542-88-1	RTECS#: KN1575000	IDLH: Ca [N.D.]
Conversion:	**DOT:** 2249 131			

Synonyms/Trade Names: BCME, bis-CME, Chloromethyl ether, Dichlorodimethyl ether, Dichloromethyl ether, Oxybis(chloromethane)

Exposure Limits:
NIOSH REL: Ca
See Appendix A
OSHA PEL: [1910.1008]
See Appendix B

Measurement Methods (see Table 1):
OSHA 10

Physical Description: Colorless liquid with a suffocating odor.

Chemical & Physical Properties:
MW: 115.0
BP: 223°F
Sol: Reacts
Fl.P: <66°F
IP: ?
Sp.Gr: 1.32
VP(72°F): 30 mmHg
FRZ: -43°F
UEL: ?
LEL: ?
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet (flamm)
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

See Appendix E (page 351)

Incompatibilities and Reactivities: Acids, water
[**Note:** Reacts with water to form hydrochloric acid & formaldehyde.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, muc memb, resp sys; pulm congestion, edema; corn damage, nec; decr pulm function, cough, dysp, wheez; blood-stained sputum, bronchial secretions; [carc]
TO: Eyes, skin, resp sys [lung cancer]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

C

Chloromethyl methyl ether	Formula: CH_3OCH_2Cl	CAS#: 107-30-2	RTECS#: KN6650000	IDLH: Ca [N.D.]
Conversion:	**DOT:** 1239 131			

Synonyms/Trade Names: Chlorodimethyl ether, Chloromethoxymethane, CMME, Dimethylchloroether, Methylchloromethyl ether

Exposure Limits:
NIOSH REL: Ca
See Appendix A
OSHA PEL: [1910.1006]
See Appendix B

Measurement Methods (see Table 1):
NIOSH P&CAM220 (II-1)
OSHA 10

Physical Description: Colorless liquid with an irritating odor.

Chemical & Physical Properties:
MW: 80.5
BP: 138°F
Sol: Reacts
Fl.P(oc): 32°F
IP: 10.25 eV
Sp.Gr: 1.06
VP(70°F): 192 mmHg
FRZ: -154°F
UEL: ?
LEL: ?
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet (flamm)
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

See Appendix E (page 351)

Incompatibilities and Reactivities: Water [**Note:** Reacts with water to form hydrochloric acid & formaldehyde.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, muc memb; pulm edema, pulm congestion, pneu; skin burns, nec; cough, wheez, pulm congestion; blood stained-sputum; low-wgt; bronchial secretions; [carc]
TO: Eyes, skin, resp sys [in animals: skin & lung cancer]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

1-Chloro-1-nitropropane	Formula: $CH_3CH_2CHClNO_2$	CAS#: 600-25-9	RTECS#: TX5075000	IDLH: 100 ppm
Conversion: 1 ppm = 5.06 mg/m^3	**DOT:**			

Synonyms/Trade Names: Korax®, Lanstan®

Exposure Limits:
NIOSH REL: TWA 2 ppm (10 mg/m^3)
OSHA PEL†: TWA 20 ppm (100 mg/m^3)

Measurement Methods (see Table 1):
NIOSH S211 (II-5)

Physical Description: Colorless liquid with an unpleasant odor. [fungicide]

Chemical & Physical Properties:
MW: 123.6
BP: 289°F
Sol: 0.5%
Fl.P(oc): 144°F
IP: 9.90 eV
Sp.Gr: 1.21
VP(77°F): 6 mmHg
FRZ: ?
UEL: ?
LEL: ?
Class IIIA Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
20 ppm: Sa*
50 ppm: Sa:Cf*/PaprOv*
100 ppm: CcrFOv/GmFOv/PaprTOv*/ ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, acids

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: In animals: irrit eyes; pulm edema; liver, kidney, heart damage
TO: Resp sys, liver, kidneys, CVS, eyes

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Resp support
Swallow: Medical attention immed

C

Chloropentafluoroethane	Formula: $CClF_2CF_3$	CAS#: 76-15-3	RTECS#: KH7877500	IDLH: N.D.
Conversion: 1 ppm = 6.32 mg/m^3	**DOT:** 1020 126			

Synonyms/Trade Names: Fluorocarbon-115, Freon® 115, Genetron® 115, Halocarbon 115, Monochloropentafluoroethane

Exposure Limits:
NIOSH REL: TWA 1000 ppm (6320 mg/m^3)
OSHA PEL†: none

Measurement Methods (see Table 1):
None available

Physical Description: Colorless gas with a slight, ethereal odor.
[**Note:** Shipped as a liquefied compressed gas.]

Chemical & Physical Properties:
MW: 154.5
BP: -38°F
Sol(77°F): 0.006%
Fl.P: NA
IP: 12.96 eV
RGasD: 5.55
VP(70°F): 7.9 atm
FRZ: -223°F
UEL: NA
LEL: NA
Nonflammable Gas

Personal Protection/Sanitation (see Table 2):
Skin: Frostbite
Eyes: Frostbite
Wash skin: N.R.
Remove: N.R.
Change: N.R.
Provide: Frostbite wash

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Alkalis, alkaline earth metals (e.g., aluminum powder, sodium, potassium, zinc)

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con (liquid)
SY: Dysp; dizz, inco, narco; nau, vomit; heart palp, card arrhy, asphy; liquid: frostbite, derm
TO: Skin, CNS, CVS

First Aid (see Table 6):
Eye: Frostbite
Skin: Frostbite
Breath: Resp support

Chloropicrin	Formula: CCl_3NO_2	CAS#: 76-06-2	RTECS#: PB6300000	IDLH: 2 ppm
Conversion: 1 ppm = 6.72 mg/m^3	**DOT:** 1580 154; 1583 154 (mixture, n.o.s.)			

Synonyms/Trade Names: Nitrochloroform, Nitrotrichloromethane, Trichloronitromethane

Exposure Limits:
NIOSH REL: TWA 0.1 ppm (0.7 mg/m^3)
OSHA PEL: TWA 0.1 ppm (0.7 mg/m^3)

Measurement Methods (see Table 1):
None available

Physical Description: Colorless to faint-yellow, oily liquid with an intensely irritating odor. [pesticide]

Chemical & Physical Properties:
MW: 164.4
BP: 234°F
Sol: 0.2%
Fl.P: NA
IP: ?
Sp.Gr: 1.66
VP: 18 mmHg
FRZ: -93°F
UEL: NA
LEL: NA
Noncombustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
2 ppm: Sa:Cf£/PaprOv£/CcrFOv/GmFOv/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers
[**Note:** The material may explode when heated under confinement.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, resp sys; lac; cough, pulm edema; nau, vomit
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

C

β-Chloroprene

Formula: CH_2=CClCH=CH_2 | **CAS#:** 126-99-8 | **RTECS#:** EI9625000 | **IDLH:** Ca [300 ppm]

Conversion: 1 ppm = 3.62 mg/m^3 | **DOT:** 1991 131P (inhibited)

Synonyms/Trade Names: 2-Chloro-1,3-butadiene; Chlorobutadiene; Chloroprene

Exposure Limits:
NIOSH REL: Ca
C 1 ppm (3.6 mg/m^3) [15-minute]
See Appendix A
OSHA PEL†: TWA 25 ppm (90 mg/m^3) [skin]

Measurement Methods (see Table 1):
NIOSH 1002
OSHA 112

Physical Description: Colorless liquid with a pungent, ether-like odor.

Chemical & Physical Properties:
MW: 88.5
BP: 139°F
Sol: Slight
Fl.P: -4°F
IP: 8.79 eV
Sp.Gr: 0.96
VP: 188 mmHg
FRZ: -153°F
UEL: 11.3%
LEL: 1.9%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Peroxides & other oxidizers
[**Note:** Polymerizes at room temperature unless inhibited with antioxidants.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, resp sys; anxi, irrity; derm; alopecia; repro effects; [carc]
TO: Eyes, skin, resp sys, repro sys [lung & skin cancer]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

o-Chlorostyrene

Formula: $ClC_6H_4CH=CH_2$ | **CAS#:** 2039-87-4 | **RTECS#:** WL4160000 | **IDLH:** N.D.

Conversion: 1 ppm = 5.67 mg/m^3 | **DOT:**

Synonyms/Trade Names: 2-Chlorostyrene, ortho-Chlorostyrene, 1-Chloro-2-ethenylbenzene

Exposure Limits:
NIOSH REL: TWA 50 ppm (285 mg/m^3)
ST 75 ppm (428 mg/m^3)
OSHA PEL†: none

Measurement Methods (see Table 1):
None available

Physical Description: Colorless liquid.

Chemical & Physical Properties:
MW: 138.6
BP: 372°F
Sol: Insoluble
Fl.P: 138°F
IP: ?
Sp.Gr: 1.10
VP(77°F): 0.96 mmHg
FRZ: -82°F
UEL: ?
LEL: ?
Class II Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: None reported

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: In animals: irrit eyes, skin; hema, prot, acidosis; enlarged liver, jaun
TO: Eyes, skin, liver, kidneys, CNS, PNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Resp support
Swallow: Medical attention immed

C

o-Chlorotoluene

Formula:	CAS#:	RTECS#:	IDLH:
$ClC_6H_4CH_3$	95-49-8	XS9000000	N.D.

Conversion: 1 ppm = 5.18 mg/m^3

DOT: 2238 129

Synonyms/Trade Names: 1-Chloro-2-methylbenzene, 2-Chloro-1-methylbenzene, 2-Chlorotoluene, o-Tolyl chloride

Exposure Limits:
NIOSH REL: TWA 50 ppm (250 mg/m^3)
ST 75 ppm (375 mg/m^3)
OSHA PEL†: none

Measurement Methods (see Table 1):
None available

Physical Description: Colorless liquid with an aromatic odor.

Chemical & Physical Properties:
MW: 126.6
BP: 320°F
Sol(77°F): 0.009%
Fl.P: 96°F
IP: 8.83 eV
Sp.Gr: 1.08
VP(77°F): 4 mmHg
FRZ: -31°F
UEL: ?
LEL: ?
Class IC Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.
Provide: Eyewash

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Acids, alkalis, oxidizers, reducing materials, water

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, muc memb; derm; drow, inco, anes; cough; liver, kidney inj
TO: Eyes, skin, resp sys, CNS, liver, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

2-Chloro-6-trichloromethyl pyridine

Formula:	CAS#:	RTECS#:	IDLH:
$ClC_5H_3NCCl_3$	1929-82-4	US7525000	N.D.

Conversion:

DOT:

Synonyms/Trade Names: 2-Chloro-6-(trichloro-methyl)pyridine; Nitrapyrin; N-serve®; 2,2,2,6-Tetrachloro-2-picoline

Exposure Limits:
NIOSH REL: TWA 10 mg/m^3 (total)
ST 20 mg/m^3 (total)
TWA 5 mg/m^3 (resp)
OSHA PEL: TWA 15 mg/m^3 (total)
TWA 5 mg/m^3 (resp)

Measurement Methods (see Table 1):
None available

Physical Description: Colorless or white, crystalline solid with a mild, sweet odor.

Chemical & Physical Properties:
MW: 230.9
BP: ?
Sol: Insoluble
Fl.P: ?
IP: ?
Sp.Gr: ?
VP(73°F): 0.003 mmHg
MLT: 145°F
UEL: ?
LEL: ?
Combustible Solid [Explosive]

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Aluminum, magnesium
[**Note:** Emits oxides of nitrogen and chloride ion when heated to decomposition.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: No adverse effects noted in ingestion studies with animals.
TO: Eyes, skin

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

C

Chlorpyrifos

Formula: $C_9H_{11}Cl_3NO_3PS$ | **CAS#:** 2921-88-2 | **RTECS#:** TF6300000 | **IDLH:** N.D.

Conversion: | **DOT:** 2783 152

Synonyms/Trade Names: Chlorpyrifos-ethyl; O,O-Diethyl O-3,5,6-trichloro-2-pyridyl phosphorothioate; Dursban®

Exposure Limits:
NIOSH REL: TWA 0.2 mg/m^3
ST 0.6 mg/m^3 [skin]
OSHA PEL†: none

Measurement Methods (see Table 1):
NIOSH 5600 **OSHA** 62

Physical Description: Colorless to white, crystalline solid with a mild, mercaptan-like odor. [pesticide]
[**Note:** Commercial formulations may be combined with combustible liquids.]

Chemical & Physical Properties:
MW: 350.6
BP: 320°F (Decomposes)
Sol: 0.0002%
Fl.P: ?
IP: ?
Sp.Gr: 1.40 (Liquid at 110°F)
VP: 0.00002 mmHg
MLT: 108°F
UEL: ?
LEL: ?
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Strong acids, caustics, amines
[**Note:** Corrosive to copper & brass.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Wheez, lar spasms, salv; bluish lips, skin; miosis, blurred vision; nau, vomit, abdom cramps, diarr
TO: Resp sys, CNS, PNS, plasma chol

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Chromic acid and chromates

Formula: CrO_3 (acid) | **CAS#:** 1333-82-0 (CrO_3) | **RTECS#:** GB6650000 (CrO_3) | **IDLH:** Ca [15 mg/m^3 {as Cr(VI)}]

Conversion: | **DOT:** 1755 154 (acid solution); 1463 141 (acid, solid)

Synonyms/Trade Names: **Chromic acid (CrO_3):** Chromic anhydride, Chromic oxide, Chromium(VI) oxide (1:3), Chromium trioxide. Synonyms of chromates (i.e., chromium(VI) compounds) such as zinc chromate vary depending upon the specific compound.

Exposure Limits:
NIOSH REL (as Cr): Ca
TWA 0.001 mg/m^3
See Appendix A
See Appendix C
OSHA PEL (as CrO_3): C 0.1 mg/m^3 See Appendix C

Measurement Methods (see Table 1):
NIOSH 7600, 7604, 7605
OSHA ID103, ID215, W4001

Physical Description: CrO_3: Dark-red, odorless flakes or powder.
[**Note:** Often used in an aqueous solution (H_2CrO_4).]

Chemical & Physical Properties:
MW: 100.0
BP: 482°F (Decomposes)
Sol: 63%
Fl.P: NA
IP: NA
Sp.Gr: 2.70 (CrO_3)
VP: Very low
MLT: 387°F (Decomposes)
UEL: NA
LEL: NA
CrO_3: Noncombustible Solid, but will accelerate the burning of combustible materials.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Combustible, organic, or other readily oxidizable materials (paper, wood, sulfur, aluminum, plastics, etc.); corrosive to metals

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit resp sys; nasal septum perf; liver, kidney damage; leucyt, leupen, eosin; eye inj, conj; skin ulcer, sens derm; [carc]
TO: Blood, resp sys, liver, kidneys, eyes, skin [lung cancer]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap flush immed
Breath: Resp support
Swallow: Medical attention immed

C

Chromium(II) compounds (as Cr)	Formula:	CAS#:	RTECS#:	IDLH: 250 mg/m^3 [as Cr(II)]
Conversion:	**DOT:**			

Synonyms/Trade Names: Synonyms vary depending upon the specific Chromium(II) compound.
[**Note:** Chromium(II) compounds include soluble chromous salts.]

Exposure Limits:	Measurement Methods (see Table 1):
NIOSH REL: TWA 0.5 mg/m^3 See Appendix C **OSHA PEL:** TWA 0.5 mg/m^3 See Appendix C	**NIOSH** 7024, 7300, 7301, 7303, 9102 **OSHA** ID121, ID125G

Physical Description: Appearance and odor vary depending upon the specific compound.

Chemical & Physical Properties:	Personal Protection/Sanitation (see Table 2):	Respirator Recommendations (see Tables 3 and 4):
Properties vary depending upon the specific compound.	**Skin:** Prevent skin contact **Eyes:** Prevent eye contact **Wash skin:** When contam **Remove:** When wet or contam **Change:** N.R.	**NIOSH/OSHA** **2.5 mg/m^3:** Qm* **5 mg/m^3:** 95XQ*/Sa* **12.5 mg/m^3:** Sa:Cf*/PaprHie* **25 mg/m^3:** 100F/PaprTHie*/ScbaF/SaF **250 mg/m^3:** SaF:Pd,Pp **§:** ScbaF:Pd,Pp/SaF:Pd,Pp:AScba **Escape:** 100F/ScbaE

Incompatibilities and Reactivities: Varies

Exposure Routes, Symptoms, Target Organs (see Table 5):	First Aid (see Table 6):
ER: Inh, Ing, Con **SY:** Irrit eyes; sens derm **TO:** Eyes, skin	**Eye:** Irr immed **Skin:** Water flush prompt **Breath:** Resp support **Swallow:** Medical attention immed

Chromium(III) compounds (as Cr)	Formula:	CAS#:	RTECS#:	IDLH: 25 mg/m^3 [as Cr(III)]
Conversion:	**DOT:**			

Synonyms/Trade Names: Synonyms vary depending upon the specific Chromium(III) compound.
[**Note:** Chromium(III) compounds include soluble chromic salts.]

Exposure Limits:	Measurement Methods (see Table 1):
NIOSH REL: TWA 0.5 mg/m^3 See Appendix C **OSHA PEL:** TWA 0.5 mg/m^3 See Appendix C	**NIOSH** 7024, 7300, 7301, 7303, 9102 **OSHA** ID121, ID125G

Physical Description: Appearance and odor vary depending upon the specific compound.

Chemical & Physical Properties:	Personal Protection/Sanitation (see Table 2):	Respirator Recommendations (see Tables 3 and 4):
Properties vary depending upon the specific compound.	**Skin:** Prevent skin contact **Eyes:** Prevent eye contact **Wash skin:** When contam **Remove:** When wet or contam **Change:** N.R.	**NIOSH/OSHA** **2.5 mg/m^3:** Qm* **5 mg/m^3:** 95XQ*/Sa* **12.5 mg/m^3:** Sa:Cf*/PaprHie* **25 mg/m^3:** 100F/PaprTHie*/ScbaF/SaF **§:** ScbaF:Pd,Pp/SaF:Pd,Pp:AScba **Escape:** 100F/ScbaE

Incompatibilities and Reactivities: Varies

Exposure Routes, Symptoms, Target Organs (see Table 5):	First Aid (see Table 6):
ER: Inh, Ing, Con **SY:** Irrit eyes; sens derm **TO:** Eyes, skin	**Eye:** Irr immed **Skin:** Water flush prompt **Breath:** Resp support **Swallow:** Medical attention immed

C

Chromium metal

Formula: Cr | **CAS#:** 7440-47-3 | **RTECS#:** GB4200000 | **IDLH:** 250 mg/m^3 (as Cr)

Conversion: | **DOT:**

Synonyms/Trade Names: Chrome, Chromium

Exposure Limits:
NIOSH REL: TWA 0.5 mg/m^3
See Appendix C
OSHA PEL*: TWA 1 mg/m^3
See Appendix C
[***Note:** The PEL also applies to insoluble chromium salts.]

Measurement Methods (see Table 1):
NIOSH 7024, 7300, 7301, 7303, 9102
OSHA ID121, ID125G

Physical Description: Blue-white to steel-gray, lustrous, brittle, hard, odorless solid.

Chemical & Physical Properties:
MW: 52.0
BP: 4788°F
Sol: Insoluble
Fl.P: NA
IP: NA
Sp.Gr: 7.14
VP: 0 mmHg (approx)
MLT: 3452°F
UEL: NA
LEL: NA
Noncombustible Solid in bulk form, but finely divided dust burns rapidly if heated in a flame.

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
2.5 mg/m^3: Qm*
5 mg/m^3: 95XQ*/Sa*
12.5 mg/m^3: Sa:Cf*/PaprHie*
25 mg/m^3: 100F/PaprTHie*/ ScbaF/SaF
250 mg/m^3: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Strong oxidizers (such as hydrogen peroxide), alkalis

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin; lung fib (histologic)
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Resp support
Swallow: Medical attention immed

Chromyl chloride

Formula: $Cr(OCl)_2$ | **CAS#:** 14977-61-8 | **RTECS#:** GB5775000 | **IDLH:** Ca [N.D.]

Conversion: | **DOT:** 1758 137

Synonyms/Trade Names: Chlorochromic anhydride, Chromic oxychloride, Chromium chloride oxide, Chromium dichloride dioxide, Chromium dioxide dichloride, Chromium dioxychloride, Chromium oxychloride, Dichlorodioxochromium

Exposure Limits:
NIOSH REL: Ca 0.001 mg Cr(VI)/m^3
See Appendix A, See Appendix C
OSHA PEL: none

Measurement Methods (see Table 1):
None available

Physical Description: Deep-red liquid with a musty, burning, acrid odor. [**Note:** Fumes in moist air.]

Chemical & Physical Properties:
MW: 154.9
BP: 243°F
Sol: Reacts
Fl.P: NA
IP: 12.60 eV
Sp.Gr(77°F): 1.91
VP: 20 mmHg
FRZ: -142°F
UEL: NA
LEL: NA
Noncombustible Liquid, but a powerful oxidizer.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Water, combustible substances, halides, phosphorus, turpentine [**Note:** Reacts violently in water; forms chromic acid, chromic chloride, hydrochloric acid & chlorine. Corrodes common metals.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, upper resp sys; eye, skin burns [carc]
TO: Eyes, skin, resp sys [lung cancer]

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

C

Clopidol	Formula: $C_7H_7Cl_2NO$	CAS#: 2971-90-6	RTECS#: UU7711500	IDLH: N.D.
Conversion:	DOT:			

Synonyms/Trade Names: Coyden®; 3,5-Dichloro-2,6-dimethyl-4-pyridinol

Exposure Limits:
NIOSH REL: TWA 10 mg/m^3 (total)
ST 20 mg/m^3 (total)
TWA 5 mg/m^3 (resp)
OSHA PEL: TWA 15 mg/m^3 (total)
TWA 5 mg/m^3 (resp)

Measurement Methods (see Table 1):
NIOSH 0500, 0600

Physical Description: White to light-brown, crystalline solid.

Chemical & Physical Properties:
MW: 192.1
BP: ?
Sol: Insoluble
Fl.P: NA
IP: ?
Sp.Gr: ?
VP: ?
MLT: >608°F
UEL: NA
LEL: NA
Noncombustible Solid, but dust may explode in cloud form.

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: None reported

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Irrit eyes, skin, nose, throat; cough
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Fresh air

Coal dust	Formula:	CAS#:	RTECS#: GF8281000	IDLH: N.D.
Conversion:	DOT: 1361 133			

Synonyms/Trade Names: Anthracite coal dust, Bituminous coal dust, Lignite coal dust

Exposure Limits:
NIOSH REL: See Appendix D
OSHA PEL†: TWA 2.4 mg/m^3 [respirable, <5% SiO_2]
TWA (10 mg/m^3)/(%SiO_2 + 2) [respirable, ≥ 5% SiO_2]
See Appendix C (Mineral Dusts)

Measurement Methods (see Table 1):
NIOSH 0600, 7500

Physical Description: Dark-brown to black solid dispersed in air.

Chemical & Physical Properties:
Properties vary depending upon the specific coal type.

Combustible Solid; slightly explosive when exposed to flame.

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: None reported

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh
SY: Chronic bron, decr pulm func, emphy
TO: Resp sys

First Aid (see Table 6):
Breath: Fresh air

C

Coal tar pitch volatiles	Formula:	CAS#: 65996-93-2	RTECS#: GF8655000	IDLH: Ca [80 mg/m^3]

Conversion: **DOT:** 2713 153 (acridine)

Synonyms/Trade Names: Synonyms vary depending upon the specific compound (e.g., pyrene, phenanthrene, acridine, chrysene, anthracene & benzo(a)pyrene).
[**Note:** NIOSH considers coal tar, coal tar pitch, and creosote to be coal tar products.]

Exposure Limits:
NIOSH REL: Ca
TWA 0.1 mg/m^3 (cyclohexane-extractable fraction)
See Appendix A
See Appendix C
OSHA PEL: TWA 0.2 mg/m^3 (benzene-soluble fraction) [1910.1002]
See Appendix C

Measurement Methods (see Table 1):
OSHA 58

Physical Description: Black or dark-brown amorphous residue.

Chemical & Physical Properties:
Properties vary depending upon the specific compound.
Combustible Solids

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: Daily
Remove: N.R.
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Derm, bron, [carc]
TO: Resp sys, skin, bladder, kidneys [lung, kidney & skin cancer]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Cobalt carbonyl (as Co)	Formula: $C_8Co_2O_8$	CAS#: 10210-68-1	RTECS#: GG0300000	IDLH: N.D.

Conversion: **DOT:**

Synonyms/Trade Names: di-mu-Carbonylhexacarbonyldicobalt, Cobalt octacarbonyl, Cobalt tetracarbonyl dimer, Dicobalt carbonyl, Dicobalt Octacarbonyl, Octacarbonyldicobalt

Exposure Limits:
NIOSH REL: TWA 0.1 mg/m^3
OSHA PEL†: none

Measurement Methods (see Table 1):
None available

Physical Description: Orange to dark-brown, crystalline solid.
[**Note:** The pure substance is white.]

Chemical & Physical Properties:
MW: 341.9
BP: 126°F (Decomposes)
Sol: Insoluble
Fl.P: NA
IP: ?
Sp.Gr: 1.87
VP: 0.7 mmHg
MLT: 124°F
UEL: NA
LEL: NA
Noncombustible Solid, but flammable carbon monoxide is emitted during decomposition.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Air
[**Note:** Decomposes on exposure to air or heat; stable in atmosphere of hydrogen & carbon monoxide.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, muc memb; cough, decr pulm func, wheez, dysp; in animals: liver, kidney inj, pulm edema
TO: Eyes, skin, resp sys, blood, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Resp support
Swallow: Medical attention immed

C

Cobalt hydrocarbonyl (as Co)	Formula: $HCo(CO)_4$	CAS#: 16842-03-8	RTECS#: GG0900000	IDLH: N.D.

Conversion: **DOT:**

Synonyms/Trade Names: Hydrocobalt tetracarbonyl, Tetracarbonylhydridocobalt, Tetracarbonylhydrocobalt

Exposure Limits:
NIOSH REL: TWA 0.1 mg/m^3
OSHA PEL†: none

Measurement Methods (see Table 1):
None available

Physical Description: Gas with an offensive odor.

Chemical & Physical Properties:
MW: 172.0
BP: ?
Sol: 0.05%
Fl.P: NA (Gas)
IP: ?
RGasD: 5.93
VP: >1 atm
FRZ: -15°F
UEL: ?
LEL: ?
Flammable Gas

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Air
[**Note:** Unstable gas that decomposes rapidly in air at room temperature to cobalt carbonyl & hydrogen.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: In animals: irrit resp sys; dysp, cough, decr pulm func, pulm edema
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Resp support

Cobalt metal dust and fume (as Co)	Formula: Co	CAS#: 7440-48-4	RTECS#: GF8750000	IDLH: 20 mg/m^3 (as Co)

Conversion: **DOT:**

Synonyms/Trade Names: Cobalt metal dust, Cobalt metal fume

Exposure Limits:
NIOSH REL: TWA 0.05 mg/m^3
OSHA PEL†: TWA 0.1 mg/m^3

Measurement Methods (see Table 1):
NIOSH 7027, 7300, 7301, 7303, 9102
OSHA ID121, ID125G, ID213

Physical Description: Odorless, silver-gray to black solid.

Chemical & Physical Properties:
MW: 58.9
BP: 5612°F
Sol: Insoluble
Fl.P: NA
IP: NA
Sp.Gr: 8.92
VP: 0 mmHg (approx)
MLT: 2719°F
UEL: NA
LEL: NA
Noncombustible Solid in bulk form, but finely divided dust will burn at high temperatures.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: N.R.
Wash skin: When contam
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH
0.25 mg/m^3: Qm
0.5 mg/m^3: 95XQ*/Sa*
1.25 mg/m^3: Sa:Cf*/PaprHie*
2.5 mg/m^3: 100F/ScbaF/SaF
20 mg/m^3: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, ammonium nitrate

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Cough, dysp, wheez, decr pulm func; low-wgt; derm; diffuse nodular fib; resp hypersensitivity, asthma
TO: Skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Resp support
Swallow: Medical attention immed

C

Coke oven emissions	Formula:	CAS#:	RTECS#:	IDLH:
			GH0346000	Ca [N.D.]
Conversion:	**DOT:**			

Synonyms/Trade Names: Synonyms vary depending upon the specific constituent.

Exposure Limits:
NIOSH REL: Ca
TWA 0.2 mg/m^3 (benzene-soluble fraction)
See Appendix A
See Appendix C
OSHA PEL: [1910.1029] TWA 0.150 mg/m^3 (benzene-soluble fraction)

Measurement Methods (see Table 1):
OSHA 58

Physical Description: Emissions released during the carbonization of bituminous coal for the production of coke. [**Note:** See Appendix C for more information.]

Chemical & Physical Properties:
Properties vary depending upon the constituent.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: Daily
Remove: N.R.
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

See Appendix E (page 351)

Incompatibilities and Reactivities: None reported

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Irrit eyes, resp sys; cough, dysp, wheez; [carc]
TO: Skin, resp sys, urinary sys [skin, lung, kidney & bladder cancer]

First Aid (see Table 6):
Eye: Irr immed
Breath: Resp support

Copper (dusts and mists, as Cu)	Formula:	CAS#:	RTECS#:	IDLH:
	Cu	7440-50-8	GL5325000	100 mg/m^3 (as Cu)
Conversion:	**DOT:**			

Synonyms/Trade Names: Copper metal dusts, Copper metal fumes

Exposure Limits:
NIOSH REL*: TWA 1 mg/m^3
OSHA PEL*: TWA 1 mg/m^3
[***Note:** The REL and PEL also apply to other copper compounds (as Cu) except copper fume.]

Measurement Methods (see Table 1):
NIOSH 7029, 7300, 7301, 7303, 9102
OSHA ID121, ID125G

Physical Description: Reddish, lustrous, malleable, odorless solid.

Chemical & Physical Properties:
MW: 63.5
BP: 4703°F
Sol: Insoluble
Fl.P: NA
IP: NA
Sp.Gr: 8.94
VP: 0 mmHg (approx)
MLT: 1981°F
UEL: NA
LEL: NA
Noncombustible Solid in bulk form, but powdered form may ignite.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
5 mg/m^3: Qm*
10 mg/m^3: 95XQ*/Sa*
25 mg/m^3: Sa:Cf*/PaprHie*
50 mg/m^3: 100F/PaprTHie*/ScbaF/SaF
100 mg/m^3: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Oxidizers, alkalis, sodium azide, acetylene

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, nose, pharynx; nasal septum perf; metallic taste; derm; in animals: lung, liver, kidney damage; anemia
TO: Eyes, skin, resp sys, liver, kidneys (incr risk with Wilson's disease)

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

C

Copper fume (as Cu)	Formula: CuO/Cu	CAS#: 1317-38-0 (CuO)	RTECS#: GL7900000 (CuO)	IDLH: 100 mg/m^3 (as Cu)

Conversion: **DOT:**

Synonyms/Trade Names: **Cu:** Copper fume **CuO:** Black copper oxide fume, Copper monoxide fume, Copper(II) oxide fume, Cupric oxide fume
[**Note:** Also see specific listing for Copper (dusts and mists).]

Exposure Limits:
NIOSH REL: TWA 0.1 mg/m^3
OSHA PEL: TWA 0.1 mg/m^3

Physical Description: Finely divided black particulate dispersed in air.
[**Note:** Exposure may occur in copper & brass plants and during the welding of copper alloys.]

Measurement Methods (see Table 1):
NIOSH 7029, 7300, 7301, 7303
OSHA ID121, ID125G, ID206

Chemical & Physical Properties:
MW: 79.5
BP: Decomposes
Sol: Insoluble
Fl.P: NA
IP: NA
Sp.Gr: 6.4 (CuO)
VP: 0 mmHg (approx)
MLT: 1879°F (Decomposes)
UEL: NA
LEL: NA
CuO: Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
1 mg/m^3: 95XQ/Sa
2.5 mg/m^3: Sa:Cf/PaprHie
5 mg/m^3: 100F/SaT:Cf/PaprTHie/ ScbaF/SaF
100 mg/m^3: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: **CuO:** Acetylene, zirconium
[**Note:** See Copper (dusts and mists) for properties of Copper metal.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Irrit eyes, upper resp sys; metal fume fever: chills, musc ache, nau, fever, dry throat, cough, lass; metallic or sweet taste; discoloration skin, hair
TO: Eyes, skin, resp sys (incr risk with Wilson's disease)

First Aid (see Table 6):
Breath: Resp support

Cotton dust (raw)	Formula:	CAS#:	RTECS#: GN2275000	IDLH: 100 mg/m^3

Conversion: **DOT:** 1365 133 (cotton)

Synonyms/Trade Names: Raw cotton dust

Exposure Limits:
NIOSH REL: TWA <0.200 mg/m^3
See Appendix C
OSHA PEL: [Z-1-A & 1910.1043]
See Appendix C

Physical Description: Colorless, odorless solid.

Measurement Methods (see Table 1):
OSHA [1910.1043]

Chemical & Physical Properties:
MW: ?
BP: Decomposes
Sol: Insoluble
Fl.P: NA
IP: NA
Sp.Gr: ?
VP: 0 mmHg (approx)
MLT: Decomposes
UEL: NA
LEL: NA
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
1 mg/m^3: Qm
2 mg/m^3: 95XQ/Sa
5 mg/m^3: Sa:Cf/PaprHie
10 mg/m^3: 100F/SaT:Cf/PaprTHie/ ScbaF/SaF
100 mg/m^3: Sa:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE
See Appendix E (page 351)

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh
SY: Byssinosis: chest tight, cough, wheez, dysp; decr FEV; bron; mal; fever, chills, upper resp symptoms after initial exposure
TO: CVS, resp sys

First Aid (see Table 6):
Breath: Fresh air

C

Crag® herbicide

Formula: $C_6H_3Cl_2OCH_2CH_2OSO_3Na$
CAS#: 136-78-7
RTECS#: KK4900000
IDLH: 500 mg/m^3

Conversion:
DOT:

Synonyms/Trade Names: Crag® herbicide No. 1; 2-(2,4-Dichlorophenoxy)ethyl sodium sulfate; Sesone

Exposure Limits:
NIOSH REL: TWA 10 mg/m^3 (total)
TWA 5 mg/m^3 (resp)
OSHA PEL†: TWA 15 mg/m^3 (total)
TWA 5 mg/m^3 (resp)

Physical Description: Colorless to white crystalline, odorless solid. [herbicide]

Measurement Methods (see Table 1):
NIOSH S356 (II-5)

Chemical & Physical Properties:
MW: 309.1
BP: Decomposes
Sol(77°F): 26%
Fl.P: NA
IP: ?
Sp.Gr: 1.70
VP: 0.1 mmHg
MLT: 473°F (Decomposes)
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH
50 mg/m^3: Qm
100 mg/m^3: 95XQ/Sa
250 mg/m^3: Sa:Cf/PaprHie
500 mg/m^3: 100F/PaprTHie*/SaT:Cf*/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, acids

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin; liver, kidney damage; in animals: CNS effects, convuls
TO: Eyes, skin, CNS, liver, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water wash prompt
Breath: Resp support
Swallow: Medical attention immed

m-Cresol

Formula: $CH_3C_6H_4OH$
CAS#: 108-39-4
RTECS#: GO6125000
IDLH: 250 ppm

Conversion: 1 ppm = 4.43 mg/m^3
DOT: 2076 153

Synonyms/Trade Names: meta-Cresol, 3-Cresol, m-Cresylic acid, 1-Hydroxy-3-methylbenzene, 3-Hydroxytoluene, 3-Methyl phenol

Exposure Limits:
NIOSH REL: TWA 2.3 ppm (10 mg/m^3)
OSHA PEL: TWA 5 ppm (22 mg/m^3) [skin]

Physical Description: Colorless to yellowish liquid with a sweet, tarry odor. [**Note:** A solid below 54°F.]

Measurement Methods (see Table 1):
NIOSH 2546
OSHA 32

Chemical & Physical Properties:
MW: 108.2
BP: 397°F
Sol: 2%
Fl.P: 187°F
IP: 8.98 eV
Sp.Gr: 1.03
VP(77°F): 0.14 mmHg
FRZ: 54°F
UEL: ?
LEL(300°F): 1.1%
Class IIIA Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
23 ppm: CcrOv95/Sa
57.5 ppm: Sa:Cf/PaprOvHie
115 ppm: CcrFOv100/GmFOv100/PaprTOvHie*/SaT:Cf*/ScbaF/SaF
250 ppm: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, acids

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, muc memb; CNS effects: conf, depres, resp fail; dysp, irreg rapid resp, weak pulse; eye, skin burns; derm; lung, liver, kidney, pancreas damage
TO: Eyes, skin, resp sys, CNS, liver, kidneys, pancreas, CVS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

C

o-Cresol

Formula:	CAS#:	RTECS#:	IDLH:
$CH_3C_6H_4OH$	95-48-7	GO6300000	250 ppm

Conversion: 1 ppm = 4.43 mg/m^3 **DOT:** 2076 153

Synonyms/Trade Names: ortho-Cresol, 2-Cresol, o-Cresylic acid, 1-Hydroxy-2-methylbenzene, 2-Hydroxytoluene, 2-Methyl phenol

Exposure Limits:
NIOSH REL: TWA 2.3 ppm (10 mg/m^3)
OSHA PEL: TWA 5 ppm (22 mg/m^3) [skin]

Physical Description: White crystals with a sweet, tarry odor.
[**Note:** A liquid above 88°F.]

Measurement Methods (see Table 1):
NIOSH 2546
OSHA 32

Chemical & Physical Properties:
MW: 108.2
BP: 376°F
Sol: 2%
Fl.P: 178°F
IP: 8.93 eV
Sp.Gr: 1.05
VP(77°F): 0.29 mmHg
MLT: 88°F
UEL: ?
LEL(300°F): 1.4%
Combustible Solid
Class IIIA Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
23 ppm: CcrOv95/Sa
57.5 ppm: Sa:Cf/PaprOvHie
115 ppm: CcrFOv100/GmFOv100/PaprTOvHie*/SaT:Cf*/ScbaF/SaF
250 ppm: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, acids

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, muc memb; CNS effects: conf, depres, resp fail; dysp, irreg rapid resp, weak pulse; eye, skin burns; derm; lung, liver, kidney, pancreas damage
TO: Eyes, skin, resp sys, CNS, liver, kidneys, pancreas, CVS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

p-Cresol

Formula:	CAS#:	RTECS#:	IDLH:
$CH_3C_6H_4OH$	106-44-5	GO6475000	250 ppm

Conversion: 1 ppm = 4.43 mg/m^3 **DOT:** 2076 153

Synonyms/Trade Names: para-Cresol, 4-Cresol, p-Cresylic acid, 1-Hydroxy-4-methylbenzene, 4-Hydroxytoluene, 4-Methyl phenol

Exposure Limits:
NIOSH REL: TWA 2.3 ppm (10 mg/m^3)
OSHA PEL: TWA 5 ppm (22 mg/m^3) [skin]

Physical Description: Crystalline solid with a sweet, tarry odor.
[**Note:** A liquid above 95°F.]

Measurement Methods (see Table 1):
NIOSH 2546
OSHA 32

Chemical & Physical Properties:
MW: 108.2
BP: 396°F
Sol: 2%
Fl.P: 187°F
IP: 8.97 eV
Sp.Gr: 1.04
VP(77°F): 0.11 mmHg
MLT: 95°F
UEL: ?
LEL(300°F): 1.1%
Combustible Solid
Class IIIA Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
23 ppm: CcrOv95/Sa
57.5 ppm: Sa:Cf/PaprOvHie
115 ppm: CcrFOv100/GmFOv100/PaprTOvHie*/SaT:Cf*/ScbaF/SaF
250 ppm: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, acids

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, muc memb; CNS effects: conf, depres, resp fail; dysp, irreg rapid resp, weak pulse; eye, skin burns; derm; lung, liver, kidney, pancreas damage
TO: Eyes, skin, resp sys, CNS, liver, kidneys, pancreas, CVS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

C

Crotonaldehyde

Formula: $CH_3CH=CHCHO$ | **CAS#:** 4170-30-3 | **RTECS#:** GP9499000 | **IDLH:** 50 ppm

Conversion: 1 ppm = 2.87 mg/m^3 | **DOT:** 1143 131P (inhibited)

Synonyms/Trade Names: 2-Butenal, β-Methyl acrolein, Propylene aldehyde

Exposure Limits:
NIOSH REL: TWA 2 ppm (6 mg/m^3)
See Appendix C (Aldehydes)
OSHA PEL: TWA 2 ppm (6 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 3516
OSHA 81

Physical Description: Water-white liquid with a suffocating odor.
[**Note:** Turns pale-yellow on contact with air.]

Chemical & Physical Properties:
MW: 70.1
BP: 219°F
Sol: 18%
Fl.P: 45°F
IP: 9.73 eV
Sp.Gr: 0.87
VP: 19 mmHg
FRZ: -101°F
UEL: 15.5%
LEL: 2.1%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
20 ppm: CcrOv*/Sa*
50 ppm: Sa:Cf*/PaprOv*/CcrFOv/GmFOv/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Caustics, ammonia, strong oxidizers, nitric acid, amines
[**Note:** Polymerization may occur at elevated temperatures, such as in fire conditions.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, resp sys; in animals: dysp, pulm edema, irrit skin
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

Crufomate

Formula: $C_{12}H_{19}ClNO_3P$ | **CAS#:** 299-86-5 | **RTECS#:** TB3850000 | **IDLH:** N.D.

Conversion: | **DOT:**

Synonyms/Trade Names: 4-t-Butyl-2-chlorophenylmethyl methylphosphoramidate, Dowco® 132, Ruelene®

Exposure Limits:
NIOSH REL: TWA 5 mg/m^3
ST 20 mg/m^3
OSHA PEL†: none

Measurement Methods (see Table 1):
NIOSH 0500
OSHA PV2015

Physical Description: White, crystalline solid in pure form. [pesticide]
[**Note:** Commercial product is a yellow oil.]

Chemical & Physical Properties:
MW: 291.7
BP: Decomposes
Sol: Insoluble
Fl.P: ?
IP: ?
Sp.Gr: 1.16
VP(243°F): 0.01 mmHg
MLT: 140°F
UEL: ?
LEL: ?
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Strongly alkaline & strongly acidic media
[**Note:** Unstable over long periods in aqueous preparations or above 140°F.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, resp sys; wheez, dysp; blurred vision, lac; sweat; abdom cramps, diarr, nau, anor
TO: Eyes, skin, resp sys, blood chol

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

C

Cumene	Formula: $C_6H_5CH(CH_3)_2$	CAS#: 98-82-8	RTECS#: GR8575000	IDLH: 900 ppm [10%LEL]
Conversion: 1 ppm = 4.92 mg/m^3	**DOT:** 1918 130			

Synonyms/Trade Names: Cumol, Isopropyl benzene, 2-Phenyl propane

Exposure Limits:
NIOSH REL: TWA 50 ppm (245 mg/m^3) [skin]
OSHA PEL: TWA 50 ppm (245 mg/m^3) [skin]

Measurement Methods (see Table 1):
NIOSH 1501

Physical Description: Colorless liquid with a sharp, penetrating, aromatic odor.

Chemical & Physical Properties:
MW: 120.2
BP: 306°F
Sol: Insoluble
Fl.P: 96°F
IP: 8.75 eV
Sp.Gr: 0.86
VP: 8 mmHg
FRZ: -141°F
UEL: 6.5%
LEL: 0.9%
Class IC Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
500 ppm: CcrOv*/Sa*
900 ppm: Sa:Cf*/PaprOv*/CcrFOv/GmFOv/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Oxidizers, nitric acid, sulfur acid
[**Note:** Forms cumene hydroperoxide upon long exposure to air.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, muc memb; derm; head, narco, coma
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush prompt
Breath: Resp support
Swallow: Medical attention immed

Cyanamide	Formula: NH_2CN	CAS#: 420-04-2	RTECS#: GS5950000	IDLH: N.D.
Conversion:	**DOT:**			

Synonyms/Trade Names: Amidocyanogen, Carbimide, Carbodiimide, Cyanogen nitride, Hydrogen cyanamide
[**Note:** Cyanamide is also a synonym for Calcium cyanamide.]

Exposure Limits:
NIOSH REL: TWA 2 mg/m^3
OSHA PEL†: none

Measurement Methods (see Table 1):
NIOSH 0500

Physical Description: Crystalline solid.

Chemical & Physical Properties:
MW: 42.1
BP: 500°F (Decomposes)
Sol(59°F): 78%
Fl.P: 286°F
IP: 10.65 eV
Sp.Gr: 1.28
VP: ?
MLT: 113°F
UEL: ?
LEL: ?
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Above 104°F: Moisture, acids, or alkalis; 1,2-phenylene diamine salts
[**Note:** Polymerization may occur on evaporation of aqueous solutions.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, resp sys; eye, skin burns; miosis, salv, lac, twitch; Antabuse-like effects
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

C

Cyanogen	Formula: NCCN	CAS#: 460-19-5	RTECS#: GT1925000	IDLH: N.D.
Conversion: 1 ppm = 2.13 mg/m^3	**DOT:** 1026 119			

Synonyms/Trade Names: Carbon nitride, Dicyan, Dicyanogen, Ethanedinitrile, Oxalonitrile

Exposure Limits:
NIOSH REL: TWA 10 ppm (20 mg/m^3)
OSHA PEL†: none

Physical Description: Colorless gas with a pungent, almond-like odor.
[**Note:** Shipped as a liquefied compressed gas. Forms cyanide in the body.]

Measurement Methods (see Table 1):
OSHA PV2104

Chemical & Physical Properties:
MW: 52.0
BP: -6°F
Sol: 1%
Fl.P: NA (Gas)
IP: 13.57 eV
RGasD: 1.82
Sp.Gr: 0.95 (Liquid at -6°F)
VP(70°F): 5.1 atm
FRZ: -18°F
UEL: 32%
LEL: 6.6%
Flammable Gas

Personal Protection/Sanitation (see Table 2):
Skin: Frostbite
Eyes: Prevent eye contact/Frostbite
Wash skin: N.R.
Remove: When wet (flamm)
Change: N.R.
Provide: Frostbite wash

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Acids, water, strong oxidizers (e.g., dichlorine oxide, fluorine)
[**Note:** Slowly hydrolyzed in water to form hydrogen cyanide, oxalic acid, or ammonia.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Irrit eyes, nose, upper resp sys; lac; cherry red lips, tachypnea, hypernea, bradycardia; head, convuls; dizz, loss of appetite, low-wgt; liquid: frostbite
TO: Eyes, resp sys, CNS, CVS

First Aid (see Table 6):
Eye: Frostbite
Skin: Frostbite
Breath: Resp support

Cyanogen chloride	Formula: ClCN	CAS#: 506-77-4	RTECS#: GT2275000	IDLH: N.D.
Conversion: 1 ppm = 2.52 mg/m^3	**DOT:** 1589 125 (inhibited)			

Synonyms/Trade Names: Chlorcyan, Chlorine cyanide, Chlorocyanide, Chlorocyanogen

Exposure Limits:
NIOSH REL: C 0.3 ppm (0.6 mg/m^3)
OSHA PEL†: none

Physical Description: Colorless gas or liquid (below 55°F) with an irritating odor.
[**Note:** Shipped as a liquefied gas. A solid below 20°F. Forms cyanide in the body.]

Measurement Methods (see Table 1):
None available

Chemical & Physical Properties:
MW: 61.5
BP: 55°F
Sol: 7%
Fl.P: NA
IP: 12.49 eV
RGasD: 2.16
Sp.Gr: 1.22 (Liquid at 32°F)
VP: 1010 mmHg
FRZ: 20°F
UEL: NA
LEL: NA
Nonflammable Gas

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact (liquid)
Eyes: Prevent eye contact (liquid)
Wash skin: When contam (liquid)
Remove: When wet or contam (liquid)
Change: N.R.
Provide: Eyewash (liquid)
Quick drench (liquid)

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Water, acids, alkalis, ammonia, alcohols
[**Note:** Can react very slowly with water to form hydrogen cyanide. May be stabilized to prevent polymerization.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs (liquid), Ing (liquid), Con (liquid)
SY: Irrit eyes, upper resp sys; cough, delayed pulm edema; lass, head, dizz, conf, nau, vomit; irreg heartbeat; irrit skin (liquid)
TO: Eyes, skin, resp sys, CNS, CVS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water wash immed (liquid)
Breath: Resp support
Swallow: Medical attention immed (liquid)

Cyclohexane

Formula:	CAS#:	RTECS#:	IDLH:
C_6H_{12}	110-82-7	GU6300000	1300 ppm [10%LEL]

Conversion: 1 ppm = 3.44 mg/m^3 **DOT:** 1145 128

Synonyms/Trade Names: Benzene hexahydride, Hexahydrobenzene, Hexamethylene, Hexanaphthene

Exposure Limits:
NIOSH REL: TWA 300 ppm (1050 mg/m^3)
OSHA PEL: TWA 300 ppm (1050 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1500
OSHA 7

Physical Description: Colorless liquid with a sweet, chloroform-like odor. [**Note:** A solid below 44°F.]

Chemical & Physical Properties:
MW: 84.2
BP: 177°F
Sol: Insoluble
Fl.P: 0°F
IP: 9.88 eV
Sp.Gr: 0.78
VP: 78 mmHg
FRZ: 44°F
UEL: 8%
LEL: 1.3%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
1300 ppm: Sa:Cf£/PaprOv£/CcrFOv/GmFOv/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, resp sys; drow; derm; narco, coma
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush prompt
Breath: Resp support
Swallow: Medical attention immed

Cyclohexanethiol

Formula:	CAS#:	RTECS#:	IDLH:
$C_6H_{11}SH$	1569-69-3	GV7525000	N.D.

Conversion: 1 ppm = 4.75 mg/m^3 **DOT:** 3054 129

Synonyms/Trade Names: Cyclohexylmercaptan, Cyclohexylthiol

Exposure Limits:
NIOSH REL: C 0.5 ppm (2.4 mg/m^3) [15-minute]
OSHA PEL: none

Measurement Methods (see Table 1):
None available

Physical Description: Colorless liquid with a strong, offensive odor.

Chemical & Physical Properties:
MW: 116.2
BP: 316°F
Sol: Insoluble
Fl.P: 110°F
IP: ?
Sp.Gr: 0.98
VP: 10 mmHg
FRZ: -181°F
UEL: ?
LEL: ?
Class II Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
5 ppm: CcrOv/Sa
12.5 ppm: Sa:Cf/PaprOv
25 ppm: CcrFOv/GmFOv/PaprTOv/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Oxidizers, reducing agents, strong acids, alkali metals

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, resp sys; head, dizz, lass, nau, vomit, convuls; cough, wheez, laryngitis, dysp
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap flush immed
Breath: Resp support
Swallow: Medical attention immed

C

Cyclohexanol

Formula:	CAS#:	RTECS#:	IDLH:
$C_6H_{11}OH$	108-93-0	GV7875000	400 ppm

Conversion: 1 ppm = 4.10 mg/m^3

DOT: 1993 128 (combustible liquid, n.o.s.)

Synonyms/Trade Names: Anol, Cyclohexyl alcohol, Hexahydrophenol, Hexalin, Hydralin, Hydroxycyclohexane

Exposure Limits:
NIOSH REL: TWA 50 ppm (200 mg/m^3) [skin]
OSHA PEL†: TWA 50 ppm (200 mg/m^3)

Physical Description: Sticky solid or colorless to light-yellow liquid (above 77°F) with a camphor-like odor.

Measurement Methods (see Table 1):
NIOSH 1402, 1405
OSHA 7

Chemical & Physical Properties:
MW: 100.2
BP: 322°F
Sol: 4%
Fl.P: 154°F
IP: 10.00 eV
Sp.Gr: 0.96
VP: 1 mmHg
MLT: 77°F
UEL: ?
LEL: ?
Class IIIA Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
400 ppm: CcrOv*/PaprOv*/GmFOv/Sa*/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers (such as hydrogen peroxide & nitric acid)

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, nose, throat; narco
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water wash prompt
Breath: Resp support
Swallow: Medical attention immed

Cyclohexanone

Formula:	CAS#:	RTECS#:	IDLH:
$C_6H_{10}O$	108-94-1	GW1050000	700 ppm

Conversion: 1 ppm = 4.02 mg/m^3

DOT: 1915 127

Synonyms/Trade Names: Anone, Cyclohexyl ketone, Pimelic ketone

Exposure Limits:
NIOSH REL: TWA 25 ppm (100 mg/m^3) [skin]
OSHA PEL†: TWA 50 ppm (200 mg/m^3)

Physical Description: Water-white to pale-yellow liquid with a peppermint- or acetone-like odor.

Measurement Methods (see Table 1):
NIOSH 1300, 2555
OSHA 1

Chemical & Physical Properties:
MW: 98.2
BP: 312°F
Sol: 15%
Fl.P: 146°F
IP: 9.14 eV
Sp.Gr: 0.95
VP: 5 mmHg
FRZ: -49°F
UEL: 9.4%
LEL(212°F): 1.1%
Class IIIA Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
625 ppm: Sa:Cf£/PaprOv£
700 ppm: CcrFOv/GmFOv/PaprTOv£/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Oxidizers, nitric acid

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, muc memb; head; narco, coma; derm; in animals: liver, kidney damage
TO: Eyes, skin, resp sys, CNS, liver, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush prompt
Breath: Resp support
Swallow: Medical attention immed

C

Cyclohexene

Formula:	CAS#:	RTECS#:	IDLH:
C_6H_{10}	110-83-8	GW2500000	2000 ppm

Conversion: 1 ppm = 3.36 mg/m^3 **DOT:** 2256 130

Synonyms/Trade Names: Benzene tetrahydride, Tetrahydrobenzene

Exposure Limits:
NIOSH REL: TWA 300 ppm (1015 mg/m^3)
OSHA PEL: TWA 300 ppm (1015 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1500
OSHA 7

Physical Description: Colorless liquid with a sweet odor.

Chemical & Physical Properties:
MW: 82.2
BP: 181°F
Sol: Insoluble
Fl.P: 11°F
IP: 8.95 eV
Sp.Gr: 0.81
VP: 67 mmHg
FRZ: -154°F
UEL: ?
LEL: ?
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
2000 ppm: Sa:Cf£/PaprOv£/CcrFOv/GmFOv/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers [**Note:** Forms explosive peroxides with oxygen upon storage.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, resp sys; drow
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

Cyclohexylamine

Formula:	CAS#:	RTECS#:	IDLH:
$C_6H_{11}NH_2$	108-91-8	GX0700000	N.D.

Conversion: 1 ppm = 4.06 mg/m^3 **DOT:** 2357 132

Synonyms/Trade Names: Aminocyclohexane, Aminohexahydrobenzene, Hexahydroaniline, Hexahydrobenzenamine

Exposure Limits:
NIOSH REL: TWA 10 ppm (40 mg/m^3)
OSHA PEL†: none

Measurement Methods (see Table 1):
NIOSH 2010
OSHA PV2016

Physical Description: Colorless or yellow liquid with a strong, fishy, amine-like odor.

Chemical & Physical Properties:
MW: 99.2
BP: 274°F
Sol: Miscible
Fl.P: 88°F
IP: 8.37 eV
Sp.Gr: 0.87
VP: 11 mmHg
FRZ: 0°F
UEL: 9.4%
LEL: 1.5%
Class IC Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Oxidizers, organic compounds, acid anhydrides, acid chlorides, acids, lead [**Note:** Corrosive to copper, aluminum, zinc & galvanized steel.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, muc memb, resp sys; eye, skin burns; skin sens; cough, pulm edema; drow, dizz; diarr, nau, vomit
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

C

Cyclonite

Formula:	CAS#:	RTECS#:	IDLH:
$C_3H_6N_6O_6$	121-82-4	XY9450000	N.D.

Conversion: **DOT:**

Synonyms/Trade Names: Cyclotrimethylenetrinitramine; Hexahydro-1,3,5-trinitro-s-triazine; RDX; Trimethylenetrinitramine; 1,3,5-Trinitro-1,3,5-triazacyclohexane

Exposure Limits:
NIOSH REL: TWA 1.5 mg/m^3
ST 3 mg/m^3 [skin]
OSHA PEL†: none

Measurement Methods (see Table 1):
NIOSH 0500

Physical Description: White, crystalline powder. [**Note:** A powerful high explosive.]

Chemical & Physical Properties:
MW: 222.2
BP: ?
Sol: Insoluble
Fl.P: Explodes
IP: ?
Sp.Gr: 1.82
VP(230°F): 0.0004 mmHg
MLT: 401°F
UEL: ?
LEL: ?
Combustible Solid [EXPLOSIVE!]

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Strong oxidizers, combustible materials, heat
[**Note:** Detonates on contact with mercury fulminate.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin; head, irrity, lass, tremor, nau, dizz, vomit, insom, convuls
TO: Eyes, skin, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap flush immed
Breath: Resp support
Swallow: Medical attention immed

Cyclopentadiene

Formula:	CAS#:	RTECS#:	IDLH:
C_5H_6	542-92-7	GY1000000	750 ppm

Conversion: 1 ppm = 2.70 mg/m^3 **DOT:**

Synonyms/Trade Names: 1,3-Cyclopentadiene

Exposure Limits:
NIOSH REL: TWA 75 ppm (200 mg/m^3)
OSHA PEL: TWA 75 ppm (200 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 2523

Physical Description: Colorless liquid with an irritating, terpene-like odor.

Chemical & Physical Properties:
MW: 66.1
BP: 107°F
Sol: Insoluble
Fl.P(oc): 77°F
IP: 8.56 eV
Sp.Gr: 0.80
VP: 400 mmHg
FRZ: -121°F
UEL: ?
LEL: ?
Class IC Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
750 ppm: CcrOv/GmFOv/PaprOv/Sa/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, fuming nitric acid, sulfuric acid
[**Note:** Polymerizes to dicyclopentadiene upon standing.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, nose
TO: Eyes, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

C

Cyclopentane	Formula: C_5H_{10}	CAS#: 287-92-3	RTECS#: GY2390000	IDLH: N.D.
Conversion: 1 ppm = 2.87 mg/m^3	**DOT:** 1146 128			

Synonyms/Trade Names: Pentamethylene

Exposure Limits:
NIOSH REL: TWA 600 ppm (1720 mg/m^3)
OSHA PEL†: none

Measurement Methods (see Table 1):
None available

Physical Description: Colorless liquid with a mild, sweet odor.

Chemical & Physical Properties:
MW: 70.2
BP: 121°F
Sol: Insoluble
Fl.P: -35°F
IP: 10.52 eV
Sp.Gr: 0.75
VP(88°F): 400 mmHg
FRZ: -137°F
UEL: 8.7%
LEL: 1.1%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: Daily
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Strong oxidizers (e.g., chlorine, bromine, fluorine)

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose, throat; dizz, euph, inco, nau, vomit, stupor; dry, cracking skin
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Resp support
Swallow: Medical attention immed

Cyhexatin	Formula: $(C_6H_{11})_3SnOH$	CAS#: 13121-70-5	RTECS#: WH8750000	IDLH: 80 mg/m^3 [25 mg/m^3 (as Sn)]
Conversion:	**DOT:**			

Synonyms/Trade Names: TCHH, Tricyclohexylhydroxystannane, Tricyclohexylhydroxytin, Tricyclohexylstannium hydroxide, Tricyclohexyltin hydroxide

Exposure Limits:
NIOSH REL: TWA 5 mg/m^3
OSHA PEL†: TWA 0.32 mg/m^3 [0.1 mg/m^3 (as Sn)]

Measurement Methods (see Table 1):
NIOSH 5504

Physical Description: Colorless to white, nearly odorless, crystalline powder. [insecticide]

Chemical & Physical Properties:
MW: 385.2
BP: 442°F (Decomposes)
Sol: Insoluble
Fl.P: NA
IP: NA
Sp.Gr: ?
VP: 0 mmHg (approx)
MLT: 383°F
UEL: NA
LEL: NA

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: N.R.
Wash skin: When contam
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
OSHA
3.2 mg/m^3: CcrOv95/Sa
8 mg/m^3: Sa:Cf/PaprOvHie
16 mg/m^3: CcrFOv100/GmFOv100/ PaprTOvHie/SaT:Cf/ScbaF/SaF
80 mg/m^3: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, ultraviolet light

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, resp sys; head, dizz; sore throat, cough; abdom pain, vomit; skin burns, pruritus; in animals: liver, kidney damage
TO: Eyes, skin, resp sys, liver, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

D

2,4-D	Formula: $Cl_2C_6H_3OCH_2COOH$	CAS#: 94-75-7	RTECS#: AG6825000	IDLH: 100 mg/m^3
Conversion:	**DOT:** 2765 152			

Synonyms/Trade Names: Dichlorophenoxyacetic acid; 2,4-Dichlorophenoxyacetic acid

Exposure Limits:
NIOSH REL: TWA 10 mg/m^3
OSHA PEL: TWA 10 mg/m^3

Measurement Methods (see Table 1):
NIOSH 5001

Physical Description: White to yellow, crystalline, odorless powder. [herbicide]

Chemical & Physical Properties:
MW: 221.0
BP: Decomposes
Sol: 0.05%
Fl.P: NA
IP: ?
Sp.Gr: 1.57
VP(320°F): 0.4 mmHg
MLT: 280°F
UEL: NA
LEL: NA
Noncombustible Solid, but may be dissolved in flammable liquids.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
100 mg/m^3: CcrOv95/GmFOv100/PaprOvHie/Sa/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Lass, stupor, hyporeflexia, musc twitch; convuls; derm; in animals: liver, kidney inj
TO: Skin, CNS, liver, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

DDT	Formula: $(C_6H_4Cl)_2CHCCl_3$	CAS#: 50-29-3	RTECS#: KJ3325000	IDLH: Ca [500 mg/m^3]
Conversion:	**DOT:** 2761 151			

Synonyms/Trade Names: p,p'-DDT; Dichlorodiphenyltrichloroethane; 1,1,1-Trichloro-2,2-bis(p-chlorophenyl)ethane

Exposure Limits:
NIOSH REL: Ca
TWA 0.5 mg/m^3
See Appendix A
OSHA PEL: TWA 1 mg/m^3 [skin]

Measurement Methods (see Table 1):
NIOSH S274 (II-3)

Physical Description: Colorless crystals or off-white powder with a slight, aromatic odor. [pesticide]

Chemical & Physical Properties:
MW: 354.5
BP: 230°F (Decomposes)
Sol: Insoluble
Fl.P: 162-171°F
IP: ?
Sp.Gr: 0.99
VP: 0.0000002 mmHg
MLT: 227°F
UEL: ?
LEL: ?
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, alkalis

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin; pares tongue, lips, face; tremor; anxi, dizz, conf, mal, head, lass; convuls; paresis hands; vomit; [carc]
TO: Eyes, skin, CNS, kidneys, liver, PNS [in animals: liver, lung & lymphatic tumors]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

D

Decaborane

Formula: $B_{10}H_{14}$ | **CAS#:** 17702-41-9 | **RTECS#:** HD1400000 | **IDLH:** 15 mg/m^3

Conversion: 1 ppm = 5.00 mg/m^3 | **DOT:** 1868 134

Synonyms/Trade Names: Decaboron tetradecahydride

Exposure Limits:
NIOSH REL: TWA 0.3 mg/m^3 (0.05 ppm) [skin]
ST 0.9 mg/m^3 (0.15 ppm)
OSHA PEL†: TWA 0.3 mg/m^3 (0.05 ppm) [skin]

Measurement Methods (see Table 1):
None available

Physical Description: Colorless to white crystalline solid with an intense, bitter, chocolate-like odor.

Chemical & Physical Properties:
MW: 122.2
BP: 415°F
Sol: Slight
Fl.P: 176°F
IP: 9.88 eV
Sp.Gr: 0.94
VP: 0.2 mmHg
MLT: 211°F
UEL: ?
LEL: ?
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
3 mg/m^3: Sa
7.5 mg/m^3: Sa:Cf
15 mg/m^3: SaT:Cf/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Oxidizers, water, halogenated compounds (especially carbon tetrachloride) [**Note:** May ignite SPONTANEOUSLY on exposure to air. Decomposes slowly in hot water.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Dizz, head, nau, drow; inco, local musc spasm, tremor, convuls; lass; in animals: dysp; lass; liver, kidney damage
TO: CNS, liver, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

1-Decanethiol

Formula: $CH_3(CH_2)_9SH$ | **CAS#:** 143-10-2 | **RTECS#:** | **IDLH:** N.D.

Conversion: 1 ppm = 7.13 mg/m^3 | **DOT:** 1228 131

Synonyms/Trade Names: Decylmercaptan, n-Decylmercaptan, 1-Mercaptodecane

Exposure Limits:
NIOSH REL: C 0.5 ppm (3.6 mg/m^3) [15-minute]
OSHA PEL: none

Measurement Methods (see Table 1):
None available

Physical Description: Colorless liquid with a strong odor.

Chemical & Physical Properties:
MW: 174.4
BP: 465°F
Sol: Insoluble
Fl.P: 209°F
IP: ?
Sp.Gr: 0.84
VP: ?
FRZ: -15°F
UEL: ?
LEL: ?
Class IIIB Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
5 ppm: CcrOv/Sa
12.5 ppm: Sa:Cf/PaprOv
25 ppm: CcrFOv/GmFOv/PaprTOv/ ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Oxidizers, strong acids & bases, alkali metals, nitric acid

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, resp sys; conf, dizz, head, drow, nau, vomit, lass, convuls
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Resp support
Swallow: Medical attention immed

D

Demeton	Formula: $(C_2H_5O)_2PSOC_2H_4SC_2H_5$	CAS#: 8065-48-3	RTECS#: TF3150000	IDLH: 10 mg/m^3
Conversion:	DOT:			

Synonyms/Trade Names: O-O-Diethyl-O(and S)-2-(ethylthio)ethyl phosphorothioate mixture, Systox®

Exposure Limits:
NIOSH REL: TWA 0.1 mg/m^3 [skin]
OSHA PEL: TWA 0.1 mg/m^3 [skin]

Measurement Methods (see Table 1):
NIOSH 5514

Physical Description: Amber, oily liquid with a sulfur-like odor. [insecticide]

Chemical & Physical Properties:
MW: 258.3
BP: Decomposes
Sol: 0.01%
Fl.P: 113°F
IP: ?
Sp.Gr: 1.12
VP: 0.0003 mmHg
FRZ: <-13°F
UEL: ?
LEL: ?
Class II Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
1 mg/m^3: Sa
2.5 mg/m^3: Sa:Cf
5 mg/m^3: SaT:Cf/ScbaF/SaF
10 mg/m^3: Sa:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, alkalis, water

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin; miosis, ache eyes, rhin, head; chest tight, wheez, lar spasm, salv, cyan; anor, nau, vomit, abdom cramps, diarr; local sweat; musc fasc, lass, para; dizz, conf, ataxia; convuls, coma; low BP; card irreg
TO: Eyes, skin, resp sys, CVS, CNS, blood chol

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Diacetone alcohol	Formula: $CH_3COCH_2C(CH_3)_2OH$	CAS#: 123-42-2	RTECS#: SA9100000	IDLH: 1800 ppm [10%LEL]
Conversion: 1 ppm = 4.75 mg/m^3	DOT: 1148 129			

Synonyms/Trade Names: Diacetone, 4-Hydroxy-4-methyl-2-pentanone, 2-Methyl-2-pentanol-4-one

Exposure Limits:
NIOSH REL: TWA 50 ppm (240 mg/m^3)
OSHA PEL: TWA 50 ppm (240 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1402, 1405
OSHA 7

Physical Description: Colorless liquid with a faint, minty odor.

Chemical & Physical Properties:
MW: 116.2
BP: 334°F
Sol: Miscible
Fl.P: 125°F
IP: ?
Sp.Gr: 0.94
VP: 1 mmHg
FRZ: -47°F
UEL: 6.9%
LEL: 1.8%
Class II Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
1250 ppm: Sa:Cf£/PaprOv£
1800 ppm: CcrFOv/GmFOv/PaprTOv£/ ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, strong alkalis

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose, throat; corn damage; in animals: narco, liver damage
TO: Eyes, skin, resp sys, CNS, liver

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush prompt
Breath: Resp support
Swallow: Medical attention immed

D

2,4-Diaminoanisole (and its salts)

Formula:	CAS#:	RTECS#:	IDLH:
$(NH_2)_2C_6H_3OCH_3$	615-05-4	BZ8580500	Ca [N.D.]

Conversion: **DOT:**

Synonyms/Trade Names: 1,3-Diamino-4-methoxybenzene; 4-Methoxy-1,3-benzene-diamine; 4-Methoxy-m-phenylene-diamine (Synonyms of salts vary depending upon the specific compound.)

Exposure Limits:
NIOSH REL: Ca
Minimize occupational exposure (especially skin exposures)
See Appendix A
OSHA PEL: none

Physical Description: Colorless solid (needles).
[**Note:** The primary use (including its salts such as 2,4-diaminoanisole sulfate) is a component of hair & fur dye formulations.]

Measurement Methods (see Table 1):
None available

Chemical & Physical Properties:
MW: 138.2
BP: ?
Sol: ?
Fl.P: ?
IP: ?
Sp.Gr: ?
VP: ?
MLT: 153°F
UEL: ?
LEL: ?
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: In animals: irrit skin; thyroid, liver changes; terato effects; [carc]
TO: Skin, thyroid, liver, repro sys [in animals: thyroid, liver, skin & lymphatic sys tumors]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

o-Dianisidine

Formula:	CAS#:	RTECS#:	IDLH:
$(NH_2C_6H_3OCH_3)_2$	119-90-4	DD0875000	Ca [N.D.]

Conversion: **DOT:**

Synonyms/Trade Names: Dianisidine; 3,3'-Dianisidine; 3,3'-Dimethoxybenzidine

Exposure Limits:
NIOSH REL: Ca
See Appendix A
See Appendix C
OSHA PEL: See Appendix C

Physical Description: Colorless crystals that turn a violet color on standing.
[**Note:** Used as a basis for many dyes.]

Measurement Methods (see Table 1):
NIOSH 5013
OSHA 71

Chemical & Physical Properties:
MW: 244.3
BP: ?
Sol: Insoluble
Fl.P: 403°F
IP: ?
Sp.Gr: ?
VP: ?
MLT: 279°F
UEL: ?
LEL: ?
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit skin; in animals: kidney, liver damage; thyroid, spleen changes; [carc]
TO: Skin, kidneys, liver, thyroid, liver [in animals: bladder, liver, stomach & mammary gland tumors]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

D

Diazinon®	Formula: $C_{12}H_{21}N_2O_3PS$	CAS#: 333-41-5	RTECS#: TF3325000	IDLH: N.D.
Conversion:	DOT: 2783 152			

Synonyms/Trade Names: Basudin®; Diazide®; O,O-Diethyl-O-2-isopropyl-4-methyl-6-pyrimidinyl-phosphorothioate; Spectracide®

Exposure Limits:
NIOSH REL: TWA 0.1 mg/m^3 [skin]
OSHA PEL†: none

Physical Description: Colorless liquid with a faint ester-like odor. [insecticide] [**Note:** Technical grade is pale to dark brown.]

Measurement Methods (see Table 1):
NIOSH 5600
OSHA 62

Chemical & Physical Properties:
MW: 304.4
BP: Decomposes
Sol: 0.004%
Fl.P: 180°F
IP: ?
Sp.Gr: 1.12
VP: 0.0001 mmHg
FRZ: ?
UEL: ?
LEL: ?
Class IIIA Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Strong acids & alkalis, copper-containing compounds [**Note:** Hydrolyzes slowly in water & dilute acid.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes; miosis, blurred vision; dizz, conf, lass, convuls; dysp; salv, abdom cramps, nau, vomit
TO: Eyes, resp sys, CNS, CVS, blood chol

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Diazomethane	Formula: CH_2N_2	CAS#: 334-88-3	RTECS#: PA7000000	IDLH: 2 ppm
Conversion: 1 ppm = 1.72 mg/m^3	DOT:			

Synonyms/Trade Names: Azimethylene, Azomethylene, Diazirine

Exposure Limits:
NIOSH REL: TWA 0.2 ppm (0.4 mg/m^3)
OSHA PEL: TWA 0.2 ppm (0.4 mg/m^3)

Physical Description: Yellow gas with a musty odor. [**Note:** Shipped as a liquefied compressed gas.]

Measurement Methods (see Table 1):
NIOSH 2515

Chemical & Physical Properties:
MW: 42.1
BP: -9°F
Sol: Reacts
Fl.P: NA (Gas)
IP: 9.00 eV
RGasD: 1.45
VP: >1 atm
FRZ: -229°F
UEL: ?
LEL: ?
Flammable Gas [EXPLOSIVE!]

Personal Protection/Sanitation (see Table 2):
Skin: Frostbite
Eyes: Frostbite
Wash skin: N.R.
Remove: When wet (flamm)
Change: N.R.
Provide: Frostbite wash

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
2 ppm: Sa*/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Alkali metals, water, drying agents such as calcium arsenate [**Note:** May explode violently on heating, exposure to sunlight, or contact with rough edges such as ground glass.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con (liquid)
SY: Irrit eyes; cough, short breath; head, lass; flush skin, fever; chest pain, pulm edema, pneu; asthma; liquid: frostbite
TO: Eyes, resp sys

First Aid (see Table 6):
Eye: Frostbite
Skin: Frostbite
Breath: Resp support

Diborane	**Formula:** B_2H_6	**CAS#:** 19287-45-7	**RTECS#:** HQ9275000	**IDLH:** 15 ppm
Conversion: 1 ppm = 1.13 mg/m^3	**DOT:** 1911 119			

Synonyms/Trade Names: Boroethane, Boron hydride, Diboron hexahydride

Exposure Limits:
NIOSH REL: TWA 0.1 ppm (0.1 mg/m^3)
OSHA PEL: TWA 0.1 ppm (0.1 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 6006

Physical Description: Colorless gas with a repulsive, sweet odor.
[**Note:** Usually shipped in pressurized cylinders diluted with hydrogen, argon, nitrogen, or helium.]

Chemical & Physical Properties:
MW: 27.7
BP: -135°F
Sol: Reacts
Fl.P: NA (Gas)
IP: 11.38 eV
RGasD: 0.97
VP(62°F): 39.5 atm
FRZ: -265°F
UEL: 88%
LEL: 0.8%
Flammable Gas

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
1 ppm: Sa
2.5 ppm: Sa:Cf
5 ppm: SaT:Cf/ScbaF/SaF
15 ppm: Sa:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS/ScbaE

Incompatibilities and Reactivities: Water, halogenated compounds, aluminum, lithium, oxidized surfaces, acids
[**Note:** Will ignite spontaneously in moist air at room temperature. Reacts with water to form hydrogen & boric acid.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh
SY: Chest tight, precordial pain, short breath, nonproductive cough, nau; head, dizz, chills, fever, lass, tremor, musc fasc; in animals: liver, kidney damage; pulm edema; hemorr
TO: Resp sys, CNS, liver, kidneys

First Aid (see Table 6):
Breath: Resp support

1,2-Dibromo-3-chloropropane	**Formula:** $CH_2BrCHBrCH_2Cl$	**CAS#:** 96-12-8	**RTECS#:** TX8750000	**IDLH:** Ca [N.D.]
Conversion: 1 ppm = 9.67 mg/m^3	**DOT:** 2872 159			

Synonyms/Trade Names: 1-Chloro-2,3-dibromopropane; DBCP; Dibromochloropropane

Exposure Limits:
NIOSH REL: Ca
See Appendix A
OSHA PEL: [1910.1044] TWA 0.001 ppm

Measurement Methods (see Table 1):
None available

Physical Description: Dense yellow or amber liquid with a pungent odor at high concentrations. [pesticide]
[**Note:** A solid below 43°F.]

Chemical & Physical Properties:
MW: 236.4
BP: 384°F
Sol: 0.1%
Fl.P(oc): 170°F
IP: ?
Sp.Gr: 2.05
VP: 0.8 mmHg
FRZ: 43°F
UEL: ?
LEL: ?
Class IIIA Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

See Appendix E (page 351)

Incompatibilities and Reactivities: Chemically-active metals such as aluminum, magnesium & tin alloys [**Note:** Corrosive to metals.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, nose, throat; drow; nau, vomit; pulm edema; liver, kidney inj; sterility; [carc]
TO: Eyes, skin, resp sys, CNS, liver, kidneys, spleen, repro sys, digestive sys [in animals: cancer of the nasal cavity, tongue, pharynx, lungs, stomach, adrenal & mammary glands]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

D

2-N-Dibutylaminoethanol	Formula: $(C_4H_9)_2NCH_2CH_2OH$	CAS#: 102-81-8	RTECS#: KK3850000	IDLH: N.D.
Conversion: 1 ppm = 7.09 mg/m^3	**DOT:** 2873 153			

Synonyms/Trade Names: Dibutylaminoethanol; 2-Dibutylaminoethanol; 2-Di-N-butylaminoethanol; 2-Di-N-butylaminoethyl alcohol; N,N-Dibutylethanolamine

Exposure Limits:
NIOSH REL: TWA 2 ppm (14 mg/m^3) [skin]
OSHA PEL†: none

Physical Description: Colorless liquid with a faint, amine-like odor.

Measurement Methods (see Table 1):
NIOSH 2007

Chemical & Physical Properties:
MW: 173.3
BP: 446°F
Sol: 0.4%
Fl.P: 195°F
IP: ?
Sp.Gr: 0.86
VP: 0.1 mmHg
FRZ: ?
UEL: ?
LEL: ?
Class IIIA Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: In animals: irrit eyes, skin, nose; derm; skin, corn nec; low-wgt
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap flush immed
Breath: Resp support
Swallow: Medical attention immed

2,6-Di-tert-butyl-p-cresol	Formula: $[C(CH_3)_3]_2CH_3C_6H_2OH$	CAS#: 128-37-0	RTECS#: GO7875000	IDLH: N.D.
Conversion:	**DOT:**			

Synonyms/Trade Names: BHT; Butylated hydroxytoluene; Dibutylated hydroxytoluene; 4-Methyl-2,6-di-tert-butyl phenol

Exposure Limits:
NIOSH REL: TWA 10 mg/m^3
OSHA PEL†: none

Physical Description: White to pale-yellow, crystalline solid with a slight, phenolic odor. [food preservative]

Measurement Methods (see Table 1):
NIOSH P&CAM226 (II-1)
OSHA PV2108

Chemical & Physical Properties:
MW: 220.4
BP: 509°F
Sol: 0.00004%
Fl.P: 261°F
IP: ?
Sp.Gr: 1.05
VP: 0.01 mmHg
MLT: 158°F
UEL: ?
LEL: ?
Class IIIB Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin; in animals: decr growth rate, incr liver weight
TO: Eyes, skin

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Fresh air
Swallow: Medical attention immed

Dibutyl phosphate	Formula: $(C_4H_9O)_2(OH)PO$	CAS#: 107-66-4	RTECS#: TB9605000	IDLH: 30 ppm
Conversion: 1 ppm = 8.60 mg/m^3	**DOT:**			

Synonyms/Trade Names: Dibutyl acid o-phosphate, Di-n-butyl hydrogen phosphate, Dibutyl phosphoric acid

Exposure Limits:
NIOSH REL: TWA 1 ppm (5 mg/m^3)
ST 2 ppm (10 mg/m^3)
OSHA PEL†: TWA 1 ppm (5 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 5017

Physical Description: Pale-amber, odorless liquid.

Chemical & Physical Properties:
MW: 210.2
BP: 212°F (Decomposes)
Sol: Insoluble
Fl.P: ?
IP: ?
Sp.Gr: 1.06
VP: 1 mmHg (approx)
FRZ: ?
UEL: ?
LEL: ?
Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
10 ppm: Sa
25 ppm: Sa:Cf
30 ppm: SaT:Cf/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, resp sys; head
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

Dibutyl phthalate	Formula: $C_6H_4(COOC_4H_9)_2$	CAS#: 84-74-2	RTECS#: TI0875000	IDLH: 4000 mg/m^3
Conversion: 1 ppm = 11.57 mg/m^3	**DOT:**			

Synonyms/Trade Names: DBP; Dibutyl-1,2-benzene-dicarboxylate; Di-n-butyl phthalate

Exposure Limits:
NIOSH REL: TWA 5 mg/m^3
OSHA PEL: TWA 5 mg/m^3

Measurement Methods (see Table 1):
NIOSH 5020
OSHA 104

Physical Description: Colorless to faint-yellow, oily liquid with a slight, aromatic odor.

Chemical & Physical Properties:
MW: 278.3
BP: 644°F
Sol(77°F): 0.001%
Fl.P: 315°F
IP: ?
Sp.Gr: 1.05
VP: 0.00007 mmHg
FRZ: -31°F
UEL: ?
LEL(456°F): 0.5%
Class IIIB Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: Prevent eye contact
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
50 mg/m^3: 95F
125 mg/m^3: Sa:Cf£/PaprHie£
250 mg/m^3: 100F/ScbaF/SaF
4000 mg/m^3: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Nitrates; strong oxidizers, alkalis & acids; liquid chlorine

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, upper resp sys, stomach
TO: Eyes, resp sys, GI tract

First Aid (see Table 6):
Eye: Irr immed
Skin: Wash regularly
Breath: Resp support
Swallow: Medical attention immed

D

Dichloroacetylene	Formula: C_2Cl_2	CAS#: 7572-29-4	RTECS#: AP1080000	IDLH: Ca [N.D.]
Conversion: 1 ppm = 3.88 mg/m^3	DOT:			

Synonyms/Trade Names: DCA, Dichloroethyne
[**Note:** DCA is a possible decomposition product of trichloroethylene or trichloroethane.]

Exposure Limits:
NIOSH REL: Ca
C 0.1 ppm (0.4 mg/m^3)
See Appendix A
OSHA PEL†: none

Measurement Methods (see Table 1):
None available

Physical Description: Volatile oil with a disagreeable, sweetish odor.
[**Note:** A gas above 90°F. DCA is not produced commercially.]

Chemical & Physical Properties:
MW: 94.9
BP: 90°F (Explodes)
Sol: ?
Fl.P: ?
IP: ?
Sp.Gr: 1.26
VP: ?
FRZ: -58 to -87°F
UEL: ?
LEL: ?
Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Oxidizers, heat, shock

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Head, loss of appetite, nau, vomit, intense jaw pain, cranial nerve palsy; in animals: kidney, liver, brain inj; low-wgt; [carc]
TO: CNS [in animals: kidney tumors]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap flush immed
Breath: Resp support
Swallow: Medical attention immed

o-Dichlorobenzene	Formula: $C_6H_4Cl_2$	CAS#: 95-50-1	RTECS#: CZ4500000	IDLH: 200 ppm
Conversion: 1 ppm = 6.01 mg/m^3	DOT: 1591 152			

Synonyms/Trade Names: o-DCB; 1,2-Dichlorobenzene; ortho-Dichlorobenzene; o-Dichlorobenzol

Exposure Limits:
NIOSH REL: C 50 ppm (300 mg/m^3)
OSHA PEL: C 50 ppm (300 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1003
OSHA 7

Physical Description: Colorless to pale-yellow liquid with a pleasant, aromatic odor. [herbicide]

Chemical & Physical Properties:
MW: 147.0
BP: 357°F
Sol: 0.01%
Fl.P: 151°F
IP: 9.06 eV
Sp.Gr: 1.30
VP: 1 mmHg
FRZ: 1°F
UEL: 9.2%
LEL: 2.2%
Class IIIA Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
200 ppm: CcrFOv/PaprOv£/ ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, aluminum, chlorides, acids, acid fumes

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, nose; liver, kidney damage; skin blisters
TO: Eyes, skin, resp sys, liver, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

p-Dichlorobenzene	**Formula:** $C_6H_4Cl_2$	**CAS#:** 106-46-7	**RTECS#:** CZ4550000	**IDLH:** Ca [150 ppm]
Conversion: 1 ppm = 6.01 mg/m^3	**DOT:**			

Synonyms/Trade Names: p-DCB; 1,4-Dichlorobenzene; para-Dichlorobenzene; Dichlorocide

Exposure Limits:
NIOSH REL: Ca
See Appendix A
OSHA PEL†: TWA 75 ppm (450 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1003
OSHA 7

Physical Description: Colorless or white crystalline solid with a mothball-like odor. [insecticide]

Chemical & Physical Properties:
MW: 147.0
BP: 345°F
Sol: 0.008%
Fl.P: 150°F
IP: 8.98 eV
Sp.Gr: 1.25
VP: 1.3 mmHg
MLT: 128°F
UEL: ?
LEL: 2.5%
Combustible Solid, but may take some effort to ignite.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers (such as chlorine or permanganate)

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Eye irrit, swell periorb; profuse rhinitis; head, anor, nau, vomit; low-wgt, jaun, cirr; in animals: liver, kidney inj; [carc]
TO: Liver, resp sys, eyes, kidneys, skin [in animals: liver & kidney cancer]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Resp support
Swallow: Medical attention immed

3,3'-Dichlorobenzidine (and its salts)	**Formula:** $NH_2ClC_6H_3C_6H_3ClNH_2$	**CAS#:** 91-94-1	**RTECS#:** DD0525000	**IDLH:** Ca [N.D.]
Conversion:	**DOT:**			

Synonyms/Trade Names: 4,4'-Diamino-3,3'-dichlorobiphenyl; Dichlorobenzidine base; o,o'-Dichlorobenzidine; 3,3'-Dichlorobiphenyl-4,4'-diamine; 3,3'-Dichloro-4,4'-biphenyldiamine; 3,3'-Dichloro-4,4'-diaminobiphenyl

Exposure Limits:
NIOSH REL: Ca
See Appendix A
OSHA PEL: [1910.1007] See Appendix B

Measurement Methods (see Table 1):
NIOSH 5509
OSHA 65

Physical Description: Gray to purple, crystalline solid.

Chemical & Physical Properties:
MW: 253.1
BP: 788°F
Sol(59°F): 0.07%
Fl.P: ?
IP: ?
Sp.Gr: ?
VP: ?
MLT: 271°F
UEL: ?
LEL: ?

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

See Appendix E (page 351)

Incompatibilities and Reactivities: None reported

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Skin sens, derm; head, dizz; caustic burns; frequent urination, dysuria; hema; GI upset; upper resp infection; [carc]
TO: Bladder, liver, lung, skin, GI tract [in animals: liver & bladder cancer]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

D

Dichlorodifluoromethane	Formula: CCl_2F_2	CAS#: 75-71-8	RTECS#: PA8200000	IDLH: 15,000 ppm
Conversion: 1 ppm = 4.95 mg/m^3	**DOT:** 1028 126			

Synonyms/Trade Names: Difluorodichloromethane, Fluorocarbon 12, Freon® 12, Genetron® 12, Halon® 122, Propellant 12, Refrigerant 12

Exposure Limits:
NIOSH REL: TWA 1000 ppm (4950 mg/m^3)
OSHA PEL: TWA 1000 ppm (4950 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1018

Physical Description: Colorless gas with an ether-like odor at extremely high concentrations. [**Note:** Shipped as a liquefied compressed gas.]

Chemical & Physical Properties:
MW: 120.9
BP: -22°F
Sol(77°F): 0.03%
Fl.P: NA
IP: 11.75 eV
RGasD: 4.2
VP: 5.7 atm
FRZ: -252°F
UEL: NA
LEL: NA
Nonflammable Gas

Personal Protection/Sanitation (see Table 2):
Skin: Frostbite
Eyes: Frostbite
Wash skin: N.R.
Remove: N.R.
Change: N.R.
Provide: Frostbite wash

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
10,000 ppm: Sa
15,000 ppm: Sa:Cf/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Chemically-active metals such as sodium, potassium, calcium, powdered aluminum, zinc & magnesium

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con (liquid)
SY: Dizz, tremor, asphy, uncon, card arrhy, card arrest; liquid: frostbite
TO: CVS, PNS

First Aid (see Table 6):
Eye: Frostbite
Skin: Frostbite
Breath: Resp support

1,3-Dichloro-5,5-dimethylhydantoin	Formula: $C_5H_6Cl_2N_2O_2$	CAS#: 118-52-5	RTECS#: MU0700000	IDLH: 5 mg/m^3
Conversion:	**DOT:**			

Synonyms/Trade Names: Dactin, DDH, Halane

Exposure Limits:
NIOSH REL: TWA 0.2 mg/m^3
ST 0.4 mg/m^3
OSHA PEL†: TWA 0.2 mg/m^3

Measurement Methods (see Table 1):
None available

Physical Description: White powder with a chlorine-like odor.

Chemical & Physical Properties:
MW: 197.0
BP: ?
Sol: 0.2%
Fl.P: 346°F
IP: ?
Sp.Gr: 1.5
VP: ?
MLT: 270°F
UEL: ?
LEL: ?
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
2 mg/m^3: Sa
5 mg/m^3: Sa:Cf/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS100/ScbaE

Incompatibilities and Reactivities: Water, strong acids, easily oxidized materials such as ammonia salts & sulfides

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, muc memb, resp sys
TO: Eyes, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

D

1,1-Dichloroethane	Formula: $CHCl_2CH_3$	CAS#: 75-34-3	RTECS#: KI0175000	IDLH: 3000 ppm
Conversion: 1 ppm = 4.05 mg/m^3	**DOT:** 2362 130			

Synonyms/Trade Names: Asymmetrical dichloroethane; Ethylidene chloride; 1,1-Ethylidene dichloride

Exposure Limits:
NIOSH REL: TWA 100 ppm (400 mg/m^3)
See Appendix C (Chloroethanes)
OSHA PEL: TWA 100 ppm (400 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1003
OSHA 7

Physical Description: Colorless, oily liquid with a chloroform-like odor.

Chemical & Physical Properties:
MW: 99.0
BP: 135°F
Sol: 0.6%
Fl.P: 2°F
IP: 11.06 eV
Sp.Gr: 1.18
VP: 182 mmHg
FRZ: -143°F
UEL: 11.4%
LEL: 5.4%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
1000 ppm: Sa
2500 ppm: Sa:Cf
3000 ppm: ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, strong caustics

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit skin; CNS depres; liver, kidney, lung damage
TO: Skin, liver, kidneys, lungs, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap flush prompt
Breath: Resp support
Swallow: Medical attention immed

1,2-Dichloroethylene	Formula: ClCH=CHCl	CAS#: 540-59-0	RTECS#: KV9360000	IDLH: 1000 ppm
Conversion: 1 ppm = 3.97 mg/m^3	**DOT:** 1150 130P			

Synonyms/Trade Names: Acetylene dichloride, cis-Acetylene dichloride, trans-Acetylene dichloride, sym-Dichloroethylene

Exposure Limits:
NIOSH REL: TWA 200 ppm (790 mg/m^3)
OSHA PEL: TWA 200 ppm (790 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1003
OSHA 7

Physical Description: Colorless liquid (usually a mixture of the cis & trans isomers) with a slightly acrid, chloroform-like odor.

Chemical & Physical Properties:
MW: 97.0
BP: 118-140°F
Sol: 0.4%
Fl.P: 36-39°F
IP: 9.65 eV
Sp.Gr(77°F): 1.27
VP: 180-265 mmHg
FRZ: -57 to -115°F
UEL: 12.8%
LEL: 5.6%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
2000 ppm: Sa:Cf£/PaprOv£/CcrFOv/GmFOv/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, strong alkalis, potassium hydroxide, copper [**Note:** Usually contains inhibitors to prevent polymerization.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, resp sys; CNS depres
TO: Eyes, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

D

Dichloroethyl ether

Formula:	CAS#:	RTECS#:	IDLH:
$(ClCH_2CH_2)_2O$	111-44-4	KN0875000	Ca [100 ppm]

Conversion: 1 ppm = 5.85 mg/m^3 **DOT:** 1916 152

Synonyms/Trade Names: bis(2-Chloroethyl)ether; 2,2'-Dichlorodiethyl ether, 2,2'-Dichloroethyl ether

Exposure Limits:
NIOSH REL: Ca
TWA 5 ppm (30 mg/m^3)
ST 10 ppm (60 mg/m^3) [skin]
See Appendix A
OSHA PEL†: TWA 15 ppm (90 mg/m^3) [skin]

Measurement Methods (see Table 1):
NIOSH 1004
OSHA 7

Physical Description: Colorless liquid with a chlorinated solvent-like odor.

Chemical & Physical Properties:
MW: 143.0
BP: 352°F
Sol: 1%
Fl.P: 131°F
IP: ?
Sp.Gr: 1.22
VP: 0.7 mmHg
FRZ: -58°F
UEL: ?
LEL: 2.7%
Class II Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers
[**Note:** Decomposes in presence of moisture to form hydrochloric acid.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit nose, throat, resp sys; lac; cough; nau, vomit; in animals: pulm edema; liver damage; [carc]
TO: Eyes, resp sys, liver [in animals: liver tumors]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Resp support
Swallow: Medical attention immed

Dichloromonofluoromethane

Formula:	CAS#:	RTECS#:	IDLH:
$CHCl_2F$	75-43-4	PA8400000	5000 ppm

Conversion: 1 ppm = 4.21 mg/m^3 **DOT:** 1029 126

Synonyms/Trade Names: Dichlorofluoromethane, Fluorodichloromethane, Freon® 21, Genetron® 21, Halon® 112, Refrigerant 21

Exposure Limits:
NIOSH REL: TWA 10 ppm (40 mg/m^3)
OSHA PEL†: TWA 1000 ppm (4200 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 2516

Physical Description: Colorless gas with a slight, ether-like odor.
[**Note:** A liquid below 48°F. Shipped as a liquefied compressed gas.]

Chemical & Physical Properties:
MW: 102.9
BP: 48°F
Sol(86°F): 0.7%
Fl.P: NA
IP: 12.39 eV
RGasD: 3.57
VP(70°F): 1.6 atm
FRZ: -211°F
UEL: NA
LEL: NA
Nonflammable Gas

Personal Protection/Sanitation (see Table 2):
Skin: Frostbite
Eyes: Frostbite
Wash skin: N.R.
Remove: N.R.
Change: N.R.
Provide: Frostbite wash

Respirator Recommendations (see Tables 3 and 4):
NIOSH
100 ppm: Sa
250 ppm: Sa:Cf
500 ppm: ScbaF/SaF
5000 ppm: Sa:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Chemically-active metals such as sodium, potassium, calcium, powdered aluminum, zinc & magnesium; acid; acid fumes

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con (liquid)
SY: Asphy, card arrhy, card arrest; liquid: frostbite
TO: Resp sys, CVS

First Aid (see Table 6):
Eye: Frostbite
Skin: Frostbite
Breath: Resp support

1,1-Dichloro-1-nitroethane	Formula: $CH_3CCl_2NO_2$	CAS#: 594-72-9	RTECS#: KI0500000	IDLH: 25 ppm
Conversion: 1 ppm = 5.89 mg/m^3	**DOT:** 2650 153			

Synonyms/Trade Names: Dichloronitroethane

Exposure Limits:
NIOSH REL: TWA 2 ppm (10 mg/m^3)
OSHA PEL†: C 10 ppm (60 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1601
OSHA 7

Physical Description: Colorless liquid with an unpleasant odor. [fumigant]

Chemical & Physical Properties:
MW: 143.9
BP: 255°F
Sol: 0.3%
Fl.P: 136°F
IP: ?
Sp.Gr: 1.43
VP: 15 mmHg
FRZ: ?
UEL: ?
LEL: ?
Class II Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
20 ppm: Sa
25 ppm: Sa:Cf/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers [**Note:** Corrosive to iron in presence of moisture.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: In animals: irrit eyes, skin; liver, heart, kidney damage; pulm edema, hemorr
TO: Eyes, skin, resp sys, liver, kidneys, CVS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

1,3-Dichloropropene	Formula: $ClHC{=}CHCH_2Cl$	CAS#: 542-75-6	RTECS#: UC8310000	IDLH: Ca [N.D.]
Conversion: 1 ppm = 4.54 mg/m^3	**DOT:** 2047 129			

Synonyms/Trade Names: 3-Chloroallyl chloride; DCP; 1,3-Dichloro-1-propene; 1,3-Dichloropropylene; Telone®

Exposure Limits:
NIOSH REL: Ca
TWA 1 ppm (5 mg/m^3) [skin]
See Appendix A
OSHA PEL†: none

Measurement Methods (see Table 1):
None available

Physical Description: Colorless to straw-colored liquid with a sharp, sweet, irritating, chloroform-like odor. [insecticide] [**Note:** Exists as mixture of cis- & trans-isomers.]

Chemical & Physical Properties:
MW: 111.0
BP: 226°F
Sol: 0.2%
Fl.P: 77°F
IP: ?
Sp.Gr: 1.21
VP: 28 mmHg
FRZ: -119°F
UEL: 14.5%
LEL: 5.3%
Class IC Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Aluminum, magnesium, halogens, oxidizers [**Note:** Epichlorohydrin may be added as a stabilizer.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, resp sys; eye, skin burns; lac; head, dizz; in animals; liver, kidney damage; [carc]
TO: Eyes, skin, resp sys, CNS, liver, kidneys [in animals: cancer of the bladder, liver, lung & forestomach]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap flush immed
Breath: Resp support
Swallow: Medical attention immed

D

2,2-Dichloropropionic acid	Formula: CH_3CCl_2COOH	CAS#: 75-99-0	RTECS#: UF0690000	IDLH: N.D.
Conversion: 1 ppm = 5.85 mg/m^3	**DOT:**			

Synonyms/Trade Names: Dalapon; 2,2-Dichloropropanoic acid; α,α-Dichloropropionic acid

Exposure Limits:
NIOSH REL: TWA 1 ppm (6 mg/m^3)
OSHA PEL†: none

Physical Description: Colorless liquid with an acrid odor. [herbicide] [**Note:** A white to tan powder below 46°F. The sodium salt, a white powder, is often used.]

Measurement Methods (see Table 1):
OSHA PV2017

Chemical & Physical Properties:
MW: 143.0
BP: 374°F
Sol: 50%
Fl.P: NA
IP: ?
Sp.Gr: 1.40
VP: ?
FRZ: 46°F
UEL: NA
LEL: NA
Noncombustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Metals
[**Note:** Very corrosive to aluminum & copper alloys. Reacts slowly in water to form hydrochloric & pyruvic acids.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, upper resp sys; skin burns; lass, loss of appetite, diarr, vomit, slowing of pulse; CNS depres
TO: Eyes, skin, resp sys, GI tract, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water wash immed
Breath: Resp support
Swallow: Medical attention immed

Dichlorotetrafluoroethane	Formula: $CClF_2CClF_2$	CAS#: 76-14-2	RTECS#: KI1101000	IDLH: 15,000 ppm
Conversion: 1 ppm = 6.99 mg/m^3	**DOT:** 1958 126			

Synonyms/Trade Names: 1,2-Dichlorotetrafluoroethane; Freon® 114; Genetron® 114; Halon® 242; Refrigerant 114

Exposure Limits:
NIOSH REL: TWA 1000 ppm (7000 mg/m^3)
OSHA PEL: TWA 1000 ppm (7000 mg/m^3)

Physical Description: Colorless gas with a faint, ether-like odor at high concentrations. [**Note:** A liquid below 38°F. Shipped as a liquefied compressed gas.]

Measurement Methods (see Table 1):
NIOSH 1018

Chemical & Physical Properties:
MW: 170.9
BP: 38°F
Sol: 0.01%
Fl.P: NA
IP: 12.20 eV
RGasD: 5.93
VP(70°F): 1.9 atm
FRZ: -137°F
UEL: NA
LEL: NA
Nonflammable Gas

Personal Protection/Sanitation (see Table 2):
Skin: Frostbite
Eyes: Frostbite
Wash skin: N.R.
Remove: N.R.
Change: N.R.
Provide: Frostbite wash

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
10,000 ppm: Sa
15,000 ppm: Sa:Cf/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Chemically-active metals such as sodium, potassium, calcium, powdered aluminum, zinc & magnesium; acids; acid fumes

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con (liquid)
SY: Irrit resp sys; asphy; card arrhy, card arrest; liquid: frostbite
TO: Resp sys, CVS

First Aid (see Table 6):
Eye: Frostbite
Skin: Frostbite
Breath: Resp support

Dichlorvos	**Formula:** $(CH_3O)_2P(O)OCH{=}CCl_2$	**CAS#:** 62-73-7	**RTECS#:** TC0350000	**IDLH:** 100 mg/m^3
Conversion: 1 ppm = 9.04 mg/m^3	**DOT:** 2783 152			

Synonyms/Trade Names: DDVP; 2,2-Dichlorovinyl dimethyl phosphate

Exposure Limits:
NIOSH REL: TWA 1 mg/m^3 [skin]
OSHA PEL: TWA 1 mg/m^3 [skin]

Measurement Methods (see Table 1):
NIOSH P&CAM295 (II-5)
OSHA 62

Physical Description: Colorless to amber liquid with a mild, chemical odor. [**Note:** Insecticide that may be absorbed on a dry carrier.]

Chemical & Physical Properties:
MW: 221.0
BP: Decomposes
Sol: 0.5%
Fl.P: >175°F
IP: ?
Sp.Gr(77°F): 1.42
VP: 0.01 mmHg
FRZ: ?
UEL: ?
LEL: ?
Class III Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
10 mg/m^3: Sa
25 mg/m^3: Sa:Cf
50 mg/m^3: SaT:Cf/ScbaF/SaF
100 mg/m^3: Sa:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Strong acids, strong alkalis [**Note:** Corrosive to iron & mild steel.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin; miosis, ache eyes; rhin; head; chest tight, wheez, lar spasm, salv; cyan; anor, nau, vomit, diarr; sweat; musc fasc, para, dizz, ataxia; convuls; low BP, card irreg
TO: Eyes, skin, resp sys, CVS, CNS, blood chol

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Dicrotophos	**Formula:** $C_8H_{16}NO_5P$	**CAS#:** 141-66-2	**RTECS#:** TC3850000	**IDLH:** N.D.
Conversion: 1 ppm = 9.70 mg/m^3	**DOT:**			

Synonyms/Trade Names: Bidrin®, Carbicron®, 2-Dimethyl-cis-2-dimethylcarbamoyl-1-methylvinylphosphate

Exposure Limits:
NIOSH REL: TWA 0.25 mg/m^3 [skin]
OSHA PEL†: none

Measurement Methods (see Table 1):
NIOSH 5600

Physical Description: Yellow-brown liquid with a mild, ester odor. [insecticide]

Chemical & Physical Properties:
MW: 237.2
BP: 752°F
Sol: Miscible
Fl.P: >200°F
IP: ?
Sp.Gr(59°F): 1.22
VP: 0.0001 mmHg
FRZ: ?
UEL: ?
LEL: ?
Class IIIB Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Metals [**Note:** Corrosive to cast iron, mild steel, brass & stainless steel.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Head, nau, dizz, anxi, restless, musc twitch, lass, tremor, inco, vomit, abdom cramps, diarr; salv, sweat, lac, rhinitis; anor, mal
TO: CNS, blood chol

First Aid (see Table 6):
Eye: Irr immed
Skin: Water wash immed
Breath: Resp support
Swallow: Medical attention immed

D

Dicyclopentadiene	Formula: $C_{10}H_{12}$	CAS#: 77-73-6	RTECS#: PC1050000	IDLH: N.D.
Conversion: 1 ppm = 5.41 mg/m^3	**DOT:** 2048 130			

Synonyms/Trade Names: Bicyclopentadiene; DCPD; 1,3-Dicyclopentadiene dimer; 3a,4,7,7a-Tetrahydro-4,7-methanoindene [**Note:** Exists in two stereoisomeric forms.]

Exposure Limits:
NIOSH REL: TWA 5 ppm (30 mg/m^3)
OSHA PEL†: none

Measurement Methods (see Table 1):
OSHA PV2098

Physical Description: Colorless, crystalline solid with a disagreeable, camphor-like odor. [**Note:** A liquid above 90°F.]

Chemical & Physical Properties:
MW: 132.2
BP: 342°F
Sol: 0.02%
Fl.P(oc): 90°F
IP: ?
Sp.Gr: 0.98 (Liquid at 95°F)
VP: 1.4 mmHg
FRZ: 90°F
UEL: 6.3%
LEL: 0.8%
Class IC Flammable Liquid
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Oxidizers
[**Note:** Depolymerizes at boiling point and forms two molecules of cyclopentadiene. Must be inhibited and maintained under an inert atmosphere to prevent polymerization.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose, throat; inco, head; sneez, cough; skin blisters; in animals: kidney, lung damage
TO: Eyes, skin, resp sys, CNS, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap flush immed
Breath: Resp support
Swallow: Medical attention immed

Dicyclopentadienyl iron	Formula: $(C_5H_5)_2Fe$	CAS#: 102-54-5	RTECS#: LK0700000	IDLH: N.D.
Conversion:	**DOT:**			

Synonyms/Trade Names: bis(Cyclopentadienyl)iron, Ferrocene, Iron dicyclopentadienyl

Exposure Limits:
NIOSH REL: TWA 10 mg/m^3 (total)
TWA 5 mg/m^3 (resp)
OSHA PEL†: TWA 15 mg/m^3 (total)
TWA 5 mg/m^3 (resp)

Measurement Methods (see Table 1):
OSHA ID125G

Physical Description: Orange, crystalline solid with a camphor-like odor.

Chemical & Physical Properties:
MW: 186.1
BP: 480°F
Sol: Insoluble
Fl.P: ?
IP: 6.88 eV
Sp.Gr: ?
VP: ?
MLT: 343°F
UEL: ?
LEL: ?
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Ammonium perchlorate, tetranitromethane, mercury(II) nitrate

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Possible irrit eyes, skin, resp sys; in animals: liver, RBC, testicular changes
TO: Eyes, skin, resp sys, liver, blood, repro sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Resp support
Swallow: Medical attention immed

D

Dieldrin	**Formula:** $C_{12}H_8Cl_6O$	**CAS#:** 60-57-1	**RTECS#:** IO1750000	**IDLH:** Ca [50 mg/m^3]
Conversion:	**DOT:** 2761 151			

Synonyms/Trade Names: HEOD;
1,2,3,4,10,10-Hexachloro-6,7-epoxy-1,4,4a,5,6,7,8,8a-octahydro-1,4-endo,exo-5,8-dimethanonaphthalene

Exposure Limits:
NIOSH REL: Ca
TWA 0.25 mg/m^3 [skin]
See Appendix A
OSHA PEL: TWA 0.25 mg/m^3 [skin]

Measurement Methods (see Table 1):
NIOSH S283 (II-3)

Physical Description: Colorless to light-tan crystals with a mild, chemical odor. [insecticide]

Chemical & Physical Properties:
MW: 380.9
BP: Decomposes
Sol: 0.02%
Fl.P: NA
IP: ?
Sp.Gr: 1.75
VP(77°F): 8 x 10^{-7} mmHg
MLT: 349°F
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, active metals such as sodium, strong acids, phenols

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Head, dizz; nau, vomit, mal, sweat; myoclonic limb jerks; clonic, tonic convuls; coma; [carc]; in animals: liver, kidney damage
TO: CNS, liver, kidneys, skin [in animals: lung, liver, thyroid & adrenal gland tumors]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Diesel exhaust	**Formula:**	**CAS#:**	**RTECS#:** HZ1755000	**IDLH:** Ca [N.D.]
Conversion:	**DOT:**			

Synonyms/Trade Names: Synonyms vary depending upon the specific diesel exhaust component.

Exposure Limits:
NIOSH REL: Ca
See Appendix A
OSHA PEL: none

Measurement Methods (see Table 1):
NIOSH 2560, 5040

Physical Description: Appearance and odor vary depending upon the specific diesel exhaust component.

Chemical & Physical Properties:
Properties vary depending upon the specific component diesel exhaust component.

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Varies

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Eye irrit, pulm func changes; [carc]
TO: Eyes, resp sys [in animals: lung tumors]

First Aid (see Table 6):
Breath: Resp support

D

Diethanolamine	Formula: $(HOCH_2CH_2)_2NH$	CAS#: 111-42-2	RTECS#: KL2975000	IDLH: N.D.
Conversion: 1 ppm = 4.30 mg/m^3	**DOT:**			

Synonyms/Trade Names: DEA; Di(2-hydroxyethyl)amine; 2,2'-Dihydroxydiethyamine; Diolamine; bis(2-Hydroxyethyl)amine; 2,2'-Iminodiethanol

Exposure Limits:
NIOSH REL: TWA 3 ppm (15 mg/m^3)
OSHA PEL†: none

Physical Description: Colorless crystals or a syrupy, white liquid (above 82°F) with a mild, ammonia-like odor.

Measurement Methods (see Table 1):
NIOSH 3509
OSHA PV2018

Chemical & Physical Properties:
MW: 105.2
BP: 516°F (Decomposes)
Sol: 95%
Fl.P: 279°F
IP: ?
Sp.Gr: 1.10
VP: <0.01 mmHg
MLT: 82°F
UEL: 9.8%
LEL: 1.6%
Class IIIB Combustible Liquid
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Oxidizers, strong acids, acid anhydrides, halides
[**Note:** Reacts with CO_2 in the air. Hygroscopic (i.e., absorbs moisture from the air). Corrosive to copper, zinc, and galvanized iron.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose, throat; eye burns, corn nec; skin burns; lac, cough, sneez
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

Diethylamine	Formula: $(C_2H_5)_2NH$	CAS#: 109-89-7	RTECS#: HZ8750000	IDLH: 200 ppm
Conversion: 1 ppm = 2.99 mg/m^3	**DOT:** 1154 132			

Synonyms/Trade Names: Diethamine; N,N-Diethylamine; N-Ethylethanamine

Exposure Limits:
NIOSH REL: TWA 10 ppm (30 mg/m^3)
ST 25 ppm (75 mg/m^3)
OSHA PEL†: TWA 25 ppm (75 mg/m^3)

Physical Description: Colorless liquid with a fishy, ammonia-like odor.

Measurement Methods (see Table 1):
NIOSH 2010
OSHA 41

Chemical & Physical Properties:
MW: 73.1
BP: 132°F
Sol: Miscible
Fl.P: -15°F
IP: 8.01 eV
Sp.Gr: 0.71
VP: 192 mmHg
FRZ: -58°F
UEL: 10.1%
LEL: 1.8%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.
Provide: Eyewash (>0.5%)
Quick drench (liquid)

Respirator Recommendations (see Tables 3 and 4):
NIOSH
200 ppm: Sa:Cf£/PaprS£/CcrFS/GmFS/ ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, strong acids, cellulose nitrate

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, resp sys; in animals; myocardial degeneration
TO: Eyes, skin, resp sys, CVS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

D

2-Diethylaminoethanol

Formula: $(C_2H_5)_2NCH_2CH_2OH$
CAS#: 100-37-8
RTECS#: KK5075000
IDLH: 100 ppm

Conversion: 1 ppm = 4.79 mg/m^3
DOT: 2686 132

Synonyms/Trade Names: Diethylaminoethanol; 2-Diethylaminoethyl alcohol; N,N-Diethylethanolamine; Diethyl-(2-hydroxyethyl)amine; 2-Hydroxytriethylamine

Exposure Limits:
NIOSH REL: TWA 10 ppm (50 mg/m^3) [skin]
OSHA PEL: TWA 10 ppm (50 mg/m^3) [skin]

Measurement Methods (see Table 1):
NIOSH 2007

Physical Description: Colorless liquid with a nauseating, ammonia-like odor.

Chemical & Physical Properties:
MW: 117.2
BP: 325°F
Sol: Miscible
Fl.P: 126°F
IP: ?
Sp.Gr: 0.89
VP: 1 mmHg
FRZ: -94°F
UEL: 11.7%
LEL: 6.7%
Class II Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash (>5%)
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
100 ppm: CcrOv*/GmFOv/PaprOv*/Sa*/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, strong acids

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, resp sys; nau, vomit
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

Diethylenetriamine

Formula: $(NH_2CH_2CH_2)_2NH$
CAS#: 111-40-0
RTECS#: IE1225000
IDLH: N.D.

Conversion: 1 ppm = 4.22 mg/m^3
DOT: 2079 154

Synonyms/Trade Names: N-(2-Aminoethyl)-1,2-ethanediamine; bis(2-Aminoethyl)amine; DETA; 2,2'-Diaminodiethylamine

Exposure Limits:
NIOSH REL: TWA 1 ppm (4 mg/m^3) [skin]
OSHA PEL†: none

Measurement Methods (see Table 1):
NIOSH 2540
OSHA 60

Physical Description: Colorless to yellow liquid with a strong, ammonia-like odor. [**Note:** Hygroscopic (i.e., absorbs moisture from the air).]

Chemical & Physical Properties:
MW: 103.2
BP: 405°F
Sol: Miscible
Fl.P: 208°F
IP: ?
Sp.Gr: 0.96
VP: 0.4 mmHg
FRZ: -38°F
UEL: 6.7%
LEL: 2%
Class IIIB Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Oxidizers, strong acids, cellulose nitrate
[**Note:** May form explosive complexes with silver, cobalt, or chromium compounds. Corrosive to aluminum, copper, brass & zinc.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, muc memb, upper resp sys; derm, skin sens; eye, skin nec; cough, dysp, pulm sens
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

D

Diethyl ketone	Formula: $CH_3CH_2COCH_2CH_3$	CAS#: 96-22-0	RTECS#: SA8050000	IDLH: N.D.
Conversion: 1 ppm = 3.53 mg/m^3	**DOT:** 1156 127			

Synonyms/Trade Names: DEK, Dimethylacetone, Ethyl ketone, Metacetone, 3-Pentanone, Propione

Exposure Limits:
NIOSH REL: TWA 200 ppm (705 mg/m^3)
OSHA PEL†: none

Measurement Methods (see Table 1):
None available

Physical Description: Colorless liquid with an acetone-like odor.

Chemical & Physical Properties:
MW: 86.2
BP: 215°F
Sol: 5%
Fl.P(oc): 55°F
IP: 9.32 eV
Sp.Gr: 0.81
VP(77°F): 35 mmHg
FRZ: -44°F
UEL: 6.4%
LEL: 1.6%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: Prevent eye contact
Wash skin: Daily
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Strong oxidizers, alkalis, mineral acids, (hydrogen peroxide + nitric acid)

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, muc memb, resp sys; cough, sneez
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Resp support
Swallow: Medical attention immed

Diethyl phthalate	Formula: $C_6H_4(COOC_2H_5)_2$	CAS#: 84-66-2	RTECS#: TI1050000	IDLH: N.D.
Conversion:	**DOT:**			

Synonyms/Trade Names: DEP, Diethyl ester of phthalic acid, Ethyl phthalate

Exposure Limits:
NIOSH REL: TWA 5 mg/m^3
OSHA PEL†: none

Measurement Methods (see Table 1):
OSHA 104

Physical Description: Colorless to water-white, oily liquid with a very slight, aromatic odor. [pesticide]

Chemical & Physical Properties:
MW: 222.3
BP: 563°F
Sol(77°F): 0.1%
Fl.P(oc): 322°F
IP: ?
Sp.Gr: 1.12
VP(77°F): 0.002 mmHg
FRZ: -41°F
UEL: ?
LEL(368°F): 0.7%
Class IIIB Combustible Liquid; however, ignition is difficult.

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Strong oxidizers, strong acids, nitric acid, permanganates, water

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose, throat; head, dizz, nau; lac; possible polyneur, vestibular dysfunc; pain, numb, lass, spasms in arms & legs; in animals: repro effects
TO: Eyes, skin, resp sys, CNS, PNS, repro sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Wash regularly
Breath: Resp support
Swallow: Medical attention immed

Difluorodibromomethane

Formula:	CAS#:	RTECS#:	IDLH:
CBr_2F_2	75-61-6	PA7525000	2000 ppm

Conversion: 1 ppm = 8.58 mg/m^3 **DOT:** 1941 171

Synonyms/Trade Names: Dibromodifluoromethane, Freon® 12B2, Halon® 1202

Exposure Limits:
NIOSH REL: TWA 100 ppm (860 mg/m^3)
OSHA PEL: TWA 100 ppm (860 mg/m^3)

Physical Description: Colorless, heavy liquid or gas (above 76°F) with a characteristic odor.

Measurement Methods (see Table 1):
NIOSH 1012
OSHA 7

Chemical & Physical Properties:
MW: 209.8
BP: 76°F
Sol: Insoluble
Fl.P: NA
IP: 11.07 eV
Sp.Gr(59°F): 2.29
VP: 620 mmHg
FRZ: -231°F
UEL: NA
LEL: NA
Noncombustible Liquid
Nonflammable Gas

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: N.R.
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
1000 ppm: Sa
2000 ppm: Sa:Cf/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Chemically-active metals such as sodium, potassium, calcium, powdered aluminum, zinc & magnesium

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: In animals: irrit resp sys; CNS symptoms; liver damage
TO: Resp sys, CNS, liver

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

Diglycidyl ether

Formula:	CAS#:	RTECS#:	IDLH:
$C_6H_{10}O_3$	2238-07-5	KN2350000	Ca [10 ppm]

Conversion: 1 ppm = 5.33 mg/m^3 **DOT:**

Synonyms/Trade Names: Diallyl ether dioxide; DGE; Di(2,3-epoxypropyl) ether; 2-Epoxypropyl ether; bis(2,3-Epoxypropyl) ether

Exposure Limits:
NIOSH REL: Ca
TWA 0.1 ppm (0.5 mg/m^3)
See Appendix A
OSHA PEL†: C 0.5 ppm (2.8 mg/m^3)

Physical Description: Colorless liquid with a strong, irritating odor.

Measurement Methods (see Table 1):
None available

Chemical & Physical Properties:
MW: 130.2
BP: 500°F
Sol: ?
Fl.P: 147°F
IP: ?
Sp.Gr: 1.12
VP(77°F): 0.09 mmHg
FRZ: ?
UEL: ?
LEL: ?
Class IIIA Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, resp sys; skin burns; in animals: hemato sys, lung, liver, kidney damage; repro effects; [carc]
TO: Eyes, skin, resp sys, repro sys [in animals: skin tumors]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

D

Diisobutyl ketone	Formula: $[(CH_3)_2CHCH_2]_2CO$	CAS#: 108-83-8	RTECS#: MJ5775000	IDLH: 500 ppm
Conversion: 1 ppm = 5.82 mg/m^3	**DOT:** 1157 128			

Synonyms/Trade Names: DIBK; sym-Diisopropyl acetone; 2,6-Dimethyl-4-heptanone; Isovalerone; Valerone

Exposure Limits:
NIOSH REL: TWA 25 ppm (150 mg/m^3)
OSHA PEL†: TWA 50 ppm (290 mg/m^3)

Physical Description: Colorless liquid with a mild, sweet odor.

Measurement Methods (see Table 1):
NIOSH 1300, 2555
OSHA 7

Chemical & Physical Properties:
MW: 142.3
BP: 334°F
Sol: 0.05%
Fl.P: 120°F
IP: 9.04 eV
Sp.Gr: 0.81
VP: 2 mmHg
FRZ: -43°F
UEL(200°F): 7.1%
LEL(200°F): 0.8%
Class II Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: N.R.
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
500 ppm: Sa:Cf£/PaprOv£/CcrFOv/GmFOv/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose, throat; head, dizz; derm; liver, kidney damage
TO: Eyes, skin, resp sys, CNS, liver, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

Diisopropylamine	Formula: $[(CH_3)_2CH]_2NH$	CAS#: 108-18-9	RTECS#: IM4025000	IDLH: 200 ppm
Conversion: 1 ppm = 4.14 mg/m^3	**DOT:** 1158 132			

Synonyms/Trade Names: DIPA, N-(1-Methylethyl)-2-propanamine

Exposure Limits:
NIOSH REL: TWA 5 ppm (20 mg/m^3) [skin]
OSHA PEL: TWA 5 ppm (20 mg/m^3) [skin]

Physical Description: Colorless liquid with an ammonia- or fish-like odor.

Measurement Methods (see Table 1):
NIOSH S141 (II-4)

Chemical & Physical Properties:
MW: 101.2
BP: 183°F
Sol: Miscible
Fl.P: 20°F
IP: 7.73 eV
Sp.Gr: 0.72
VP: 70 mmHg
FRZ: -141°F
UEL: 7.1%
LEL: 1.1%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact (>5%)
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.
Provide: Eyewash (>5%)

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
125 ppm: Sa:Cf£/PaprOv£
200 ppm: CcrFOv/GmFOv/PaprTOv£/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, strong acids

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, resp sys; nau, vomit; head; vis dist
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water wash immed
Breath: Resp support
Swallow: Medical attention immed

Dimethyl acetamide	Formula: $CH_3CON(CH_3)_2$	CAS#: 127-19-5	RTECS#: AB7700000	IDLH: 300 ppm
Conversion: 1 ppm = 3.56 mg/m^3	**DOT:**			

Synonyms/Trade Names: N,N-Dimethyl acetamide; DMAC

Exposure Limits:
NIOSH REL: TWA 10 ppm (35 mg/m^3) [skin]
OSHA PEL: TWA 10 ppm (35 mg/m^3) [skin]

Measurement Methods (see Table 1):
NIOSH 2004

Physical Description: Colorless liquid with a weak, ammonia- or fish-like odor.

Chemical & Physical Properties:
MW: 87.1
BP: 329°F
Sol: Miscible
Fl.P(oc): 158°F
IP: 8.81 eV
Sp.Gr: 0.94
VP: 2 mmHg
FRZ: -4°F
UEL(320°F): 11.5%
LEL(212°F): 1.8%
Class IIIA Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
100 ppm: Sa
250 ppm: Sa:Cf
300 ppm: ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Carbon tetrachloride, other halogenated compounds when in contact with iron, oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit skin; jaun, liver damage; depres, drow, halu, delusions
TO: Skin, liver, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

Dimethylamine	Formula: $(CH_3)_2NH$	CAS#: 124-40-3	RTECS#: IP8750000	IDLH: 500 ppm
Conversion: 1 ppm = 1.85 mg/m^3	**DOT:** 1032 118 (anhydrous); 1160 132 (solution)			

Synonyms/Trade Names: Dimethylamine (anhydrous), N-Methylmethanamine

Exposure Limits:
NIOSH REL: TWA 10 ppm (18 mg/m^3)
OSHA PEL: TWA 10 ppm (18 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 2010
OSHA 34

Physical Description: Colorless gas with an ammonia- or fish-like odor.
[**Note:** A liquid below 44°F. Shipped as a liquefied compressed gas.]

Chemical & Physical Properties:
MW: 45.1
BP: 44°F
Sol(140°F): 24%
Fl.P: NA (Gas) 20°F (Liquid)
IP: 8.24 eV
RGasD: 1.56
Sp.Gr: 0.67 (Liquid at 44°F)
VP: 1.7 atm
FRZ: -134°F
UEL: 14.4%
LEL: 2.8%
Flammable Gas

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact (liquid)
Frostbite
Eyes: Prevent eye contact (liquid)
Frostbite
Wash skin: When contam (liquid)
Remove: When wet (flamm)
Change: N.R.
Provide: Eyewash (liquid)
Quick drench (liquid)
Frostbite wash

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
250 ppm: Sa:Cf£
500 ppm: ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, chlorine, mercury, acraldehyde, fluorides, maleic anhydride, aluminum, brass, copper, zinc

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con (liquid)
SY: Irrit nose, throat; sneez, cough, dysp; pulm edema; conj; derm; liquid: frostbite
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed (liquid)/Frostbite
Skin: Water flush immed (liquid)/Frostbite
Breath: Resp support

D

4-Dimethylaminoazobenzene	Formula: $C_6H_5NNC_6H_4N(CH_3)_2$	CAS#: 60-11-7	RTECS#: BX7350000	IDLH: Ca [N.D.]
Conversion:	DOT:			

Synonyms/Trade Names: Butter yellow; DAB; p-Dimethylaminoazobenzene; N,N-Dimethyl-4-aminoazobenzene; Methyl yellow

Exposure Limits:
NIOSH REL: Ca
See Appendix A
OSHA PEL: [1910.1015] See Appendix B

Measurement Methods (see Table 1):
NIOSH P&CAM284 (II-4)

Physical Description: Yellow, leaf-shaped crystals.

Chemical & Physical Properties:
MW: 225.3
BP: Sublimes
Sol: 0.001%
Fl.P: ?
IP: ?
Sp.Gr: ?
VP: 0.0000003 mmHg (est.)
MLT: 237°F
UEL: ?
LEL: ?

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

See Appendix E (page 351)

Incompatibilities and Reactivities: None reported

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Enlarged liver; liver, kidney dist; contact derm; cough, wheez, dysp; bloody sputum; bronchial secretions; frequent urination, hema, dysuria; [carc]
TO: Skin, resp sys, liver, kidneys, bladder [in animals: liver & bladder tumors]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

bis(2-(Dimethylamino)ethyl)ether	Formula: $C_8H_{20}N_2O$	CAS#: 3033-62-3	RTECS#: KR9460000	IDLH: N.D.
Conversion:	DOT:			

Synonyms/Trade Names: NIAX® A99; NIAX® Catalyst A1; 2,2'-Oxybis(N,N-dimethyl ethylamine)
[**Note:** A component (5%) of NIAX® Catalyst ESN, along with dimethylaminopropionitrile (95%).]

Exposure Limits:
NIOSH REL: See Appendix C (NIAX® Catalyst ESN)
OSHA PEL: See Appendix C (NIAX® Catalyst ESN)

Measurement Methods (see Table 1):
None available

Physical Description: Liquid.

Chemical & Physical Properties:
MW: 160.3
BP: 372°F
Sol: ?
Fl.P: ?
IP: ?
Sp.Gr: ?
VP: ?
FRZ: ?
UEL: ?
LEL: ?

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: None reported

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Possible urinary dist, neurological disorders; in animals: irrit eyes, skin
TO: Eyes, skin, urinary tract, PNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

Dimethylaminopropionitrile	Formula: $(CH_3)_2NCH_2CH_2CN$	CAS#: 1738-25-6	RTECS#: UG1575000	IDLH: N.D.
Conversion:	**DOT:**			

Synonyms/Trade Names: 3-(Dimethylamino)propionitrile; N,N-Dimethylamino-3-propionitrile
[**Note:** A component (95%) of NIAX® Catalyst ESN, along with bis(2-(dimethylamino)ethyl) ether (5%).]

Exposure Limits:
NIOSH REL: See Appendix C (NIAX® Catalyst ESN)
OSHA PEL: See Appendix C (NIAX® Catalyst ESN)

Measurement Methods (see Table 1):
None available

Physical Description: Colorless liquid.

Chemical & Physical Properties:
MW: 98.2
BP: 342°F
Sol: Miscible
Fl.P: 147°F
IP: ?
Sp.Gr(86°F): 0.86
VP(135°F): 10 mmHg
FRZ: -48°F
UEL: ?
LEL: ?
Class IIIA Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Oxidizers
[**Note:** Emits toxic oxides of nitrogen and cyanide fumes when heated to decomposition.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin; urinary dist; neurological disorders; pins & needles in hands & feet; musc weak, lass, nau, vomit; decr nerve conduction in lower legs
TO: Eyes, skin, CNS, urinary tract

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

N,N-Dimethylaniline	Formula: $C_6H_5N(CH_3)_2$	CAS#: 121-69-7	RTECS#: BX4725000	IDLH: 100 ppm
Conversion: 1 ppm = 4.96 mg/m^3	**DOT:** 2253 153			

Synonyms/Trade Names: N,N-Dimethylbenzeneamine; N,N-Dimethylphenylamine
[**Note:** Also known as Dimethylaniline which is a correct synonym for Xylidine.]

Exposure Limits:
NIOSH REL: TWA 5 ppm (25 mg/m^3)
ST 10 ppm (50 mg/m^3) [skin]
OSHA PEL†: TWA 5 ppm (25 mg/m^3) [skin]

Measurement Methods (see Table 1):
NIOSH 2002
OSHA PV2064

Physical Description: Pale yellow, oily liquid with an amine-like odor. [**Note:** A solid below 36°F.]

Chemical & Physical Properties:
MW: 121.2
BP: 378°F
Sol: 2%
Fl.P: 142°F
IP: 7.14 eV
Sp.Gr: 0.96
VP: 1 mmHg
FRZ: 36°F
UEL: ?
LEL: ?
Class IIIA Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
50 ppm: Sa
100 ppm: Sa:Cf/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, strong acids, benzoyl peroxide

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Anoxia symptoms: cyan, lass, dizz, ataxia; methemo
TO: Blood, kidneys, liver, CVS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

D

Dimethyl carbamoyl chloride	Formula: $(CH_3)_2NCOCl$	CAS#: 79-44-7	RTECS#: FD4200000	IDLH: Ca [N.D.]
Conversion:	DOT: 2262 156			

Synonyms/Trade Names: Chloroformic acid dimethylamide; Dimethylcarbamic chloride; N,N-Dimethylcarbamoyl chloride; DMCC

Exposure Limits:
NIOSH REL: Ca
See Appendix A
OSHA PEL: none

Measurement Methods (see Table 1):
None available

Physical Description: Clear, colorless liquid.

Chemical & Physical Properties:
MW: 107.6
BP: 329°F
Sol: Reacts
Fl.P: 155°F
IP: ?
Sp.Gr: 1.17
VP: ?
FRZ: -27°F
UEL: ?
LEL: ?
Class IIIA Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Acids, water
[**Note:** Rapidly hydrolyzes in water to dimethylamine, carbon dioxide, and hydrogen chloride.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, nose, throat, resp sys; eye, skin burns; cough, wheez, larnygitis, dysp; head, nau, vomit; liver inj; [carc]
TO: Eyes, skin, resp sys, liver [in animals: nasal cancer]

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

Dimethyl-1,2-dibromo-2,2-dichlorethyl phosphate	Formula: $(CH_3O)_2P(O)OCHBrCBrCl_2$	CAS#: 300-76-5	RTECS#: TB9450000	IDLH: 200 mg/m^3
Conversion:	DOT:			

Synonyms/Trade Names: Dibrom®; 1,2-Dibromo-2,2-dichloroethyl dimethyl phosphate; Naled

Exposure Limits:
NIOSH REL: TWA 3 mg/m^3 [skin]
OSHA PEL†: TWA 3 mg/m^3

Measurement Methods (see Table 1):
None available

Physical Description: Colorless to white solid or straw-colored liquid (above 80°F) with a slightly pungent odor. [insecticide]

Chemical & Physical Properties:
MW: 380.8
BP: Decomposes
Sol: Insoluble
Fl.P: NA
IP: ?
Sp.Gr(77°F): 1.96
VP: 0.0002 mmHg
MLT: 80°F
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
30 mg/m^3: 95XQ/Sa
75 mg/m^3: Sa:Cf/PaprHie
150 mg/m^3: 100F/SaT:Cf/PaprTHie/ ScbaF/SaF
200 mg/m^3: Sa:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, acids, sunlight, water
[**Note:** Corrosive to metals. Hydrolyzed in presence of water.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin; miosis, lac; head; chest tight, wheez, lar spasm; salv; cyan; anor, nau, vomit, abdom cramp, diarr; lass, twitch, para; dizz, ataxia, convuls; low BP; card irreg
TO: Eyes, skin, resp sys, CNS, CVS, blood chol

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Dimethylformamide	Formula: $HCON(CH_3)_2$	CAS#: 68-12-2	RTECS#: LQ2100000	IDLH: 500 ppm
Conversion: 1 ppm = 2.99 mg/m^3	**DOT:** 2265 129			

Synonyms/Trade Names: Dimethyl formamide; N,N-Dimethylformamide; DMF

Exposure Limits:
NIOSH REL: TWA 10 ppm (30 mg/m^3) [skin]
OSHA PEL: TWA 10 ppm (30 mg/m^3) [skin]

Measurement Methods (see Table 1):
NIOSH 2004
OSHA 66

Physical Description: Colorless to pale-yellow liquid with a faint, amine-like odor.

Chemical & Physical Properties:
MW: 73.1
BP: 307°F
Sol: Miscible
Fl.P: 136°F
IP: 9.12 eV
Sp.Gr: 0.95
VP: 3 mmHg
FRZ: -78°F
UEL: 15.2%
LEL(212°F): 2.2%
Class II Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
100 ppm: Sa*
250 ppm: Sa:Cf*
500 ppm: SaT:Cf*/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Carbon tetrachloride; other halogenated compounds when in contact with iron; strong oxidizers; alkyl aluminums; inorganic nitrates

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, resp sys; nau, vomit, colic; liver damage, enlarged liver; high BP; face flush; derm; in animals: kidney, heart damage
TO: Eyes, skin, resp sys, liver, kidneys, CVS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush prompt
Breath: Resp support
Swallow: Medical attention immed

1,1-Dimethylhydrazine	Formula: $(CH_3)_2NNH_2$	CAS#: 57-14-7	RTECS#: MV2450000	IDLH: Ca [15 ppm]
Conversion: 1 ppm = 2.46 mg/m^3	**DOT:** 1163 131			

Synonyms/Trade Names: Dimazine, DMH, UDMH, Unsymmetrical dimethylhydrazine

Exposure Limits:
NIOSH REL: Ca
C 0.06 ppm (0.15 mg/m^3) [2-hr]
See Appendix A
OSHA PEL: TWA 0.5 ppm (1 mg/m^3) [skin]

Measurement Methods (see Table 1):
NIOSH 3515

Physical Description: Colorless liquid with an ammonia- or fish-like odor.

Chemical & Physical Properties:
MW: 60.1
BP: 147°F
Sol: Miscible
Fl.P: 5°F
IP: 8.05 eV
Sp.Gr: 0.79
VP: 103 mmHg
FRZ: -72°F
UEL: 95%
LEL: 2%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS/ScbaE

Incompatibilities and Reactivities: Oxidizers, halogens, metallic mercury, fuming nitric acid, hydrogen peroxide [**Note:** May ignite SPONTANEOUSLY in contact with oxidizers.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin; choking, chest pain, dysp; drow; nau; anoxia; convuls; liver inj; [carc]
TO: CNS, liver, GI tract, blood, resp sys, eyes, skin [in animals: tumors of the lungs, liver, blood vessels & intestines]

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

D

Dimethylphthalate	Formula: $C_6H_4(COOCH_3)_2$	CAS#: 131-11-3	RTECS#: TI1575000	IDLH: 2000 mg/m^3
Conversion:	**DOT:**			

Synonyms/Trade Names: Dimethyl ester of 1,2-benzenedicarboxylic acid; DMP

Exposure Limits:
NIOSH REL: TWA 5 mg/m^3
OSHA PEL: TWA 5 mg/m^3

Measurement Methods (see Table 1):
OSHA 104

Physical Description: Colorless, oily liquid with a slight, aromatic odor.
[**Note:** A solid below 42°F.]

Chemical & Physical Properties:
MW: 194.2
BP: 543°F
Sol: 0.4%
Fl.P: 295°F
IP: 9.64 eV
Sp.Gr: 1.19
VP: 0.01 mmHg
FRZ: 42°F
UEL: ?
LEL(358°F): 0.9%
Class IIIB Combustible Liquid; however, ignition is difficult.

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: Prevent eye contact
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
50 mg/m^3: 95F
125 mg/m^3: Sa:Cf£/PaprHie£
250 mg/m^3: 100F/ScbaF/SaF
2000 mg/m^3: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Nitrates; strong oxidizers, alkalis & acids

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, upper resp sys; stomach pain
TO: Eyes, resp sys, GI tract

First Aid (see Table 6):
Eye: Irr prompt
Skin: Wash regularly
Breath: Resp support
Swallow: Medical attention immed

Dimethyl sulfate	Formula: $(CH_3)_2SO_4$	CAS#: 77-78-1	RTECS#: WS8225000	IDLH: Ca [7 ppm]
Conversion: 1 ppm = 5.16 mg/m^3	**DOT:** 1595 156			

Synonyms/Trade Names: Dimethyl ester of sulfuric acid, Dimethylsulfate, Methyl sulfate

Exposure Limits:
NIOSH REL: Ca
TWA 0.1 ppm (0.5 mg/m^3) [skin]
See Appendix A
OSHA PEL†: TWA 1 ppm (5 mg/m^3) [skin]

Measurement Methods (see Table 1):
NIOSH 2524

Physical Description: Colorless, oily liquid with a faint, onion-like odor.

Chemical & Physical Properties:
MW: 126.1
BP: 370°F (Decomposes)
Sol(64°F): 3%
Fl.P: 182°F
IP: ?
Sp.Gr: 1.33
VP: 0.1 mmHg
FRZ: -25°F
UEL: ?
LEL: ?
Class IIIA Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, ammonia solutions
[**Note:** Decomposes in water to sulfuric acid; corrosive to metals.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, nose; head; dizz; conj; photo; periorb edema; dysphonia, aphonia, dysphagia, productive cough; chest pain; dysp, cyan; vomit, diarr; dysuria; analgesia; fever; prot, hema; eye, skin burns; delirium; [carc]
TO: Eyes, skin, resp sys, liver, kidneys, CNS [in animals: nasal & lung cancer]

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

Dinitolmide	**Formula:** $(NO_2)_2C_6H_2(CH_3)CONH_2$	**CAS#:** 148-01-6	**RTECS#:** XS4200000	**IDLH:** N.D.
Conversion:	**DOT:**			

Synonyms/Trade Names: 3,5-Dinitro-o-toluamide; 2-Methyl-3,5-dinitrobenzamide; Zoalene

Exposure Limits:
NIOSH REL: TWA 5 mg/m^3
OSHA PEL†: none

Measurement Methods (see Table 1):
NIOSH 0500

Physical Description: Yellowish, crystalline solid.

Chemical & Physical Properties:
MW: 225.2
BP: ?
Sol: Slight
Fl.P: NA
IP: ?
Sp.Gr: ?
VP: ?
MLT: 351°F
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: None reported

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Contact eczema; in animals: methemo, liver changes
TO: Skin, liver, blood

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

m-Dinitrobenzene	**Formula:** $C_6H_4(NO_2)_2$	**CAS#:** 99-65-0	**RTECS#:** CZ7350000	**IDLH:** 50 mg/m^3
Conversion:	**DOT:** 1597 152			

Synonyms/Trade Names: meta-Dinitrobenzene; 1,3-Dinitrobenzene

Exposure Limits:
NIOSH REL: TWA 1 mg/m^3 [skin]
OSHA PEL: TWA 1 mg/m^3 [skin]

Measurement Methods (see Table 1):
NIOSH S214 (II-4)

Physical Description: Pale-white or yellow solid.

Chemical & Physical Properties:
MW: 168.1
BP: 572°F
Sol: 0.02%
Fl.P: 302°F
IP: 10.43 eV
Sp.Gr: 1.58
VP: ?
MLT: 192°F
UEL: ?
LEL: ?
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
5 mg/m^3: Qm
10 mg/m^3: 95XQ/Sa
25 mg/m^3: Sa:Cf/PaprHie
50 mg/m^3: 100F/SaT:Cf/PaprTHie/ ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, caustics, metals such as tin & zinc
[**Note:** Prolonged exposure to fire and heat may result in an explosion due to SPONTANEOUS decomposition.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Anoxia, cyan; vis dist, central scotomas; bad taste, burning mouth, dry throat, thirst; yellowing hair, eyes, skin; anemia; liver damage
TO: Eyes, skin, blood, liver, CVS, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

D

o-Dinitrobenzene	Formula: $C_6H_4(NO_2)_2$	CAS#: 528-29-0	RTECS#: CZ7450000	IDLH: 50 mg/m^3
Conversion:	DOT: 1597 152			

Synonyms/Trade Names: ortho-Dinitrobenzene; 1,2-Dinitrobenzene

Exposure Limits:
NIOSH REL: TWA 1 mg/m^3 [skin]
OSHA PEL: TWA 1 mg/m^3 [skin]

Measurement Methods (see Table 1):
NIOSH S214 (II-4)

Physical Description: Pale-white or yellow solid.

Chemical & Physical Properties:
MW: 168.1
BP: 606°F
Sol: 0.05%
Fl.P: 302°F
IP: 10.71 eV
Sp.Gr: 1.57
VP: ?
MLT: 244°F
UEL: ?
LEL: ?
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
5 mg/m^3: Qm
10 mg/m^3: 95XQ/Sa
25 mg/m^3: Sa:Cf/PaprHie
50 mg/m^3: 100F/SaT:Cf/PaprTHie/ ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, caustics, metals such as tin & zinc
[**Note:** Prolonged exposure to fire and heat may result in an explosion due to SPONTANEOUS decomposition.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Anoxia, cyan; vis dist, central scotomas; bad taste, burning mouth, dry throat, thirst; yellowing hair, eyes, skin; anemia; liver damage
TO: Eyes, skin, blood, liver, CVS, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

p-Dinitrobenzene	Formula: $C_6H_4(NO_2)_2$	CAS#: 100-25-4	RTECS#: CZ7525000	IDLH: 50 mg/m^3
Conversion:	DOT: 1597 152			

Synonyms/Trade Names: para-Dinitrobenzene; 1,4-Dinitrobenzene

Exposure Limits:
NIOSH REL: TWA 1 mg/m^3 [skin]
OSHA PEL: TWA 1 mg/m^3 [skin]

Measurement Methods (see Table 1):
NIOSH S214 (II-4)

Physical Description: Pale-white or yellow solid.

Chemical & Physical Properties:
MW: 168.1
BP: 570°F
Sol: 0.01%
Fl.P: ?
IP: 10.50 eV
Sp.Gr: 1.63
VP: ?
MLT: 343°F
UEL: ?
LEL: ?
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
5 mg/m^3: Qm
10 mg/m^3: 95XQ/Sa
25 mg/m^3: Sa:Cf/PaprHie
50 mg/m^3: 100F/SaT:Cf/PaprTHie/ ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, caustics, metals such as tin & zinc
[**Note:** Prolonged exposure to fire and heat may result in an explosion due to SPONTANEOUS decomposition.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Anoxia, cyan; vis dist, central scotomas; bad taste, burning mouth, dry throat, thirst; yellowing hair, eyes, skin; anemia; liver damage
TO: Eyes, skin, blood, liver, CVS, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Dinitro-o-cresol	**Formula:** $CH_3C_6H_2OH(NO_2)_2$	**CAS#:** 534-52-1	**RTECS#:** GO9625000	**IDLH:** 5 mg/m^3
Conversion:	**DOT:** 1598 153			

Synonyms/Trade Names: 4,6-Dinitro-o-cresol; 3,5-Dinitro-2-hydroxytoluene; 4,6-Dinitro-2-methyl phenol; DNC; DNOC

Exposure Limits:
NIOSH REL: TWA 0.2 mg/m^3 [skin]
OSHA PEL: TWA 0.2 mg/m^3 [skin]

Measurement Methods (see Table 1):
NIOSH S166 (II-5)

Physical Description: Yellow, odorless solid. [insecticide]

Chemical & Physical Properties:
MW: 198.1
BP: 594°F
Sol: 0.01%
Fl.P: NA
IP: ?
Sp.Gr: 1.1 (estimated)
VP: 0.00005 mmHg
MLT: 190°F
UEL: NA
LEL: NA
MEC: 30 g/m^3
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
2 mg/m^3: 95F
5 mg/m^3: 100F/Sa:Cf£/PaprHie£/ ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Sense of well being; head, fever, lass, profuse sweat, excess thirst, tacar, hyperpnea, cough, short breath, coma
TO: CVS, endocrine sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Dinitrotoluene	**Formula:** $CH_3C_6H_3(NO_2)_2$	**CAS#:** 25321-14-6	**RTECS#:** XT1300000	**IDLH:** Ca [50 mg/m^3]
Conversion:	**DOT:** 1600 152 (molten); 2038 152 (solid)			

Synonyms/Trade Names: Dinitrotoluol, DNT, Methyldinitrobenzene [**Note:** Various isomers of DNT exist.]

Exposure Limits:
NIOSH REL: Ca
TWA 1.5 mg/m^3 [skin]
See Appendix A
OSHA PEL: TWA 1.5 mg/m^3 [skin]

Measurement Methods (see Table 1):
OSHA 44

Physical Description: Orange-yellow crystalline solid with a characteristic odor. [**Note:** Often shipped molten.]

Chemical & Physical Properties:
MW: 182.2
BP: 572°F
Sol: Insoluble
Fl.P: 404°F
IP: ?
Sp.Gr: 1.32
VP: 1 mmHg
MLT: 158°F
UEL: ?
LEL: ?
Combustible Solid, but difficult to ignite.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily
Provide: Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, caustics, metals such as tin & zinc
[**Note:** Commercial grades will decompose at 482°F, with self-sustaining decomposition at 536°F.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Anoxia, cyan; anemia, jaun; repro effects; [carc]
TO: Blood, liver, CVS, repro sys [in animals: liver, skin & kidney tumors]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

D

Di-sec octyl phthalate

Formula:	CAS#:	RTECS#:	IDLH:
$C_{24}H_{38}O_4$	117-81-7	TI0350000	Ca [5000 mg/m^3]

Conversion: **DOT:**

Synonyms/Trade Names: DEHP, Di(2-ethylhexyl)phthalate, DOP, bis-(2-Ethylhexyl)phthalate, Octyl phthalate

Exposure Limits:
NIOSH REL: Ca
TWA 5 mg/m^3
ST 10 mg/m^3
See Appendix A
OSHA PEL†: TWA 5 mg/m^3

Measurement Methods (see Table 1):
NIOSH 5020

Physical Description: Colorless, oily liquid with a slight odor.

Chemical & Physical Properties:
MW: 390.5
BP: 727°F
Sol(75°F): 0.00003%
Fl.P(oc): 420°F
IP: ?
Sp.Gr: 0.99
VP: <0.01 mmHg
FRZ: -58°F
UEL: ?
LEL(474°F): 0.3%
Class IIIB Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Nitrates; strong oxidizers, acids & alkalis

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, muc memb; in animals: liver damage; terato effects; [carc]
TO: Eyes, resp sys, CNS, liver, repro sys, GI tract [in animals: liver tumors]

First Aid (see Table 6):
Eye: Irr immed
Breath: Resp support
Swallow: Medical attention immed

Dioxane

Formula:	CAS#:	RTECS#:	IDLH:
$C_4H_8O_2$	123-91-1	JG8225000	Ca [500 ppm]

Conversion: 1 ppm = 3.60 mg/m^3 **DOT:** 1165 127

Synonyms/Trade Names: Diethylene dioxide; Diethylene ether; Dioxan; p-Dioxane; 1,4-Dioxane

Exposure Limits:
NIOSH REL: Ca
C 1 ppm (3.6 mg/m^3) [30-minute]
See Appendix A
OSHA PEL†: TWA 100 ppm (360 mg/m^3) [skin]

Measurement Methods (see Table 1):
NIOSH 1602
OSHA 7

Physical Description: Colorless liquid or solid (below 53°F) with a mild, ether-like odor.

Chemical & Physical Properties:
MW: 88.1
BP: 214°F
Sol: Miscible
Fl.P: 55°F
IP: 9.13 eV
Sp.Gr: 1.03
VP: 29 mmHg
FRZ: 53°F
UEL: 22%
LEL: 2.0%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, decaborane, triethynyl aluminum

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, nose, throat; drow, head; nau, vomit; liver damage; kidney failure; [carc]
TO: Eyes, skin, resp sys, liver, kidneys [in animals: lung, liver & nasal cavity tumors]

First Aid (see Table 6):
Eye: Irr immed
Skin: Water wash prompt
Breath: Resp support
Swallow: Medical attention immed

D

Dioxathion

Formula: $C_4H_6O_2[SPS(OC_2H_5)_2]_2$
CAS#: 78-34-2
RTECS#: TE3350000
IDLH: N.D.

Conversion:
DOT:

Synonyms/Trade Names: Delnav®; p-Dioxane-2,3-diyl ethyl phosphorodithioate; Dioxane phosphate; 2,3-p-Dioxanethiol-S,S-bis(O,O-diethyl phosphoro-dithioate); Navadel®

Exposure Limits:
NIOSH REL: TWA 0.2 mg/m^3 [skin]
OSHA PEL†: none

Physical Description: Viscous, brown, tan, or dark-amber liquid. [insecticide]
[**Note:** Technical product is a mixture of cis- & trans-isomers.]

Measurement Methods (see Table 1):
None available

Chemical & Physical Properties:
MW: 456.6
BP: ?
Sol: Insoluble
Fl.P: NA
IP: ?
Sp.Gr(79°F): 1.26
VP: ?
FRZ: -4°F
UEL: NA
LEL: NA
Noncombustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Alkalis, iron or tin surfaces, heat

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin; head, dizz, lass; rhin, chest tight; miosis; nau, vomit, abdom cramps, diarr, salv; musc fasc; conf, drow
TO: Eyes, skin, resp sys, CNS, CVS, blood chol

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap flush immed
Breath: Resp support
Swallow: Medical attention immed

Diphenyl

Formula: $C_6H_5C_6H_5$
CAS#: 92-52-4
RTECS#: DU8050000
IDLH: 100 mg/m^3

Conversion: 1 ppm = 6.31 mg/m^3
DOT:

Synonyms/Trade Names: Biphenyl, Phenyl benzene

Exposure Limits:
NIOSH REL: TWA 1 mg/m^3 (0.2 ppm)
OSHA PEL: TWA 1 mg/m^3 (0.2 ppm)

Physical Description: Colorless to pale-yellow solid with a pleasant, characteristic odor. [fungicide]

Measurement Methods (see Table 1):
NIOSH 2530
OSHA PV2022

Chemical & Physical Properties:
MW: 154.2
BP: 489°F
Sol: Insoluble
Fl.P: 235°F
IP: 7.95 eV
Sp.Gr: 1.04
VP: 0.005 mmHg
MLT: 156°F
UEL(311°F): 5.8%
LEL(232°F): 0.6%
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash (molt)
Quick drench (molt)

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
10 mg/m^3: CcrOv95/Sa
25 mg/m^3: Sa:Cf*/PaprOvHie*
50 mg/m^3: CcrFOv100/GmFOv100/PaprTOvHie*/ScbaF/SaF
100 mg/m^3: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, throat; head, nau, lass, numb limbs; liver damage
TO: Eyes, resp sys, liver, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

D

Diphenylamine	Formula: $(C_6H_5)_2NH$	CAS#: 122-39-4	RTECS#: JJ7800000	IDLH: N.D.
Conversion:	**DOT:**			

Synonyms/Trade Names: Anilinobenzene, DPA, Phenylaniline, N-Phenylaniline, N-Phenylbenzenamine
[**Note:** The carcinogen 4-Aminodiphenyl may be present as an impurity in the commercial product.]

Exposure Limits:
NIOSH REL: TWA 10 mg/m^3
OSHA PEL†: none

Measurement Methods (see Table 1):
OSHA 22, 78

Physical Description: Colorless, tan, amber, or brown crystalline solid with a pleasant, floral odor. [fungicide]

Chemical & Physical Properties:
MW: 169.2
BP: 576°F
Sol: 0.03%
Fl.P: 307°F
IP: 7.40 eV
Sp.Gr: 1.16
VP(227°F): 1 mmHg
MLT: 127°F
UEL: ?
LEL: ?
Combustible Solid; explosive if a cloud of dust is exposed to a source of ignition.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: Daily
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Oxidizers, hexachloromelamine, trichloromelamine

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, muc memb; eczema; tacar, hypertension; cough, sneez; methemo; incr BP, heart rate; prot, hema, bladder inj; in animals: terato effects
TO: Eyes, skin, resp sys, CVS, blood, bladder, repro sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

Dipropylene glycol methyl ether	Formula: $CH_3OC_3H_6OC_3H_6OH$	CAS#: 34590-94-8	RTECS#: JM1575000	IDLH: 600 ppm
Conversion: 1 ppm = 6.06 mg/m^3	**DOT:**			

Synonyms/Trade Names: Dipropylene glycol monomethyl ether, Dowanol® 50B

Exposure Limits:
NIOSH REL: TWA 100 ppm (600 mg/m^3)
ST 150 ppm (900 mg/m^3) [skin]
OSHA PEL†: TWA 100 ppm (600 mg/m^3) [skin]

Measurement Methods (see Table 1):
NIOSH 2554, S69 (II-2)

Physical Description: Colorless liquid with a mild, ether-like odor.

Chemical & Physical Properties:
MW: 148.2
BP: 408°F
Sol: Miscible
Fl.P: 180°F
IP: ?
Sp.Gr: 0.95
VP: 0.5 mmHg
FRZ: -112°F
UEL: 3.0%
LEL(392°F): 1.1%
Class IIIA Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
600 ppm: Sa/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, nose, throat; lass, dizz, head
TO: Eyes, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water wash prompt
Breath: Resp support
Swallow: Medical attention immed

Dipropyl ketone	**Formula:** $(CH_3CH_2CH_2)_2CO$	**CAS#:** 123-19-3	**RTECS#:** MJ5600000	**IDLH:** N.D.
Conversion: 1 ppm = 4.67 mg/m^3	**DOT:** 2710 128			

Synonyms/Trade Names: Butyrone, DPK, 4-Heptanone, Heptan-4-one, Propyl ketone

Exposure Limits:
NIOSH REL: TWA 50 ppm (235 mg/m^3)
OSHA PEL†: none

Measurement Methods (see Table 1):
OSHA 7

Physical Description: Colorless liquid with a pleasant odor.

Chemical & Physical Properties:
MW: 114.2
BP: 291°F
Sol: Insoluble
Fl.P: 120°F
IP: 9.10 eV
Sp.Gr: 0.82
VP: 5 mmHg
FRZ: -27°F
UEL: ?
LEL: ?
Class II Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: Daily
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin; CNS depres, dizz, drow, decr breath; in animals: liver inj; narco
TO: Eyes, skin, CNS, liver

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Resp support
Swallow: Medical attention immed

Diquat (Diquat dibromide)	**Formula:** $C_{12}H_{12}N_2Br_2$	**CAS#:** 85-00-7	**RTECS#:** JM5690000	**IDLH:** N.D.
Conversion:	**DOT:** 2781 151 (solid); 2782 131 (liquid)			

Synonyms/Trade Names: Diquat dibromide; 1,1'-Ethylene-2,2'-bipyridyllium dibromide
[**Note:** Diquat is a cation ($C_{12}H_{12}N_2^{++}$; 1,1'-Ethylene-2,2-bipyridyllium ion). Various diquat salts are commercially available.]

Exposure Limits:
NIOSH REL: TWA 0.5 mg/m^3
OSHA PEL†: none

Measurement Methods (see Table 1):
None available

Physical Description: Dibromide salt: Yellow crystals. [herbicide]
[**Note:** Commercial product may be found in a liquid concentrate or a solution.]

Chemical & Physical Properties:
MW: 344.1
BP: Decomposes
Sol: 70%
Fl.P: ?
IP: ?
Sp.Gr: 1.22-1.27
VP: <0.00001 mmHg
MLT: 635°F
UEL: ?
LEL: ?
Combustible Solid, but does not readily ignite and burns with difficulty.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Alkalis, UV light, basic solutions
[**Note:** Concentrated diquat solutions corrode aluminum.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, muc memb, resp sys; rhin, epis; skin burns; nau, vomit, diarr, mal; kidney, liver inj; cough, chest pain, dysp, pulm edema; tremor, convuls; delayed healing of wounds
TO: Eyes, skin, resp sys, kidneys, liver, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

D

Disulfiram	**Formula:** $[(C_2H_5)_2NCS]_2S_2$	**CAS#:** 97-77-8	**RTECS#:** JO1225000	**IDLH:** N.D.
Conversion:	**DOT:**			

Synonyms/Trade Names: Antabuse®, bis(Diethylthiocarbamoyl) disulfide, Ro-Sulfiram®, TETD, Tetraethylthiuram disulfide

Exposure Limits:
NIOSH REL: TWA 2 mg/m^3
[Precautions should be taken to avoid concurrent exposure to ethylene dibromide.]
OSHA PEL†: none

Measurement Methods (see Table 1):
None available

Physical Description: White, yellowish, or light-gray powder with a slight odor. [fungicide]

Chemical & Physical Properties:
MW: 296.6
BP: ?
Sol: 0.02%
Fl.P: NA
IP: ?
Sp.Gr: 1.30
VP: ?
MLT: 158°F
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: None reported

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, resp sys; sens derm; lass, tremor, restless, head, dizz; metallic taste; peri neur; liver damage
TO: Eyes, skin, resp sys, CNS, PNS, liver

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Disulfoton	**Formula:** $C_8H_{19}O_2PS_3$	**CAS#:** 298-04-4	**RTECS#:** TD9275000	**IDLH:** N.D.
Conversion:	**DOT:** 2783 152			

Synonyms/Trade Names: O,O-Diethyl S-2-(ethylthio)-ethyl phosphorodithioate; Di-Syston®; Thiodemeton

Exposure Limits:
NIOSH REL: TWA 0.1 mg/m^3 [skin]
OSHA PEL†: none

Measurement Methods (see Table 1):
NIOSH 5600

Physical Description: Oily, colorless to yellow liquid with a characteristic, sulfur odor. [insecticide] [**Note:** Technical product is a brown liquid.]

Chemical & Physical Properties:
MW: 274.4
BP: ?
Sol(73°F): 0.003%
Fl.P: >180°F
IP: ?
Sp.Gr: 1.14
VP: 0.0002 mmHg
FRZ: >-13°F
UEL: ?
LEL: ?
Combustible Liquid, but will not ignite easily.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Alkalis

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin; nau, vomit, abdom cramps, diarr, salv; head, dizz, lass; rhin, chest tight; blurred vision, miosis; card irreg; musc fasc; dysp; eye, skin burns
TO: Eyes, skin, resp sys, CNS, CVS, blood chol

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap flush immed
Breath: Resp support
Swallow: Medical attention immed

Diuron	Formula: $C_6H_3Cl_2NHCON(CH_3)_2$	CAS#: 330-54-1	RTECS#: YS8925000	IDLH: N.D.
Conversion:	**DOT:**			

Synonyms/Trade Names: 3-(3,4-Dichlorophenyl)-1,1-dimethylurea; Direx®; Karmex®

Exposure Limits:
NIOSH REL: TWA 10 mg/m^3
OSHA PEL†: none

Measurement Methods (see Table 1):
NIOSH 5601
OSHA PV2097

Physical Description: White, odorless, crystalline solid. [herbicide]

Chemical & Physical Properties:
MW: 233.1
BP: 356°F (Decomposes)
Sol: 0.004%
Fl.P: NA
IP:?
Sp.Gr: ?
VP: 0.000000002 mmHg
MLT: 316°F
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: Daily
Remove: N.R.
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Strong acids

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose, throat; in animals: anemia, methemo
TO: Eyes, skin, resp sys, blood

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

Divinyl benzene	Formula: $C_6H_4(HC{=}CH_2)_2$	CAS#: 1321-74-0 (mixed isomers)	RTECS#: CZ9370000	IDLH: N.D.
Conversion: 1 ppm = 5.33 mg/m^3	**DOT:** 2049 130			

Synonyms/Trade Names: Diethyl benzene, DVB, Vinylstyrene
[**Note:** Commercial product contains all 3 isomers, but m-isomer predominates. Usually contains an inhibitor to prevent polymerization.]

Exposure Limits:
NIOSH REL: TWA 10 ppm (50 mg/m^3)
OSHA PEL†: none

Measurement Methods (see Table 1):
OSHA 89

Physical Description: Pale, straw-colored liquid.

Chemical & Physical Properties:
MW: 130.2
BP: 392°F
Sol: 0.005%
Fl.P(oc): 169°F
IP: ?
Sp.Gr: 0.93
VP: 0.7 mmHg
FRZ: -88°F
UEL: 6.2%
LEL: 1.1%
Class IIIA Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: None reported

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, resp sys; skin burns; in animals: CNS depres
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap flush immed
Breath: Resp support
Swallow: Medical attention immed

E

1-Dodecanethiol	Formula: $CH_3(CH_2)_{11}SH$	CAS#: 112-55-0	RTECS#: JR3155000	IDLH: N.D.
Conversion: 1 ppm = 8.28 mg/m^3	DOT: 1228 131			

Synonyms/Trade Names: Dodecyl mercaptan, 1-Dodecyl mercaptan, n-Dodecyl mercaptan, Lauryl mercaptan, n-Lauryl mercaptan, 1-Mercaptododecane

Exposure Limits:
NIOSH REL: C 0.5 ppm (4.1 mg/m^3) [15-minute]
OSHA PEL: none

Physical Description: Colorless, water-white, or pale-yellow, oily liquid with a mild, skunk-like odor. [**Note:** A solid below 15°F.]

Measurement Methods (see Table 1):
None available

Chemical & Physical Properties:
MW: 202.4
BP: 441-478°F
Sol: Insoluble
Fl.P(oc): 190°F
IP: ?
Sp.Gr: 0.85
VP(77°F): 3 mmHg
FRZ: 15°F
UEL: ?
LEL: ?
Class IIIA Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash

Respirator Recommendations (see Tables 3 and 4):
NIOSH
5 ppm: CcrOv/Sa
12.5 ppm: Sa:Cf/PaprOv
25 ppm: CcrFOv/GmFOv/PaprTOv/ ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers & acids, strong bases, reducing agents, alkali metals, water, steam

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, resp sys; cough; dizz, dysp, lass, conf, cyan; abdom pain, nau; skin sens
TO: Eyes, skin, resp sys, CNS, blood

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Emery	Formula: Al_2O_3	CAS#: 1302-74-5 (corundum)	RTECS#: GN2310000 (corundum)	IDLH: N.D.
Conversion:	DOT:			

Synonyms/Trade Names: Aluminum oxide, Aluminum trioxide, Corundum, Impure corundum, Natural aluminum oxide [**Note:** Emery is an impure variety of Al_2O_3 which may contain small impurities of iron, magnesium & silica Corundum is natural Al_2O_3.]

Exposure Limits:
NIOSH REL: See Appendix D
OSHA PEL†: TWA 15 mg/m^3 (total)
TWA 5 mg/m^3 (resp)

Physical Description: Odorless, white, crystalline powder.

Measurement Methods (see Table 1):
NIOSH 0500, 0600

Chemical & Physical Properties:
See α-Alumina for physical & chemical properties.

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities:

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, resp sys
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Breath: Fresh air
Swallow: Medical attention immed

Endosulfan	**Formula:** $C_9H_6Cl_6O_3S$	**CAS#:** 115-29-7	**RTECS#:** RB9275000	**IDLH:** N.D.
Conversion:	**DOT:** 2761 151			

Synonyms/Trade Names: Benzoepin; Endosulphan; 6,7,8,9,10-Hexachloro-1,5,5a,6,9,9a-hexachloro-6,9-methano-2,4,3-benzo-dioxathiepin-3-oxide; Thiodan®

Exposure Limits:
NIOSH REL: TWA 0.1 mg/m^3 [skin] **OSHA PEL†:** none

Measurement Methods (see Table 1):
OSHA PV2023

Physical Description: Brown crystals with a slight, sulfur dioxide odor. [insecticide] [**Note:** Technical product is a tan, waxy, isomer mixture.]

Chemical & Physical Properties:
MW: 406.9
BP: Decomposes
Sol: 0.00001%
Fl.P: NA
IP: ?
Sp.Gr: 1.74
VP(77°F): 0.00001 mmHg
MLT: 223°F
UEL: NA
LEL: NA Noncombustible Solid, but may be dissolved in flammable liquids.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Alkalis, acids, water
[**Note:** Corrosive to iron. Hydrolyzes slowly on contact with water or decomposes in presence of alkalis and acids to form sulfur dioxide.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit skin; nau, conf, agitation, flushing, dry mouth, tremor, convuls, head; in animals: kidney, liver inj; decr testis weight
TO: Skin, CNS, liver, kidneys, repro sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap flush immed
Breath: Resp support
Swallow: Medical attention immed

Endrin	**Formula:** $C_{12}H_8Cl_6O$	**CAS#:** 72-20-8	**RTECS#:** IO1575000	**IDLH:** 2 mg/m^3
Conversion:	**DOT:** 2761 151			

Synonyms/Trade Names: Hexadrin®, 1,2,3,4,10,10-Hexachloro-6,7-epoxy-1,4,4a,5,6,7,8,8a-octahydro-1,4-endo,endo-5,8-dimethanonaphthalene

Exposure Limits:
NIOSH REL: TWA 0.1 mg/m^3 [skin]
OSHA PEL: TWA 0.1 mg/m^3 [skin]

Measurement Methods (see Table 1):
NIOSH 5519

Physical Description: Colorless to tan, crystalline solid with a mild, chemical odor. [insecticide]

Chemical & Physical Properties:
MW: 380.9
BP: Decomposes
Sol: Insoluble
Fl.P: NA
IP: ?
Sp.Gr: 1.70
VP: Low
MLT: 392°F (Decomposes)
UEL: NA
LEL: NA Noncombustible Solid, but may be dissolved in flammable liquids.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
1 mg/m^3: CcrOv95/Sa
2 mg/m^3: Sa:Cf/PaprOvHie/ CcrFOv100/GmFOv100/ ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, strong acids, parathion
[**Note:** May emit hydrogen chloride & phosgene when heated or burned.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Epilep convuls; stupor, head, dizz; abdom discomfort, nau, vomit; insom; aggressiveness, conf; drow, lass; anor; in animals: liver damage
TO: CNS, liver

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

E

Enflurane

Formula: $CHF_2OCF_2CHClF**CAS#:** 13838-16-9**RTECS#:** KN6800000**IDLH:** N.D.

Conversion: 1 ppm = 7.55 mg/m^3 **DOT:**

Synonyms/Trade Names: 2-Chloro-1-(difluoromethoxy)-1,1,2-trifluoroethane; 2-Chloro-1,1,2-trifluoroethyl difluoromethyl ether; Ethrane®

Exposure Limits:
NIOSH REL*: C 2 ppm (15.1 mg/m^3) [60-minute]
[***Note:** REL for exposure to waste anesthetic gas.]
OSHA PEL: none

Physical Description: Clear, colorless liquid with a mild, sweet odor. [inhalation anesthetic]

Measurement Methods (see Table 1):
OSHA 29, 103

Chemical & Physical Properties:
MW: 184.5
BP: 134°F
Sol: Low
Fl.P: NA
IP: ?
Sp.Gr(77°F): 1.52
VP: 175 mmHg
FRZ: ?
UEL: NA
LEL: NA
Noncombustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: Prevent eye contact
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: None reported

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes; CNS depres, analgesia, anes, convuls, resp depres
TO: Eyes, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Resp support
Swallow: Medical attention immed

Epichlorohydrin

Formula: C_3H_5OCl **CAS#:** 106-89-8 **RTECS#:** TX4900000 **IDLH:** Ca [75 ppm]

Conversion: 1 ppm = 3.78 mg/m^3 **DOT:** 2023 131P

Synonyms/Trade Names: 1-Chloro-2,3-epoxypropane; 2-Chloropropylene oxide; γ-Chloropropylene oxide

Exposure Limits:
NIOSH REL: Ca
See Appendix A
OSHA PEL†: TWA 5 ppm (19 mg/m^3) [skin]

Physical Description: Colorless liquid with a slightly irritating, chloroform-like odor.

Measurement Methods (see Table 1):
NIOSH 1010
OSHA 7

Chemical & Physical Properties:
MW: 92.5
BP: 242°F
Sol: 7%
Fl.P: 93°F
IP: 10.60 eV
Sp.Gr: 1.18
VP: 13 mmHg
FRZ: -54°F
UEL: 21.0%
LEL: 3.8%
Class IC Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOvAg/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, strong acids, certain salts, caustics, zinc, aluminum, water [**Note:** May polymerize in presence of strong acids and bases, particularly when hot.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin with deep pain; nau, vomit; abdom pain; resp distress, cough; cyan; repro effects; [carc]
TO: Eyes, skin, resp sys, kidneys, liver, repro sys [in animals: nasal cancer]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

EPN	Formula: $C_{14}H_{14}O_4NSP$	CAS#: 2104-64-5	RTECS#: TB1925000	IDLH: 5 mg/m^3
Conversion:	**DOT:**			

Synonyms/Trade Names: Ethyl p-nitrophenyl benzenethionophosphonate, O-Ethyl O-(4-nitrophenyl) phenylphosphonothioate

Exposure Limits:
NIOSH REL: TWA 0.5 mg/m^3 [skin]
OSHA PEL: TWA 0.5 mg/m^3 [skin]

Measurement Methods (see Table 1):
NIOSH 5012

Physical Description: Yellow solid with an aromatic odor. [pesticide]
[**Note:** A brown liquid above 97°F.]

Chemical & Physical Properties:
MW: 323.3
BP: ?
Sol: Insoluble
Fl.P: NA
IP: ?
Sp.Gr(77°F): 1.27
VP(212°F): 0.0003 mmHg
MLT: 97°F
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
5 mg/m^3: Sa/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin; miosis, lac; rhin; head; chest tight, wheez, lar spasm; salv; cyan; anor, nau, abdom cramps, diarr; para, convuls; low BP, card irreg
TO: Eyes, skin, resp sys, CVS, CNS, blood chol

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Ethanolamine	Formula: $NH_2CH_2CH_2OH$	CAS#: 141-43-5	RTECS#: KJ5775000	IDLH: 30 ppm
Conversion: 1 ppm = 2.50 mg/m^3	**DOT:** 2491 153			

Synonyms/Trade Names: 2-Aminoethanol, β-Aminoethyl alcohol, Ethylolamine, 2-Hydroxyethylamine, Monoethanolamine

Exposure Limits:
NIOSH REL: TWA 3 ppm (8 mg/m^3)
ST 6 ppm (15 mg/m^3)
OSHA PEL†: TWA 3 ppm (6 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 2007

Physical Description: Colorless, viscous liquid or solid (below 51°F) with an unpleasant, ammonia-like odor.

Chemical & Physical Properties:
MW: 61.1
BP: 339°F
Sol: Miscible
Fl.P: 186°F
IP: 8.96 eV
Sp.Gr: 1.02
VP: 0.4 mmHg
FRZ: 51°F
UEL: 23.5%
LEL(284°F): 3.0%
Class IIIA Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
30 ppm: CcrS*/GmFS/PaprS*/Sa*/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, strong acids, iron
[**Note:** May attack copper, brass, and rubber.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, resp sys; drow
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush prompt
Breath: Resp support
Swallow: Medical attention immed

E

Ethion	Formula: $[(C_2H_5O)_2P(S)S]_2CH_2$	CAS#: 563-12-2	RTECS#: TE4550000	IDLH: N.D.
Conversion:	DOT:			

Synonyms/Trade Names: O,O,O',O'-Tetraethyl S,S'-methylene di(phosphorodithioate)

Exposure Limits:
NIOSH REL: 0.4 mg/m^3 [skin]
OSHA PEL†: none

Measurement Methods (see Table 1):
NIOSH 5600

Physical Description: Colorless to amber-colored, odorless liquid. [insecticide]
[**Note:** A solid below 10°F. The technical product has a very disagreeable odor.]

Chemical & Physical Properties:
MW: 384.5
BP: >302°F (Decomposes)
Sol: 0.0001%
Fl.P: 349°F
IP: ?
Sp.Gr: 1.22
VP: 0.0000015 mmHg
FRZ: 10°F
UEL: ?
LEL: ?
Class IIIB Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Acids, alkalis

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin; nau, vomit, abdom cramps, diarr, salv; head, dizz, lass; rhin, chest tight; blurred vision, miosis; card irreg; musc fasc; dysp
TO: Eyes, skin, resp sys, CNS, CVS, blood chol

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

2-Ethoxyethanol	Formula: $C_2H_5OCH_2CH_2OH$	CAS#: 110-80-5	RTECS#: KK8050000	IDLH: 500 ppm
Conversion: 1 ppm = 3.69 mg/m^3	DOT: 1171 127			

Synonyms/Trade Names: Cellosolve®, EGEE, Ethylene glycol monoethyl ether

Exposure Limits:
NIOSH REL: TWA 0.5 ppm (1.8 mg/m^3) [skin]
OSHA PEL: TWA 200 ppm (740 mg/m^3) [skin]

Measurement Methods (see Table 1):
NIOSH 1403
OSHA 53, 79

Physical Description: Colorless liquid with a sweet, pleasant, ether-like odor.

Chemical & Physical Properties:
MW: 90.1
BP: 275°F
Sol: Miscible
Fl.P: 110°F
IP: ?
Sp.Gr: 0.93
VP: 4 mmHg
FRZ: -130°F
UEL(200°F): 15.6%
LEL(200°F): 1.7%
Class II Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
5 ppm: Sa*
12.5 ppm: Sa:Cf*
25 ppm: ScbaF/SaF
500 ppm: Sa:Pd,Pp*
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: In animals: irrit eyes, resp sys; blood changes; liver, kidney, lung damage; repro, terato effects
TO: Eyes, resp sys, blood, kidneys, liver, repro sys, hemato sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush prompt
Breath: Resp support
Swallow: Medical attention immed

2-Ethoxyethyl acetate	Formula: $CH_3COOCH_2CH_2OC_2H_5$	CAS#: 111-15-9	RTECS#: KK8225000	IDLH: 500 ppm
Conversion: 1 ppm = 5.41 mg/m^3	**DOT:** 1172 129			

Synonyms/Trade Names: Cellosolve® acetate, EGEEA, Ethylene glycol monoethyl ether acetate, Glycol monoethyl ether acetate

Exposure Limits:
NIOSH REL: TWA 0.5 ppm (2.7 mg/m^3) [skin]
OSHA PEL: TWA 100 ppm (540 mg/m^3) [skin]

Measurement Methods (see Table 1):
NIOSH 1450
OSHA 53

Physical Description: Colorless liquid with a mild odor.

Chemical & Physical Properties:
MW: 132.2
BP: 313°F
Sol: 23%
Fl.P: 124°F
IP: ?
Sp.Gr: 0.98
VP: 2 mmHg
FRZ: -79°F
UEL: ?
LEL: 1.7%
Class II Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
5 ppm: CcrOv*/Sa*
12.5 ppm: Sa:Cf*/PaprOv*
25 ppm: CcrFOv/GmFOv/PaprTOv*/ ScbaF/SaF
500 ppm: Sa:Pd,Pp*
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Nitrates; strong oxidizers, alkalis & acids

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, nose; vomit; kidney damage; para; in animals: repro, terato effects
TO: Eyes, resp sys, GI tract, repro sys, hemato sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush prompt
Breath: Resp support
Swallow: Medical attention immed

Ethyl acetate	Formula: $CH_3COOC_2H_5$	CAS#: 141-78-6	RTECS#: AH5425000	IDLH: 2000 ppm [10%LEL]
Conversion: 1 ppm = 3.60 mg/m^3	**DOT:** 1173 129			

Synonyms/Trade Names: Acetic ester, Acetic ether, Ethyl ester of acetic acid, Ethyl ethanoate

Exposure Limits:
NIOSH REL: TWA 400 ppm (1400 mg/m^3)
OSHA PEL: TWA 400 ppm (1400 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1457
OSHA 7

Physical Description: Colorless liquid with an ether-like, fruity odor.

Chemical & Physical Properties:
MW: 88.1
BP: 171°F
Sol(77°F): 10%
Fl.P: 24°F
IP: 10.01 eV
Sp.Gr: 0.90
VP: 73 mmHg
FRZ: -117°F
UEL: 11.5%
LEL: 2.0%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
2000 ppm: Sa:Cf£/PaprOv£/CcrFOv/ GmFOv/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Nitrates; strong oxidizers, alkalis & acids

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose, throat; narco; derm
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush prompt
Breath: Resp support
Swallow: Medical attention immed

E

Ethyl acrylate

Formula:	CAS#:	RTECS#:	IDLH:
$CH_2=CHCOOC_2H_5$	140-88-5	AT0700000	Ca [300 ppm]

Conversion: 1 ppm = 4.09 mg/m^3

DOT: 1917 129P (inhibited)

Synonyms/Trade Names: Ethyl acrylate (inhibited), Ethyl ester of acrylic acid, Ethyl propenoate

Exposure Limits:
NIOSH REL: Ca
See Appendix A
OSHA PEL†: TWA 25 ppm (100 mg/m^3) [skin]

Measurement Methods (see Table 1):
NIOSH 1450
OSHA 92

Physical Description: Colorless liquid with an acrid odor.

Chemical & Physical Properties:
MW: 100.1
BP: 211°F
Sol: 2%
Fl.P: 48°F
IP: 10.30 eV
Sp.Gr: 0.92
VP: 29 mmHg
FRZ: -96°F
UEL: 14%
LEL: 1.4%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Oxidizers, peroxides, polymerizers, strong alkalis, moisture, chlorosulfonic acid [**Note:** Polymerizes readily unless an inhibitor such as hydroquinone is added.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, resp sys; [carc]
TO: Eyes, skin, resp sys [in animals: tumors of the forestomach]

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

Ethyl alcohol

Formula:	CAS#:	RTECS#:	IDLH:
CH_3CH_2OH	64-17-5	KQ6300000	3300 ppm [10%LEL]

Conversion: 1 ppm = 1.89 mg/m^3

DOT: 1170 127

Synonyms/Trade Names: Alcohol, Cologne spirit, Ethanol, EtOH, Grain alcohol

Exposure Limits:
NIOSH REL: TWA 1000 ppm (1900 mg/m^3)
OSHA PEL: TWA 1000 ppm (1900 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1400
OSHA 100

Physical Description: Clear, colorless liquid with a weak, ethereal, vinous odor.

Chemical & Physical Properties:
MW: 46.1
BP: 173°F
Sol: Miscible
Fl.P: 55°F
IP: 10.47 eV
Sp.Gr: 0.79
VP: 44 mmHg
FRZ: -173°F
UEL: 19%
LEL: 3.3%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
3300 ppm: Sa/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: ScbaE

Incompatibilities and Reactivities: Strong oxidizers, potassium dioxide, bromine pentafluoride, acetyl bromide, acetyl chloride, platinum, sodium

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose; head, drow, lass, narco; cough; liver damage; anemia; repro, terato effects
TO: Eyes, skin, resp sys, CNS, liver, blood, repro sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush prompt
Breath: Fresh air
Swallow: Medical attention immed

Ethylamine	**Formula:** $CH_3CH_2NH_2$	**CAS#:** 75-04-7	**RTECS#:** KH2100000	**IDLH:** 600 ppm
Conversion: 1 ppm = 1.85 mg/m^3	**DOT:** 1036 118			

Synonyms/Trade Names: Aminoethane, Ethylamine (anhydrous), Monoethylamine

Exposure Limits:
NIOSH REL: TWA 10 ppm (18 mg/m^3)
OSHA PEL: TWA 10 ppm (18 mg/m^3)

Physical Description: Colorless gas or water-white liquid (below 62°F) with an ammonia-like odor. [**Note:** Shipped as a liquefied compressed gas.]

Measurement Methods (see Table 1):
NIOSH S144 (II-3)
OSHA 36

Chemical & Physical Properties:
MW: 45.1
BP: 62°F
Sol: Miscible
Fl.P: 1°F
IP: 8.86 eV
RGasD: 1.61
Sp.Gr: 0.69 (Liquid)
VP: 874 mmHg
FRZ: -114°F
UEL: 14.0%
LEL: 3.5%
Flammable Gas

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact (liquid)
Eyes: Prevent eye contact (liquid)
Wash skin: When contam (liquid)
Remove: When wet or contam (liquid)
Change: N.R.
Provide: Eyewash (liquid)
Quick drench (liquid)

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
250 ppm: Sa:Cf£/PaprS£
500 ppm: CcrFS/GmFS/ScbaF/SaF
600 ppm: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS/ScbaE

Incompatibilities and Reactivities: Strong acids; strong oxidizers; copper, tin & zinc in presence of moisture; cellulose nitrate; chlorine; hypochlorites

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs (liquid), Ing (liquid), Con (liquid)
SY: Irrit eyes, skin, resp sys; skin burns, derm
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed (liquid)
Skin: Water flush immed (liquid)
Breath: Resp support
Swallow: Medical attention immed (liquid)

Ethyl benzene	**Formula:** $CH_3CH_2C_6H_5$	**CAS#:** 100-41-4	**RTECS#:** DA0700000	**IDLH:** 800 ppm [10%LEL]
Conversion: 1 ppm = 4.34 mg/m^3	**DOT:** 1175 130			

Synonyms/Trade Names: Ethylbenzol, Phenylethane

Exposure Limits:
NIOSH REL: TWA 100 ppm (435 mg/m^3)
ST 125 ppm (545 mg/m^3)
OSHA PEL†: TWA 100 ppm (435 mg/m^3)

Physical Description: Colorless liquid with an aromatic odor.

Measurement Methods (see Table 1):
NIOSH 1501
OSHA 7, 1002

Chemical & Physical Properties:
MW: 106.2
BP: 277°F
Sol: 0.01%
Fl.P: 55°F
IP: 8.76 eV
Sp.Gr: 0.87
VP: 7 mmHg
FRZ: -139°F
UEL: 6.7%
LEL: 0.8%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
800 ppm: CcrOv*/GmFOv/PaprOv*/Sa*/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, muc memb; head; derm; narco, coma
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush prompt
Breath: Resp support
Swallow: Medical attention immed

E

Ethyl bromide	Formula: CH_3CH_2Br	CAS#: 74-96-4	RTECS#: KH6475000	IDLH: 2000 ppm
Conversion: 1 ppm = 4.46 mg/m^3	**DOT:** 1891 131			

Synonyms/Trade Names: Bromoethane, Monobromoethane

Exposure Limits:
NIOSH REL: See Appendix D
OSHA PEL†: TWA 200 ppm (890 mg/m^3)

Physical Description: Colorless to yellow liquid with an ether-like odor.
[**Note:** A gas above 101°F.]

Measurement Methods (see Table 1):
NIOSH 1011
OSHA 7

Chemical & Physical Properties:
MW: 109.0
BP: 101°F
Sol: 0.9%
Fl.P: <4°F
IP: 10.29 eV
Sp.Gr: 1.46
VP: 375 mmHg
FRZ: -182°F
UEL: 8.0%
LEL: 6.8%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
OSHA
2000 ppm: Sa/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Chemically-active metals such as sodium, potassium, calcium, powdered aluminum, zinc & magnesium

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, resp sys; CNS depres; pulm edema; liver, kidney disease; card arrhy, card arrest
TO: Eyes, skin, resp sys, liver, kidneys, CVS, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap flush prompt
Breath: Resp support
Swallow: Medical attention immed

Ethyl butyl ketone	Formula: $CH_3CH_2CO[CH_2]_3CH_3$	CAS#: 106-35-4	RTECS#: MJ5250000	IDLH: 1000 ppm
Conversion: 1 ppm = 4.67 mg/m^3	**DOT:** 1224 127			

Synonyms/Trade Names: Butyl ethyl ketone, 3-Heptanone

Exposure Limits:
NIOSH REL: TWA 50 ppm (230 mg/m^3)
OSHA PEL: TWA 50 ppm (230 mg/m^3)

Physical Description: Colorless liquid with a powerful, fruity odor.

Measurement Methods (see Table 1):
NIOSH 1301, 2553
OSHA 7

Chemical & Physical Properties:
MW: 114.2
BP: 298°F
Sol: 1%
Fl.P(oc): 115°F
IP: 9.02 eV
Sp.Gr: 0.82
VP: 4 mmHg
FRZ: -38°F
UEL: ?
LEL: ?
Class II Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
500 ppm: CcrOv*/Sa*
1000 ppm: Sa:Cf*/PaprOv*/CcrFOv/GmFOv/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Oxidizers, acetaldehyde, perchloric acid

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, muc memb; head, narco, coma; derm
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush
Breath: Resp support
Swallow: Medical attention immed

Ethyl chloride	Formula: CH_3CH_2Cl	CAS#: 75-00-3	RTECS#: KH7525000	IDLH: 3800 ppm [10%LEL]
Conversion: 1 ppm = 2.64 mg/m^3	**DOT:** 1037 115			

Synonyms/Trade Names: Chloroethane, Hydrochloric ether, Monochloroethane, Muriatic ether

Exposure Limits:
NIOSH REL: Handle with caution in the workplace.
See Appendix C (Chloroethanes)
OSHA PEL: TWA 1000 ppm (2600 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 2519

Physical Description: Colorless gas or liquid (below 54°F) with a pungent, ether-like odor. [**Note:** Shipped as a liquefied compressed gas.]

Chemical & Physical Properties:
MW: 64.5
BP: 54°F
Sol: 0.6%
Fl.P: NA (Gas)
-58°F (Liquid)
IP: 10.97 eV
RGasD: 2.23
Sp.Gr: 0.92 (Liquid at 32°F)
VP: 1000 mmHg
FRZ: -218°F
UEL: 15.4%
LEL: 3.8%
Flammable Gas

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact (liquid)
Eyes: Prevent eye contact (liquid)
Wash skin: N.R.
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
OSHA
3800 ppm: Sa*/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Chemically-active metals such as sodium, potassium, calcium, powdered aluminum, zinc & magnesium; oxidizers; water or steam [**Note:** Reacts with water to form hydrochloric acid.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs (liquid), Ing (liquid), Con
SY: Inco, inebri; abdom cramps; card arrhy, card arrest; liver, kidney damage
TO: Liver, kidneys, resp sys, CVS, CNS

First Aid (see Table 6):
Eye: Irr immed (liquid)
Skin: Water flush prompt (liquid)
Breath: Resp support
Swallow: Medical attention immed (liquid)

Ethylene chlorohydrin	Formula: CH_2ClCH_2OH	CAS#: 107-07-3	RTECS#: KK0875000	IDLH: 7 ppm
Conversion: 1 ppm = 3.29 mg/m^3	**DOT:** 1135 131			

Synonyms/Trade Names: 2-Chloroethanol, 2-Chloroethyl alcohol, Ethylene chlorhydrin

Exposure Limits:
NIOSH REL: C 1 ppm (3 mg/m^3) [skin]
OSHA PEL†: TWA 5 ppm (16 mg/m^3) [skin]

Measurement Methods (see Table 1):
NIOSH 2513
OSHA 7

Physical Description: Colorless liquid with a faint, ether-like odor.

Chemical & Physical Properties:
MW: 80.5
BP: 262°F
Sol: Miscible
Fl.P: 140°F
IP: 10.90 eV
Sp.Gr: 1.20
VP: 5 mmHg
FRZ: -90°F
UEL: 15.9%
LEL: 4.9%
Class IIIA Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
7 ppm: Sa*/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, strong caustics, water or steam

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit muc memb; nau, vomit; dizz, inco; numb; vis dist; head; thirst; delirium; low BP; collapse, shock, coma; liver, kidney damage
TO: Resp sys, liver, kidneys, CNS, CVS, eyes

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

E

Ethylenediamine

Formula: $NH_2CH_2CH_2NH_2$ | **CAS#:** 107-15-3 | **RTECS#:** KH8575000 | **IDLH:** 1000 ppm

Conversion: 1 ppm = 2.46 mg/m^3 | **DOT:** 1604 132

Synonyms/Trade Names: 1,2-Diaminoethane; 1,2-Ethanediamine; Ethylenediamine (anhydrous)

Exposure Limits:
NIOSH REL: TWA 10 ppm (25 mg/m^3)
OSHA PEL: TWA 10 ppm (25 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 2540
OSHA 60

Physical Description: Colorless, viscous liquid with an ammonia-like odor. [fungicide] [**Note:** A solid below 47°F.]

Chemical & Physical Properties:
MW: 60.1
BP: 241°F
Sol: Miscible
Fl.P: 93°F
IP: 8.60 eV
Sp.Gr: 0.91
VP: 11 mmHg
FRZ: 47°F
UEL(212°F): 12%
LEL(212°F): 2.5%
Class IC Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet (flamm)
Change: N.R.
Provide: Eyewash (>5%)
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
250 ppm: Sa:Cf£/PaprS£
500 ppm: CcrFS/GmFS/PaprTS£/ ScbaF/SaF
1000 ppm: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS/ScbaE

Incompatibilities and Reactivities: Strong acids & oxidizers, carbon tetrachloride & other chlorinated organic compounds, carbon disulfide [**Note:** Corrosive to metals.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit nose, resp sys; sens derm; asthma; liver, kidney damage
TO: Skin, resp sys, liver, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

Ethylene dibromide

Formula: $BrCH_2CH_2Br$ | **CAS#:** 106-93-4 | **RTECS#:** KH9275000 | **IDLH:** Ca [100 ppm]

Conversion: 1 ppm = 7.69 mg/m^3 | **DOT:** 1605 154

Synonyms/Trade Names: 1,2-Dibromoethane; Ethylene bromide; Glycol dibromide

Exposure Limits:
NIOSH REL: Ca
TWA 0.045 ppm
C 0.13 ppm [15-minute]
See Appendix A
OSHA PEL: TWA 20 ppm
C 30 ppm
50 ppm [5-minute maximum peak]

Measurement Methods (see Table 1):
NIOSH 1008
OSHA 2

Physical Description: Colorless liquid or solid (below 50°F) with a sweet odor. [fumigant]

Chemical & Physical Properties:
MW: 187.9
BP: 268°F
Sol: 0.4%
Fl.P: NA
IP: 9.45 eV
Sp.Gr: 2.17
VP: 12 mmHg
FRZ: 50°F
UEL: NA
LEL: NA
Noncombustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Chemically-active metals such as sodium, potassium, calcium, hot aluminum & magnesium; liquid ammonia; strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, resp sys; derm with vesic; liver, heart, spleen, kidney damage; repro effects; [carc]
TO: Eyes, skin, resp sys, liver, kidneys, repro sys [in animals: skin & lung tumors]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Ethylene dichloride	Formula: $ClCH_2CH_2Cl$	CAS#: 107-06-2	RTECS#: KI0525000	IDLH: Ca [50 ppm]
Conversion: 1 ppm = 4.05 mg/m^3	**DOT:** 1184 131			

Synonyms/Trade Names: 1,2-Dichloroethane; Ethylene chloride; Glycol dichloride

Exposure Limits:
NIOSH REL: Ca
TWA 1 ppm (4 mg/m^3)
ST 2 ppm (8 mg/m^3)
See Appendix A,
See Appendix C (Chloroethanes)
OSHA PEL†: TWA 50 ppm
C 100 ppm
200 ppm [5-minute maximum peak in any 3 hours]

Measurement Methods (see Table 1):
NIOSH 1003
OSHA 3

Physical Description: Colorless liquid with a pleasant, chloroform-like odor. [**Note:** Decomposes slowly, becomes acidic & darkens in color.]

Chemical & Physical Properties:
MW: 99.0
BP: 182°F
Sol: 0.9%
Fl.P: 56°F
IP: 11.05 eV
Sp.Gr: 1.24
VP: 64 mmHg
FRZ: -32°F
UEL: 16%
LEL: 6.2%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers & caustics; chemically-active metals such as magnesium or aluminum powder, sodium & potassium; liquid ammonia [**Note:** Decomposes to vinyl chloride & HCl above 1112°F.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Abs, Con
SY: Irrit eyes, corn opac; CNS depres; nau, vomit; derm; liver, kidney, CVS damage; [carc]
TO: Eyes, skin, kidneys, liver, CNS, CVS [in animals: forestomach, mammary gland & circulatory sys cancer]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

Ethylene glycol	Formula: $HOCH_2CH_2OH$	CAS#: 107-21-1	RTECS#: KW2975000	IDLH: N.D.
Conversion:	**DOT:**			

Synonyms/Trade Names: 1,2-Dihydroxyethane; 1,2-Ethanediol; Glycol; Glycol alcohol; Monoethylene glycol

Exposure Limits:
NIOSH REL: See Appendix D
OSHA PEL†: none

Measurement Methods (see Table 1):
NIOSH 5523
OSHA PV2024

Physical Description: Clear, colorless, syrupy, odorless liquid. [antifreeze] [**Note:** A solid below 9°F.]

Chemical & Physical Properties:
MW: 62.1
BP: 388°F
Sol: Miscible
Fl.P: 232°F
IP: ?
Sp.Gr: 1.11
VP: 0.06 mmHg
FRZ: 9°F
UEL: 15.3%
LEL: 3.2%
Class IIIB Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Strong oxidizers, chromium trioxide, potassium permanganate, sodium peroxide
[**Note:** Hygroscopic (i.e., absorbs moisture from the air).]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose, throat; nau, vomit, abdom pain, lass; dizz, stupor, convuls, CNS depres; skin sens
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water wash immed
Breath: Resp support
Swallow: Medical attention immed

E

Ethylene glycol dinitrate

Formula: $O_2NOCH_2CH_2ONO_2$ | **CAS#:** 628-96-6 | **RTECS#:** KW5600000 | **IDLH:** 75 mg/m^3

Conversion: 1 ppm = 6.22 mg/m^3 | **DOT:**

Synonyms/Trade Names: EGDN; 1,2-Ethanediol dinitrate; Ethylene dinitrate; Ethylene nitrate; Glycol dinitrate; Nitroglycol

Exposure Limits:
NIOSH REL: ST 0.1 mg/m^3 [skin]
OSHA PEL†: C 0.2 ppm (1 mg/m^3) [skin]

Physical Description: Colorless to yellow, oily, odorless liquid. [**Note:** An explosive ingredient (60-80%) in dynamite along with nitroglycerine (40-20%).]

Measurement Methods (see Table 1):
NIOSH 2507
OSHA 43

Chemical & Physical Properties:
MW: 152.1
BP: 387°F
Sol: Insoluble
Fl.P: 419°F
IP: ?
Sp.Gr: 1.49
VP: 0.05 mmHg
FRZ: -8°F
UEL: ?
LEL: ?
Explosive Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: Daily
Provide: Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
1 mg/m^3: Sa*
2.5 mg/m^3: Sa:Cf*
5 mg/m^3: SaT:Cf*/ScbaF/SaF
75 mg/m^3: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Acids, alkalis

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Throb head; dizz; nau, vomit, abdom pain; hypotension, flush, palp, angina; methemo; delirium, CNS depres; irrit skin; in animals: anemia; liver, kidney damage
TO: Skin, CVS, blood, liver, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Ethyleneimine

Formula: C_2H_5N | **CAS#:** 151-56-4 | **RTECS#:** KX5075000 | **IDLH:** Ca [100 ppm]

Conversion: 1 ppm = 1.76 mg/m^3 | **DOT:** 1185 131P (inhibited)

Synonyms/Trade Names: Aminoethylene, Azirane, Aziridine, Dimethyleneimine, Dimethylenimine, Ethylenimine, Ethylimine

Exposure Limits:
NIOSH REL: Ca
See Appendix A
OSHA PEL: [1910.1012] See Appendix B

Physical Description: Colorless liquid with an ammonia-like odor. [**Note:** Usually contains inhibitors to prevent polymerization.]

Measurement Methods (see Table 1):
NIOSH 3514

Chemical & Physical Properties:
MW: 43.1
BP: 133°F
Sol: Miscible
Fl.P: 12°F
IP: 9.20 eV
Sp.Gr: 0.83
VP: 160 mmHg
FRZ: -97°F
UEL: 54.8%
LEL: 3.3%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

See Appendix E (page 351)

Incompatibilities and Reactivities: Polymerizes explosively in presence of acids [**Note:** Explosive silver derivatives may be formed with silver alloys (e.g., silver solder).]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, nose, throat; nau, vomit; head, dizz; pulm edema; liver, kidney damage; eye burns; skin sens; [carc]
TO: Eyes, skin, resp sys, liver, kidneys [in animals: lung & liver tumors]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Ethylene oxide

Formula: C_2H_4O | **CAS#:** 75-21-8 | **RTECS#:** KX2450000 | **IDLH:** Ca [800 ppm]

Conversion: 1 ppm = 1.80 mg/m^3 | **DOT:** 1040 119P

Synonyms/Trade Names: Dimethylene oxide; 1,2-Epoxy ethane; Oxirane

Exposure Limits:
NIOSH REL: Ca
TWA <0.1 ppm (0.18 mg/m^3)
C 5 ppm (9 mg/m^3) [10-min/day]
See Appendix A
OSHA PEL: [1910.1047] TWA 1 ppm
5 ppm [15-minute Excursion]

Measurement Methods (see Table 1):
NIOSH 1614, 3800
OSHA 30, 49, 50

Physical Description: Colorless gas or liquid (below 51°F) with an ether-like odor.

Chemical & Physical Properties:
MW: 44.1
BP: 51°F
Sol: Miscible
Fl.P: NA (Gas)
-20°F (Liquid)
IP: 10.56 eV
RGasD: 1.49
Sp.Gr: 0.82 (Liquid at 50°F)
VP: 1.46 atm
FRZ: -171°F
UEL: 100%
LEL: 3.0%
Flammable Gas

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact (liquid)
Eyes: Prevent eye contact (liquid)
Wash skin: When contam (liquid)
Remove: When wet (flamm)
Change: N.R.
Provide: Quick drench (liquid)

Respirator Recommendations (see Tables 3 and 4):
NIOSH
5 ppm: GmFS†/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS†/ScbaE

See Appendix E (page 351)

Incompatibilities and Reactivities: Strong acids, alkalis & oxidizers; chlorides of iron, aluminum & tin; oxides of iron & aluminum; water

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, (liquid), Con
SY: Irrit eyes, skin, nose, throat; peculiar taste; head; nau, vomit, diarr; dysp, cyan, pulm edema; drow, lass, inco; EKG abnor; eye, skin burns (liq or high vap conc); liquid: frostbite; repro effects; [carc]; in animals: convuls; liver, kidney damage
TO: Eyes, skin, resp sys, liver, CNS, blood, kidneys, repro sys [peritoneal cancer, leukemia]

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed (liquid)

Ethylene thiourea

Formula: $C_3H_6N_2S$ | **CAS#:** 96-45-7 | **RTECS#:** NI9625000 | **IDLH:** Ca [N.D.]

Conversion: | **DOT:**

Synonyms/Trade Names: 1,3-Ethylene-2-thiourea; N,N-Ethylenethiourea; ETU; 2-Imidazolidine-2-thione

Exposure Limits:
NIOSH REL: Ca
Use encapsulated form.
See Appendix A
OSHA PEL: none

Measurement Methods (see Table 1):
NIOSH 5011
OSHA 95

Physical Description: White to pale-green, crystalline solid with a faint, amine odor. [**Note:** Used as an accelerator in the curing of polychloroprene & other elastomers.]

Chemical & Physical Properties:
MW: 102.2
BP: 446-595°F
Sol(86°F): 2%
Fl.P: 486°F
IP: 8.15 eV
Sp.Gr: ?
VP: 16 mmHg
MLT: 392°F
UEL: ?
LEL: ?
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Acrolein

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes; in animals: thickening of the skin; goiter; terato effects; [carc]
TO: Eyes, skin, thyroid, repro sys [in animals: liver, thyroid & lymphatic sys tumors]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

E

Ethyl ether	Formula: $C_2H_5OC_2H_5$	CAS#: 60-29-7	RTECS#: KI5775000	IDLH: 1900 ppm [10%LEL]
Conversion: 1 ppm = 3.03 mg/m^3	**DOT:** 1155 127			

Synonyms/Trade Names: Diethyl ether, Diethyl oxide, Ethyl oxide, Ether, Solvent ether

Exposure Limits:
NIOSH REL: See Appendix D
OSHA PEL†: TWA 400 ppm (1200 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1610
OSHA 7

Physical Description: Colorless liquid with a pungent, sweetish odor.
[**Note:** A gas above 94°F.]

Chemical & Physical Properties:
MW: 74.1
BP: 94°F
Sol: 8%
Fl.P: -49°F
IP: 9.53 eV
Sp.Gr: 0.71
VP: 440 mmHg
FRZ: -177°F
UEL: 36.0%
LEL: 1.9%
Class IA Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: N.R.
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
OSHA
1900 ppm: CcrOv*/GmFOv/PaprOv*/Sa*/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, halogens, sulfur, sulfur compounds
[**Note:** Tends to form explosive peroxides under influence of air and light.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, upper resp sys; dizz, drow, head, excited, narco; nau, vomit
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water wash prompt
Breath: Resp support
Swallow: Medical attention immed

Ethyl formate	Formula: CH_3CH_2OCHO	CAS#: 109-94-4	RTECS#: LQ8400000	IDLH: 1500 ppm
Conversion: 1 ppm = 3.03 mg/m^3	**DOT:** 1190 129			

Synonyms/Trade Names: Ethyl ester of formic acid, Ethyl methanoate

Exposure Limits:
NIOSH REL: TWA 100 ppm (300 mg/m^3)
OSHA PEL: TWA 100 ppm (300 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1452
OSHA 7

Physical Description: Colorless liquid with a fruity odor.

Chemical & Physical Properties:
MW: 74.1
BP: 130°F
Sol(64°F): 9%
Fl.P: -4°F
IP: 10.61 eV
Sp.Gr: 0.92
VP: 200 mmHg
FRZ: -113°F
UEL: 16.0%
LEL: 2.8%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
1500 ppm: Sa:Cf£/PaprOv£/CcrFOv/GmFOv/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Nitrates; strong oxidizers, alkalis & acids
[**Note:** Decomposes slowly in water to form ethyl alcohol and formic acid.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, upper resp sys; in animals: narco
TO: Eyes, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

Ethylidene norbornene	Formula: C_9H_{12}	CAS#: 16219-75-3	RTECS#: RB9450000	IDLH: N.D.
Conversion: 1 ppm = 4.92 mg/m^3	**DOT:**			

Synonyms/Trade Names: ENB, 5-Ethylidenebicyclo(2.2.1)hept-2-ene, 5-Ethylidene-2-norbornene
[**Note:** Due to its reactivity, ENB may be stabilized with tert-butyl catechol.]

Exposure Limits:
NIOSH REL: C 5 ppm (25 mg/m^3)
OSHA PEL†: none

Measurement Methods (see Table 1):
None available

Physical Description: Colorless to white liquid with a turpentine-like odor.

Chemical & Physical Properties:
MW: 120.2
BP: 298°F
Sol: ?
Fl.P(oc): 101°F
IP: ?
Sp.Gr: 0.90
VP: 4 mmHg
FRZ: -112°F
UEL: ?
LEL: ?
Class II Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: Daily
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Oxygen
[**Note:** ENB should be stored in a nitrogen atmosphere since it reacts with oxygen.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, nose, throat; head; cough, dysp; nau, vomit; olfactory, taste changes; chemical pneu (aspir liquid); in animals: liver, kidney, urogenital inj; bone marrow effects
TO: Eyes, skin, resp sys, CNS, liver, kidneys, urogenital system, bone marrow

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Ethyl mercaptan	Formula: CH_3CH_2SH	CAS#: 75-08-1	RTECS#: KI9625000	IDLH: 500 ppm
Conversion: 1 ppm = 2.54 mg/m^3	**DOT:** 2363 129			

Synonyms/Trade Names: Ethanethiol, Ethyl sulfhydrate, Mercaptoethane

Exposure Limits:
NIOSH REL: C 0.5 ppm (1.3 mg/m^3) [15-minute]
OSHA PEL†: C 10 ppm (25 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 2542

Physical Description: Colorless liquid with a strong, skunk-like odor.
[**Note:** A gas above 95°F.]

Chemical & Physical Properties:
MW: 62.1
BP: 95°F
Sol: 0.7%
Fl.P: -55°F
IP: 9.29 eV
Sp.Gr: 0.84
VP: 442 mmHg
FRZ: -228°F
UEL: 18.0%
LEL: 2.8%
Class IA Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
5 ppm: CcrOv/Sa
12.5 ppm: Sa:Cf/PaprOv
25 ppm: CcrFOv/GmFOv/SaT:Cf/PaprTOv/ ScbaF/SaF
500 ppm: Sa:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers [**Note:** Reacts violently with calcium hypochlorite.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit muc memb; head, nau; in animals: inco, lass; liver, kidney damage; cyan; narco
TO: Eyes, resp sys, liver, kidneys, blood

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

E

N-Ethylmorpholine

Formula: $C_4H_8ONCH_2CH_3$ | **CAS#:** 100-74-3 | **RTECS#:** QE4025000 | **IDLH:** 100 ppm

Conversion: 1 ppm = 4.71 mg/m^3 | **DOT:**

Synonyms/Trade Names: 4-Ethylmorpholine

Exposure Limits:
NIOSH REL: TWA 5 ppm (23 mg/m^3) [skin]
OSHA PEL†: TWA 20 ppm (94 mg/m^3) [skin]

Measurement Methods (see Table 1):
NIOSH S146 (II-3)

Physical Description: Colorless liquid with an ammonia-like odor.

Chemical & Physical Properties:
MW: 115.2
BP: 281°F
Sol: Miscible
Fl.P(oc): 90°F
IP: ?
Sp.Gr: 0.90
VP: 6 mmHg
FRZ: -81°F
UEL: ?
LEL: ?
Class IC Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.
Provide: Eyewash (>15%)
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
50 ppm: CcrOv*/Sa*
100 ppm: Sa:Cf*/PaprOv*/CcrFOv/GmFOv/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong acids, strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, nose, throat; vis dist: corn edema, blue-gray vision, colored haloes
TO: Eyes, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush prompt
Breath: Resp support
Swallow: Medical attention immed

Ethyl silicate

Formula: $(C_2H_5)_4SiO_4$ | **CAS#:** 78-10-4 | **RTECS#:** VV9450000 | **IDLH:** 700 ppm

Conversion: 1 ppm = 8.52 mg/m^3 | **DOT:** 1292 129

Synonyms/Trade Names: Ethyl orthosilicate, Ethyl silicate (condensed), Tetraethoxysilane, Tetraethyl orthosilicate, Tetraethyl silicate

Exposure Limits:
NIOSH REL: TWA 10 ppm (85 mg/m^3)
OSHA PEL†: TWA 100 ppm (850 mg/m^3)

Measurement Methods (see Table 1):
NIOSH S264 (II-3)

Physical Description: Colorless liquid with a sharp, alcohol-like odor.

Chemical & Physical Properties:
MW: 208.3
BP: 336°F
Sol: Reacts
Fl.P: 99°F
IP: 9.77 eV
Sp.Gr: 0.93
VP: 1 mmHg
FRZ: -117°F
UEL: ?
LEL: ?
Class IC Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
100 ppm: Sa*
250 ppm: Sa:Cf*
500 ppm: ScbaF/SaF
700 ppm: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, water
[**Note:** Reacts with water to form a silicone adhesive (a milky-white mass).]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, nose; in animals: lac; dysp, pulm edema; tremor, narco; liver, kidney damage; anemia
TO: Eyes, resp sys, liver, kidneys, blood, skin

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

Fenamiphos	**Formula:** $C_{13}H_{22}NO_3PS$	**CAS#:** 22224-92-6	**RTECS#:** TB3675000	**IDLH:** N.D.
Conversion:	**DOT:**			

Synonyms/Trade Names: Ethyl 3-methyl-4-(methylthio)phenyl-(1-methylethyl)phosphoramidate, Nemacur®, Phenamiphos

Exposure Limits:
NIOSH REL: TWA 0.1 mg/m^3 [skin]
OSHA PEL†: none

Measurement Methods (see Table 1):
NIOSH 5600

Physical Description: Off-white to tan, waxy solid. [insecticide]
[**Note:** Found commercially as a granular ingredient (5-15%) or in an emulsifiable concentrate (400 g/l).]

Chemical & Physical Properties:
MW: 303.4
BP: ?
Sol: 0.03%
Fl.P: ?
IP: ?
Sp.Gr: 1.14
VP: 0.00005 mmHg
MLT: 121°F
UEL: ?
LEL: ?

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily
Provide: Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: None reported [**Note:** May hydrolyze under alkaline conditions.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Nau, vomit, abdom cramps, diarr, salv; head, dizz, lass; rhin, chest tight; blurred vision, miosis; card irreg; musc fasc; dysp
TO: Resp sys, CNS, CVS, blood chol

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap flush immed
Breath: Resp support
Swallow: Medical attention immed

Fensulfothion	**Formula:** $C_{11}H_{17}O_4PS_2$	**CAS#:** 115-90-2	**RTECS#:** TF3850000	**IDLH:** N.D.
Conversion:	**DOT:**			

Synonyms/Trade Names: Dasanit®; O,O-Diethyl O-(p-methylsulfinyl)phenyl)phosphorothioate; Terracur P®

Exposure Limits:
NIOSH REL: TWA 0.1 mg/m^3
OSHA PEL†: none

Measurement Methods (see Table 1):
None available

Physical Description: Brown liquid or yellow oil. [pesticide]

Chemical & Physical Properties:
MW: 308.4
BP: ?
Sol(77°F): 0.2%
Fl.P: ?
IP: ?
Sp.Gr: 1.20
VP: ?
FRZ: ?
UEL: ?
LEL: ?
Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Alkalis

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit skin; nau, vomit, abdom cramps, diarr, salv; head, dizz, lass; rhin, chest tight; blurred vision, miosis; card irreg; musc fasc; dys
TO: Skin, resp sys, CNS, CVS, blood chol

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap flush immed
Breath: Resp support
Swallow: Medical attention immed

F

F

Fenthion	Formula: $C_{10}H_{15}O_3PS$	CAS#: 55-38-9	RTECS#: TF9625000	IDLH: N.D.
Conversion:	DOT:			

Synonyms/Trade Names: Baytex; Entex; O,O-Dimethyl O-3-methyl-4-methylthiophenyl phosphorothioate

Exposure Limits:
NIOSH REL: See Appendix D
OSHA PEL†: none

Measurement Methods (see Table 1):
None available

Physical Description: Colorless to brown liquid with a slight, garlic-like odor. [insecticide]

Chemical & Physical Properties:
MW: 278.3
BP: ?
Sol: 0.006%
Fl.P: NA
IP: ?
Sp.Gr: 1.25
VP: 0.0003 mmHg
FRZ: 43°F
UEL: NA
LEL: NA
Noncombustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Nau, vomit, abdom cramps, diarr, salv; head, dizz, lass; rhin, chest tight; blurred vision, miosis; card irregularities; musc fasc; dysp
TO: Resp sys, CNS, CVS, plasma chol

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap flush immed
Breath: Resp support
Swallow: Medical attention immed

Ferbam	Formula: $[(CH_3)_2NCS_2]_3Fe$	CAS#: 14484-64-1	RTECS#: NO8750000	IDLH: 800 mg/m^3
Conversion:	DOT:			

Synonyms/Trade Names: tris(Dimethyldithiocarbamato)iron, Ferric dimethyl dithiocarbamate

Exposure Limits:
NIOSH REL: TWA 10 mg/m^3
OSHA PEL†: TWA 15 mg/m^3

Measurement Methods (see Table 1):
NIOSH 0500

Physical Description: Dark brown to black, odorless solid. [fungicide]

Chemical & Physical Properties:
MW: 416.5
BP: Decomposes
Sol: 0.01%
Fl.P: ?
IP: 7.72 eV
Sp.Gr: ?
VP: 0 mmHg (approx)
MLT: >356°F (Decomposes)
UEL: ?
LEL: ?
MEC: 55 g/m^3
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH
50 mg/m^3: Qm
100 mg/m^3: 95XQ*/Sa*
250 mg/m^3: Sa:Cf*/PaprHie*
500 mg/m^3: 100F/SaT:Cf*/PaprTHie*/ ScbaF/SaF
800 mg/m^3: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, moisture

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, resp tract; derm; GI dist
TO: Eyes, skin, resp sys, GI tract

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

Ferrovanadium dust	**Formula:** FeV	**CAS#:** 12604-58-9	**RTECS#:** LK2900000	**IDLH:** 500 mg/m^3
Conversion:	**DOT:**			

Synonyms/Trade Names: Ferrovanadium

Exposure Limits:
NIOSH REL*: TWA 1 mg/m^3
ST 3 mg/m^3
[***Note:** The REL also applies to Vanadium metal and Vanadium carbide.]
OSHA PEL†: TWA 1 mg/m^3

Measurement Methods (see Table 1):
OSHA ID121, ID125G

Physical Description: Dark, odorless particulate dispersed in air.
[**Note:** Ferrovanadium metal is an alloy usually containing 50-80% vanadium.]

Chemical & Physical Properties:
MW: 106.8
BP: ?
Sol: Insoluble
Fl.P: NA
IP: NA
Sp.Gr: ?
VP: 0 mmHg (approx)
MLT: 2696-2768°F
UEL: NA
LEL: NA
MEC: 1.3 g/m^3
Metal: Noncombustible Solid, but dust may be an explosion hazard.

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
5 mg/m^3: Qm*
10 mg/m^3: 95XQ*/Sa*
25 mg/m^3: Sa:Cf*/PaprHie*
50 mg/m^3: 100F/SaT:Cf*/PaprTHie*/ScbaF/SaF
500 mg/m^3: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Irrit eyes, resp sys; in animals: bron, pneu
TO: Eyes, resp sys

First Aid (see Table 6):
Eye: Irr immed
Breath: Resp support

Fibrous glass dust	**Formula:**	**CAS#:**	**RTECS#:** LK3651000	**IDLH:** N.D.
Conversion:	**DOT:**			

Synonyms/Trade Names: Fiber glas®, Fiberglass, Glass fibers, Glass wool
[**Note:** Usually produced from borosilicate & low alkali silicate glasses.]

Exposure Limits:
NIOSH REL: TWA 3 fibers/cm^3 (fibers ≤ 3.5 µm in diameter & ≤ 10 µm in length)
TWA 5 mg/m^3 (total)
OSHA PEL: TWA 15 mg/m3 (total)
TWA 5 mg/m^3 (resp)

Measurement Methods (see Table 1):
NIOSH 7400

Physical Description: Typically, glass filaments >3 µm in diameter or glass "wool" with diameters down to 0.05 µm & >1 µm in length.

Chemical & Physical Properties:
MW: NA
BP: NA
Sol: Insoluble
Fl.P: NA
IP: NA
Sp.Gr: 2.5
VP: 0 mmHg (approx)
MLT: ?
UEL: NA
LEL: NA
Noncombustible Fibers

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: Daily
Remove: N.R.
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH
5X REL: Qm
10X REL: 95XQ/Sa
25X REL: Sa:Cf/PaprHie
50X REL: 100F/PaprTHie/ScbaF/SaF
1000X REL: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: None reported

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Irrit eyes, skin, nose, throat; dysp
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Breath: Fresh air

F

Fluorine	**Formula:** F_2	**CAS#:** 7782-41-4	**RTECS#:** LM6475000	**IDLH:** 25 ppm
Conversion: 1 ppm = 1.55 mg/m^3	**DOT:** 1045 124; 9192 167 (cryogenic liquid)			

Synonyms/Trade Names: Fluorine-19

Exposure Limits:
NIOSH REL: TWA 0.1 ppm (0.2 mg/m^3)
OSHA PEL: TWA 0.1 ppm (0.2 mg/m^3)

Measurement Methods (see Table 1):
None available

Physical Description: Pale-yellow to greenish gas with a pungent, irritating odor.

Chemical & Physical Properties:
MW: 38.0
BP: -307°F
Sol: Reacts
Fl.P: NA
IP: 15.70 eV
RGasD: 1.31
VP: >1 atm
FRZ: -363°F
UEL: NA
LEL: NA
Nonflammable Gas, but an extremely strong oxidizer.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact (liquid)
Eyes: Prevent eye contact (liquid)
Wash skin: When contam (liquid)
Remove: When wet or contam (liquid)
Change: N.R.
Provide: Eyewash (liquid)
Quick drench (liquid)

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
1 ppm: Sa*
2.5 ppm: Sa:Cf*
5 ppm: ScbaF/SaF
25 ppm: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS¿/ScbaE

Incompatibilities and Reactivities: Water, nitric acid, oxidizers, organic compounds
[**Note:** Reacts violently with all combustible materials, except the metal containers in which it is shipped. Reacts with H_2O to form hydrofluoric acid.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Irrit eyes, nose, resp sys; lar spasm, wheez; pulm edema; eye, skin burns; in animals: liver, kidney damage
TO: Eyes, skin, resp sys, liver, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support

Fluorotrichloromethane	**Formula:** CCl_3F	**CAS#:** 75-69-4	**RTECS#:** PB6125000	**IDLH:** 2000 ppm
Conversion: 1 ppm = 5.62 mg/m^3	**DOT:**			

Synonyms/Trade Names: Freon® 11, Monofluorotrichloromethane, Refrigerant 11, Trichlorofluoromethane, Trichloromonofluoromethane

Exposure Limits:
NIOSH REL: C 1000 ppm (5600 mg/m^3)
OSHA PEL†: TWA 1000 ppm (5600 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1006

Physical Description: Colorless to water-white, nearly odorless liquid or gas (above 75°F).

Chemical & Physical Properties:
MW: 137.4
BP: 75°F
Sol(75°F): 0.1%
Fl.P: NA
IP: 11.77 eV
RGasD: 4.74
Sp.Gr: 1.47 (Liquid at 75°F)
VP: 690 mmHg
FRZ: -168°F
UEL: NA
LEL: NA
Noncombustible Liquid
Nonflammable Gas

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: N.R.
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
2000 ppm: Sa/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Chemically-active metals such as sodium, potassium, calcium, powdered aluminum, zinc, magnesium & lithium shavings; granular barium

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Inco, tremor; derm; card arrhy, card arrest; asphy; liquid: frostbite
TO: Skin, resp sys, CVS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

Fluoroxene	**Formula:** $CF_3CH_2OCH=CH_2$	**CAS#:** 406-90-6	**RTECS#:** KO4250000	**IDLH:** N.D.
Conversion: 1 ppm = 5.16 mg/m^3	**DOT:**			

Synonyms/Trade Names: 2,2,2-Trifluoroethoxyethene; 2,2,2-Trifluoroethyl vinyl ether

Exposure Limits:
NIOSH REL*: C 2 ppm (10.3 mg/m^3) [60-minute]
[***Note:** REL for exposure to waste anesthetic gas.]
OSHA PEL: none

Measurement Methods (see Table 1):
None available

Physical Description: Liquid. [inhalation anesthetic] [**Note:** A gas above 109°F.]

Chemical & Physical Properties:
MW: 126.1
BP: 109°F
Sol: ?
Fl.P: ?
IP: ?
Sp.Gr: 1.14
VP: 286 mmHg
FRZ: ?
UEL: ?
LEL: ?
Combustible Liquid
[Potentially EXPLOSIVE!]

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: Prevent eye contact
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: None reported

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes; CNS depres, analgesia, anes, convuls, resp depres
TO: Eyes, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Resp support
Swallow: Medical attention immed

Fonofos	**Formula:** $C_{10}H_{15}OPS_2$	**CAS#:** 944-22-9	**RTECS#:** TA5950000	**IDLH:** N.D.
Conversion: 1 ppm = 10.07 mg/m^3	**DOT:**			

Synonyms/Trade Names: Dyfonate®, Dyphonate, O-Ethyl-S-phenyl ethylphosphorothioate, Fonophos

Exposure Limits:
NIOSH REL: TWA 0.1 mg/m^3 [skin]
OSHA PEL†: none

Measurement Methods (see Table 1):
NIOSH 5600
OSHA PV2027

Physical Description: Light-yellow liquid with an aromatic odor. [insecticide]

Chemical & Physical Properties:
MW: 246.3
BP: ?
Sol: 0.001%
Fl.P: >201°F
IP: ?
Sp.Gr: 1.15
VP(77°F): 0.0002 mmHg
FRZ: ?
UEL: ?
LEL: ?
Class IIIB Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: None reported

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Nau, vomit, abdom cramps, diarr, salv; head, dizz, lass; rhin, chest tight; blurred vision, miosis; card irreg; musc fasc; dysp
TO: Resp sys, CNS, CVS, blood chol

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap flush immed
Breath: Resp support
Swallow: Medical attention immed

F

Formaldehyde

Formula: HCHO | **CAS#:** 50-00-0 | **RTECS#:** LP8925000 | **IDLH:** Ca [20 ppm]

Conversion: 1 ppm = 1.23 mg/m^3 | **DOT:**

Synonyms/Trade Names: Methanal, Methyl aldehyde, Methylene oxide

Exposure Limits:
NIOSH REL: Ca
TWA 0.016 ppm
C 0.1 ppm [15-minute]
See Appendix A
OSHA PEL: [1910.1048] TWA 0.75 ppm
ST 2 ppm

Measurement Methods (see Table 1):
NIOSH 2016, 2541, 3500, 3800
OSHA ID205, 52

Physical Description: Nearly colorless gas with a pungent, suffocating odor. [**Note:** Often used in an aqueous solution (see specific listing for Formalin).]

Chemical & Physical Properties:
MW: 30.0
BP: -6°F
Sol: Miscible
Fl.P: NA (Gas)
IP: 10.88 eV
RGasD: 1.04
VP: >1 atm
FRZ: -134°F
UEL: 73%
LEL: 7.0%
Flammable Gas

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: Prevent eye contact
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS/ScbaE

See Appendix E (page 351)

Incompatibilities and Reactivities: Strong oxidizers, alkalis & acids; phenols; urea [**Note:** Pure formaldehyde has a tendency to polymerize. Reacts with HCl to form bis-Chloromethyl ether.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Irrit eyes, nose, throat, resp sys; lac; cough; wheez; [carc]
TO: Eyes, resp sys [nasal cancer]

First Aid (see Table 6):
Eye: Irr immed
Breath: Resp support

Formalin (as formaldehyde)

Formula: | **CAS#:** | **RTECS#:** | **IDLH:** Ca [20 ppm]

Conversion: | **DOT:** 1198 132; 2209 132

Synonyms/Trade Names: Formaldehyde solution
[**Note:** Formalin is an aqueous solution that is 37% formaldehyde by weight; inhibited solutions usually contain 6-12% methyl alcohol. Also see specific listings for Formaldehyde and Methyl alcohol.]

Exposure Limits:
NIOSH REL: Ca
TWA 0.016 ppm
C 0.1 ppm [15-minute]
See Appendix A
OSHA PEL: [1910.1048] TWA 0.75 ppm
ST 2 ppm

Measurement Methods (see Table 1):
NIOSH 2016, 2541, 3500, 3800
OSHA ID205, 52

Physical Description: Colorless liquid with a pungent odor.

Chemical & Physical Properties:
MW: Varies
BP: 214°F
Sol: Miscible
Fl.P: 185°F
IP: ?
Sp.Gr(77°F): 1.08
VP: 1 mmHg
FRZ: ?
UEL: 73%
LEL: 7%
Class IIIA Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS/ScbaE

See Appendix E (page 351)

Incompatibilities and Reactivities: Strong oxidizers, alkalis & acids; phenols; urea; oxides; isocyanates; caustics; anhydrides

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, nose, throat, resp sys; lac; cough; wheez, derm; [carc]
TO: Eyes, skin, resp sys [nasal cancer]

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush prompt
Breath: Resp support
Swallow: Medical attention immed

Formamide	**Formula:** $HCONH_2$	**CAS#:** 75-12-7	**RTECS#:** LQ0525000	**IDLH:** N.D.
Conversion: 1 ppm = 1.85 mg/m^3	**DOT:**			
Synonyms/Trade Names: Carbamaldehyde, Methanamide				

Exposure Limits:
NIOSH REL: TWA 10 ppm (15 mg/m^3) [skin]
OSHA PEL†: none

Measurement Methods (see Table 1):
None available

Physical Description: Colorless, oily liquid. [**Note:** A solid below 37°F.]

Chemical & Physical Properties:
MW: 45.1
BP: 411°F (Decomposes)
Sol: Miscible
Fl.P(oc): 310°F
IP: 10.20 eV
Sp.Gr: 1.13
VP(86°F): 0.1 mmHg
FRZ: 37°F
UEL: ?
LEL: ?
Class IIIB Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: Prevent eye contact
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Oxidizers, iodine, pyridine, sulfur trioxide, copper, brass, lead
[**Note:** Hygroscopic (i.e., absorbs moisture from the air).]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, muc memb; drow, lass; nau; acidosis; skin eruptions; in animals: repro effects
TO: Eyes, skin, resp sys, CNS, repro sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water wash
Breath: Resp support
Swallow: Medical attention immed

Formic acid	**Formula:** HCOOH	**CAS#:** 64-18-6	**RTECS#:** LQ4900000	**IDLH:** 30 ppm
Conversion: 1 ppm = 1.88 mg/m^3	**DOT:** 1779 153			
Synonyms/Trade Names: Formic acid (85-95% in aqueous solution); Hydrogen carboxylic acid; Methanoic acid				

Exposure Limits:
NIOSH REL: TWA 5 ppm (9 mg/m^3)
OSHA PEL: TWA 5 ppm (9 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 2011
OSHA ID186SG

Physical Description: Colorless liquid with a pungent, penetrating odor.
[**Note:** Often used in an aqueous solution.]

Chemical & Physical Properties:
MW: 46.0
BP: 224°F (90% solution)
Sol: Miscible
Fl.P(oc): 122°F (90% solution)
IP: 11.05 eV
Sp.Gr: 1.22 (90% solution)
VP: 35 mmHg
FRZ: 20°F (90% solution)
UEL: 57% (90% solution)
LEL: 18% (90% solution)
Class II Combustible Liquid (90% solution)

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
30 ppm: Sa*/ScbaF
§: ScbaF:Pd,Pp/
SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, strong caustics, concentrated sulfuric acid
[**Note:** Corrosive to metals.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes; skin, throat; skin burns, derm; lac; rhin; cough, dysp; nau
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

F

Furfural

Formula:	CAS#:	RTECS#:	IDLH:
$C_5H_4O_2$	98-01-1	LT7000000	100 ppm

Conversion: 1 ppm = 3.93 mg/m^3

DOT: 1199 132P

Synonyms/Trade Names: Fural, 2-Furancarboxaldehyde, Furfuraldehyde, 2-Furfuraldehyde

Exposure Limits:
NIOSH REL: See Appendix D
OSHA PEL†: TWA 5 ppm (20 mg/m^3) [skin]

Physical Description: Colorless to amber liquid with an almond-like odor.
[**Note:** Darkens in light and air.]

Measurement Methods (see Table 1):
NIOSH 2529
OSHA 72

Chemical & Physical Properties:
MW: 96.1
BP: 323°F
Sol: 8%
Fl.P: 140°F
IP: 9.21 eV
Sp.Gr: 1.16
VP: 2 mmHg
FRZ: -34°F
UEL: 19.3%
LEL: 2.1%
Class IIIA Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
OSHA
50 ppm: CcrOv*/Sa*
100 ppm: Sa:Cf*/CcrFOv/PaprOv*/GmFOv/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong acids, oxidizers, strong alkalis
[**Note:** May polymerize on contact with strong acids or strong alkalis.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, upper resp sys; head; derm
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush prompt
Breath: Resp support
Swallow: Medical attention immed

Furfuryl alcohol

Formula:	CAS#:	RTECS#:	IDLH:
$C_5H_6O_2$	98-00-0	LU9100000	75 ppm

Conversion: 1 ppm = 4.01 mg/m^3

DOT: 2874 153

Synonyms/Trade Names: 2-Furylmethanol, 2-Hydroxymethylfuran

Exposure Limits:
NIOSH REL: TWA 10 ppm (40 mg/m^3) [skin]
ST 15 ppm (60 mg/m^3)
OSHA PEL†: TWA 50 ppm (200 mg/m^3)

Physical Description: Colorless to amber liquid with a faint, burning odor.
[**Note:** Darkens on exposure to light.]

Measurement Methods (see Table 1):
NIOSH 2505

Chemical & Physical Properties:
MW: 98.1
BP: 338°F
Sol: Miscible
Fl.P: 149°F
IP: ?
Sp.Gr: 1.13
VP(77°F): 0.6 mmHg
FRZ: 6°F
UEL: 16.3%
LEL: 1.8%
Class IIIA Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
75 ppm: CcrOv*/GmFOv/PaprOv*/Sa*/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers & acids
[**Note:** Contact with organic acids may lead to polymerization.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, muc memb; dizz; nau, diarr; diuresis; resp, body temperature depres; vomit; derm
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

Gasoline	Formula:	CAS#: 8006-61-9	RTECS#: LX3300000	IDLH: Ca [N.D.]
Conversion: 1 ppm = 4.5 mg/m^3 (approx)	**DOT:** 1203 128			

Synonyms/Trade Names: Motor fuel, Motor spirits, Natural gasoline, Petrol
[**Note:** A complex mixture of volatile hydrocarbons (paraffins, cycloparaffins & aromatics).]

Exposure Limits:
NIOSH REL: Ca
See Appendix A
OSHA PEL†: none

Measurement Methods (see Table 1):
OSHA PV2028

Physical Description: Clear liquid with a characteristic odor.

Chemical & Physical Properties:
MW: 110 (approx)
BP: 102°F
Sol: Insoluble
Fl.P: -45°F
IP: ?
Sp.Gr(60°F): 0.72-0.76
VP: 38-300 mmHg
FRZ: ?
UEL: 7.6%
LEL: 1.4%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers such as peroxides, nitric acid & perchlorates

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, muc memb; derm; head, lass, blurred vision, dizz, slurred speech, conf, convuls; chemical pneu (aspir liquid); possible liver, kidney damage; [carc]
TO: Eyes, skin, resp sys, CNS, liver, kidneys [in animals: liver & kidney cancer]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap flush immed
Breath: Resp support
Swallow: Medical attention immed

G

Germanium tetrahydride	Formula: GeH_4	CAS#: 7782-65-2	RTECS#: LY4900000	IDLH: N.D.
Conversion: 1 ppm = 3.13 mg/m^3	**DOT:** 2192 119			

Synonyms/Trade Names: Germane, Germanium hydride, Germanomethane, Monogermane
[**Note:** Used chiefly for the production of high purity germanium for use in semiconductors.]

Exposure Limits:
NIOSH REL: TWA 0.2 ppm (0.6 mg/m^3)
OSHA PEL†: none

Measurement Methods (see Table 1):
None available

Physical Description: Colorless gas with a pungent odor.
[**Note:** Shipped as a compressed gas.]

Chemical & Physical Properties:
MW: 76.6
BP: -127°F
Sol: Insoluble
Fl.P: NA (Gas)
IP: 11.34 eV
RGasD: 2.65
VP: >1 atm
FRZ: -267°F
UEL: ?
LEL: ?
Flammable Gas (may ignite SPONTANEOUSLY in air).

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Bromine

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh
SY: Mal, head, dizz, fainting; dysp; nau, vomit; kidney inj; hemolytic effects
TO: CNS, kidneys, blood

First Aid (see Table 6):
Breath: Resp support

G

Glutaraldehyde

Formula:	CAS#:	RTECS#:	IDLH:
$OCH(CH_2)_3CHO$	111-30-8	MA2450000	N.D.

Conversion: 1 ppm = 4.09 mg/m^3

DOT:

Synonyms/Trade Names: Glutaric dialdehyde; 1,5-Pentanedial

Exposure Limits:
NIOSH REL: C 0.2 ppm (0.8 mg/m^3)
See Appendix C (Aldehydes)
OSHA PEL†: none

Measurement Methods (see Table 1):
NIOSH 2532
OSHA 64

Physical Description: Colorless liquid with a pungent odor.

Chemical & Physical Properties:
MW: 100.1
BP: 212°F
Sol: Miscible
Fl.P: NA
IP: ?
Sp.Gr: 1.10
VP: 17 mmHg
FRZ: 7°F
UEL: NA
LEL: NA
Noncombustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Strong oxidizers, strong bases [**Note:** Alkaline solutions of glutaraldehyde (i.e., activated glutaraldehyde) react with alcohol, ketones, amines, hydrazines & proteins.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, resp sys; derm, sens skin; cough, asthma; nau, vomit
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

Glycerin (mist)

Formula:	CAS#:	RTECS#:	IDLH:
$HOCH_2CH(OH)CH_2OH$	56-81-5	MA8050000	N.D.

Conversion:

DOT:

Synonyms/Trade Names: Glycerin (anhydrous); Glycerol; Glycyl alcohol; 1,2,3-Propanetriol; Trihydroxypropane

Exposure Limits:
NIOSH REL: See Appendix D
OSHA PEL†: TWA 15 mg/m^3 (total)
TWA 5 mg/m^3 (resp)

Measurement Methods (see Table 1):
NIOSH 0500, 0600

Physical Description: Clear, colorless, odorless, syrupy liquid or solid (below 64°F).
[**Note:** The solid form melts above 64°F but the liquid form freezes at a much lower temperature.]

Chemical & Physical Properties:
MW: 92.1
BP: 554°F (Decomposes)
Sol: Miscible
Fl.P: 320°F
IP: ?
Sp.Gr: 1.26
VP(122°F): 0.003 mmHg
MLT: 64°F
UEL: ?
LEL: ?
Class IIIB Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Strong oxidizers (e.g., chromium trioxide, potassium chlorate, potassium permanganate) [**Note:** Hygroscopic (i.e., absorbs moisture from the air).]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Irrit eyes, skin, resp sys; head, nau, vomit; kidney inj
TO: Eyes, skin, resp sys, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water wash
Breath: Fresh air

Glycidol	**Formula:** $C_3H_6O_2$	**CAS#:** 556-52-5	**RTECS#:** UB4375000	**IDLH:** 150 ppm
Conversion: 1 ppm = 3.03 mg/m^3	**DOT:**			

Synonyms/Trade Names: 2,3-Epoxy-1-propanol; Epoxypropyl alcohol; Glycide; Hydroxymethyl ethylene oxide; 2-Hydroxymethyl oxiran; 3-Hydroxypropylene oxide

Exposure Limits:
NIOSH REL: TWA 25 ppm (75 mg/m^3)
OSHA PEL†: TWA 50 ppm (150 mg/m^3)

Physical Description: Colorless liquid.

Measurement Methods (see Table 1):
NIOSH 1608
OSHA 7

Chemical & Physical Properties:
MW: 74.1
BP: 320°F (Decomposes)
Sol: Miscible
Fl.P: 162°F
IP: ?
Sp.Gr: 1.12
VP(77°F): 0.9 mmHg
FRZ: -49°F
UEL: ?
LEL: ?
Class IIIA Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
150 ppm: Sa*/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, nitrates

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose, throat; narco
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water wash prompt
Breath: Resp support
Swallow: Medical attention immed

Glycolonitrile	**Formula:** $HOCH_2CN$	**CAS#:** 107-16-4	**RTECS#:** AM0350000	**IDLH:** N.D.
Conversion: 1 ppm = 2.34 mg/m^3	**DOT:**			

Synonyms/Trade Names: Cyanomethanol, Formaldehyde cyanohydrin, Glycolic nitrile, Glyconitrile, Hydroxyacetonitrile

Exposure Limits:
NIOSH REL: C 2 ppm (5 mg/m^3) [15-minute]
OSHA PEL: none

Physical Description: Colorless, odorless, oily liquid.
[**Note:** Forms cyanide in the body.]

Measurement Methods (see Table 1):
None available

Chemical & Physical Properties:
MW: 57.1
BP: 361°F (Decomposes)
Sol: Soluble
Fl.P: ?
IP: ?
Sp.Gr(66°F): 1.10
VP(145°F): 1 mmHg
FRZ: <-98°F
UEL: ?
LEL: ?
Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
20 ppm: Sa
50 ppm: Sa:Cf
100 ppm: ScbaF/SaF
250 ppm: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Traces of alkalis (promote violent polymerization)

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, resp sys; head, dizz, lass, conf, convuls; dysp; abdom pain, nau, vomit
TO: Eyes, skin, resp sys, CNS, CVS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water wash immed
Breath: Resp support
Swallow: Medical attention immed

Grain dust (oat, wheat, barley)	Formula:	CAS#:	RTECS#: MD7900000	IDLH: N.D.
Conversion:	DOT:			

Synonyms/Trade Names: None
[**Note:** Grain dust consists of 60-75% organic materials (cereal grains) & 25-40% inorganic materials (soil), and includes fertilizers, pesticides & microorganisms.]

Exposure Limits:
NIOSH REL: TWA 4 mg/m^3
OSHA PEL: TWA 10 mg/m^3

Measurement Methods (see Table 1):
NIOSH 0500

Physical Description: Mixture of grain and all the other substances associated with its cultivation & harvesting.

G

Chemical & Physical Properties:
Properties depend upon the specific component of the grain dust.

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: None reported

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Irrit eyes, skin, upper resp sys; cough, dysp, wheez, asthma, bron, chronic obstructive pulm disease; conj, derm, rhinitis, grain fever
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Breath: Fresh air

Graphite (natural)	Formula: C	CAS#: 7782-42-5	RTECS#: MD9659600	IDLH: 1250 mg/m^3
Conversion:	DOT:			

Synonyms/Trade Names: Black lead, Mineral carbon, Plumbago, Silver graphite, Stove black
[**Note:** Also see specific listing for Graphite (synthetic).]

Exposure Limits:
NIOSH REL: TWA 2.5 mg/m^3 (resp)
OSHA PEL†: TWA 15 mppcf

Measurement Methods (see Table 1):
NIOSH 0500, 0600

Physical Description: Steel gray to black, greasy feeling, odorless solid.

Chemical & Physical Properties:
MW: 12.0
BP: Sublimes
Sol: Insoluble
Fl.P: NA
IP: NA
Sp.Gr: 2.0-2.25
VP: 0 mmHg (approx)
MLT: 6602°F (Sublimes)
UEL: NA
LEL: NA
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
12.5 mg/m^3: Qm
25 mg/m^3: 95XQ/Sa
62.5 mg/m^3: PaprHie/Sa:Cf
125 mg/m^3: 100F/PaprTHie/SaT:Cf/ ScbaF/SaF
1250 mg/m^3: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Very strong oxidizers such as fluorine, chlorine trifluoride & potassium peroxide

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Cough, dysp, black sputum, decr pulm func, lung fib
TO: Resp sys, CVS

First Aid (see Table 6):
Eye: Irr immed
Breath: Fresh air

Graphite (synthetic)	Formula: C	CAS#: 7440-44-0 (synthetic)	RTECS#: FF5250100 (synthetic)	IDLH: N.D.
Conversion:	DOT:			

Synonyms/Trade Names: Acheson graphite, Artificial graphite
[**Note:** Also see specific listing for Graphite (natural).]

Exposure Limits:
NIOSH REL: See Appendix D
OSHA PEL†: TWA 15 mg/m^3 (total)
TWA 5 mg/m^3 (resp)

Measurement Methods (see Table 1):
NIOSH 0500, 0600

Physical Description: Steel gray to black, greasy feeling, odorless solid.

Chemical & Physical Properties:
MW: 12.0
BP: Sublimes
Sol: Insoluble
Fl.P: NA
IP: NA
Sp.Gr: 1.5-1.8
VP: 0 mmHg (approx)
MLT: 6602°F (Sublimes)
UEL: NA
LEL: NA
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Very strong oxidizers such as fluorine, chlorine trifluoride & potassium peroxide

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Cough, dysp, black sputum, decr pulm func, lung fib
TO: Resp sys, CVS

First Aid (see Table 6):
Eye: Irr immed
Breath: Fresh air

Gypsum	Formula: $CaSO_4 \times 2H_2O$	CAS#: 13397-24-5	RTECS#: MG2360000	IDLH: N.D.
Conversion:	DOT:			

Synonyms/Trade Names: Calcium(II) sulfate dihydrate, Gypsum stone, Hydrated calcium sulfate, Mineral white
[**Note:** Gypsum is the dihydrate form of calcium sulfate; Plaster of Paris is the hemihydrate form.]

Exposure Limits:
NIOSH REL: TWA 10 mg/m^3 (total)
TWA 5 mg/m^3 (resp)
OSHA PEL: TWA 15 mg/m^3 (total)
TWA 5 mg/m^3 (resp)

Measurement Methods (see Table 1):
NIOSH 0500, 0600

Physical Description: White or nearly white, odorless, crystalline solid.

Chemical & Physical Properties:
MW: 172.2
BP: ?
Sol(77°F): 0.2%
Fl.P: NA
IP: NA
Sp.Gr: 2.32
VP: 0 mmHg (approx)
MLT: 262-325°F (Loses H_2O)
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Aluminum (at high temperatures), diazomethane

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Irrit eyes, skin, muc memb, upper resp sys; cough, sneez, rhin
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Breath: Fresh air

H

Hafnium

Formula:	CAS#:	RTECS#:	IDLH:
Hf	7440-58-6	MG4600000	50 mg/m^3 (as Hf)

Conversion: **DOT:** 1326 170 (powder, wet); 2545 135 (powder, dry)

Synonyms/Trade Names: Celtium, Elemental hafnium, Hafnium metal

Exposure Limits:
NIOSH REL*: TWA 0.5 mg/m^3
OSHA PEL*: TWA 0.5 mg/m^3
[***Note:** The REL and PEL also apply to other hafnium compounds (as Hf).]

Measurement Methods (see Table 1):
NIOSH S194 (II-5)
OSHA ID121

Physical Description: Highly lustrous, ductile, grayish solid.

Chemical & Physical Properties:
MW: 178.5
BP: 8316°F
Sol: Insoluble
Fl.P: NA
IP: NA
Sp.Gr: 13.31
VP: 0 mmHg (approx)
MLT: 4041°F
UEL: NA
LEL: NA

Explosive in powder form (either dry or with <25% water); finely divided powder can be ignited by static electricity or even SPONTANEOUSLY.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
2.5 mg/m^3: Qm
5 mg/m^3: 95XQ/Sa
12.5 mg/m^3: Sa:Cf*/PaprHie*
25 mg/m^3: 100F/SaT:Cf*/PaprTHie*/ ScbaF/SaF
50 mg/m^3: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, chlorine

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: In animals: irrit eyes, skin, muc memb; liver damage
TO: Eyes, skin, muc memb, liver

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

Halothane

Formula:	CAS#:	RTECS#:	IDLH:
$CF_3CHBrCl$	151-67-7	KH6550000	N.D.

Conversion: 1 ppm = 8.07 mg/m^3 **DOT:**

Synonyms/Trade Names: 1-Bromo-1-chloro-2,2,2-trifluoroethane; 2-Bromo-2-chloro-1,1,1-trifluoroethane; 1,1,1-Trifluoro-2-bromo-2-chloroethane; 2,2,2-Trifluoro-1-bromo-1-chloroethane

Exposure Limits:
NIOSH REL*: C 2 ppm (16.2 mg/m^3) [60-minute]
[***Note:** REL for exposure to waste anesthetic gas.]
OSHA PEL: none

Measurement Methods (see Table 1):
OSHA 29

Physical Description: Clear, colorless liquid with a sweetish, pleasant odor. [inhalation anesthetic]

Chemical & Physical Properties:
MW: 197.4
BP: 122°F
Sol: 0.3%
Fl.P: NA
IP: ?
Sp.Gr: 1.87
VP: 243 mmHg
FRZ: -180°F
UEL: NA
LEL: NA
Noncombustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: May attack rubber & some plastics; sensitive to light.
[**Note:** Light causes decomposition. May be stabilized with 0.01% thymol.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, resp sys; conf, drow, dizz, nau, analgesia, anes; card arrhy; liver, kidney damage; decr audio-visual performance; in animals: repro effects
TO: Eyes, skin, resp sys, CVS, CNS, liver, kidneys, repro sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

Heptachlor

Formula: $C_{10}H_5Cl_7$ | **CAS#:** 76-44-8 | **RTECS#:** PC0700000 | **IDLH:** Ca [35 mg/m^3]

Conversion: | **DOT:** 2761 151 (organochlorine pesticide, solid)

Synonyms/Trade Names: 1,4,5,6,7,8,8-Heptachloro-3a,4,7,7a-tetrahydro-4,7-methanoindene

Exposure Limits:
NIOSH REL: Ca
TWA 0.5 mg/m^3 [skin]
See Appendix A
OSHA PEL: TWA 0.5 mg/m^3 [skin]

Measurement Methods (see Table 1):
NIOSH S287 (II-5)
OSHA PV2029

Physical Description: White to light-tan crystals with a camphor-like odor. [insecticide]

Chemical & Physical Properties:
MW: 373.4
BP: 293°F (Decomposes)
Sol: 0.0006%
Fl.P: NA
IP: ?
Sp.Gr: 1.66
VP(77°F): 0.0003 mmHg
MLT: 203°F
UEL: NA
LEL: NA
Noncombustible Solid, but may be dissolved in flammable liquids.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Iron, rust

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: In animals: tremor, convuls; liver damage; [carc]
TO: CNS,liver [in animals: liver cancer]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

n-Heptane

Formula: $CH_3[CH_2]_5CH_3$ | **CAS#:** 142-82-5 | **RTECS#:** MI7700000 | **IDLH:** 750 ppm

Conversion: 1 ppm = 4.10 mg/m^3 | **DOT:** 1206 128

Synonyms/Trade Names: Heptane, normal-Heptane

Exposure Limits:
NIOSH REL: TWA 85 ppm (350 mg/m^3)
C 440 ppm (1800 mg/m^3) [15-minute]
OSHA PEL†: TWA 500 ppm (2000 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1500
OSHA 7

Physical Description: Colorless liquid with a gasoline-like odor.

Chemical & Physical Properties:
MW: 100.2
BP: 209°F
Sol: 0.0003%
Fl.P: 25°F
IP: 9.90 eV
Sp.Gr: 0.68
VP(72°F): 40 mmHg
FRZ: -131°F
UEL: 6.7%
LEL: 1.05%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
750 ppm: CcrOv/GmFOv/PaprOv/Sa/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Dizz, stupor, inco; loss of appetite, nau; derm; chemical pneu (aspir liquid); uncon
TO: Skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

H

1-Heptanethiol

Formula:	CAS#:	RTECS#:	IDLH:
$CH_3[CH_2]_6SH$	1639-09-4	MJ1400000	N.D.

Conversion: 1 ppm = 5.41 mg/m^3 **DOT:** 1228 131

Synonyms/Trade Names: Heptyl mercaptan, n-Heptyl mercaptan

Exposure Limits:
NIOSH REL: C 0.5 ppm (2.7 mg/m^3) [15-minute]
OSHA PEL: none

Measurement Methods (see Table 1):
None available

Physical Description: Colorless liquid with a strong odor.

Chemical & Physical Properties:
MW: 132.3
BP: 351°F
Sol: Insoluble
Fl.P: 115°F
IP: ?
Sp.Gr: 0.84
VP: ?
FRZ: -46°F
UEL: ?
LEL: ?
Class II Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
5 ppm: CcrOv/Sa
12.5 ppm: Sa:Cf/PaprOv
25 ppm: CcrFOv/GmFOv/PaprTOv/ ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Oxidizers, reducing agents, strong acids & bases, alkali metals

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose, throat; lass, cyan, incr respiration, nau, drow, head, vomit
TO: Eyes, skin, resp sys, CNS, blood

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Resp support
Swallow: Medical attention immed

Hexachlorobutadiene

Formula:	CAS#:	RTECS#:	IDLH:
$Cl_2C{=}CClCCl{=}CCl_2$	87-68-3	EJ07000	Ca [N.D.]

Conversion: 1 ppm = 10.66 mg/m^3 **DOT:** 2279 151

Synonyms/Trade Names: HCBD; Hexachloro-1,3-butadiene; 1,3-Hexachlorobutadiene; Perchlorobutadiene

Exposure Limits:
NIOSH REL: Ca
TWA 0.02 ppm (0.24 mg/m^3) [skin]
See Appendix A
OSHA PEL†: none

Measurement Methods (see Table 1):
NIOSH 2543

Physical Description: Clear, colorless liquid with a mild, turpentine-like odor.

Chemical & Physical Properties:
MW: 260.7
BP: 419°F
Sol: Insoluble
Fl.P: ?
IP: ?
Sp.Gr: 1.55
VP: 0.2 mmHg
FRZ: -6°F
UEL: ?
LEL: ?
Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: In animals: irrit eyes, skin, resp sys; kidney damage; [carc]
TO: Eyes, skin, resp sys, kidneys [in animals: kidney tumors]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Hexachlorocyclopentadiene

Formula: C_5Cl_6 | **CAS#:** 77-47-4 | **RTECS#:** GY1225000 | **IDLH:** N.D.

Conversion: 1 ppm = 11.16 mg/m^3 | **DOT:** 2646 151

Synonyms/Trade Names: HCCPD; Hexachloro-1,3-cyclopentadiene; 1,2,3,4,5,5-Hexachloro-1,3-cyclopentadiene; Perchlorocyclopentadiene

Exposure Limits:
NIOSH REL: TWA 0.01 ppm (0.1 mg/m^3)
OSHA PEL†: none

Measurement Methods (see Table 1):
NIOSH 2518

Physical Description: Pale-yellow to amber-colored liquid with a pungent, unpleasant odor.
[**Note:** A solid below 16°F.]

Chemical & Physical Properties:
MW: 272.8
BP: 462°F
Sol(77°F): 0.0002% (Reacts)
Fl.P: NA
IP: ?
Sp.Gr: 1.71
VP(77°F): 0.08 mmHg
FRZ: 16°F
UEL: NA
LEL: NA
Noncombustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Water, light
[**Note:** Reacts slowly with water to form hydrochloric acid; will corrode iron & most metals in presence of moisture. Explosive hydrogen gas may collect in enclosed spaces in the presence of moisture.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, resp sys; eye, skin burns; lac; sneez, cough, dysp, salv, pulm edema; nau, vomit, diarr; in animals: liver, kidney inj
TO: Eyes, skin, resp sys, liver, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap flush immed
Breath: Resp support
Swallow: Medical attention immed

Hexachloroethane

Formula: Cl_3CCCl_3 | **CAS#:** 67-72-1 | **RTECS#:** KI4025000 | **IDLH:** Ca [300 ppm]

Conversion: 1 ppm = 9.68 mg/m^3 | **DOT:**

Synonyms/Trade Names: Carbon hexachloride, Ethane hexachloride, Perchloroethane

Exposure Limits:
NIOSH REL: Ca
TWA 1 ppm (10 mg/m^3) [skin]
See Appendix A
See Appendix C (Chloroethanes)
OSHA PEL: TWA 1 ppm (10 mg/m^3) [skin]

Measurement Methods (see Table 1):
NIOSH 1003
OSHA 7

Physical Description: Colorless crystals with a camphor-like odor.

Chemical & Physical Properties:
MW: 236.7
BP: Sublimes
Sol(72°F): 0.005%
Fl.P: NA
IP: 11.22 eV
Sp.Gr: 2.09
VP: 0.2 mmHg
MLT: 368°F (Sublimes)
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Alkalis; metals such as zinc, cadmium, aluminum, hot iron & mercury

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, muc memb; in animals: kidney damage; [carc]
TO: Eyes, skin, resp sys, kidneys [in animals: liver cancer]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

H

Hexachloronaphthalene	Formula: $C_{10}H_2Cl_6$	CAS#: 1335-87-1	RTECS#: QJ7350000	IDLH: 2 mg/m^3
Conversion:	**DOT:**			

Synonyms/Trade Names: Halowax® 1014

Exposure Limits:
NIOSH REL: TWA 0.2 mg/m^3 [skin]
OSHA PEL: TWA 0.2 mg/m^3 [skin]

Measurement Methods (see Table 1):
NIOSH S100 (II-2)

Physical Description: White to light-yellow solid with an aromatic odor.

Chemical & Physical Properties:
MW: 334.9
BP: 650-730°F
Sol: Insoluble
Fl.P: NA
IP: ?
Sp.Gr: 1.78
VP: <1 mmHg
MLT: 279°F
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
2 mg/m^3: Sa*/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Acne-form derm, nau, conf, jaun, coma
TO: Skin, liver

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

1-Hexadecanethiol	Formula: $CH_3[CH_2]_{15}SH$	CAS#: 2917-26-2	RTECS#:	IDLH: N.D.
Conversion: 1 ppm = 10.59 mg/m^3	**DOT:** 1228 131 (liquid)			

Synonyms/Trade Names: Cetyl mercaptan, Hexadecanethiol-1, n-Hexadecanethiol, Hexadecyl mercaptan

Exposure Limits:
NIOSH REL: C 0.5 ppm (5.3 mg/m^3) [15-minute]
OSHA PEL: none

Measurement Methods (see Table 1):
None available

Physical Description: Colorless liquid or solid (below 64-68°F) with a strong odor.

Chemical & Physical Properties:
MW: 258.5
BP: ?
Sol: Insoluble
Fl.P: 215°F
IP: ?
Sp.Gr: 0.85
VP: 0.1 mmHg
FRZ: 64-68°F
UEL: ?
LEL: ?
Class IIIB Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH
5 ppm: CcrOv/Sa
12.5 ppm: Sa:Cf/PaprOv
25 ppm: CcrFOv/GmFOv/PaprTOv/ ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Oxidizers, strong acids & bases, alkali metals, reducing agents

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, resp sys; head, dizz, lass, cyan, nau, convuls
TO: Eyes, skin, resp sys, CNS, blood

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Hexafluoroacetone	Formula: $(CF_3)_2CO$	CAS#: 684-16-2	RTECS#: UC2450000	IDLH: N.D.
Conversion: 1 ppm = 6.79 mg/m^3	DOT: 2420 125			

Synonyms/Trade Names: Hexafluoro-2-propanone; 1,1,1,3,3,3-Hexafluoro-2-propanone; HFA; Perfluoroacetone

Exposure Limits:
NIOSH REL: TWA 0.1 ppm (0.7 mg/m^3) [skin]
OSHA PEL†: none

Measurement Methods (see Table 1):
None available

Physical Description: Colorless gas with a musty odor.
[**Note:** Shipped as a liquefied compressed gas.]

Chemical & Physical Properties:
MW: 166.0
BP: -18°F
Sol: Reacts
Fl.P: NA
IP: 11.81 eV
RGasD: 5.76
VP: 5.8 atm
FRZ: -188°F
UEL: NA
LEL: NA
Nonflammable Gas, but highly reactive with water & other substances, releasing heat.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact/Frostbite
Eyes: Prevent eye contact/Frostbite
Wash skin: N.R.
Remove: N.R.
Change: N.R.
Provide: Frostbite wash

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Water, acids
[**Note:** Hygroscopic (i.e., absorbs moisture from the air); reacts with moisture to form a highly acidic sesquihydrate.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Con
SY: Irrit eyes, skin, muc memb, resp sys; pulm edema; liquid: frostbite; in animals: terato, repro effects; kidney inj
TO: Eyes, skin, resp sys, kidneys, repro sys

First Aid (see Table 6):
Eye: Frostbite
Skin: Frostbite
Breath: Resp support

Hexamethylene diisocyanate	Formula: $OCN[CH_2]_6NCO$	CAS#: 822-06-0	RTECS#: MO1740000	IDLH: N.D.
Conversion: 1 ppm = 6.88 mg/m^3	DOT: 2281 156			

Synonyms/Trade Names: 1,6-Diisocyanatohexane; HDI; Hexamethylene-1,6-diisocyanate; 1,6-Hexamethylene diisocyanate; HMDI

Exposure Limits:
NIOSH REL: TWA 0.005 ppm (0.035 mg/m^3)
C 0.020 ppm (0.140 mg/m^3) [10-minute]
OSHA PEL: none

Measurement Methods (see Table 1):
NIOSH 5521, 5522, 5525
OSHA 42

Physical Description: Clear, colorless to slightly yellow liquid with a sharp, pungent odor.

Chemical & Physical Properties:
MW: 168.2
BP: 415°F
Sol: Low (Reacts)
Fl.P: 284°F
IP:?
Sp.Gr(77°F): 1.04
VP(77°F): 0.5 mmHg
FRZ: -89°F
UEL: ?
LEL: ?
Class IIIB Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
0.05 ppm: Sa*
0.125 ppm: Sa:Cf*
0.25 ppm: ScbaF/SaF
1 ppm: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Water, alcohols, strong bases, amines, carboxylic acids, organotin catalysts
[**Note:** Reacts slowly with water to form carbon dioxide. Avoid heating above 392°F (polymerizes).]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, resp sys; cough, dysp, bron, wheez, pulm edema, asthma; corn damage, skin blisters
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap flush immed
Breath: Resp support
Swallow: Medical attention immed

H

Hexamethyl phosphoramide	Formula: $[(CH_3)_2N]_3PO$	CAS#: 680-31-9	RTECS#: TD0875000	IDLH: Ca [N.D.]
Conversion:	DOT:			

Synonyms/Trade Names: Hexamethylphosphoric triamide, Hexamethylphosphorotriamide, HMPA, Tris(dimethylamino)phosphine oxide

Exposure Limits:
NIOSH REL: Ca
See Appendix A
OSHA PEL: none

Measurement Methods (see Table 1):
None available

Physical Description: Clear, colorless liquid with an aromatic or mild, amine-like odor. [**Note:** A solid below 43°F.]

Chemical & Physical Properties:
MW: 179.2
BP: 451°F
Sol: Miscible
Fl.P: 220°F
IP: ?
Sp.Gr: 1.03
VP: 0.03 mmHg
FRZ: 43°F
UEL: ?
LEL: ?
Class IIIB Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Oxidizers, strong acids, chemically-active metals (e.g., potassium, sodium, magnesium, zinc)

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, resp sys; dysp; abdom pain; [carc]
TO: Eyes, skin, resp sys, CNS, GI tract [in animals: cancer of the nasal cavity]

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

n-Hexane	Formula: $CH_3[CH_2]_4CH_3$	CAS#: 110-54-3	RTECS#: MN9275000	IDLH: 1100 ppm [10%LEL]
Conversion: 1 ppm = 3.53 mg/m^3	DOT: 1208 128			

Synonyms/Trade Names: Hexane, Hexyl hydride, normal-Hexane

Exposure Limits:
NIOSH REL: TWA 50 ppm (180 mg/m^3)
OSHA PEL†: TWA 500 ppm (1800 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1500, 3800
OSHA 7

Physical Description: Colorless liquid with a gasoline-like odor.

Chemical & Physical Properties:
MW: 86.2
BP: 156°F
Sol: 0.002%
Fl.P: -7°F
IP: 10.18 eV
Sp.Gr: 0.66
VP: 124 mmHg
FRZ: -219°F
UEL: 7.5%
LEL: 1.1%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
500 ppm: Sa*
1100 ppm: Sa:Cf*/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, nose; nau, head; peri neur: numb extremities, musc weak; derm; dizz; chemical pneu (aspir liquid)
TO: Eyes, skin, resp sys, CNS, PNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Hexane isomers (excluding n-Hexane)	Formula: C_6H_{14}	CAS#:	RTECS#:	IDLH: N.D.
Conversion: 1 ppm = 3.53 mg/m^3	**DOT:** 1208 128			

Synonyms/Trade Names: Diethylmethylmethane; Diisopropyl; 2,2-Dimethylbutane; 2,3-Dimethylbutane; Isohexane; 2-Methylpentane; 3-Methylpentane [**Note:** Also see specific listing for n-Hexane.]

Exposure Limits:
NIOSH REL: TWA 100 ppm (350 mg/m^3)
C 510 ppm (1800 mg/m^3) [15-minute]
OSHA PEL†: none

Measurement Methods (see Table 1):
None available

Physical Description: Clear liquids with mild, gasoline-like odors.
[**Note:** Includes all the isomers of hexane except n-hexane.]

Chemical & Physical Properties:
MW: 86.2
BP: 122-145°F
Sol: Insoluble
Fl.P: -54 to 19°F
IP: ?
Sp.Gr: 0.65-0.66
VP: ?
FRZ: -245 to -148°F
UEL: ?
LEL: ?
Class IB Flammable Liquids

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
1000 ppm: Sa*
2500 ppm: Sa:Cf*
5000 ppm: SaT:Cf*/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, resp sys; head, dizz; nau; chemical pneu (aspir liquid); derm
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

n-Hexanethiol	Formula: $CH_3[CH_2]_5SH$	CAS#: 111-31-9	RTECS#: MO4550000	IDLH: N.D.
Conversion: 1 ppm = 4.83 mg/m^3	**DOT:** 1228 131			

Synonyms/Trade Names: 1-Hexanethiol, Hexyl mercaptan, n-Hexyl mercaptan, n-Hexylthiol

Exposure Limits:
NIOSH REL: C 0.5 ppm (2.7 mg/m^3) [15-minute]
OSHA PEL: none

Measurement Methods (see Table 1):
None available

Physical Description: Colorless liquid with an unpleasant odor.

Chemical & Physical Properties:
MW: 118.2
BP: 304°F
Sol: Insoluble
Fl.P: 68°F
IP: ?
Sp.Gr: 0.84
VP: ?
FRZ: -113°F
UEL: ?
LEL: ?
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
5 ppm: CcrOv/Sa
12.5 ppm: Sa:Cf/PaprOv
25 ppm: CcrFOv/GmFOv/PaprTOv/ ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Oxidizers, reducing agents, strong acids & bases, alkali metals

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose, throat; lass, cyan, incr respiration, nau, drow, head, vomit
TO: Eyes, skin, resp sys, CNS, blood

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

H

2-Hexanone

Formula: $CH_3CO[CH_2]_3CH_3$ | **CAS#:** 591-78-6 | **RTECS#:** MP1400000 | **IDLH:** 1600 ppm

Conversion: 1 ppm = 4.10 mg/m^3 | **DOT:**

Synonyms/Trade Names: Butyl methyl ketone, MBK, Methyl butyl ketone, Methyl n-butyl ketone

Exposure Limits:
NIOSH REL: TWA 1 ppm (4 mg/m^3)
OSHA PEL†: TWA 100 ppm (410 mg/m^3)

Physical Description: Colorless liquid with an acetone-like odor.

Measurement Methods (see Table 1):
NIOSH 1300, 2555
OSHA PV2031

Chemical & Physical Properties:
MW: 100.2
BP: 262°F
Sol: 2%
Fl.P: 77°F
IP: 9.34 eV
Sp.Gr: 0.81
VP: 11 mmHg
FRZ: -71°F
UEL: 8%
LEL: ?
Class IC Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
10 ppm: Sa
25 ppm: Sa:Cf
50 ppm: SaT:Cf/ScbaF/SaF
1600 ppm: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, nose; peri neur: lass, pares; derm; head, drow
TO: Eyes, skin, resp sys, CNS, PNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Hexone

Formula: $CH_3COCH_2CH(CH_3)_2$ | **CAS#:** 108-10-1 | **RTECS#:** SA9275000 | **IDLH:** 500 ppm

Conversion: 1 ppm = 4.10 mg/m^3 | **DOT:** 1245 127

Synonyms/Trade Names: Isobutyl methyl ketone, Methyl isobutyl ketone, 4-Methyl 2-pentanone, MIBK

Exposure Limits:
NIOSH REL: TWA 50 ppm (205 mg/m^3)
ST 75 ppm (300 mg/m^3)
OSHA PEL†: TWA 100 ppm (410 mg/m^3)

Physical Description: Colorless liquid with a pleasant odor.

Measurement Methods (see Table 1):
NIOSH 1300, 2555
OSHA 1004

Chemical & Physical Properties:
MW: 100.2
BP: 242°F
Sol: 2%
Fl.P: 64°F
IP: 9.30 eV
Sp.Gr: 0.80
VP: 16 mmHg
FRZ: -120°F
UEL(200°F): 8.0%
LEL(200°F): 1.2%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
500 ppm: CcrOv*/GmFOv/PaprTOv*/Sa*/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, potassium tert-butoxide

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, muc memb; head, narco, coma; derm; in animals: liver, kidney damage
TO: Eyes, skin, resp sys, CNS, liver, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush prompt
Breath: Resp support
Swallow: Medical attention immed

sec-Hexyl acetate

Formula: $C_8H_{16}O_2$
CAS#: 108-84-9
RTECS#: SA7525000
IDLH: 500 ppm

Conversion: 1 ppm = 5.90 mg/m^3
DOT: 1233 130

Synonyms/Trade Names: 1,3-Dimethylbutyl acetate; Methylisoamyl acetate

Exposure Limits:
NIOSH REL: TWA 50 ppm (300 mg/m^3)
OSHA PEL: TWA 50 ppm (300 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1450
OSHA 7

Physical Description: Colorless liquid with a mild, pleasant, fruity odor.

Chemical & Physical Properties:
MW: 144.2
BP: 297°F
Sol: 0.08%
Fl.P: 113°F
IP: ?
Sp.Gr: 0.86
VP: 3 mmHg
FRZ: -83°F
UEL: ?
LEL: ?
Class II Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
500 ppm: CcrOv*/GmFOv/PaprOv*/Sa*/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Nitrates; strong oxidizers, alkalis & acids

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose, throat; head; in animals: narco
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush prompt
Breath: Resp support
Swallow: Medical attention immed

Hexylene glycol

Formula: $(CH_3)_2COHCH_2CHOHCH_3$
CAS#: 107-41-5
RTECS#: SA0810000
IDLH: N.D.

Conversion: 1 ppm = 4.83 mg/m^3
DOT:

Synonyms/Trade Names: 2,4-Dihydroxy-2-methylpentane; 2-Methyl-2,4-pentanediol; 4-Methyl-2,4-pentanediol; 2-Methylpentane-2,4-diol

Exposure Limits:
NIOSH REL: C 25 ppm (125 mg/m^3)
OSHA PEL†: none

Measurement Methods (see Table 1):
OSHA PV2101

Physical Description: Colorless liquid with a mild, sweetish odor.

Chemical & Physical Properties:
MW: 118.2
BP: 388°F
Sol: Miscible
Fl.P: 209°F
IP: ?
Sp.Gr: 0.92
VP: 0.05 mmHg
FRZ: -58°F (Sets to glass)
UEL(est): 7.4%
LEL(calc): 1.3%
Class IIIB Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Strong oxidizers, strong acids
[**Note:** Hygroscopic (i.e., absorbs moisture from the air).]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, resp sys; head, dizz, nau, inco, CNS depres; derm, skin sens
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water wash immed
Breath: Resp support
Swallow: Medical attention immed

H

Hydrazine

Formula:	CAS#:	RTECS#:	IDLH:
H_2NNH_2	302-01-2	MU7175000	Ca [50 ppm]

Conversion: 1 ppm = 1.31 mg/m^3

DOT: 2029 132 (anhydrous); 3293 152 (≤ 37% solution); 2030 153 (37-64% solution); 2029 132 (>64% solution)

Synonyms/Trade Names: Diamine, Hydrazine (anhydrous), Hydrazine base

Exposure Limits:
NIOSH REL: Ca
C 0.03 ppm (0.04 mg/m^3) [2-hour]
See Appendix A
OSHA PEL†: TWA 1 ppm (1.3 mg/m^3) [skin]

Measurement Methods (see Table 1):
NIOSH 3503
OSHA 20, 108

Physical Description: Colorless, fuming, oily liquid with an ammonia-like odor. [**Note:** A solid below 36°F.]

Chemical & Physical Properties:
MW: 32.1
BP: 236°F
Sol: Miscible
Fl.P: 99°F
IP: 8.93 eV
Sp.Gr: 1.01
VP: 10 mmHg
FRZ: 36°F
UEL: 98%
LEL: 2.9%
Class IC Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: ScbaE

Incompatibilities and Reactivities: Oxidizers, hydrogen peroxide, nitric acid, metallic oxides, acids
[**Note:** Can ignite SPONTANEOUSLY on contact with oxidizers or porous materials such as earth, wood & cloth.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, nose, throat; temporary blindness; dizz, nau; derm; eye, skin burns; in animals: bron, pulm edema; liver, kidney damage; convuls; [carc]
TO: Eyes, skin, resp sys, CNS, liver, kidneys [in animals: tumors of the lungs, liver, blood vessels & intestine]

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

Hydrogenated terphenyls

Formula:	CAS#:	RTECS#:	IDLH:
$(C_6H_n)_3$	61788-32-7	WZ6535000	N.D.

Conversion: 1 ppm = 12.19 mg/m^3 (40% hydrogenated)

DOT:

Synonyms/Trade Names: Hydrogenated diphenylbenzenes, Hydrogenated phenylbiphenyls, Hydrogenated triphenyls [**Note:** Complex mixture of terphenyl isomers that are partially hydrogenated.]

Exposure Limits:
NIOSH REL: TWA 0.5 ppm (5 mg/m^3)
OSHA PEL†: none

Measurement Methods (see Table 1):
None available

Physical Description: Clear, oily, pale-yellow liquids with a faint odor. [plasticizer/heat-transfer media]

Chemical & Physical Properties:
MW: 298 (40% hydrogenated)
BP: 644°F (40% hydrogenated)
Sol: Insoluble
Fl.P: 315°F (40% hydrogenated)
IP: ?
Sp.Gr(77°F): 1.003-1.009 (40% hydrogenated)
VP: ?
FRZ: ?
UEL: ?
LEL: ?
Class IIIB Combustible Liquids

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: None reported [**Note:** When heated, irritating vapors will be released.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, resp sys; liver, kidney, hemato damage
TO: Eyes, skin, resp sys, liver, kidneys, hemato sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Hydrogen bromide	Formula: HBr	CAS#: 10035-10-6	RTECS#: MW3850000	IDLH: 30 ppm
Conversion: 1 ppm = 3.31 mg/m^3	**DOT:** 1048 125 (anhydrous); 1788 154 (solution)			

Synonyms/Trade Names: Anhydrous hydrogen bromide; Aqueous hydrogen bromide (i.e., Hydrobromic acid)

Exposure Limits:
NIOSH REL: C 3 ppm (10 mg/m^3)
OSHA PEL†: TWA 3 ppm (10 mg/m^3)

Physical Description: Colorless gas with a sharp, irritating odor.
[**Note:** Shipped as a liquefied compressed gas. Often used in an aqueous solution.]

Measurement Methods (see Table 1):
NIOSH 7903
OSHA ID165SG

Chemical & Physical Properties:
MW: 80.9
BP: -88°F
Sol: 49%
Fl.P: NA
IP: 11.62 eV
RGasD: 2.81
VP: 20 atm
FRZ: -124°F
UEL: NA
LEL: NA
Nonflammable Gas

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact (solution)/Frostbite
Eyes: Prevent eye contact (solution)/Frostbite
Wash skin: When contam (solution)
Remove: When wet or contam (solution)
Change: N.R.
Provide: Eyewash (liquid)
Quick drench (solution)
Frostbite wash

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
30 ppm: Sa:Cf£/PaprAg£/GmFAg/ ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFAg/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, strong caustics, moisture, copper, brass, zinc
[**Note:** Hydrobromic acid is highly corrosive to most metals.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing (solution), Con
SY: Irrit eyes, skin, nose, throat; solution: eye, skin burns; liquid: frostbite
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed (solution)/Frostbite
Skin: Water flush immed (solution)/Frostbite
Breath: Resp support
Swallow: Medical attention immed (solution)

Hydrogen chloride	Formula: HCl	CAS#: 7647-01-0	RTECS#: MW4025000	IDLH: 50 ppm
Conversion: 1 ppm = 1.49 mg/m^3	**DOT:** 1050 125 (anhydrous); 1789 157 (solution)			

Synonyms/Trade Names: Anhydrous hydrogen chloride;
Aqueous hydrogen chloride (i.e., Hydrochloric acid, Muriatic acid) [**Note:** Often used in an aqueous solution.]

Exposure Limits:
NIOSH REL: C 5 ppm (7 mg/m^3)
OSHA PEL: C 5 ppm (7 mg/m^3)

Physical Description: Colorless to slightly yellow gas with a pungent, irritating odor.
[**Note:** Shipped as a liquefied compressed gas.]

Measurement Methods (see Table 1):
NIOSH 7903
OSHA ID174SG

Chemical & Physical Properties:
MW: 36.5
BP: -121°F
Sol(86°F): 67%
Fl.P: NA
IP: 12.74 eV
RGasD: 1.27
VP: 40.5 atm
FRZ: -174°F
UEL: NA
LEL: NA
Nonflammable Gas

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact (solution)/Frostbite
Eyes: Prevent eye contact/Frostbite
Wash skin: When contam (solution)
Remove: When wet or contam (solution)
Change: N.R.
Provide: Eyewash (solution)
Quick drench (solution)
Frostbite wash

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
50 ppm: CcrS*/GmFS/PaprS*/ Sa*/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFAg/ScbaE

Incompatibilities and Reactivities: Hydroxides, amines, alkalis, copper, brass, zinc
[**Note:** Hydrochloric acid is highly corrosive to most metals.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing (solution), Con
SY: Irrit nose, throat, larynx; cough, choking; derm; solution: eye, skin burns; liquid: frostbite; in animals: lar spasm; pulm edema
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed (solution)/Frostbite
Skin: Water flush immed (solution)/Frostbite
Breath: Resp support
Swallow: Medical attention immed (solution)

H

Hydrogen cyanide

Formula: HCN | **CAS#:** 74-90-8 | **RTECS#:** MW6825000 | **IDLH:** 50 ppm

Conversion: 1 ppm = 1.10 mg/m^3

DOT: 1051 117 (>20% solution); 1051 117 (anhydrous); 1613 154 (20% solution)

Synonyms/Trade Names: Formonitrile, Hydrocyanic acid, Prussic acid

Exposure Limits:
NIOSH REL: ST 4.7 ppm (5 mg/m^3) [skin]
OSHA PEL†: TWA 10 ppm (11 mg/m^3) [skin]

Measurement Methods (see Table 1):
NIOSH 6010, 6017

Physical Description: Colorless or pale-blue liquid or gas (above 78°F) with a bitter, almond-like odor. [**Note:** Often used as a 96% solution in water.]

Chemical & Physical Properties:
MW: 27.0
BP: 78°F (96%)
Sol: Miscible
Fl.P: 0°F (96%)
IP: 13.60 eV
Sp.Gr: 0.69
VP: 630 mmHg
FRZ: 7°F (96%)
UEL: 40.0%
LEL: 5.6%
Class IA Flammable Liquid
Flammable Gas

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
47 ppm: Sa
50 ppm: Sa:Cf/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS/ScbaE

Incompatibilities and Reactivities: Amines, oxidizers, acids, sodium hydroxide, calcium hydroxide, sodium carbonate, caustics, ammonia [**Note:** Can polymerize at 122-140°F.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Asphy; lass, head, conf; nau, vomit; incr rate and depth of respiration or respiration slow and gasping; thyroid, blood changes
TO: CNS, CVS, thyroid, blood

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

Hydrogen fluoride

Formula: HF | **CAS#:** 7664-39-3 | **RTECS#:** MW7875000 | **IDLH:** 30 ppm

Conversion: 1 ppm = 0.82 mg/m^3

DOT: 1052 125 (anhydrous); 1790 157 (solution)

Synonyms/Trade Names: Anhydrous hydrogen fluoride; Aqueous hydrogen fluoride (i.e., Hydrofluoric acid); HF-A

Exposure Limits:
NIOSH REL: TWA 3 ppm (2.5 mg/m^3)
C 6 ppm (5 mg/m^3) [15-minute]
OSHA PEL†: TWA 3 ppm

Measurement Methods (see Table 1):
NIOSH 3800, 7902, 7903, 7906
OSHA ID110

Physical Description: Colorless gas or fuming liquid (below 67°F) with a strong, irritating odor. [**Note:** Shipped in cylinders.]

Chemical & Physical Properties:
MW: 20.0
BP: 67°F
Sol: Miscible
Fl.P: NA
IP: 15.98 eV
RGasD: 1.86
Sp.Gr: 1.00 (Liquid at 67°F)
VP: 783 mmHg
FRZ: -118°F
UEL: NA
LEL: NA
Nonflammable Gas

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact (liquid)
Eyes: Prevent eye contact (liquid)
Wash skin: When contam (liquid)
Remove: When wet or contam (liquid)
Change: N.R.
Provide: Eyewash (liquid)
Quick drench (liquid)

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
30 ppm: CcrS*/PaprS*/GmFS/Sa*/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS/ScbaE

Incompatibilities and Reactivities: Metals, water or steam
[**Note:** Corrosive to metals. Will attack glass and concrete.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs (liquid), Ing (solution), Con
SY: Irrit eyes, skin, nose, throat; pulm edema; eye, skin burns; rhinitis; bron; bone changes
TO: Eyes, skin, resp sys, bones

First Aid (see Table 6):
Eye: Irr immed (solution/liquid)
Skin: Water flush immed (solution/liquid)
Breath: Resp support
Swallow: Medical attention immed (solution)

Hydrogen peroxide	Formula: H_2O_2	CAS#: 7722-84-1	RTECS#: MX0900000	IDLH: 75 ppm
Conversion: 1 ppm = 1.39 mg/m^3	**DOT:** 2984 140 (8-20% solution); 2014 140 (20-60% solution); 2015 143 (>60% solution)			

Synonyms/Trade Names: High-strength hydrogen peroxide, Hydrogen dioxide, Hydrogen peroxide (aqueous), Hydroperoxide, Peroxide

Exposure Limits:
NIOSH REL: TWA 1 ppm (1.4 mg/m^3)
OSHA PEL: TWA 1 ppm (1.4 mg/m^3)

Measurement Methods (see Table 1):
OSHA ID126SG

Physical Description: Colorless liquid with a slightly sharp odor.
[**Note:** The pure compound is a crystalline solid below 12°F. Often used in an aqueous solution.]

Chemical & Physical Properties:
MW: 34.0
BP: 286°F
Sol: Miscible
Fl.P: NA
IP: 10.54 eV
Sp.Gr: 1.39
VP(86°F): 5 mmHg
FRZ: 12°F
UEL: NA
LEL: NA
Noncombustible Liquid, but a powerful oxidizer.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
10 ppm: Sa*
25 ppm: Sa:Cf*
50 ppm: ScbaF/SaF
75 ppm: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS/ScbaE

Incompatibilities and Reactivities: Oxidizable materials, iron, copper, brass, bronze, chromium, zinc, lead, silver, manganese [**Note:** Contact with combustible material may result in SPONTANEOUS combustion.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, nose, throat; corn ulcer; eryt, vesic skin; bleaching hair
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

Hydrogen selenide	Formula: H_2Se	CAS#: 7783-07-5	RTECS#: MX1050000	IDLH: 1 ppm
Conversion: 1 ppm = 3.31 mg/m^3	**DOT:** 2202 117 (anhydrous)			

Synonyms/Trade Names: Selenium dihydride, Selenium hydride

Exposure Limits:
NIOSH REL: TWA 0.05 ppm (0.2 mg/m^3)
OSHA PEL: TWA 0.05 ppm (0.2 mg/m^3)

Measurement Methods (see Table 1):
None available

Physical Description: Colorless gas with an odor resembling decayed horseradish.
[**Note:** Shipped as a liquefied compressed gas.]

Chemical & Physical Properties:
MW: 81.0
BP: -42°F
Sol(73°F): 0.9%
Fl.P: NA (Gas)
IP: 9.88 eV
RGasD: 2.80
VP(70°F): 9.5 atm
FRZ: -87°F
UEL: ?
LEL: ?
Flammable Gas

Personal Protection/Sanitation (see Table 2):
Skin: Frostbite
Eyes: Frostbite
Wash skin: N.R.
Remove: When wet (flamm)
Change: N.R.
Provide: Frostbite wash

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
0.5 ppm: Sa
1 ppm: Sa:Cf*/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS¿/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, acids, water, halogenated hydrocarbons

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Irrit eyes, nose, throat; nau, vomit, diarr; metallic taste, garlic breath; dizz, lass; liquid: frostbite; in animals: pneu; liver damage
TO: Eyes, resp sys, liver

First Aid (see Table 6):
Eye: Frostbite
Skin: Frostbite
Breath: Resp support

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Hydrogen sulfide

Formula:	CAS#:	RTECS#:	IDLH:
H_2S	7783-06-4	MX1225000	100 ppm

Conversion: 1 ppm = 1.40 mg/m^3 **DOT:** 1053 117

Synonyms/Trade Names: Hydrosulfuric acid, Sewer gas, Sulfuretted hydrogen

Exposure Limits:
NIOSH REL: C 10 ppm (15 mg/m^3) [10-minute]
OSHA PEL†: C 20 ppm
50 ppm [10-minute maximum peak]

Measurement Methods (see Table 1):
NIOSH 6013
OSHA ID141

Physical Description: Colorless gas with a strong odor of rotten eggs.
[**Note:** Sense of smell becomes rapidly fatigued & can NOT be relied upon to warn of the continuous presence of H_2S. Shipped as a liquefied compressed gas.]

Chemical & Physical Properties:
MW: 34.1
BP: -77°F
Sol: 0.4%
Fl.P: NA (Gas)
IP: 10.46 eV
RGasD: 1.19
VP: 17.6 atm
FRZ: -122°F
UEL: 44.0%
LEL: 4.0%
Flammable Gas

Personal Protection/Sanitation (see Table 2):
Skin: Frostbite
Eyes: Frostbite
Wash skin: N.R.
Remove: When wet (flamm)
Change: N.R.
Provide: Frostbite wash

Respirator Recommendations (see Tables 3 and 4):
NIOSH
100 ppm: PaprS/GmFS/Sa*/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, strong nitric acid, metals

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Irrit eyes, resp sys; apnea, coma, convuls; conj, eye pain, lac, photo, corn vesic; dizz, head, lass, irrity, insom; GI dist; liquid: frostbite
TO: Eyes, resp sys, CNS

First Aid (see Table 6):
Eye: Frostbite
Skin: Frostbite
Breath: Resp support

Hydroquinone

Formula:	CAS#:	RTECS#:	IDLH:
$C_6H_4(OH)_2$	123-31-9	MX3500000	50 mg/m^3

Conversion: **DOT:** 2662 153

Synonyms/Trade Names: p-Benzenediol; 1,4-Benzenediol; Dihydroxybenzene; 1,4-Dihydroxybenzene; Quinol

Exposure Limits:
NIOSH REL: C 2 mg/m^3 [15-minute]
OSHA PEL: TWA 2 mg/m^3

Measurement Methods (see Table 1):
NIOSH 5004
OSHA PV2094

Physical Description: Light-tan, light-gray, or colorless crystals.

Chemical & Physical Properties:
MW: 110.1
BP: 545°F
Sol: 7%
Fl.P: 329°F (Molten)
IP: 7.95 eV
Sp.Gr: 1.33
VP: 0.00001 mmHg
MLT: 338°F
UEL: ?
LEL: ?
Combustible Solid; dust cloud may explode if ignited in an enclosed area.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash (>7%)

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
50 mg/m^3: PaprHie£/100F/SaT:Cf£/ ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, alkalis

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes; conj; kera; CNS excitement; colored urine, nau, dizz, suffocation, rapid breath; musc twitch, delirium; collapse; skin irrit, sens, derm
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush
Breath: Resp support
Swallow: Medical attention immed

2-Hydroxypropyl acrylate	Formula: $CH_2=CHCOOCH_2CHOHCH_3$	CAS#: 999-61-1	RTECS#: AT1925000	IDLH: N.D.
Conversion: 1 ppm = 5.33 mg/m^3	**DOT:**			

Synonyms/Trade Names: HPA, β-Hydroxypropyl acrylate, Propylene glycol monoacrylate

Exposure Limits:
NIOSH REL: TWA 0.5 ppm (3 mg/m^3) [skin]
OSHA PEL†: none

Measurement Methods (see Table 1):
None available

Physical Description: Clear to light-yellow liquid wiith a sweetish, solvent odor.

Chemical & Physical Properties:
MW: 130.2
BP: 376°F
Sol: ?
Fl.P: 149°F
IP: ?
Sp.Gr: 1.05
VP: ?
FRZ: ?
UEL: ?
LEL: 1.8%
Class IIIA Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Water [**Note:** Can become unstable at high temperatures & pressures or may react with water with some release of energy, but not violently.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, resp sys; eye, skin burns; cough, dysp
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap flush immed
Breath: Resp support
Swallow: Medical attention immed

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Indene	Formula: C_9H_8	CAS#: 95-13-6	RTECS#: NK8225000	IDLH: N.D.
Conversion: 1 ppm = 4.75 mg/m^3	**DOT:**			

Synonyms/Trade Names: Indonaphthene

Exposure Limits:
NIOSH REL: TWA 10 ppm (45 mg/m^3)
OSHA PEL†: none

Measurement Methods (see Table 1):
None available

Physical Description: Colorless liquid. [**Note:** A solid below 29°F.]

Chemical & Physical Properties:
MW: 116.2
BP: 359°F
Sol: Insoluble
Fl.P: 173°F
IP: 8.81 eV
Sp.Gr: 0.997
VP: ?
FRZ: 29°F
UEL: ?
LEL: ?
Class IIIA Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: Daily
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: None reported
[**Note:** Polymerizes & oxidizes on standing. It has exploded during nitration with (H_2SO_4 + HNO_3).]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: In animals: irrit eyes, skin, muc memb; derm, skin sens; chemical pneu (aspir liquid); liver, kidney, spleen inj
TO: Eyes, skin, resp sys, liver, kidneys, spleen

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Resp support
Swallow: Medical attention immed

Indium	**Formula:** In	**CAS#:** 7440-74-6	**RTECS#:** NL1050000	**IDLH:** N.D.
Conversion:	**DOT:**			
Synonyms/Trade Names: Indium metal				

Exposure Limits:
NIOSH REL*: TWA 0.1 mg/m^3
[***Note:** The REL also applies to other indium compounds (as In).]
OSHA PEL†: none

Measurement Methods (see Table 1):
NIOSH 7303, P&CAM173 (II-5)
OSHA ID121

Physical Description: Ductile, shiny, silver-white metal that is softer than lead.

Chemical & Physical Properties:
MW: 114.8
BP: 3767°F
Sol: Insoluble
Fl.P: NA
IP: NA
Sp.Gr: 7.31
VP: 0 mmHg (approx)
MLT: 314°F
UEL: NA
LEL: NA
Noncombustible Solid in bulk form, but may ignite in powdered or dust form.

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: (Dinitrogen tetraoxide + acetonitrile), mercury(II) bromide (at 662°F), sulfur (mixtures ignite when heated) [**Note:** oxidizes readily at higher temperatures.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, resp sys; possible liver, kidney, heart, blood effects; pulm edema
TO: Eyes, skin, resp sys, liver, kidneys, heart, blood

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Resp support
Swallow: Medical attention immed

Iodine	**Formula:** I_2	**CAS#:** 7553-56-2	**RTECS#:** NN1575000	**IDLH:** 2 ppm
Conversion: 1 ppm = 10.38 mg/m^3	**DOT:**			
Synonyms/Trade Names: Iodine crystals, Molecular iodine				

Exposure Limits:
NIOSH REL: C 0.1 ppm (1 mg/m^3)
OSHA PEL: C 0.1 ppm (1 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 6005
OSHA ID212

Physical Description: Violet solid with a sharp, characteristic odor.

Chemical & Physical Properties:
MW: 253.8
BP: 365°F
Sol: 0.01%
Fl.P: NA
IP: 9.31 eV
Sp.Gr: 4.93
VP(77°F): 0.3 mmHg
MLT: 236°F
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash (>7%)
Quick drench (>7%)

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
1 ppm: Sa*
2 ppm: Sa:Cf*/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFAg100/ScbaE

Incompatibilities and Reactivities: Ammonia, acetylene, acetaldehyde, powdered aluminum, active metals, liquid chlorine

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose; lac; head; chest tight; skin burns, rash; cutaneous hypersensitivity
TO: Eyes, skin, resp sys, CNS, CVS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Iodoform

Formula: CHI_3
CAS#: 75-47-8
RTECS#: PB7000000
IDLH: N.D.

Conversion: 1 ppm = 16.10 mg/m^3
DOT:

Synonyms/Trade Names: Triiodomethane

Exposure Limits:
NIOSH REL: TWA 0.6 ppm (10 mg/m^3)
OSHA PEL†: none

Measurement Methods (see Table 1):
None available

Physical Description: Yellow to greenish-yellow powder or crystalline solid with a pungent, disagreeable odor. [antiseptic for external use]

Chemical & Physical Properties:
MW: 393.7
BP: 410°F (Decomposes)
Sol: 0.01%
Fl.P: NA
IP: ?
Sp.Gr: 4.01
VP: ?
MLT: 246°F
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Strong oxidizers, lithium, metallic salts (e.g., mercuric oxide, silver nitrate), strong bases, calomel, tannin

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin; lass, dizz, nau, inco, CNS depres; dysp; liver, kidney, heart damage; vis dist
TO: Eyes, skin, resp sys, liver, kidneys, heart

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Iron oxide dust and fume (as Fe)

Formula: Fe_2O_3
CAS#: 1309-37-1
RTECS#: NO7400000
NO7525000 (fume)
IDLH: 2500 mg/m^3 (as Fe)

Conversion:
DOT: 1376 135 (spent)

Synonyms/Trade Names: Ferric oxide, Iron(III) oxide

Exposure Limits:
NIOSH REL: TWA 5 mg/m^3
OSHA PEL: TWA 10 mg/m^3

Measurement Methods (see Table 1):
NIOSH 7300, 7301, 7303, 9102
OSHA ID121, ID125G

Physical Description: Reddish-brown solid.
[**Note:** Exposure to fume may occur during the arc-welding of iron.]

Chemical & Physical Properties:
MW: 159.7
BP: ?
Sol: Insoluble
Fl.P: NA
IP: NA
Sp.Gr: 5.24
VP: 0 mmHg (approx)
MLT: 2664°F
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
50 mg/m^3: 95XQ/Sa
125 mg/m^3: Sa:Cf/PaprHie
250 mg/m^3: 100F/SaT:Cf/PaprTHie/ ScbaF/SaF
2500 mg/m^3: Sa:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Calcium hypochlorite

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh
SY: Benign pneumoconiosis with X-ray shadows indistinguishable from fibrotic pneumoconiosis (siderosis)
TO: Resp sys

First Aid (see Table 6):
Breath: Resp support

Iron pentacarbonyl (as Fe)	Formula: $Fe(CO)_5$	CAS#: 13463-40-6	RTECS#: NO4900000	IDLH: N.D.
Conversion: 1 ppm = 2.28 mg/m^3 (as Fe)	**DOT:** 1994 131			

Synonyms/Trade Names: Iron carbonyl, Pentacarbonyl iron

Exposure Limits:
NIOSH REL: TWA 0.1 ppm (0.23 mg/m^3)
ST 0.2 ppm (0.45 mg/m^3)
OSHA PEL†: none

Measurement Methods (see Table 1):
None available

Physical Description: Colorless to yellow to dark-red, oily liquid.

Chemical & Physical Properties:
MW: 195.9
BP(749 mmHg): 217°F
Sol: Insoluble
Fl.P: 5°F
IP: ?
Sp.Gr: 1.46-1.52
VP(87°F): 40 mmHg
FRZ: -6°F
UEL: ?
LEL: ?
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.
Provide: Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Oxidizers, nitrogen oxide, (zinc + cobalt halides)
[**Note:** Pyrophoric (i.e., ignites spontaneously in air). Decomposed by light or air, releasing carbon monoxide.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, muc memb, resp sys; head, dizz, nau, vomit; fever, cyan, cough, dysp; liver, kidney, lung inj; degenerative changes in CNS
TO: Eyes, resp sys, CNS, liver, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap flush immed
Breath: Resp support
Swallow: Medical attention immed

Iron salts (soluble, as Fe)	Formula:	CAS#:	RTECS#:	IDLH: N.D.
Conversion:	**DOT:**			

Synonyms/Trade Names: **$FeSO_4$:** Ferrous sulfate, Iron(II) sulfate; **$FeCl_2$:** Ferrous chloride, Iron(II) chloride; **$Fe(NO_3)_3$:** Ferric nitrate, Iron(III) nitrate; **$Fe(SO_4)_3$:** Ferric sulfate, Iron(III) sulfate; **$FeCl_3$:** Ferric chloride, Iron (III) chloride

Exposure Limits:
NIOSH REL: TWA 1 mg/m^3
OSHA PEL†: none

Measurement Methods (see Table 1):
NIOSH 7300, 7301, 7303, 9102
OSHA ID121, ID125G

Physical Description: Appearance and odor vary depending upon the specific soluble iron salt.

Chemical & Physical Properties:
Properties vary depending upon the specific soluble iron salt.

Noncombustible Solids

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: Daily
Remove: N.R.
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Varies

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, muc memb; abdom pain, diarr, vomit; possible liver damage
TO: Eyes, skin, resp sys, liver, GI tract

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Resp support
Swallow: Medical attention immed

Isoamyl acetate	**Formula:** $CH_3COOCH_2CH_2CH(CH_3)_2$	**CAS#:** 123-92-2	**RTECS#:** NS9800000	**IDLH:** 1000 ppm
Conversion: 1 ppm = 5.33 mg/m^3	**DOT:** 1104 129			

Synonyms/Trade Names: Banana oil, Isopentyl acetate, 3-Methyl-1-butanol acetate, 3-Methylbutyl ester of acetic acid, 3-Methylbutyl ethanoate

Exposure Limits:
NIOSH REL: TWA 100 ppm (525 mg/m^3)
OSHA PEL: TWA 100 ppm (525 mg/m^3)

Physical Description: Colorless liquid with a banana-like odor.

Measurement Methods (see Table 1):
NIOSH 1450
OSHA 7

Chemical & Physical Properties:
MW: 130.2
BP: 288°F
Sol: 0.3%
Fl.P: 77°F
IP: ?
Sp.Gr: 0.87
VP: 4 mmHg
FRZ: -109°F
UEL: 7.5%
LEL(212°F): 1.0%
Class IC Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
1000 ppm: CcrOv/PaprOv/GmFOv/Sa/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Nitrates; strong oxidizers, alkalis & acids

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose, throat; derm; in animals: narco
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush prompt
Breath: Resp support
Swallow: Medical attention immed

Isoamyl alcohol (primary)	**Formula:** $(CH_3)_2CHCH_2CH_2OH$	**CAS#:** 123-51-3	**RTECS#:** EL5425000	**IDLH:** 500 ppm
Conversion: 1 ppm = 3.61 mg/m^3	**DOT:** 1105 129			

Synonyms/Trade Names: Fermentation amyl alcohol, Fusel oil, Isobutyl carbinol, Isopentyl alcohol, 3-Methyl-1-butanol, Primary isoamyl alcohol

Exposure Limits:
NIOSH REL: TWA 100 ppm (360 mg/m^3)
ST 125 ppm (450 mg/m^3)
OSHA PEL†: TWA 100 ppm (360 mg/m^3)

Physical Description: Colorless liquid with a disagreeable odor.

Measurement Methods (see Table 1):
NIOSH 1402, 1405

Chemical & Physical Properties:
MW: 88.2
BP: 270°F
Sol(57°F): 2%
Fl.P: 109°F
IP: ?
Sp.Gr(57°F): 0.81
VP: 28 mmHg
FRZ: -179°F
UEL(212°F): 9.0%
LEL: 1.2%
Class II Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
500 ppm: Sa:Cf£/CcrFOv/GmFOv/PaprOv£/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose, throat; head, dizz; cough, dysp, nau, vomit, diarr; skin cracking; in animals: narco
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush prompt
Breath: Resp support
Swallow: Medical attention immed

Isoamyl alcohol (secondary)	**Formula:** $(CH_3)_2CHCH(OH)CH_3$	**CAS#:** 6032-29-7	**RTECS#:** SA4900000	**IDLH:** 500 ppm
Conversion: 1 ppm = 3.61 mg/m^3	**DOT:** 1105 129			
Synonyms/Trade Names: 3-Methyl-2-butanol, Secondary isoamyl alcohol				

Exposure Limits:
NIOSH REL: TWA 100 ppm (360 mg/m^3)
ST 125 ppm (450 mg/m^3)
OSHA PEL†: TWA 100 ppm (360 mg/m^3)

Physical Description: Colorless liquid with a disagreeable odor.

Measurement Methods (see Table 1):
NIOSH 1402

Chemical & Physical Properties:
MW: 88.2
BP: 234°F
Sol: ?
Fl.P(oc): 95°F
IP: ?
Sp.Gr: 0.82
VP: 1 mmHg
FRZ: ?
UEL: ?
LEL: ?
Class IC Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
500 ppm: Sa:Cf£/CcrFOv/GmFOv/PaprOv£/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose, throat; head, dizz; cough, dysp, nau, vomit, diarr; skin cracking; in animals: narco
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush prompt
Breath: Resp support
Swallow: Medical attention immed

Isobutane	**Formula:** $CH_3CH(CH_3)_2$	**CAS#:** 75-28-5	**RTECS#:** TZ4300000	**IDLH:** N.D.
Conversion: 1 ppm = 2.38 mg/m^3	**DOT:** 1075 115; 1969 115			
Synonyms/Trade Names: 2-Methylpropane [**Note:** Also see specific listing for n-Butane.]				

Exposure Limits:
NIOSH REL: TWA 800 ppm (1900 mg/m^3)
OSHA PEL†: none

Physical Description: Colorless gas with a gasoline-like or natural gas odor.
[**Note:** Shipped as a liquefied compressed gas. A liquid below 11°F.]

Measurement Methods (see Table 1):
None available

Chemical & Physical Properties:
MW: 58.1
BP: 11°F
Sol: Slight
Fl.P: NA (Gas)
IP: 10.74 eV
RGasD: 2.06
VP(70°F): 3.1 atm
FRZ: -255°F
UEL: 8.4%
LEL: 1.6%
Flammable Gas

Personal Protection/Sanitation (see Table 2):
Skin: Frostbite
Eyes: Frostbite
Wash skin: N.R.
Remove: When wet (flamm)
Change: N.R.
Provide: Frostbite wash

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Strong oxidizers (e.g., nitrates & perchlorates), chlorine, fluorine, (nickel carbonyl + oxygen)

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con (liquid)
SY: Drow, narco, asphy; liquid: frostbite
TO: CNS

First Aid (see Table 6):
Eye: Frostbite
Skin: Frostbite
Breath: Resp support

Isobutyl acetate	Formula: $CH_3COOCH_2CH(CH_3)_2$	CAS#: 110-19-0	RTECS#: AI4025000	IDLH: 1300 ppm [10%LEL]
Conversion: 1 ppm = 4.75 mg/m^3	**DOT:** 1213 129			

Synonyms/Trade Names: Isobutyl ester of acetic acid, 2-Methylpropyl acetate, 2-Methylpropyl ester of acetic acid, β-Methylpropyl ethanoate

Exposure Limits:
NIOSH REL: TWA 150 ppm (700 mg/m^3)
OSHA PEL: TWA 150 ppm (700 mg/m^3)

Physical Description: Colorless liquid with a fruity, floral odor.

Measurement Methods (see Table 1):
NIOSH 1450
OSHA 7

Chemical & Physical Properties:
MW: 116.2
BP: 243°F
Sol(77°F): 0.6%
Fl.P: 64°F
IP: 9.97 eV
Sp.Gr: 0.87
VP: 13 mmHg
FRZ: -145°F
UEL: 10.5%
LEL: 1.3%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
1300 ppm: Sa:Cf£/CcrFOv/GmFOv/PaprOv£/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Nitrates; strong oxidizers, alkalis & acids

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, upper resp sys; head, drow, anes; in animals: narco
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush prompt
Breath: Resp support
Swallow: Medical attention immed

Isobutyl alcohol	Formula: $(CH_3)_2CHCH_2OH$	CAS#: 78-83-1	RTECS#: NP9625000	IDLH: 1600 ppm
Conversion: 1 ppm = 3.03 mg/m^3	**DOT:** 1212 129			

Synonyms/Trade Names: IBA, Isobutanol, Isopropylcarbinol, 2-Methyl-1-propanol

Exposure Limits:
NIOSH REL: TWA 50 ppm (150 mg/m^3)
OSHA PEL†: TWA 100 ppm (300 mg/m^3)

Physical Description: Colorless, oily liquid with a sweet, musty odor.

Measurement Methods (see Table 1):
NIOSH 1401, 1405
OSHA 7

Chemical & Physical Properties:
MW: 74.1
BP: 227°F
Sol: 10%
Fl.P: 82°F
IP: 10.12 eV
Sp.Gr: 0.80
VP: 9 mmHg
FRZ: -162°F
UEL(202°F): 10.6%
LEL(123°F): 1.7%
Class IC Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
500 ppm: CcrOv*/Sa*
1250 ppm: Sa:Cf*/PaprOv*
1600 ppm: CcrFOv/GmFOv/PaprTOv*/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, throat; head, drow; skin cracking; in animals: narco
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush prompt
Breath: Resp support
Swallow: Medical attention immed

Isobutyronitrile	Formula: $(CH_3)_2CHCN$	CAS#: 78-82-0	RTECS#: TZ4900000	IDLH: N.D.
Conversion: 1 ppm = 2.83 mg/m^3	**DOT:** 2284 131			

Synonyms/Trade Names: Isopropyl cyanide, 2-Methylpropanenitrile, 2-Methylpropionitrile

Exposure Limits:
NIOSH REL: TWA 8 ppm (22 mg/m^3)
OSHA PEL: none

Measurement Methods (see Table 1):
NIOSH 1606 (adapt)

Physical Description: Colorless liquid with an almond-like odor.
[**Note:** Forms cyanide in the body.]

Chemical & Physical Properties:
MW: 69.1
BP: 219°F
Sol: Slight
Fl.P: 47°F
IP: ?
Sp.Gr: 0.76
VP(130°F): 100 mmHg
FRZ: -97°F
UEL: ?
LEL: ?
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
80 ppm: CcrOv/Sa
200 ppm: Sa:Cf/PaprOv
400 ppm: CcrFOv/GmFOv/PaprTOv/ ScbaF/SaF
1000 ppm: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Oxidizers, reducing agents, strong acids & bases

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, nose, throat; head, dizz, lass, conf, convuls; dysp; abdom pain, nau, vomit
TO: Eyes, skin, resp sys, CNS, CVS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap flush immed
Breath: Resp support
Swallow: Medical attention immed

Isooctyl alcohol	Formula: $C_7H_{15}CH_2OH$	CAS#: 26952-21-6	RTECS#: NS7700000	IDLH: N.D.
Conversion: 1 ppm = 5.33 mg/m^3	**DOT:**			

Synonyms/Trade Names: Isooctanol, Oxooctyl alcohol [**Note:** A mixture of closely related isomeric, primary alcohols with branched chains such as 2-Ethylhexanol, $CH_3(CH_2)_3CH(CH_2CH_3)CH_2OH$.]

Exposure Limits:
NIOSH REL: TWA 50 ppm (270 mg/m^3) [skin]
OSHA PEL†: none

Measurement Methods (see Table 1):
OSHA PV2033

Physical Description: Clear, colorless liquid.

Chemical & Physical Properties:
MW: 130.3
BP: 367°F
Sol: Insoluble
Fl.P(oc): 180°F
IP: ?
Sp.Gr: 0.83
VP: 0.4 mmHg
FRZ: <-105°F
UEL(est.): 5.7%
LEL(calc.): 0.9%
Class IIIA Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: N.R.
Provide: Eyewash

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: None reported

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, nose, throat; eye, skin burns
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Isophorone	Formula: $C_9H_{14}O$	CAS#: 78-59-1	RTECS#: GW7700000	IDLH: 200 ppm

Conversion: 1 ppm = 5.65 mg/m^3 **DOT:** 1993 128 (combustible liquid, n.o.s.)

Synonyms/Trade Names: Isoacetophorone; 3,5,5-Trimethyl-2-cyclohexenone; 3,5,5-Trimethyl-2-cyclo-hexen-1-one

Exposure Limits:
NIOSH REL: TWA 4 ppm (23 mg/m^3)
OSHA PEL†: TWA 25 ppm (140 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 2508, 2556
OSHA 7

Physical Description: Colorless to white liquid with a peppermint-like odor.

Chemical & Physical Properties:
MW: 138.2
BP: 419°F
Sol: 1%
Fl.P: 184°F
IP: 9.07 eV
Sp.Gr: 0.92
VP: 0.3 mmHg
FRZ: 17°F
UEL: 3.8%
LEL: 0.8%
Class IIIA Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash

Respirator Recommendations (see Tables 3 and 4):
NIOSH
40 ppm: CcrOv*/Sa*
100 ppm: Sa:Cf*/PaprOv*
200 ppm: CcrFOv/GmFOv/PaprTOv*/ SaT:Cf*/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Oxidizers, strong alkalis, amines

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, nose, throat; head, nau, dizz, lass, mal, narco; derm; in animals: kidney, liver damage
TO: Eyes, skin, resp sys, CNS, liver, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

Isophorone diisocyanate	Formula: $C_{12}H_{18}N_2O_2$	CAS#: 4098-71-9	RTECS#: NQ9370000	IDLH: N.D.

Conversion: 1 ppm = 9.09 mg/m^3 **DOT:** 2290 156

Synonyms/Trade Names: IPDI; 3-Isocyanatomethyl-3,5,5-trimethylcyclohexyl-isocyanate; Isophorone diamine diisocyanate

Exposure Limits:
NIOSH REL: TWA 0.005 ppm (0.045 mg/m^3) [skin]
ST 0.02 ppm (0.180 mg/m^3)
OSHA PEL†: none

Measurement Methods (see Table 1):
NIOSH 5525
OSHA PV2034

Physical Description: Colorless to slightly yellow liquid with a pungent odor.

Chemical & Physical Properties:
MW: 222.3
BP: ?
Sol: Decomposes
Fl.P: 311°F
IP: ?
Sp.Gr: 1.06
VP: 0.0003 mmHg
FRZ: -76°F
UEL: ?
LEL: ?
Class IIIB Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
0.05 ppm: Sa*
0.125 ppm: Sa:Cf*
0.25 ppm: ScbaF/SaF
1 ppm: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Water, alcohols, phenols, amines, mercaptans, amides, urethanes, ureas [**Note:** Reacts with water to form carbon dioxide.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, resp sys; chest tight, dysp, cough, sore throat; bron, wheez, pulm edema; possible resp sens, asthma
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

2-Isopropoxyethanol	Formula: $(CH_3)_2CHOCH_2CH_2OH$	CAS#: 109-59-1	RTECS#: KL5075000	IDLH: N.D.
Conversion:	DOT:			

Synonyms/Trade Names: Ethylene glycol isopropyl ether, β-Hydroxyethyl isopropyl ether, Isopropyl Cellosolve®, Isopropyl glycol

Exposure Limits:
NIOSH REL: See Appendix D
OSHA PEL†: none

Measurement Methods (see Table 1):
None available

Physical Description: Colorless liquid with a mild, ethereal odor.

Chemical & Physical Properties:
MW: 104.2
BP: 283°F
Sol: Miscible
Fl.P(oc): 92°F
IP: ?
Sp.Gr: 0.90
VP: 3 mmHg
FRZ: ?
UEL: ?
LEL: ?
Class IC Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: In animals: irrit eyes, skin; hema, anemia, pulm edema
TO: Eyes, skin, resp sys, blood

First Aid (see Table 6):
Eye: Irr immed
Skin: Water wash immed
Breath: Resp support
Swallow: Medical attention immed

Isopropyl acetate	Formula: $CH_3COOCH(CH_3)_2$	CAS#: 108-21-4	RTECS#: AI4930000	IDLH: 1800 ppm
Conversion: 1 ppm = 4.18 mg/m^3	DOT: 1220 129			

Synonyms/Trade Names: Isopropyl ester of acetic acid, 1-Methylethyl ester of acetic acid, 2-Propyl acetate

Exposure Limits:
NIOSH REL: See Appendix D
OSHA PEL†: TWA 250 ppm (950 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1454, 1460
OSHA 7

Physical Description: Colorless liquid with a fruity odor.

Chemical & Physical Properties:
MW: 102.2
BP: 194°F
Sol: 3%
Fl.P: 36°F
IP: 9.95 eV
Sp.Gr: 0.87
VP: 42 mmHg
FRZ: -92°F
UEL: 8%
LEL(100°F): 1.8%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
OSHA
1800 ppm: Sa:Cf£/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Nitrates; strong oxidizers, alkalis & acids

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose; derm; in animals: narco
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush prompt
Breath: Resp support
Swallow: Medical attention immed

Isopropyl alcohol	Formula: $(CH_3)_2CHOH$	CAS#: 67-63-0	RTECS#: NT8050000	IDLH: 2000 ppm [10%LEL]
Conversion: 1 ppm = 2.46 mg/m^3	**DOT:** 1219 129			

Synonyms/Trade Names: Dimethyl carbinol, IPA, Isopropanol, 2-Propanol, sec-Propyl alcohol, Rubbing alcohol

Exposure Limits:
NIOSH REL: TWA 400 ppm (980 mg/m^3)
ST 500 ppm (1225 mg/m^3)
OSHA PEL†: TWA 400 ppm (980 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1400
OSHA 109

Physical Description: Colorless liquid with the odor of rubbing alcohol.

Chemical & Physical Properties:
MW: 60.1
BP: 181°F
Sol: Miscible
Fl.P: 53°F
IP: 10.10 eV
Sp.Gr: 0.79
VP: 33 mmHg
FRZ: -127°F
UEL(200°F): 12.7%
LEL: 2.0%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
2000 ppm: Sa:Cf£/CcrFOv/GmFOv/PaprOv£/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, acetaldehyde, chlorine, ethylene oxide, acids, isocyanates

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, nose, throat; drow, dizz, head; dry cracking skin; in animals: narco
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush
Breath: Resp support
Swallow: Medical attention immed

Isopropylamine	Formula: $(CH_3)_2CHNH_2$	CAS#: 75-31-0	RTECS#: NT8400000	IDLH: 750 ppm
Conversion: 1 ppm = 2.42 mg/m^3	**DOT:** 1221 132			

Synonyms/Trade Names: 2-Aminopropane, Monoisopropylamine, 2-Propylamine, sec-Propylamine

Exposure Limits:
NIOSH REL: See Appendix D
OSHA PEL†: TWA 5 ppm (12 mg/m^3)

Measurement Methods (see Table 1):
NIOSH S147 (II-3)

Physical Description: Colorless liquid with an ammonia-like odor.
[**Note:** A gas above 91°F.]

Chemical & Physical Properties:
MW: 59.1
BP: 91°F
Sol: Miscible
Fl.P(oc): -35°F
IP: 8.72 eV
Sp.Gr: 0.69
VP: 460 mmHg
FRZ: -150°F
UEL: ?
LEL: ?
Class IA Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
OSHA
125 ppm: Sa:Cf£/PaprS£
250 ppm: CcrFS/GmFS/PaprTS£/ScbaF/SaF
750 ppm: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS/ScbaE

Incompatibilities and Reactivities: Strong acids, strong oxidizers, aldehydes, ketones, epoxides

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, nose, throat; pulm edema; vis dist; eye, skin burns; derm
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

N-Isopropylaniline	Formula: $C_6H_5NHCH(CH_3)_2$	CAS#: 768-52-5	RTECS#: BY4190000	IDLH: N.D.
Conversion: 1 ppm = 5.53 mg/m^3	**DOT:**			
Synonyms/Trade Names: N-IPA, Isopropylaniline, N-(1-Methylethyl)-benzenamine, N-Phenylisopropylamine				

Exposure Limits:
NIOSH REL: TWA 2 ppm (10 mg/m^3) [skin]
OSHA PEL†: none

Measurement Methods (see Table 1):
OSHA 78

Physical Description: Clear, yellowish liquid with a sweet, aromatic odor.

Chemical & Physical Properties:
MW: 135.2
BP: 397°F
Sol: ?
Fl.P(oc): 190°F
IP: ?
Sp.Gr(60°F): 0.93
VP(77°F): 0.03 mmHg
FRZ: -58°F
UEL: ?
LEL: ?
Class IIIB Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: None reported

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin; head, lass, dizz; cyan; ataxia; dysp on effort; tacar; methemo
TO: Eyes, skin, resp sys, blood, CVS, liver, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

Isopropyl ether	Formula: $(CH_3)_2CHOCH(CH_3)_2$	CAS#: 108-20-3	RTECS#: TZ5425000	IDLH: 1400 ppm [10%LEL]
Conversion: 1 ppm = 4.18 mg/m^3	**DOT:** 1159 127			
Synonyms/Trade Names: Diisopropyl ether, Diisopropyl oxide, 2-Isopropoxy propane				

Exposure Limits:
NIOSH REL: TWA 500 ppm (2100 mg/m^3)
OSHA PEL: TWA 500 ppm (2100 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1618
OSHA 7

Physical Description: Colorless liquid with a sharp, sweet, ether-like odor.

Chemical & Physical Properties:
MW: 102.2
BP: 154°F
Sol: 0.2%
Fl.P: -18°F
IP: 9.20 eV
Sp.Gr: 0.73
VP: 119 mmHg
FRZ: -76°F
UEL: 7.9%
LEL: 1.4%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
1400 ppm: CcrOv*/PaprOv*/GmFOv/Sa*/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, acids
[**Note:** Unstable peroxides may form on long contact with air.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose; resp discomfort; derm; in animals: drow, dizz, uncon, narco
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

Isopropyl glycidyl ether	Formula: $C_6H_{12}O_2$	CAS#: 4016-14-2	RTECS#: TZ3500000	IDLH: 400 ppm
Conversion: 1 ppm = 4.75 mg/m^3	**DOT:**			

Synonyms/Trade Names: 1,2-Epoxy-3-isopropoxypropane; IGE; Isopropoxymethyl oxirane

Exposure Limits:
NIOSH REL: C 50 ppm (240 mg/m^3) [15-minute]
OSHA PEL†: TWA 50 ppm (240 mg/m^3)

Physical Description: Colorless liquid.

Measurement Methods (see Table 1):
NIOSH 1620
OSHA 7

Chemical & Physical Properties:
MW: 116.2
BP: 279°F
Sol: 19%
Fl.P: 92°F
IP: ?
Sp.Gr: 0.92
VP(77°F): 9 mmHg
FRZ: ?
UEL: ?
LEL: ?
Class IC Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
400 ppm: Sa:Cf£/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, strong caustics
[**Note:** May form explosive peroxides upon exposure to air or light.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, upper resp sys; skin sens; possible hemato, repro effects
TO: Eyes, skin, resp sys, blood, repro sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

K

Kaolin	Formula:	CAS#: 1332-58-7	RTECS#: GF1670500	IDLH: N.D.
Conversion:	**DOT:**			

Synonyms/Trade Names: China clay, Clay, Hydrated aluminum silicate, Hydrite, Porcelain clay
[**Note:** Main constituent of Kaolin is Kaolinite ($Al_2Si_2O_5(OH)_4$).]

Exposure Limits:
NIOSH REL: TWA 10 mg/m^3 (total)
TWA 5 mg/m^3 (resp)
OSHA PEL†: TWA 15 mg/m^3 (total)
TWA 5 mg/m^3 (resp)

Physical Description: White to yellowish or grayish powder.
[**Note:** When moistened, darkens & develops a clay-like odor.]

Measurement Methods (see Table 1):
NIOSH 0500, 0600

Chemical & Physical Properties:
MW: varies
BP: ?
Sol: Insoluble
Fl.P: NA
IP: NA
Sp.Gr: 1.8-2.6
VP: 0 mmHg (approx)
MLT: ?
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: None reported

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Chronic pulm fib, stomach granuloma
TO: Resp sys, stomach

First Aid (see Table 6):
Eye: Irr immed
Breath: Fresh air

K

Kepone	Formula: $C_{10}Cl_{10}O$	CAS#: 143-50-0	RTECS#: PC8575000	IDLH: Ca [N.D.]
Conversion:	DOT:			

Synonyms/Trade Names: Chlordecone; Decachlorooctahydro-1,3,4-metheno-2H-cyclobuta(cd)-pentalen-2-one; Decachlorooctahydro-kepone-2-one; Decachlorotetrahydro-4,7-methanoindeneone

Exposure Limits:
NIOSH REL: Ca
TWA 0.001 mg/m^3
See Appendix A
OSHA PEL: none

Measurement Methods (see Table 1):
NIOSH 5508

Physical Description: Tan to white, crystalline, odorless solid. [insecticide]

Chemical & Physical Properties:
MW: 490.6
BP: Sublimes
Sol(212°F): 0.5%
Fl.P: NA
IP: ?
Sp.Gr: ?
VP(77°F): 3 x 10^{-7} mmHg
MLT: 662°F (Sublimes)
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Acids, acid fumes

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Head, anxi, tremor; liver, kidney damage; vis dist; ataxia, chest pain, skin eryt; testicular atrophy, low sperm count; [carc]
TO: Eyes, skin, resp sys, CNS, liver, kidneys, repro sys [in animal: liver cancer]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Kerosene	Formula:	CAS#: 8008-20-6	RTECS#: OA5500000	IDLH: N.D.
Conversion:	DOT: 1223 128			

Synonyms/Trade Names: Fuel Oil No. 1, Range oil
[**Note:** A refined petroleum solvent (predominantly C_9-C_{16}), which typically is 25% normal paraffins, 11% branched paraffins, 30% monocycloparaffins, 12% dicycloparaffins, 1% tricycloparaffins, 16% mononuclear aromatics, and 5% dinuclear aromatics.]

Exposure Limits:
NIOSH REL: TWA 100 mg/m^3
OSHA PEL: none

Measurement Methods (see Table 1):
NIOSH 1550

Physical Description: Colorless to yellowish, oily liquid with a strong, characteristic odor.

Chemical & Physical Properties:
MW: 170 (approx)
BP: 347-617°F
Sol: Insoluble
Fl.P: 100-162°F
IP: ?
Sp.Gr: 0.81
VP(100°F): 5 mmHg
FRZ: -50°F
UEL: 5%
LEL: 0.7%
Class II Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
1000 mg/m^3: CcrOv/Sa
2500 mg/m^3: Sa:Cf/PaprOv
5000 mg/m^3: CcrFOv/GmFOv/PaprTOv/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose, throat; burning sensation in chest; head, nau, lass, restless, inco, conf, drow; vomit, diarr; derm; chemical pneu (aspir liquid)
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap flush immed
Breath: Resp support
Swallow: Medical attention immed

Ketene

Formula: $CH_2=CO$ | **CAS#:** 463-51-4 | **RTECS#:** OA7700000 | **IDLH:** 5 ppm

Conversion: 1 ppm = 1.72 mg/m^3 | **DOT:**

Synonyms/Trade Names: Carbomethene, Ethenone, Keto-ethylene

Exposure Limits:
NIOSH REL: TWA 0.5 ppm (0.9 mg/m^3)
ST 1.5 ppm (3 mg/m^3)
OSHA PEL†: TWA 0.5 ppm (0.9 mg/m^3)

Measurement Methods (see Table 1):
NIOSH S92 (II-2)

Physical Description: Colorless gas with a penetrating odor.

Chemical & Physical Properties:
MW: 42.0
BP: -69°F
Sol: Reacts
Fl.P: NA (Gas)
IP: 9.61 eV
RGasD: 1.45
VP: >1 atm
FRZ: -238°F
UEL: ?
LEL: ?
Flammable Gas

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
5 ppm: Sa*/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Water, alcohols, ammonia
[**Note:** Readily polymerizes. Reacts with water to form acetic acid.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Irrit eyes, skin, nose, throat, resp sys; pulm edema
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Breath: Resp support

L

Lead

Formula: Pb | **CAS#:** 7439-92-1 | **RTECS#:** OF7525000 | **IDLH:** 100 mg/m^3 (as Pb)

Conversion: | **DOT:**

Synonyms/Trade Names: Lead metal, Plumbum

Exposure Limits:
NIOSH REL*: TWA 0.050 mg/m^3
See Appendix C
OSHA PEL*: [1910.1025] TWA 0.050 mg/m^3
See Appendix C
[***Note:** The REL and PEL also apply to other lead compounds (as Pb) -- see Appendix C.]

Measurement Methods (see Table 1):
NIOSH 7082, 7105, 7300, 7301, 7303, 7700, 7701, 7702, 9102, 9105
OSHA ID121, ID125G, ID206

Physical Description: A heavy, ductile, soft, gray solid.

Chemical & Physical Properties:
MW: 207.2
BP: 3164°F
Sol: Insoluble
Fl.P: NA
IP: NA
Sp.Gr: 11.34
VP: 0 mmHg (approx)
MLT: 621°F
UEL: NA
LEL: NA
Noncombustible Solid in bulk form.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: Daily
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
0.5 mg/m^3: 100XQ/Sa
1.25 mg/m^3: Sa:Cf/PaprHie
2.5 mg/m^3: 100F/SaT:Cf/PaprTHie/ScbaF/SaF
50 mg/m^3: Sa:Pd,Pp
100 mg/m^3: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

See Appendix E (page 351)

Incompatibilities and Reactivities: Strong oxidizers, hydrogen peroxide, acids

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Lass, insom; facial pallor; anor, low-wgt, malnut; constip, abdom pain, colic; anemia; gingival lead line; tremor; para wrist, ankles; encephalopathy; kidney disease; irrit eyes; hypotension
TO: Eyes, GI tract, CNS, kidneys, blood, gingival tissue

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap flush prompt
Breath: Resp support
Swallow: Medical attention immed

Limestone

Formula:	CAS#:	RTECS#:	IDLH:
$CaCO_3$	1317-65-3		N.D.

Conversion: **DOT:**

Synonyms/Trade Names: Calcium carbonate, Natural calcium carbonate
[**Note:** Calcite & aragonite are commercially important natural calcium carbonates.]

Exposure Limits:
NIOSH REL: TWA 10 mg/m^3 (total)
TWA 5 mg/m^3 (resp)
OSHA PEL: TWA 15 mg/m^3 (total)
TWA 5 mg/m^3 (resp)

Measurement Methods (see Table 1):
NIOSH 0500, 0600

Physical Description: Odorless, white to tan powder.

Chemical & Physical Properties:
MW: 100.1
BP: Decomposes
Sol: 0.001%
Fl.P: NA
IP: NA
Sp.Gr: 2.7-2.9
VP: 0 mmHg (approx)
MLT: 1517-2442°F (Decomposes)
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Fluorine, magnesium, acids, alum, ammonium salts

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Irrit eyes, skin, muc memb; cough, sneez, rhin; lac
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Fresh air

L

Lindane

Formula:	CAS#:	RTECS#:	IDLH:
$C_6H_6Cl_6$	58-89-9	GV4900000	50 mg/m^3

Conversion: **DOT:** 2761 151

Synonyms/Trade Names: BHC; HCH; γ-Hexachlorocyclohexane;
gamma isomer of 1,2,3,4,5,6-Hexachlorocyclohexane

Exposure Limits:
NIOSH REL: TWA 0.5 mg/m^3 [skin]
OSHA PEL: TWA 0.5 mg/m^3 [skin]

Measurement Methods (see Table 1):
NIOSH 5502

Physical Description: White to yellow, crystalline powder with a slight, musty odor. [pesticide]

Chemical & Physical Properties:
MW: 290.8
BP: 614°F
Sol: 0.001%
Fl.P: NA
IP: ?
Sp.Gr: 1.85
VP: 0.00001 mmHg
MLT: 235°F
UEL: NA
LEL: NA
Noncombustible Solid, but may be dissolved in flammable liquids.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: N.R.
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
5 mg/m^3: CcrOv95/Sa
12.5 mg/m^3: Sa:Cf*/PaprOvHie*
25 mg/m^3: CcrFOv100/GmFOv100/
PaprTOvHie*/ScbaF/SaF
50 mg/m^3: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Corrosive to metals

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, nose, throat; head; nau; clonic convuls; resp difficulty; cyan; aplastic anemia; musc spasm; in animals: liver, kidney damage
TO: Eyes, skin, resp sys, CNS, blood, liver, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

Lithium hydride	Formula: LiH	CAS#: 7580-67-8	RTECS#: OJ6300000	IDLH: 0.5 mg/m^3

Conversion: **DOT:** 1414 138; 2805 138 (fused, solid)

Synonyms/Trade Names: Lithium monohydride

Exposure Limits:
NIOSH REL: TWA 0.025 mg/m^3
OSHA PEL: TWA 0.025 mg/m^3

Measurement Methods (see Table 1):
OSHA ID121

Physical Description: Odorless, off-white to gray, translucent, crystalline mass or white powder.

Chemical & Physical Properties:
MW: 7.95
BP: Decomposes
Sol: Reacts
Fl.P: NA
IP: NA
Sp.Gr: 0.78
VP: 0 mmHg (approx)
MLT: 1256°F
UEL: NA
LEL: NA
Combustible Solid that can form airborne dust clouds which may explode on contact with flame, heat, or oxidizers.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: Brush (DO NOT WASH)
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench (>0.5 mg/m^3)

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
0.25 mg/m^3: 100XQ/Sa
0.5 mg/m^3: Sa:Cf*/100F/PaprHie*/ ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, halogenated hydrocarbons, acids, water
[**Note:** May ignite SPONTANEOUSLY in air and may reignite after fire is extinguished. Reacts with water to form hydrogen & lithium hydroxide.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin; eye, skin burns; mouth, esophagus burns (if ingested); nau; musc twitches; mental conf; blurred vision
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Brush (DO NOT WASH)
Breath: Resp support
Swallow: Medical attention immed

L

L.P.G.	Formula: $C_3H_8/C_3H_6/C_4H_{10}/C_4H_8$	CAS#: 68476-85-7	RTECS#: SE7545000	IDLH: 2000 ppm [10%LEL]

Conversion: 1 ppm = 1.72-2.37 mg/m^3 **DOT:** 1075 115

Synonyms/Trade Names: Bottled gas, Compressed petroleum gas, Liquefied hydrocarbon gas, Liquefied petroleum gas, LPG [**Note:** A fuel mixture of propane, propylene, butanes & butylenes.]

Exposure Limits:
NIOSH REL: TWA 1000 ppm (1800 mg/m^3)
OSHA PEL: TWA 1000 ppm (1800 mg/m^3)

Measurement Methods (see Table 1):
NIOSH S93 (II-2)

Physical Description: Colorless, noncorrosive, odorless gas when pure.
[**Note:** A foul-smelling odorant is usually added. Shipped as a liquefied compressed gas.]

Chemical & Physical Properties:
MW: 42-58
BP: >-44°F
Sol: Insoluble
Fl.P: NA (Gas)
IP: 10.95 eV
RGasD: 1.45-2.00
VP: >1 atm
FRZ: ?
UEL: 9.5% (Propane) 8.5% (Butane)
LEL: 2.1% (Propane) 1.9% (Butane)
Flammable Gas

Personal Protection/Sanitation (see Table 2):
Skin: Frostbite
Eyes: Frostbite
Wash skin: N.R.
Remove: When wet (flamm)
Change: N.R.
Provide: Frostbite wash

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
2000 ppm: Sa/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: ScbaE

Incompatibilities and Reactivities: Strong oxidizers, chlorine dioxide

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con (liquid)
SY: Dizz, drow, asphy; liquid: frostbite
TO: Resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed (liquid)
Skin: Water flush immed (liquid)
Breath: Resp support

Magnesite	Formula: $MgCO_3$	CAS#: 546-93-0	RTECS#: OM2470000	IDLH: N.D.
Conversion:	DOT:			

Synonyms/Trade Names: Carbonate magnesium, Hydromagnesite, Magnesium carbonate, Magnesium(II) carbonate [**Note:** Magnesite is a naturally-occurring form of magnesium carbonate.]

Exposure Limits:
NIOSH REL: TWA 10 mg/m^3 (total)
TWA 5 mg/m^3 (resp)
OSHA PEL: TWA 15 mg/m^3 (total)
TWA 5 mg/m^3 (resp)

Measurement Methods (see Table 1):
NIOSH 0500, 0600

Physical Description: White, odorless, crystalline powder.

Chemical & Physical Properties:
MW: 84.3
BP: Decomposes
Sol: 0.01%
Fl.P: NA
IP: NA
Sp.Gr: 2.96
VP: 0 mmHg (approx)
MLT: 662°F (Decomposes)
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Acids, formaldehyde

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Irrit eyes, skin, resp sys; cough
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Breath: Fresh air

M

Magnesium oxide fume	Formula: MgO	CAS#: 1309-48-4	RTECS#: OM3850000	IDLH: 750 mg/m^3
Conversion:	DOT:			

Synonyms/Trade Names: Magnesia fume

Exposure Limits:
NIOSH REL: See Appendix D
OSHA PEL†: TWA 15 mg/m^3

Measurement Methods (see Table 1):
NIOSH 7300, 7301, 7303
OSHA ID121

Physical Description: Finely divided white particulate dispersed in air. [**Note:** Exposure may occur when magnesium is burned, thermally cut, or welded upon.]

Chemical & Physical Properties:
MW: 40.3
BP: 6512°F
Sol(86°F): 0.009%
Fl.P: NA
IP: NA
Sp.Gr: 3.58
VP: 0 mmHg (approx)
MLT: 5072°F
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
OSHA
150 mg/m^3: 95XQ/Sa
375 mg/m^3: Sa:Cf/PaprHie
750 mg/m^3: 100F/PaprTHie*/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Chlorine trifluoride, phosphorus pentachloride

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Irrit eyes, nose; metal fume fever: cough, chest pain, flu-like fever
TO: Eyes, resp sys

First Aid (see Table 6):
Breath: Resp support

Malathion

Formula: $C_{10}H_{19}O_6PS_2$ | **CAS#:** 121-75-5 | **RTECS#:** WM8400000 | **IDLH:** 250 mg/m^3

Conversion: | **DOT:** 2783 152

Synonyms/Trade Names: S-[1,2-bis(ethoxycarbonyl) ethyl]O,O-dimethyl-phosphorodithioate; Diethyl (dimethoxyphosphinothioylthio) succinate

Exposure Limits:
NIOSH REL: TWA 10 mg/m^3 [skin]
OSHA PEL†: TWA 15 mg/m^3 [skin]

Physical Description: Deep-brown to yellow liquid with a garlic-like odor. [insecticide] [**Note:** A solid below 37°F.]

Measurement Methods (see Table 1):
NIOSH 5600
OSHA 62

Chemical & Physical Properties:
MW: 330.4
BP: 140°F (Decomposes)
Sol: 0.02%
Fl.P(oc): >325°F
IP: ?
Sp.Gr: 1.21
VP: 0.00004 mmHg
FRZ: 37°F
UEL: ?
LEL: ?
Class IIIB Combustible Liquid, but may be difficult to ignite.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH
100 mg/m^3: CcrOv95/Sa
250 mg/m^3: Sa:Cf*/CcrFOv100/GmFOv100/PaprOvHie*/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, magnesium, alkaline pesticides [**Note:** Corrosive to metals.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin; miosis, aching eyes, blurred vision, lac; salv; anor, nau, vomit, abdom cramps, diarr, dizz, conf, ataxia; rhin, head; chest tight, wheez, lar spasm
TO: Eyes, skin, resp sys, liver, blood chol, CNS, CVS, GI tract

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

M

Maleic anhydride

Formula: $C_4H_2O_3$ | **CAS#:** 108-31-6 | **RTECS#:** ON3675000 | **IDLH:** 10 mg/m^3

Conversion: 1 ppm = 4.01 mg/m^3 | **DOT:** 2215 156

Synonyms/Trade Names: cis-Butenedioic anhydride; 2,5-Furanedione; Maleic acid anhydride; Toxilic anhydride

Exposure Limits:
NIOSH REL: TWA 1 mg/m^3 (0.25 ppm)
OSHA PEL: TWA 1 mg/m^3 (0.25 ppm)

Physical Description: Colorless needles, white lumps, or pellets with an irritating, choking odor.

Measurement Methods (see Table 1):
NIOSH 3512
OSHA 25, 86

Chemical & Physical Properties:
MW: 98.1
BP: 396°F
Sol: Reacts
Fl.P: 218°F
IP: 9.90 eV
Sp.Gr: 1.48
VP: 0.2 mmHg
MLT: 127°F
UEL: 7.1%
LEL: 1.4%
Combustible Solid, but may be difficult to ignite.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
10 mg/m^3: Sa:Cf£/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, water, alkalis, metals, caustics, and amines above 150°F
[**Note:** Reacts slowly with water (hydrolyzes) to form maleic acid.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit nose, upper resp sys; conj; photo, double vision; bronchial asthma; derm
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Malonaldehyde

Formula: $CHOCH_2CHO$
CAS#: 542-78-9
RTECS#: TX6475000
IDLH: Ca [N.D.]

Conversion:
DOT:

Synonyms/Trade Names: Malonic aldehyde; Malonodialdehyde; Propanedial; 1,3-Propanedial
[**Note:** Pure Malonaldehyde is unstable and may be used as its sodium salt.]

Exposure Limits:
NIOSH REL: Ca
See Appendix A
See Appendix C (Aldehydes)
OSHA PEL: none

Measurement Methods (see Table 1):
None available

Physical Description: Solid (needles).

Chemical & Physical Properties:
MW: 72.1
BP: ?
Sol: ?
Fl.P: ?
IP: ?
Sp.Gr: ?
VP: ?
MLT: 161°F
UEL: ?
LEL: ?

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Proteins
[**Note:** Pure compound is stable under neutral conditions, but not under acidic conditions.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, resp sys; CNS depres; [carc]
TO: Eyes, skin, resp sys, CNS [in animals: thyroid gland tumors]

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

M

Malononitrile

Formula: $NCCH_2CN$
CAS#: 109-77-3
RTECS#: OO3150000
IDLH: N.D.

Conversion: 1 ppm = 2.70 mg/m^3
DOT: 2647 153

Synonyms/Trade Names: Cyanoacetonitrile, Dicyanomethane, Malonic dinitrile

Exposure Limits:
NIOSH REL: TWA 3 ppm (8 mg/m^3)
OSHA PEL: none

Measurement Methods (see Table 1):
NIOSH Nitriles Criteria Document

Physical Description: White powder or colorless crystals.
[**Note:** Melts above 90°F. Forms cyanide in the body.]

Chemical & Physical Properties:
MW: 66.1
BP: 426°F
Sol: 13%
Fl.P(oc): 266°F
IP: 12.88 eV
Sp.Gr: 1.19
VP: ?
MLT: 90°F
UEL: ?
LEL: ?
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
80 mg/m^3: Sa
200 mg/m^3: Sa:Cf
400 mg/m^3: ScbaF/SaF
667 mg/m^3: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong bases [**Note:** May polymerize violently on prolonged heating at 265°F, or in contact with strong bases at lower temperatures.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, nose, throat; head, dizz, lass, conf, convuls; dysp; abdom pain, nau, vomit
TO: Eyes, skin, resp sys, CNS, CVS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water wash immed
Breath: Resp support
Swallow: Medical attention immed

Manganese compounds and fume (as Mn)

Formula: Mn (metal)
CAS#: 7439-96-5 (metal)
RTECS#: OO9275000 (metal)
IDLH: 500 mg/m^3 (as Mn)

Conversion:
DOT:

Synonyms/Trade Names: **Manganese metal:** Colloidal manganese, Manganese-55
Synonyms of other compounds vary depending upon the specific manganese compound.

Exposure Limits:
NIOSH REL*: TWA 1 mg/m^3
ST 3 mg/m^3
[***Note:** Also see specific listings for Manganese cyclopentadienyl tricarbonyl, Methyl cyclopentadienyl manganese tricarbonyl, and Manganese tetroxide.]
OSHA PEL*: C 5 mg/m^3
[***Note:** Also see specific listings for Manganese cyclopentadienyl tricarbonyl and Methyl cyclopentadienyl manganese tricarbonyl.]

Measurement Methods (see Table 1):
NIOSH 7300, 7301, 7303, 9102
OSHA ID121, ID125G

Physical Description: A lustrous, brittle, silvery solid.

Chemical & Physical Properties:
MW: 54.9
BP: 3564°F
Sol: Insoluble
Fl.P: NA
IP: NA
Sp.Gr: 7.20 (metal)
VP: 0 mmHg (approx)
MLT: 2271°F
UEL: NA
LEL: NA
Metal: Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
10 mg/m^3: 95XQ/Sa
25 mg/m^3: Sa:Cf/PaprHie
50 mg/m^3: 100F/SaT:Cf/PaprTHie/ ScbaF/SaF
500 mg/m^3: Sa:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Oxidizers
[**Note:** Will react with water or steam to produce hydrogen.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing
SY: Parkinson's; asthenia, insom, mental conf; metal fume fever: dry throat, cough, chest tight, dysp, rales, flu-like fever; low-back pain; vomit; mal; lass; kidney damage
TO: Resp sys, CNS, blood, kidneys

First Aid (see Table 6):
Breath: Resp support
Swallow: Medical attention immed

M

Manganese cyclopentadienyl tricarbonyl (as Mn)

Formula: $C_5H_5Mn(CO)_3$
CAS#: 12079-65-1
RTECS#: OO9720000
IDLH: N.D.

Conversion:
DOT:

Synonyms/Trade Names: Cyclopentadienylmanganese tricarbonyl, Cyclopentadienyl tricarbonyl manganese, MCT

Exposure Limits:
NIOSH REL: TWA 0.1 mg/m^3 [skin]
OSHA PEL†: C 5 mg/m^3

Measurement Methods (see Table 1):
None available

Physical Description: Yellow, crystalline solid with a characteristic odor.
[**Note:** An antiknock additive for gasoline. May be found in an oil & gaseous solution.]

Chemical & Physical Properties:
MW: 204.1
BP: Sublimes
Sol: Slight
Fl.P: ?
IP: ?
Sp.Gr: ?
VP: ?
MLT: 167°F (Sublimes)
UEL: ?
LEL: ?
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Oxygen

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: In animals: irrit skin; pulm edema; convuls; CNS, resp sys, kidney changes; decr resistance to infection
TO: Skin, resp sys, CNS, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Resp support
Swallow: Medical attention immed

Manganese tetroxide (as Mn)	Formula: Mn_3O_4	CAS#: 1317-35-7	RTECS#: OP0895000	IDLH: N.D.
Conversion:	DOT:			

Synonyms/Trade Names: Manganese oxide, Manganomanganic oxide, Trimanganese tetraoxide, Trimanganese tetroxide

Exposure Limits:
NIOSH REL: See Appendix D
OSHA PEL†: C 5 mg/m^3

Physical Description: Brownish-black powder.
[**Note:** Fumes are generated whenever manganese oxides are heated strongly in air.]

Measurement Methods (see Table 1):
NIOSH 7300, 7301, 7303, 9102
OSHA ID121, ID125G

Chemical & Physical Properties:
MW: 228.8
BP: ?
Sol: Insoluble
Fl.P: NA
IP: NA
Sp.Gr: 4.88
VP: 0 mmHg (approx)
MLT: 2847°F
UEL: NA
LEL: NA

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Soluble in hydrochloric acid (liberates chlorine gas)

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Asthenia, insom, mental conf; low-back pain; vomit; mal, lass; kidney damage; pneu
TO: Resp sys, CNS, blood, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Resp support
Swallow: Medical attention immed

M

Marble	Formula: $CaCO_3$	CAS#: 1317-65-3	RTECS#: EV9580000	IDLH: N.D.
Conversion:	DOT:			

Synonyms/Trade Names: Calcium carbonate, Natural calcium carbonate
[**Note:** Marble is a metamorphic form of calcium carbonate.]

Exposure Limits:
NIOSH REL: TWA 10 mg/m^3 (total)
TWA 5 mg/m^3 (resp)
OSHA PEL: TWA 15 mg/m^3 (total)
TWA 5 mg/m^3 (resp)

Physical Description: Odorless, white powder.

Measurement Methods (see Table 1):
NIOSH 0500, 0600

Chemical & Physical Properties:
MW: 100.1
BP: Decomposes
Sol: 0.001%
Fl.P: NA
IP: NA
Sp.Gr: 2.7-2.9
VP: 0 mmHg (approx)
MLT: 1517-2442°F (Decomposes)
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Fluorine, magnesium, acids, alum, ammonium salts

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Irrit eyes, skin, muc memb, upper resp sys; cough, sneez, rhin; lac
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Fresh air

Mercury compounds [except (organo) alkyls] (as Hg)	Formula: Hg (metal)	CAS#: 7439-97-6 (metal)	RTECS#: OV4550000 (metal)	IDLH: 10 mg/m^3 (as Hg)
Conversion:	DOT: 2809 172 (metal)			

Synonyms/Trade Names: **Mercury metal:** Colloidal mercury, Metallic mercury, Quicksilver
Synonyms of "other" Hg compounds vary depending upon the specific compound.

Exposure Limits:
NIOSH REL: Hg Vapor: TWA 0.05 mg/m^3 [skin]
Other: C 0.1 mg/m^3 [skin]
OSHA PEL†: C 0.1 mg/m^3

Measurement Methods (see Table 1):
NIOSH 6009 **OSHA** ID140

Physical Description: Metal: Silver-white, heavy, odorless liquid.
[**Note:** "Other" Hg compounds include all inorganic & aryl Hg compounds except (organo) alkyls.]

Chemical & Physical Properties:
MW: 200.6
BP: 674°F
Sol: Insoluble
Fl.P: NA
IP: ?
Sp.Gr: 13.6 (metal)
VP: 0.0012 mmHg
FRZ: -38°F
UEL: NA
LEL: NA
Metal: Noncombustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: N.R.
Wash skin: When contam
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
Mercury vapor:
NIOSH
0.5 mg/m^3: CcrS†/Sa
1.25 mg/m^3: Sa:Cf/PaprS†(canister)
2.5 mg/m^3: CcrFS†/GmFS†/SaT:Cf/PaprTS(canister)/ScbaF/SaF
10 mg/m^3: Sa:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS/ScbaE

Other mercury compounds:
NIOSH/OSHA
1 mg/m^3: CcrS†/Sa
2.5 mg/m^3: Sa:Cf/PaprS†(canister)
5 mg/m^3: CcrFS†/GmFS†/SaT:Cf/PaprTS(canister)/ScbaF/SaF
10 mg/m^3: Sa:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS/ScbaE

Incompatibilities and Reactivities: Acetylene, ammonia, chlorine dioxide, azides, calcium (amalgam formation), sodium carbide, lithium, rubidium, copper

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin; cough, chest pain, dysp, bron, pneu; tremor, insom, irrity, indecision, head, lass; stomatitis, salv; GI dist, anor, low-wgt; prot
TO: Eyes, skin, resp sys, CNS, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

Mercury (organo) alkyl compounds (as Hg)	Formula:	CAS#:	RTECS#:	IDLH: 2 mg/m^3 (as Hg)
Conversion:	DOT:			

Synonyms/Trade Names: Synonyms vary depending upon the specific (organo) alkyl mercury compound.

Exposure Limits:
NIOSH REL: TWA 0.01 mg/m^3
ST 0.03 mg/m^3 [skin]
OSHA PEL†: TWA 0.01 mg/m^3
C 0.04 mg/m^3

Measurement Methods (see Table 1):
None available

Physical Description: Appearance and odor vary depending upon the specific (organo) alkyl mercury compound.

Chemical & Physical Properties:
Properties vary depending upon the specific (organo) alkyl mercury compound.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
0.1 mg/m^3: Sa
0.25 mg/m^3: Sa:Cf
0.5 mg/m^3: SaT:Cf/ScbaF/SaF
2 mg/m^3: Sa:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: ScbaE

Incompatibilities and Reactivities: Strong oxidizers such as chlorine

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Pares; ataxia, dysarthria; vision, hearing dist; spasticity, jerking limbs; dizz; salv; lac; nau, vomit, diarr, constip; skin burns; emotional dist; kidney inj; possible terato effects
TO: Eyes, skin, CNS, PNS, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

M

Mesityl oxide

Formula: $(CH_3)_2C{=}CHCOCH_3$ | **CAS#:** 141-79-7 | **RTECS#:** SB4200000 | **IDLH:** 1400 ppm [10%LEL]

Conversion: 1 ppm = 4.02 mg/m^3 | **DOT:** 1229 129

Synonyms/Trade Names: Isobutenyl methyl ketone, Isopropylideneacetone, Methyl isobutenyl ketone, 4-Methyl-3-penten-2-one

Exposure Limits:
NIOSH REL: TWA 10 ppm (40 mg/m^3)
OSHA PEL†: TWA 25 ppm (100 mg/m^3)

Physical Description: Oily, colorless to light-yellow liquid with a peppermint- or honey-like odor.

Measurement Methods (see Table 1):
NIOSH 1301, 2553
OSHA 7

Chemical & Physical Properties:
MW: 98.2
BP: 266°F
Sol: 3%
Fl.P: 87°F
IP: 9.08 eV
Sp.Gr(59°F): 0.86
VP: 9 mmHg
FRZ: -52°F
UEL: 7.2%
LEL: 1.4%
Class IC Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.
Provide: Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
250 ppm: Sa:Cf£/PaprOv£
500 ppm: CcrFOv/GmFOv/PaprTOv£/ ScbaF/SaF
1400 ppm: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Oxidizers, acids

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, muc memb; narco, coma; in animals: liver, kidney damage; CNS effects
TO: Eyes, skin, resp sys, CNS, liver, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

M

Methacrylic acid

Formula: $CH_2{=}C(CH_3)COOH$ | **CAS#:** 79-41-4 | **RTECS#:** OZ2975000 | **IDLH:** N.D.

Conversion: 1 ppm = 3.52 mg/m^3 | **DOT:** 2531 153P (inhibited)

Synonyms/Trade Names: Methacrylic acid (glacial), Methacrylic acid (inhibited), α-Methacrylic acid, 2-Methylacrylic acid, 2-Methylpropenoic acid

Exposure Limits:
NIOSH REL: TWA 20 ppm (70 mg/m^3) [skin]
OSHA PEL†: none

Physical Description: Colorless liquid or solid (below 61°F) with an acrid, repulsive odor.

Measurement Methods (see Table 1):
OSHA PV2005

Chemical & Physical Properties:
MW: 86.1
BP: 325°F
Sol(77°F): 9%
Fl.P(oc): 171°F
IP: ?
Sp.Gr: 1.02 (Liquid)
VP: 0.7 mmHg
FRZ: 61°F
UEL: ?
LEL: ?
Class IIIA Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Oxidizers, elevated temperatures, hydrochloric acid
[**Note:** Typically contains 100 ppm of the monomethyl ether of hydroquinone to prevent polymerization.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, muc memb; eye, skin burns
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

Methomyl

Formula: $CH_3C(SCH_3)NOC(O)NHCH_3$ | **CAS#:** 16752-77-5 | **RTECS#:** AK2975000 | **IDLH:** N.D.

Conversion: | **DOT:** 2757 151 (carbamate pesticide, solid, toxic)

Synonyms/Trade Names: Lannate®, Methyl N-((methylamino)carbonyl)oxy)ethanimidothioate, S-Methyl-N-(methylcarbamoyloxy)thioacetimidate

Exposure Limits:
NIOSH REL: TWA 2.5 mg/m^3
OSHA PEL†: none

Physical Description: White, crystalline solid with a slight, sulfur-like odor. [insecticide]

Measurement Methods (see Table 1):
NIOSH 5601

Chemical & Physical Properties:
MW: 162.2
BP: ?
Sol(77°F): 6%
Fl.P: NA
IP: ?
Sp.Gr(75°F): 1.29
VP(77°F): 0.00005 mmHg
MLT: 172°F
UEL: NA
LEL: NA
Noncombustible Solid, but may be dissolved in flammable liquids.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Strong bases

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes; blurred vision, miosis; salv; abdom cramps, nau, vomit; dysp; lass, musc twitch; liver, kidney damage
TO: Eyes, resp sys, CNS, CVS, liver, kidneys, blood chol

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

M

Methoxychlor

Formula: $(C_6H_4OCH_3)_2CHCCl_3$ | **CAS#:** 72-43-5 | **RTECS#:** KJ3675000 | **IDLH:** Ca [5000 mg/m^3]

Conversion: | **DOT:** 2761 151 (organochlorine pesticide, solid, toxic)

Synonyms/Trade Names: p,p'-Dimethoxydiphenyltrichloroethane; DMDT; Methoxy-DDT; 2,2-bis(p-Methoxyphenyl)-1,1,1-trichloroethane; 1,1,1-Trichloro-2,2-bis-(p-methoxyphenyl)ethane

Exposure Limits:
NIOSH REL: Ca
See Appendix A
OSHA PEL†: TWA 15 mg/m^3

Physical Description: Colorless to light-yellow crystals with a slight, fruity odor. [insecticide]

Measurement Methods (see Table 1):
NIOSH S371 (II-4)
OSHA PV2038

Chemical & Physical Properties:
MW: 345.7
BP: Decomposes
Sol: 0.00001%
Fl.P: ?
IP: ?
Sp.Gr: 1.41
VP: Very low
MLT: 171°F
UEL: ?
LEL: ?
Combustible Solid, but difficult to burn.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: N.R.
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing
SY: In animals: fasc, trembling, convuls; kidney, liver damage; [carc]
TO: CNS, liver, kidneys [in animals: liver & ovarian cancer]

First Aid (see Table 6):
Skin: Soap wash
Breath: Fresh air
Swallow: Medical attention immed

Methoxyflurane	**Formula:** $CHCl_2CF_2OCH_3$	**CAS#:** 76-38-0	**RTECS#:** KN7820000	**IDLH:** N.D.
Conversion: 1 ppm = 6.75 mg/m^3	**DOT:**			

Synonyms/Trade Names: 2,2-Dichloro-1,1-difluoroethyl methyl ether; 2,2-Dichloro-1,1-difluoro-1-methoxyethane; Methoflurane; Methoxyfluorane; Penthrane

Exposure Limits:
NIOSH REL*: C 2 ppm (13.5 mg/m^3) [60-minute]
[***Note:** REL for exposure to waste anesthetic gas.]
OSHA PEL: none

Measurement Methods (see Table 1):
None available

Physical Description: Colorless liquid with a fruity odor. [inhalation anesthetic]

Chemical & Physical Properties:
MW: 165.0
BP: 220°F
Sol: Slight
Fl.P: ?
IP: ?
Sp.Gr(77°F): 1.42
VP: 23 mmHg
FRZ: -31°F
UEL: ?
LEL(176°F): 7%
Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: Prevent eye contact
Wash skin: N.R.
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: None reported

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes; CNS depres, analgesia, anes, convuls, resp depres; liver, kidney inj; in animals: repro, terato effects
TO: Eyes, CNS, liver, kidneys, repro sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Resp support
Swallow: Medical attention immed

M

4-Methoxyphenol	**Formula:** $CH_3OC_6H_4OH$	**CAS#:** 150-76-5	**RTECS#:** SL7700000	**IDLH:** N.D.
Conversion:	**DOT:**			

Synonyms/Trade Names: Hydroquinone monomethyl ether, p-Hydroxyanisole, Mequinol, p-Methoxyphenol, Monomethyl ether hydroquinone

Exposure Limits:
NIOSH REL: TWA 5 mg/m^3
OSHA PEL†: none

Measurement Methods (see Table 1):
None available

Physical Description: Colorless to white, waxy solid with an odor of caramel & phenol.

Chemical & Physical Properties:
MW: 124.2
BP: 469°F
Sol(77°F): 4%
Fl.P(oc): 270°F
IP: 7.50 eV
Sp.Gr: 1.55
VP: <0.01 mmHg
MLT: 135°F
UEL: ?
LEL: ?
Combustible Solid; under certain conditions, a dust cloud can probably explode if ignited by a spark or flame.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Strong oxidizers, strong bases, acid chlorides, acid anhydrides

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, nose, throat, upper resp sys; eye, skin burns; CNS depres
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap flush immed
Breath: Resp support
Swallow: Medical attention immed

Methyl acetate

Formula:	CAS#:	RTECS#:	IDLH:
CH_3COOCH_3	79-20-9	AI9100000	3100 ppm [10%LEL]

Conversion: 1 ppm = 3.03 mg/m^3 **DOT:** 1231 129

Synonyms/Trade Names: Methyl ester of acetic acid, Methyl ethanoate

Exposure Limits:
NIOSH REL: TWA 200 ppm (610 mg/m^3)
ST 250 ppm (760 mg/m^3)
OSHA PEL†: TWA 200 ppm (610 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1458
OSHA 7

Physical Description: Colorless liquid with a fragrant, fruity odor.

Chemical & Physical Properties:
MW: 74.1
BP: 135°F
Sol: 25%
Fl.P: 14°F
IP: 10.27 eV
Sp.Gr: 0.93
VP: 173 mmHg
FRZ: -145°F
UEL: 16%
LEL: 3.1%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
2000 ppm: CcrOv*/Sa*
3100 ppm: Sa:Cf*/CcrFOv/GmFOv/PaprOv*/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Nitrates; strong oxidizers, alkalis & acids; water
[**Note:** Reacts slowly with water to form acetic acid & methanol.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose, throat; head, drow; optic nerve atrophy; chest tight; in animals: narco
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush prompt
Breath: Resp support
Swallow: Medical attention immed

M

Methyl acetylene

Formula:	CAS#:	RTECS#:	IDLH:
$CH_3C{\equiv}CH$	74-99-7	UK4250000	1700 ppm [10%LEL]

Conversion: 1 ppm = 1.64 mg/m^3 **DOT:**

Synonyms/Trade Names: Allylene, Propine, Propyne, 1-Propyne

Exposure Limits:
NIOSH REL: TWA 1000 ppm (1650 mg/m^3)
OSHA PEL: TWA 1000 ppm (1650 mg/m^3)

Measurement Methods (see Table 1):
NIOSH S84 (II-5)

Physical Description: Colorless gas with a sweet odor.
[**Note:** A fuel that is shipped as a liquefied compressed gas.]

Chemical & Physical Properties:
MW: 40.1
BP: -10°F
Sol: Insoluble
Fl.P: NA (Gas)
IP: 10.36 eV
RGasD: 1.41
VP: 5.2 atm
FRZ: -153°F
UEL: ?
LEL: 1.7%
Flammable Gas

Personal Protection/Sanitation (see Table 2):
Skin: Frostbite
Eyes: Frostbite
Wash skin: N.R.
Remove: When wet (flamm)
Change: N.R.
Provide: Frostbite wash

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
1700 ppm: Sa/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers (such as chlorine), copper alloys
[**Note:** Can decompose explosively at 4.5 to 5.6 atmospheres of pressure.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con (liquid)
SY: Irrit resp sys; tremor, hyperexcitability, anes; liquid: frostbite
TO: Resp sys, CNS

First Aid (see Table 6):
Eye: Frostbite
Skin: Frostbite
Breath: Resp support

Methyl acetylene-propadiene mixture

Formula: $CH_3{\equiv}CH/CH_2{=}C{=}CH_2$ | **CAS#:** 59355-75-8 | **RTECS#:** UK4920000 | **IDLH:** 3400 ppm [10%LEL]

Conversion: 1 ppm = 1.64 mg/m^3 | **DOT:** 1060 116P (stabilized)

Synonyms/Trade Names: MAPP gas, Methyl acetylene-allene mixture, Propadiene-methyl acetylene, Methyl acetylene-propadiene mixture (stabilized), Propyne-allene mixture, Propyne-propadiene mixture

Exposure Limits:
NIOSH REL: TWA 1000 ppm (1800 mg/m^3)
ST 1250 ppm (2250 mg/m^3)
OSHA PEL†: TWA 1000 ppm (1800 mg/m^3)

Physical Description: Colorless gas with a strong, characteristic, foul odor.
[**Note:** A fuel that is shipped as a liquefied compressed gas.]

Measurement Methods (see Table 1):
NIOSH S85 (II-6)
OSHA 7

Chemical & Physical Properties:
MW: 40.1
BP: -36 to -4°F
Sol: Insoluble
Fl.P: NA (Gas)
IP: ?
RGasD: 1.48
VP: >1 atm
FRZ: -213°F
UEL: 10.8%
LEL: 3.4%
Flammable Gas

Personal Protection/Sanitation (see Table 2):
Skin: Frostbite
Eyes: Frostbite
Wash skin: N.R.
Remove: When wet (flamm)
Change: N.R.
Provide: Frostbite wash

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
3400 ppm: Sa/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, copper alloys
[**Note:** Forms explosive compounds at high pressure in contact with alloys containing more than 67% copper.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con (liquid)
SY: Irrit resp sys; excitement, conf, anes; liquid: frostbite
TO: Resp sys, CNS

First Aid (see Table 6):
Eye: Frostbite
Skin: Frostbite
Breath: Resp support

M

Methyl acrylate

Formula: $CH_2{=}CHCOOCH_3$ | **CAS#:** 96-33-3 | **RTECS#:** AT2800000 | **IDLH:** 250 ppm

Conversion: 1 ppm = 3.52 mg/m^3 | **DOT:** 1919 129P (inhibited)

Synonyms/Trade Names: Methoxycarbonylethylene, Methyl ester of acrylic acid, Methyl propenoate

Exposure Limits:
NIOSH REL: TWA 10 ppm (35 mg/m^3) [skin]
OSHA PEL: TWA 10 ppm (35 mg/m^3) [skin]

Physical Description: Colorless liquid with an acrid odor.

Measurement Methods (see Table 1):
NIOSH 1459, 2552
OSHA 92

Chemical & Physical Properties:
MW: 86.1
BP: 176°F
Sol: 6%
Fl.P: 27°F
IP: 9.90 eV
Sp.Gr: 0.96
VP: 65 mmHg
FRZ: -106°F
UEL: 25%
LEL: 2.8%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.
Provide: Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
100 ppm: Sa*
250 ppm: Sa:Cf*/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Nitrates, oxidizers such as peroxides, strong alkalis
[**Note:** Polymerizes easily; usually contains an inhibitor such as hydroquinone.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, upper resp sys
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

Methylacrylonitrile	Formula: $CH_2=C(CH_3)CN$	CAS#: 126-98-7	RTECS#: UD1400000	IDLH: N.D.
Conversion: 1 ppm = 2.74 mg/m^3	**DOT:** 3079 131P (inhibited)			

Synonyms/Trade Names: 2-Cyanopropene-1, 2-Cyano-1-propene, Isoprene cyanide, Isopropenylnitrile, Methacrylonitrile, α-Methylacrylonitrile, 2-Methylpropenenitrile

Exposure Limits:
NIOSH REL: TWA 1 ppm (3 mg/m^3) [skin]
OSHA PEL†: none

Measurement Methods (see Table 1):
None available

Physical Description: Colorless liquid with an odor like bitter almonds.

Chemical & Physical Properties:
MW: 67.1
BP: 195°F
Sol: 3%
Fl.P: 34°F
IP: ?
Sp.Gr: 0.80
VP(77°F): 71 mmHg
FRZ: -32°F
UEL: 6.8%
LEL: 2%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Strong acids, strong oxidizers, alkali, light
[**Note:** Polymerization may occur due to elevated temperature, visible light, or contact with a concentrated alkali.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin; lac; in animals: convuls, loss of motor control in hind limbs
TO: Eyes, skin, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

M

Methylal	Formula: $CH_3OCH_2OCH_3$	CAS#: 109-87-5	RTECS#: PA8750000	IDLH: 2200 ppm [10%LEL]
Conversion: 1 ppm = 3.11 mg/m^3	**DOT:** 1234 127			

Synonyms/Trade Names: Dimethoxymethane, Formal, Formaldehyde dimethylacetal, Methoxymethyl methyl ether, Methylene dimethyl ether

Exposure Limits:
NIOSH REL: TWA 1000 ppm (3100 mg/m^3)
OSHA PEL: TWA 1000 ppm (3100 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1611

Physical Description: Colorless liquid with a chloroform-like odor.

Chemical & Physical Properties:
MW: 76.1
BP: 111°F
Sol: 33%
Fl.P(oc): -26°F
IP: 10.00 eV
Sp.Gr: 0.86
VP: 330 mmHg
FRZ: -157°F
UEL: 13.8%
LEL: 2.2%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
2200 ppm: Sa/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, acids

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, upper resp sys; anes
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush prompt
Breath: Resp support
Swallow: Medical attention immed

Methyl alcohol	**Formula:** CH_3OH	**CAS#:** 67-56-1	**RTECS#:** PC1400000	**IDLH:** 6000 ppm
Conversion: 1 ppm = 1.31 mg/m^3	**DOT:** 1230 131			

Synonyms/Trade Names: Carbinol, Columbian spirits, Methanol, Pyroligneous spirit, Wood alcohol, Wood naphtha, Wood spirit

Exposure Limits:
NIOSH REL: TWA 200 ppm (260 mg/m^3)
ST 250 ppm (325 mg/m^3) [skin]
OSHA PEL†: TWA 200 ppm (260 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 2000, 3800
OSHA 91

Physical Description: Colorless liquid with a characteristic pungent odor.

Chemical & Physical Properties:
MW: 32.1
BP: 147°F
Sol: Miscible
Fl.P: 52°F
IP: 10.84 eV
Sp.Gr: 0.79
VP: 96 mmHg
FRZ: -144°F
UEL: 36%
LEL: 6.0%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
2000 ppm: Sa
5000 ppm: Sa:Cf
6000 ppm: SaT:Cf/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: ScbaE

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, upper resp sys; head, drow, dizz, nau, vomit; vis dist, optic nerve damage (blindness); derm
TO: Eyes, skin, resp sys, CNS, GI tract

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush prompt
Breath: Resp support
Swallow: Medical attention immed

M

Methylamine	**Formula:** CH_3NH_2	**CAS#:** 74-89-5	**RTECS#:** PF6300000	**IDLH:** 100 ppm
Conversion: 1 ppm = 1.27 mg/m^3	**DOT:** 1061 118 (anhydrous); 1235 132 (aqueous)			

Synonyms/Trade Names: Aminomethane, Methylamine (anhydrous), Methylamine (aqueous), Monomethylamine

Exposure Limits:
NIOSH REL: TWA 10 ppm (12 mg/m^3)
OSHA PEL: TWA 10 ppm (12 mg/m^3)

Measurement Methods (see Table 1):
OSHA 40

Physical Description: Colorless gas with a fish- or ammonia-like odor.
[**Note:** A liquid below 21°F. Shipped as a liquefied compressed gas.]

Chemical & Physical Properties:
MW: 31.1
BP: 21°F
Sol: Soluble
Fl.P: NA (Gas)
14°F (Liquid)
IP: 8.97 eV
RGasD: 1.08
Sp.Gr: 0.70 (Liquid at 13°F)
VP: 3.0 atm
FRZ: -136°F
UEL: 20.7%
LEL: 4.9%
Flammable Gas

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact (solution)
Frostbite
Eyes: Prevent eye contact (solution)
Frostbite
Wash skin: When contam (solution)
Remove: When wet (flamm)
Change: N.R.
Provide: Frostbite wash

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
100 ppm: CcrFS/GmFS/PaprS£/
ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS/ScbaE

Incompatibilities and Reactivities: Mercury, strong oxidizers, nitromethane
[**Note:** Corrosive to copper & zinc alloys, aluminum & galvanized surfaces.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs (solution), Ing (solution), Con (solution/liquid)
SY: Irrit eyes, skin, resp sys; cough; skin, muc memb burns; derm; conj; liquid: frostbite
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed (solution)/Frostbite
Skin: Water flush immed (solution)/Frostbite
Breath: Resp support
Swallow: Medical attention immed (solution)

Methyl (n-amyl) ketone

Formula: $CH_3CO[CH_2]_4CH_3$
CAS#: 110-43-0
RTECS#: MJ5075000
IDLH: 800 ppm

Conversion: 1 ppm = 4.67 mg/m^3
DOT: 1110 127

Synonyms/Trade Names: Amyl methyl ketone, n-Amyl methyl ketone, 2-Heptanone

Exposure Limits:
NIOSH REL: TWA 100 ppm (465 mg/m^3)
OSHA PEL: TWA 100 ppm (465 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1301, 2553

Physical Description: Colorless to white liquid with a banana-like, fruity odor.

Chemical & Physical Properties:
MW: 114.2
BP: 305°F
Sol: 0.4%
Fl.P: 102°F
IP: 9.33 eV
Sp.Gr: 0.81
VP: 3 mmHg
FRZ: -32°F
UEL(250°F): 7.9%
LEL(151°F): 1.1%
Class II Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
800 ppm: CcrOv*/PaprOv*/GmFOv/Sa*/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong acids, alkalis & oxidizers [**Note:** Will attack some forms of plastic.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, muc memb; head; narco, coma; derm
TO: Eyes, skin, resp sys, CNS, PNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Fresh air
Swallow: Medical attention immed

M

Methyl bromide

Formula: CH_3Br
CAS#: 74-83-9
RTECS#: PA4900000
IDLH: Ca [250 ppm]

Conversion: 1 ppm = 3.89 mg/m^3
DOT: 1062 123

Synonyms/Trade Names: Bromomethane, Monobromomethane

Exposure Limits:
NIOSH REL: Ca
See Appendix A
OSHA PEL†: C 20 ppm (80 mg/m^3) [skin]

Measurement Methods (see Table 1):
NIOSH 2520
OSHA PV2040

Physical Description: Colorless gas with a chloroform-like odor at high concentrations. [**Note:** A liquid below 38°F. Shipped as a liquefied compressed gas.]

Chemical & Physical Properties:
MW: 95.0
BP: 38°F
Sol: 2%
Fl.P: NA (Gas)
IP: 10.54 eV
RGasD: 3.36
Sp.Gr: 1.73 (Liquid at 32°F)
VP: 1.9 atm
FRZ: -137°F
UEL: 16.0%
LEL: 10%
Flammable Gas, but only in presence of a high energy ignition source.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact (liquid)
Eyes: Prevent eye contact (liquid)
Wash skin: When contam (liquid)
Remove: When wet (flamm)
Change: N.R.
Provide: Quick drench (liquid)

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Aluminum, magnesium, strong oxidizers [**Note:** Attacks aluminum to form aluminum trimethyl, which is SPONTANEOUSLY flammable.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs (liquid), Con (liquid)
SY: Irrit eyes, skin, resp sys; musc weak, inco, vis dist, dizz; nau, vomit, head; mal; hand tremor; convuls; dysp; skin vesic; liquid: frostbite; [carc]
TO: Eyes, skin, resp sys, CNS [in animals: lung, kidney & forestomach tumors]

First Aid (see Table 6):
Eye: Irr immed (liquid)
Skin: Water flush immed (liquid)
Breath: Resp support

Methyl Cellosolve®	**Formula:** $CH_3OCH_2CH_2OH$	**CAS#:** 109-86-4	**RTECS#:** KL5775000	**IDLH:** 200 ppm
Conversion: 1 ppm = 3.11 mg/m^3	**DOT:** 1188 127			

Synonyms/Trade Names: EGME, Ethylene glycol monomethyl ether, Glycol monomethyl ether, 2-Methoxyethanol

Exposure Limits:
NIOSH REL: TWA 0.1 ppm (0.3 mg/m^3) [skin]
OSHA PEL: TWA 25 ppm (80 mg/m^3) [skin]

Physical Description: Colorless liquid with a mild, ether-like odor.

Measurement Methods (see Table 1):
NIOSH 1403
OSHA 53, 79

Chemical & Physical Properties:
MW: 76.1
BP: 256°F
Sol: Miscible
Fl.P: 102°F
IP: 9.60 eV
Sp.Gr: 0.96
VP: 6 mmHg
FRZ: -121°F
UEL: 14%
LEL: 1.8%
Class II Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
1 ppm: Sa*
2.5 ppm: Sa:Cf*
5 ppm: ScbaF/SaF
100 ppm: Sa:Pd,Pp*
200 ppm: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, caustics

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, nose, throat; head, drow, lass; ataxia, tremor; anemic pallor; in animals: repro, terato effects
TO: Eyes, resp sys, CNS, blood, kidneys, repro sys, hemato sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush prompt
Breath: Resp support
Swallow: Medical attention immed

M

Methyl Cellosolve® acetate	**Formula:** $CH_3COOCH_2CH_2OCH_3$	**CAS#:** 110-49-6	**RTECS#:** KL5950000	**IDLH:** 200 ppm
Conversion: 1 ppm = 4.83 mg/m^3	**DOT:** 1189 129			

Synonyms/Trade Names: EGMEA, Ethylene glycol monomethyl ether acetate, Glycol monomethyl ether acetate, 2-Methoxyethyl acetate

Exposure Limits:
NIOSH REL: TWA 0.1 ppm (0.5 mg/m^3 [skin]
OSHA PEL: TWA 25 ppm (120 mg/m^3) [skin]

Physical Description: Colorless liquid with a mild, ether-like odor.

Measurement Methods (see Table 1):
NIOSH 1451
OSHA 53, 79

Chemical & Physical Properties:
MW: 118.1
BP: 293°F
Sol: Miscible
Fl.P: 120°F
IP: ?
Sp.Gr: 1.01
VP: 2 mmHg
FRZ: -85°F
UEL: 8.2%
LEL: 1.7%
Class II Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
1 ppm: Sa*
2.5 ppm: Sa:Cf*
5 ppm: ScbaF/SaF
100 ppm: Sa:Pd,Pp*
200 ppm: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Nitrates; strong oxidizers, alkalis & acids

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, nose, throat; kidney, brain damage; in animals: narco; repro, terato effects
TO: Eyes, resp sys, kidneys, brain, CNS, PNS, repro sys, hemato sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush prompt
Breath: Resp support
Swallow: Medical attention immed

Methyl chloride

Formula: CH_3Cl | **CAS#:** 74-87-3 | **RTECS#:** PA6300000 | **IDLH:** Ca [2000 ppm]

Conversion: 1 ppm = 2.07 mg/m^3 | **DOT:** 1063 115

Synonyms/Trade Names: Chloromethane, Monochloromethane

Exposure Limits:
NIOSH REL: Ca
See Appendix A
OSHA PEL†: TWA 100 ppm
C 200 ppm
300 ppm (5-minute maximum peak in any 3 hours)

Measurement Methods (see Table 1):
NIOSH 1001

Physical Description: Colorless gas with a faint, sweet odor which is not noticeable at dangerous concentrations. [**Note:** Shipped as a liquefied compressed gas.]

Chemical & Physical Properties:
MW: 50.5
BP: -12°F
Sol: 0.5%
Fl.P: NA (Gas)
IP: 11.28 eV
RGasD: 1.78
VP: 5.0 atm
FRZ: -144°F
UEL: 17.4%
LEL: 8.1%
Flammable Gas

Personal Protection/Sanitation (see Table 2):
Skin: Frostbite
Eyes: Frostbite
Wash skin: N.R.
Remove: When wet (flamm)
Change: N.R.
Provide: Frostbite wash

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: ScbaE

Incompatibilities and Reactivities: Chemically-active metals such as potassium, powdered aluminum, zinc, and magnesium; water [**Note:** Reacts with water (hydrolyzes) to form hydrochloric acid.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con (liquid)
SY: Dizz, nau, vomit; vis dist, stagger, slurred speech, convuls, coma; liver, kidney damage; liquid: frostbite; repro, terato effects; [carc]
TO: CNS, liver, kidneys, repro sys [in animals: lung, kidney & forestomach tumors]

First Aid (see Table 6):
Eye: Frostbite
Skin: Frostbite
Breath: Resp support

M

Methyl chloroform

Formula: CH_3CCl_3 | **CAS#:** 71-55-6 | **RTECS#:** KJ2975000 | **IDLH:** 700 ppm

Conversion: 1 ppm = 5.46 mg/m^3 | **DOT:** 2831 160

Synonyms/Trade Names: Chlorothene; 1,1,1-Trichloroethane; 1,1,1-Trichloroethane (stabilized)

Exposure Limits:
NIOSH REL: C 350 ppm (1900 mg/m^3) [15-minute]
See Appendix C (Chloroethanes)
OSHA PEL†: TWA 350 ppm (1900 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1003

Physical Description: Colorless liquid with a mild, chloroform-like odor.

Chemical & Physical Properties:
MW: 133.4
BP: 165°F
Sol: 0.4%
Fl.P: ?
IP: 11.00 eV
Sp.Gr: 1.34
VP: 100 mmHg
FRZ: -23°F
UEL: 12.5%
LEL: 7.5%
Combustible Liquid, but burns with difficulty.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
700 ppm: Sa*/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong caustics; strong oxidizers; chemically-active metals such as zinc, aluminum, magnesium powders, sodium & potassium; water
[**Note:** Reacts slowly with water to form hydrochloric acid.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin; head, lass, CNS depres, poor equi; derm; card arrhy; liver damage
TO: Eyes, skin, CNS, CVS, liver

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

Methyl-2-cyanoacrylate

Formula: $CH_2=C(CN)COOCH_3$ | **CAS#:** 137-05-3 | **RTECS#:** AS7000000 | **IDLH:** N.D.

Conversion: 1 ppm = 4.54 mg/m^3 | **DOT:**

Synonyms/Trade Names: Mecrylate, Methyl cyanoacrylate, Methyl α-cyanoacrylate, Methyl ester of 2-cyanoacrylic acid

Exposure Limits:
NIOSH REL: TWA 2 ppm (8 mg/m^3)
ST 4 ppm (16 mg/m^3)
OSHA PEL†: none

Physical Description: Colorless liquid with a characteristic odor.

Measurement Methods (see Table 1):
OSHA 55

Chemical & Physical Properties:
MW: 111.1
BP: ?
Sol: 30%
Fl.P: 174°F
IP: ?
Sp.Gr(81°F): 1.10
VP(77°F): 0.2 mmHg
FRZ: ?
UEL: ?
LEL: ?
Class IIIA Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: Daily
Remove: N.R.
Change: N.R.
Provide: Eyewash

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Moisture [**Note:** Contact with moisture causes rapid polymerization.]

M

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose; blurred vision, lac; rhinitis
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water wash
Breath: Resp support
Swallow: Medical attention immed

Methylcyclohexane

Formula: $CH_3C_6H_{11}$ | **CAS#:** 108-87-2 | **RTECS#:** GV6125000 | **IDLH:** 1200 ppm [LEL]

Conversion: 1 ppm = 4.02 mg/m^3 | **DOT:** 2296 128

Synonyms/Trade Names: Cyclohexylmethane, Hexahydrotoluene

Exposure Limits:
NIOSH REL: TWA 400 ppm (1600 mg/m^3)
OSHA PEL†: TWA 500 ppm (2000 mg/m^3)

Physical Description: Colorless liquid with a faint, benzene-like odor.

Measurement Methods (see Table 1):
NIOSH 1500
OSHA 7

Chemical & Physical Properties:
MW: 98.2
BP: 214°F
Sol: Insoluble
Fl.P: 25°F
IP: 9.85 eV
Sp.Gr: 0.77
VP: 37 mmHg
FRZ: -196°F
UEL: 6.7%
LEL: 1.2%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
1200 ppm: Sa/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose, throat; dizz, drow; in animals: narco
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

Methylcyclohexanol	Formula: $CH_3C_6H_{10}OH$	CAS#: 25639-42-3	RTECS#: GW0175000	IDLH: 500 ppm
Conversion: 1 ppm = 4.67 mg/m^3	**DOT:** 2617 129			
Synonyms/Trade Names: Hexahydrocresol, Hexahydromethylphenol				

Exposure Limits:
NIOSH REL: TWA 50 ppm (235 mg/m^3)
OSHA PEL†: TWA 100 ppm (470 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1404

Physical Description: Straw-colored liquid with a weak odor like coconut oil.

Chemical & Physical Properties:
MW: 114.2
BP: 311-356°F
Sol: 4%
Fl.P: 149-158°F
IP: 9.80 eV
Sp.Gr: 0.92
VP(86°F): 2 mmHg
FRZ: -58°F
UEL: ?
LEL: ?
Class IIIA Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
500 ppm: Sa*/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, upper resp sys; head; in animals: narco; liver, kidney damage
TO: Eyes, skin, resp sys, CNS, kidneys, liver

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

M

o-Methylcyclohexanone	Formula: $CH_3C_6H_9O$	CAS#: 583-60-8	RTECS#: GW1750000	IDLH: 600 ppm
Conversion: 1 ppm = 4.59 mg/m^3	**DOT:** 2297 128			
Synonyms/Trade Names: 2-Methylcyclohexanone				

Exposure Limits:
NIOSH REL: TWA 50 ppm (230 mg/m^3) [skin]
ST 75 ppm (345 mg/m^3)
OSHA PEL†: TWA 100 ppm (460 mg/m^3) [skin]

Measurement Methods (see Table 1):
NIOSH 2521

Physical Description: Colorless liquid with a weak, peppermint-like odor.

Chemical & Physical Properties:
MW: 112.2
BP: 325°F
Sol: Insoluble
Fl.P: 118°F
IP: ?
Sp.Gr: 0.93
VP: 1 mmHg
FRZ: 7°F
UEL: ?
LEL: ?
Class II Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
500 ppm: Sa*
600 ppm: Sa:Cf*/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: In animals: irrit eyes, muc memb; narco; derm
TO: Skin, resp sys, liver, kidneys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

Methyl cyclopentadienyl manganese tricarbonyl (as Mn)	Formula: $CH_3C_5H_4Mn(CO)_3$	CAS#: 12108-13-3	RTECS#: OP1450000	IDLH: N.D.
Conversion:	DOT:			

Synonyms/Trade Names: CI-2, Combustion Improver-2, Manganese tricarbonylmethylcyclopentadienyl, 2-Methylcyclopentadienyl manganese tricarbonyl, MMT

Exposure Limits:
NIOSH REL: TWA 0.2 mg/m^3 [skin]
OSHA PEL†: C 5 mg/m^3

Measurement Methods (see Table 1):
None available

Physical Description: Yellow to dark-orange liquid with a faint, pleasant odor. [**Note:** A solid below 36°F.]

Chemical & Physical Properties:
MW: 218.1
BP: 449°F
Sol: Insoluble
Fl.P: 230°F
IP: ?
Sp.Gr: 1.39
VP(212°F): 7 mmHg
FRZ: 36°F
UEL: ?
LEL: ?
Class IIIB Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Light (decomposes)

M

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes; dizz, nau, head; in animals: tremor, severe clonic spasms, lass, slow respiration; liver, kidney inj
TO: Eyes, CNS, liver, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Methyl demeton	Formula: $C_6H_{15}O_3PS_2$	CAS#: 8022-00-2	RTECS#: TG1760000	IDLH: N.D.
Conversion:	DOT:			

Synonyms/Trade Names: Demeton methyl; O,O-Dimethyl 2-ethylmercaptoethyl thiophosphate; Metasystox®; Methyl mercaptophos; Methyl systox®

Exposure Limits:
NIOSH REL: TWA 0.5 mg/m^3 [skin]
OSHA PEL†: none

Measurement Methods (see Table 1):
None available

Physical Description: Oily, colorless to pale-yellow liquid with an unpleasant odor. [insecticide] [**Note:** Technical grade consists of 2 isomers: thiono & thiolo.]

Chemical & Physical Properties:
MW: 230.3
BP: Decomposes
Sol: 0.03-0.3%
Fl.P: ?
IP: ?
Sp.Gr: 1.20
VP: 0.0004 mmHg
FRZ: ?
UEL: ?
LEL: ?
Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Strong oxidizers, alkalis, water

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin; ache eyes, rhin; nau, head, dizz, vomit
TO: Eyes, skin, resp sys, CNS, CVS, blood chol

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

4,4'-Methylenebis(2-chloroaniline)	Formula: $CH_2(C_6H_4ClNH_2)_2$	CAS#: 101-14-4	RTECS#: CY1050000	IDLH: Ca [N.D.]
Conversion:	DOT:			

Synonyms/Trade Names: DACPM; 3,3'-Dichloro-4,4'-diaminodiphenylmethane; MBOCA; 4,4'-Methylenebis(o-chloro aniline); 4,4'-Methylenebis(2-chlorobenzenamine); MOCA

Exposure Limits:
NIOSH REL: Ca
TWA 0.003 mg/m^3 [skin]
See Appendix A
OSHA PEL†: none

Measurement Methods (see Table 1):
OSHA 24, 71

Physical Description: Tan-colored pellets or flakes with a faint, amine-like odor.

Chemical & Physical Properties:
MW: 267.2
BP: ?
Sol: Slight
Fl.P: ?
IP: ?
Sp.Gr: 1.44
VP(77°F): 0.00001 mmHg
MLT: 230°F
UEL: ?
LEL: ?

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Chemically-active metals (e.g., potassium, sodium, magnesium, zinc)

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Hema, cyan, nau, methemo, kidney irrit; [carc]
TO: Liver, blood, kidneys [in animals: liver, lung & bladder tumors]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap flush immed
Breath: Resp support
Swallow: Medical attention immed

M

Methylene bis(4-cyclohexylisocyanate)	Formula: $CH_2[(C_6H_{10})NCO]_2$	CAS#: 5124-30-1	RTECS#: NQ9250000	IDLH: N.D.
Conversion: 1 ppm = 10.73 mg/m^3	DOT:			

Synonyms/Trade Names: Dicyclohexylmethane 4,4'-diisocyanate; DMDI; bis(4-Isocyanatocyclohexyl)methane; HMDI; Hydrogenated MDI; Reduced MDI; Saturated MDI

Exposure Limits:
NIOSH REL: C 0.01 ppm (0.11 mg/m^3)
OSHA PEL†: none

Measurement Methods (see Table 1):
NIOSH 5525
OSHA PV2092

Physical Description: Clear, colorless to light-yellow liquid.

Chemical & Physical Properties:
MW: 262.4
BP: ?
Sol: Reacts
Fl.P: >395°F
IP: ?
Sp.Gr(77°F): 1.07
VP(77°F): 0.001 mmHg
FRZ: <14°F
UEL: ?
LEL: ?
Class IIIB Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
0.1 ppm: Sa*
0.25 ppm: Sa:Cf*
0.5 ppm: ScbaF/SaF
1 ppm: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Water, ethanol, alcohols, amines, bases, acids, organotin catalysts
[**Note:** May slowly polymerize if heated above 122°F.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, resp sys; skin, resp sens; chest tight, dysp, cough, dry throat, wheez, pulm edema; skin blisters
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

Methylene bisphenyl isocyanate	Formula: $CH_2(C_6H_4NCO)_2$	CAS#: 101-68-8	RTECS#: NQ9350000	IDLH: 75 mg/m^3
Conversion: 1 ppm = 10.24 mg/m^3	**DOT:**			

Synonyms/Trade Names: 4,4'-Diphenylmethane diisocyanate; MDI; Methylene bis(4-phenyl isocyanate); Methylene di-p-phenylene ester of isocyanic acid

Exposure Limits:
NIOSH REL: TWA 0.05 mg/m^3 (0.005 ppm)
C 0.2 mg/m^3 (0.020 ppm) [10-minute]
OSHA PEL: C 0.2 mg/m^3 (0.02 ppm)

Measurement Methods (see Table 1):
NIOSH 5521, 5522, 5525
OSHA 18

Physical Description: White to light-yellow, odorless flakes. [**Note:** A liquid above 99°F.]

Chemical & Physical Properties:
MW: 250.3
BP: 597°F
Sol: 0.2%
Fl.P: 390°F
IP: ?
Sp.Gr: 1.23 (Solid at 77°F)
1.19 (Liquid at 122°F)
VP(77°F): 0.000005 mmHg
MLT: 99°F
UEL: ?
LEL: ?
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH
0.5 mg/m^3: Sa*
1.25 mg/m^3: Sa:Cf*
2.5 mg/m^3: ScbaF/SaF
75 mg/m^3: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Strong alkalis, acids, alcohol [**Note:** Polymerizes at 450°F.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, nose, throat; resp sens; cough, pulm secretions, chest pain, dysp; asthma
TO: Eyes, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

M

Methylene chloride	Formula: CH_2Cl_2	CAS#: 75-09-2	RTECS#: PA8050000	IDLH: Ca [2300 ppm]
Conversion: 1 ppm = 3.47 mg/m^3	**DOT:** 1593 160			

Synonyms/Trade Names: Dichloromethane, Methylene dichloride

Exposure Limits:
NIOSH REL: Ca
See Appendix A
OSHA PEL: [1910.1052] TWA 25 ppm
ST 125 ppm

Measurement Methods (see Table 1):
NIOSH 1005, 3800
OSHA 59, 80

Physical Description: Colorless liquid with a chloroform-like odor. [**Note:** A gas above 104°F.]

Chemical & Physical Properties:
MW: 84.9
BP: 104°F
Sol: 2%
Fl.P: ?
IP: 11.32 eV
Sp.Gr: 1.33
VP: 350 mmHg
FRZ: -139°F
UEL: 23%
LEL: 13%
Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

See Appendix E (page 351)

Incompatibilities and Reactivities: Strong oxidizers; caustics; chemically-active metals such as aluminum, magnesium powders, potassium & sodium; concentrated nitric acid

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin; lass, drow, dizz; numb, tingle limbs; nau; [carc]
TO: Eyes, skin, CVS, CNS [in animals: lung, liver, salivary & mammary gland tumors]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

4,4'-Methylenedianiline	Formula: $CH_2(C_6H_4NH_2)_2$	CAS#: 101-77-9	RTECS#: BY5425000	IDLH: Ca [N.D.]
Conversion:	DOT:			

Synonyms/Trade Names: 4,4'-Diaminodiphenylmethane; para, para'-Diaminodiphenyl-methane; Dianilinomethane; 4,4'-Diphenylmethanediamine; MDA

Exposure Limits:
NIOSH REL: Ca
See Appendix A
OSHA PEL: [1910.1050] TWA 0.010 ppm
ST 0.100 ppm

Measurement Methods (see Table 1):
NIOSH 5029

Physical Description: Pale-brown, crystalline solid with a faint, amine-like odor.

Chemical & Physical Properties:
MW: 198.3
BP: 748°F
Sol: 0.1%
Fl.P: 374°F
IP: 10.70 eV
Sp.Gr: 1.06 (Liquid at 212°F)
VP(77°F): 0.0000002 mmHg
MLT: 198°F
UEL: ?
LEL: ?
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

See Appendix E (page 351)

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes; jaun, hepatitis; myocardial damage; in animals: heart, liver, spleen damage; [carc]
TO: Eyes, liver, CVS, spleen [in animals: bladder cancer]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Methyl ethyl ketone peroxide	Formula: $C_8H_{16}O_4$	CAS#: 1338-23-4	RTECS#: EL9450000	IDLH: N.D.
Conversion: 1 ppm = 7.21 mg/m^3	DOT:			

Synonyms/Trade Names: 2-Butanone peroxide, Ethyl methyl ketone peroxide, MEKP, MEK peroxide, Methyl ethyl ketone hydroperoxide

Exposure Limits:
NIOSH REL: C 0.2 ppm (1.5 mg/m^3)
OSHA PEL†: none

Measurement Methods (see Table 1):
NIOSH 3508
OSHA 77

Physical Description: Colorless liquid with a characteristic odor.
[**Note:** Explosive decomposition occurs at 230°F.]

Chemical & Physical Properties:
MW: 176.2
BP: 244°F (Decomposes)
Sol: Soluble
Fl.P(oc): 125-200°F (60% MEKP)
IP: ?
Sp.Gr(59°F): 1.12
VP: ?
FRZ: ?
UEL: ?
LEL: ?
Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Organic materials, heat, flames, sunlight, trace contaminants
[**Note:** A strong oxidizing agent. Pure MEKP is shock sensitive. Commercial product is diluted with 40% dimethyl phthalate, cyclohexane peroxide, or diallyl phthalate to reduce sensitivity to shock.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose, throat; cough, dysp, pulm edema; blurred vision; blisters, scars skin; abdom pain, vomit, diarr; derm; in animals: liver, kidney damage
TO: Eyes, skin, resp sys, liver, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water wash immed
Breath: Resp support
Swallow: Medical attention immed

Methyl formate

Formula:	CAS#:	RTECS#:	IDLH:
$HCOOCH_3$	107-31-3	LQ8925000	4500 ppm

Conversion: 1 ppm = 2.46 mg/m^3 **DOT:** 1243 129

Synonyms/Trade Names: Methyl ester of formic acid, Methyl methanoate

Exposure Limits:
NIOSH REL: TWA 100 ppm (250 mg/m^3)
ST 150 ppm (375 mg/m^3)
OSHA PEL†: TWA 100 ppm (250 mg/m^3)

Physical Description: Colorless liquid with a pleasant odor.
[**Note:** A gas above 89°F.]

Measurement Methods (see Table 1):
NIOSH S291 (II-5)
OSHA PV2041

Chemical & Physical Properties:
MW: 60.1
BP: 89°F
Sol: 30%
Fl.P: -2°F
IP: 10.82 eV
Sp.Gr: 0.98
VP: 476 mmHg
FRZ: -148°F
UEL: 23%
LEL: 4.5%
Class IA Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
1000 ppm: Sa*
2500 ppm: Sa:Cf*
4500 ppm: ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers
[**Note:** Reacts slowly with water to form methanol & formic acid.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, nose; chest tight, dysp; vis dist; CNS depres; in animals: pulm edema; narco
TO: Eyes, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

M

5-Methyl-3-heptanone

Formula:	CAS#:	RTECS#:	IDLH:
$C_2H_5COCH_2CH(CH_3)CH_2CH_3$	541-85-5	MJ7350000	100 ppm

Conversion: 1 ppm = 5.24 mg/m^3 **DOT:** 2271 127

Synonyms/Trade Names: Amyl ethyl ketone, Ethyl amyl ketone, 3-Methyl-5-heptanone

Exposure Limits:
NIOSH REL: TWA 25 ppm (130 mg/m^3)
OSHA PEL: TWA 25 ppm (130 mg/m^3)

Physical Description: Colorless liquid with a pungent odor.

Measurement Methods (see Table 1):
NIOSH 1301, 2553

Chemical & Physical Properties:
MW: 128.2
BP: 315°F
Sol: Insoluble
Fl.P: 138°F
IP: ?
Sp.Gr: 0.82
VP: 2 mmHg
FRZ: -70°F
UEL: ?
LEL: ?
Class II Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
100 ppm: CcrOv*/PaprOv*/GmFOv/Sa*/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, muc memb; head; narco, coma; derm
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush
Breath: Resp support
Swallow: Medical attention immed

Methyl hydrazine

Formula:	CAS#:	RTECS#:	IDLH:
CH_3NHNH_2	60-34-4	MV5600000	Ca [20 ppm]

Conversion: 1 ppm = 1.89 mg/m^3 **DOT:** 1244 131

Synonyms/Trade Names: MMH, Monomethylhydrazine

Exposure Limits:
NIOSH REL: Ca
C 0.04 ppm (0.08 mg/m^3) [2-hr]
See Appendix A
OSHA PEL: C 0.2 ppm (0.35 mg/m^3) [skin]

Measurement Methods (see Table 1):
NIOSH 3510

Physical Description: Fuming, colorless liquid with an ammonia-like odor.

Chemical & Physical Properties:
MW: 46.1
BP: 190°F
Sol: Miscible
Fl.P: 17°F
IP: 8.00 eV
Sp.Gr(77°F): 0.87
VP: 38 mmHg
FRZ: -62°F
UEL: 92%
LEL: 2.5%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: ScbaE

Incompatibilities and Reactivities: Oxides of iron; copper; manganese; lead; copper alloys; porous materials such as earth, asbestos, wood & cloth; strong oxidizers such as fluorine & chlorine; nitric acid; hydrogen peroxide

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, resp sys; vomit, diarr, tremor, ataxia; anoxia, cyan; convuls; [carc]
TO: Eyes, skin, resp sys, CNS, liver, blood, CVS [in animals: lung, liver, blood vessel & intestine tumors]

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

M

Methyl iodide

Formula:	CAS#:	RTECS#:	IDLH:
CH_3I	74-88-4	PA9450000	Ca [100 ppm]

Conversion: 1 ppm = 5.80 mg/m^3 **DOT:** 2644 151

Synonyms/Trade Names: Iodomethane, Monoiodomethane

Exposure Limits:
NIOSH REL: Ca
TWA 2 ppm (10 mg/m^3) [skin]
See Appendix A
OSHA PEL: TWA 5 ppm (28 mg/m^3) [skin]

Measurement Methods (see Table 1):
NIOSH 1014

Physical Description: Colorless liquid with a pungent, ether-like odor. [**Note:** Turns yellow, red, or brown on exposure to light & moisture.]

Chemical & Physical Properties:
MW: 141.9
BP: 109°F
Sol: 1%
Fl.P: NA
IP: 9.54 eV
Sp.Gr: 2.28
VP: 400 mmHg
FRZ: -88°F
UEL: NA
LEL: NA
Noncombustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers [**Note:** Decomposes at 518°F.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, resp sys; nau, vomit; dizz, ataxia; slurred speech, drow; derm; [carc]
TO: Eyes, skin, resp sys, CNS [in animals: lung, kidney & forestomach tumors]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap flush immed
Breath: Resp support
Swallow: Medical attention immed

Methyl isoamyl ketone	**Formula:** $CH_3COCH_2CH_2CH(CH_3)_2$	**CAS#:** 110-12-3	**RTECS#:** MP3850000	**IDLH:** N.D.
Conversion: 1 ppm = 4.67 mg/m^3	**DOT:** 2302 127			

Synonyms/Trade Names: Isoamyl methyl ketone, Isopentyl methyl ketone, 2-Methyl-5-hexanone, 5-Methyl-2-hexanone, MIAK

Exposure Limits:
NIOSH REL: TWA 50 ppm (240 mg/m^3)
OSHA PEL†: TWA 100 ppm (475 mg/m^3)

Measurement Methods (see Table 1):
OSHA PV2042

Physical Description: Colorless, clear liquid with a pleasant, fruity odor.

Chemical & Physical Properties:
MW: 114.2
BP: 291°F
Sol: 0.5%
Fl.P: 97°F
IP: 9.284 eV
Sp.Gr: 0.81
VP: 5 mmHg
FRZ: -101°F
UEL(200°F): 8.2%
LEL(200°F): 1.0%
Class IC Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
500 ppm: CcrOv*/Sa*
1250 ppm: Sa:Cf*/PaprOv*
2500 ppm: CcrFOv/GmFOv/PaprTOv*/SaT:Cf*/ScbaF/SaF
5000 ppm: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, muc memb; head, narco, coma; derm; in animals: liver, kidney damage
TO: Eyes, skin, resp sys, CNS, liver, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap flush prompt
Breath: Resp support
Swallow: Medical attention immed

M

Methyl isobutyl carbinol	**Formula:** $(CH_3)_2CHCH_2CH(OH)CH_3$	**CAS#:** 108-11-2	**RTECS#:** SA7350000	**IDLH:** 400 ppm
Conversion: 1 ppm = 4.18 mg/m^3	**DOT:** 2053 129			

Synonyms/Trade Names: Isobutylmethylcarbinol, Methyl amyl alcohol, 4-Methyl-2-pentanol, MIBC

Exposure Limits:
NIOSH REL: TWA 25 ppm (100 mg/m^3)
ST 40 ppm (165 mg/m^3) [skin]
OSHA PEL†: TWA 25 ppm (100 mg/m^3) [skin]

Measurement Methods (see Table 1):
NIOSH 1402, 1405
OSHA 7

Physical Description: Colorless liquid with a mild odor.

Chemical & Physical Properties:
MW: 102.2
BP: 271°F
Sol: 2%
Fl.P: 106°F
IP: ?
Sp.Gr: 0.81
VP: 3 mmHg
FRZ: -130°F
UEL: 5.5%
LEL: 1.0%
Class II Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
250 ppm: Sa*
400 ppm: Sa:Cf*/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin; head, drow; derm; in animals: narco
TO: Eyes, skin, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush prompt
Breath: Resp support
Swallow: Medical attention immed

Methyl isocyanate	Formula: CH_3NCO	CAS#: 624-83-9	RTECS#: NQ9450000	IDLH: 3 ppm
Conversion: 1 ppm = 2.34 mg/m^3	**DOT:** 2480 155			

Synonyms/Trade Names: Methyl ester of isocyanic acid, MIC

Exposure Limits:
NIOSH REL: TWA 0.02 ppm (0.05 mg/m^3) [skin]
OSHA PEL: TWA 0.02 ppm (0.05 mg/m^3) [skin]

Measurement Methods (see Table 1):
OSHA 54

Physical Description: Colorless liquid with a sharp, pungent odor.

Chemical & Physical Properties:
MW: 57.1
BP: 102-104°F
Sol(59°F): 10%
Fl.P: 19°F
IP: 10.67 eV
Sp.Gr: 0.96
VP: 348 mmHg
FRZ: -49°F
UEL: 26%
LEL: 5.3%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
0.2 ppm: Sa*
0.5 ppm: Sa:Cf*
1 ppm: ScbaF/SaF
3 ppm: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Water, oxidizers, acids, alkalis, amines, iron, tin, copper
[**Note:** Usually contains inhibitors to prevent polymerization.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, nose, throat; resp sens, cough, pulm secretions, chest pain, dysp; asthma; eye, skin damage; in animals: pulm edema
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

M

Methyl isopropyl ketone	Formula: $CH_3COCH(CH_3)_2$	CAS#: 563-80-4	RTECS#: EL9100000	IDLH: N.D.
Conversion: 1 ppm = 3.53 mg/m^3	**DOT:** 2397 127			

Synonyms/Trade Names: 2-Acetyl propane, Isopropyl methyl ketone, 3-Methyl-2-butanone, 3-Methyl butan-2-one, MIPK

Exposure Limits:
NIOSH REL: TWA 200 ppm (705 mg/m^3)
OSHA PEL†: none

Measurement Methods (see Table 1):
None available

Physical Description: Colorless liquid with an acetone-like odor.

Chemical & Physical Properties:
MW: 86.2
BP: 199°F
Sol: Very slight
Fl.P: ?
IP: 9.32 eV
Sp.Gr: 0.81
VP: 42 mmHg
FRZ: -134°F
UEL: ?
LEL: ?
Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, muc memb, resp sys; cough
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Methyl mercaptan	Formula: CH_3SH	CAS#: 74-93-1	RTECS#: PB4375000	IDLH: 150 ppm
Conversion: 1 ppm = 1.97 mg/m^3	**DOT:** 1064 117			

Synonyms/Trade Names: Mercaptomethane, Methanethiol, Methyl sulfhydrate

Exposure Limits:
NIOSH REL: C 0.5 ppm (1 mg/m^3) [15-minute]
OSHA PEL†: C 10 ppm (20 mg/m^3)

Physical Description: Colorless gas with a disagreeable odor like garlic or rotten cabbage. [**Note:** A liquid below 43°F. Shipped as a liquefied compressed gas.]

Measurement Methods (see Table 1):
NIOSH 2542
OSHA 26

Chemical & Physical Properties:
MW: 48.1
BP: 43°F
Sol: 2%
Fl.P: NA (Gas)
(oc) 0°F (Liquid)
IP: 9.44 eV
RGasD: 1.66
Sp.Gr: 0.90 (Liquid at 32°F)
VP: 1.7 atm
FRZ: -186°F
UEL: 21.8%
LEL: 3.9%
Flammable Gas

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact (liquid)
Frostbite
Eyes: Prevent eye contact (liquid)
Frostbite
Wash skin: N.R.
Remove: When wet (flamm)
Change: N.R.
Provide: Eyewash (liquid)
Quick drench (liquid)
Frostbite wash

Respirator Recommendations (see Tables 3 and 4):
NIOSH
5 ppm: CcrOv/Sa
12.5 ppm: Sa:Cf/PaprOv
25 ppm: CcrFOv/GmFOv/PaprTOv/
SaT:Cf/ScbaF/SaF
150 ppm: Sa:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, bleaches, copper, aluminum, nickel-copper alloys

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con (liquid)
SY: Irrit eyes, skin, resp sys; narco; cyan; convuls; liquid: frostbite
TO: Eyes, skin, resp sys, CNS, blood

First Aid (see Table 6):
Eye: Irr immed (liquid)/Frostbite
Skin: Water flush immed (liquid)/Frostbite
Breath: Resp support

M

Methyl methacrylate	Formula: $CH_2=C(CH_3)COOCH_3$	CAS#: 80-62-6	RTECS#: OZ5075000	IDLH: 1000 ppm
Conversion: 1 ppm = 4.09 mg/m^3	**DOT:** 1247 129P (inhibited)			

Synonyms/Trade Names: Methacrylate monomer, Methyl ester of methacrylic acid, Methyl-2-methyl-2-propenoate

Exposure Limits:
NIOSH REL: TWA 100 ppm (410 mg/m^3)
OSHA PEL: TWA 100 ppm (410 mg/m^3)

Physical Description: Colorless liquid with an acrid, fruity odor.

Measurement Methods (see Table 1):
NIOSH 2537
OSHA 94

Chemical & Physical Properties:
MW: 100.1
BP: 214°F
Sol: 1.5%
Fl.P(oc): 50°F
IP: 9.70 eV
Sp.Gr: 0.94
VP: 29 mmHg
FRZ: -54°F
UEL: 8.2%
LEL: 1.7%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
1000 ppm: Sa:Cf£/CcrFOv/GmFOv/
PaprOv£/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Nitrates, oxidizers, peroxides, strong alkalis, moisture [**Note:** May polymerize if subjected to heat, oxidizers, or ultraviolet light. Usually contains an inhibitor such as hydroquinone.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose, throat; derm
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush prompt
Breath: Resp support
Swallow: Medical attention immed

Methyl parathion	Formula: $(CH_3O)_2P(S)OC_6H_4NO_2$	CAS#: 298-00-0	RTECS#: TG0175000	IDLH: N.D.
Conversion:	**DOT:** 2783 152 (solid); 3018 152 (liquid)			

Synonyms/Trade Names: Azophos®; O,O-Dimethyl-O-p-nitrophenylphosphorothioate; Parathion methyl

Exposure Limits:
NIOSH REL: TWA 0.2 mg/m^3 [skin]
OSHA PEL†: none

Measurement Methods (see Table 1):
NIOSH 5600
OSHA PV2112

Physical Description: White to tan, crystalline solid or powder with a pungent, garlic-like odor. [pesticide] [**Note:** The commercial product in xylene is a tan liquid.]

Chemical & Physical Properties:
MW: 263.2
BP: 289°F
Sol(77°F): 0.006%
Fl.P: ?
IP: ?
Sp.Gr: 1.36
VP: 0.00001 mmHg
MLT: 99°F
UEL: ?
LEL: ?
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
2 mg/m^3: CcrOv95/Sa
5 mg/m^3: Sa:Cf/PaprOvHie
10 mg/m^3: CcrFOv100/GmFOv100/PaprTOvHie/SaT:Cf/ScbaF/SaF
200 mg/m^3: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, water [**Note:** Explosive risk when heated above 122°F.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin; nau, vomit, abdom cramps, diarr, salv; head, dizz, lass; rhin, chest tight; blurred vision, miosis; card irreg; musc fasc; dysp
TO: Eyes, skin, resp sys, CNS, CVS, blood chol

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

M

Methyl silicate	Formula: $(CH_3O)_4Si$	CAS#: 681-84-5	RTECS#: VV9800000	IDLH: N.D.
Conversion: 1 ppm = 6.23 mg/m^3	**DOT:** 2606 155			

Synonyms/Trade Names: Methyl orthosilicate, Tetramethoxysilane, Tetramethyl ester of silicic acid, Tetramethyl silicate

Exposure Limits:
NIOSH REL: TWA 1 ppm (6 mg/m^3)
OSHA PEL†: none

Measurement Methods (see Table 1):
None available

Physical Description: Clear, colorless liquid. [**Note:** A solid below 28°F.]

Chemical & Physical Properties:
MW: 152.3
BP: 250°F
Sol: Soluble
Fl.P: 205°F
IP: ?
Sp.Gr: 1.02
VP(77°F): 12 mmHg
FRZ: 28°F
UEL: ?
LEL: ?
Class IIIB Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: Daily
Remove: When wet or contam
Change: N.R.
Provide: Eyewash

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Oxidizers; hexafluorides of rhenium, molybdenum & tungsten

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, corn damage (following even short-term exposure to the vapor); lung, kidney inj; pulm edema
TO: Eyes, resp sys, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Resp support
Swallow: Medical attention immed

α-Methyl styrene	Formula: $C_6H_5C(CH_3)=CH_2$	CAS#: 98-83-9	RTECS#: WL5075300	IDLH: 700 ppm
Conversion: 1 ppm = 4.83 mg/m^3	**DOT:**			

Synonyms/Trade Names: AMS, Isopropenyl benzene, 1-Methyl-1-phenylethylene, 2-Phenyl propylene

Exposure Limits:
NIOSH REL: TWA 50 ppm (240 mg/m^3)
ST 100 ppm (485 mg/m^3)
OSHA PEL†: C 100 ppm (480 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1501
OSHA 7

Physical Description: Colorless liquid with a characteristic odor.

Chemical & Physical Properties:
MW: 118.2
BP: 330°F
Sol: Insoluble
Fl.P: 129°F
IP: 8.35 eV
Sp.Gr: 0.91
VP: 2 mmHg
FRZ: -10°F
UEL: 6.1%
LEL: 1.9%
Class II Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
500 ppm: CcrOv*/Sa*
700 ppm: Sa:Cf*/CcrFOv/GmFOv/PaprOv*/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Oxidizers, peroxides, halogens, catalysts for vinyl or ionic polymers; aluminum, iron chloride, copper [**Note:** Usually contains an inhibitor such as tert-butyl catechol.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose, throat; drow; derm
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush prompt
Breath: Resp support
Swallow: Medical attention immed

Metribuzin	Formula: $C_8H_{14}N_4OS$	CAS#: 21087-64-9	RTECS#: XZ2990000	IDLH: N.D.
Conversion:	**DOT:**			

Synonyms/Trade Names: 4-Amino-6-(1,1-dimethylethyl)-3-(methylthio)-1,2,4-triazin-5(4H)-one

Exposure Limits:
NIOSH REL: TWA 5 mg/m^3
OSHA PEL†: none

Measurement Methods (see Table 1):
OSHA PV2044

Physical Description: Colorless, crystalline solid. [herbicide]

Chemical & Physical Properties:
MW: 214.3
BP: ?
Sol: 0.1%
Fl.P: NA
IP: ?
Sp.Gr: 1.31
VP: 0.0000004 mmHg
MLT: 257°F
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: None reported

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: In animals: CNS depres; thyroid, liver enzyme changes
TO: CNS, thyroid, liver

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Fresh air
Swallow: Medical attention immed

Mica (containing less than 1% quartz)	Formula:	CAS#: 12001-26-2	RTECS#: VV8760000	IDLH: 1500 mg/m^3
Conversion:	**DOT:**			

Synonyms/Trade Names: Biotite, Lepidolite, Margarite, Muscovite, Phlogopite, Roscoelite, Zimmwaldite

Exposure Limits:
NIOSH REL: TWA 3 mg/m^3 (resp)
OSHA PEL†: TWA 20 mppcf

Measurement Methods (see Table 1):
NIOSH 0600

Physical Description: Colorless, odorless flakes or sheets of hydrous silicates.

Chemical & Physical Properties:
MW: 797 (approx)
BP: ?
Sol: Insoluble
Fl.P: NA
IP: NA
Sp.Gr: 2.6-3.2
VP: 0 mmHg (approx)
MLT: ?
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
15 mg/m^3: Qm
30 mg/m^3: 95XQ/Sa
75 mg/m^3: Sa:Cf/PaprHie
150 mg/m^3: 100F/SaT:Cf/PaprTHie/ ScbaF/SaF
1500 mg/m^3: Sa:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: None reported

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Irrit eyes; pneumoconiosis, cough, dysp; lass; low-wgt
TO: Resp sys

First Aid (see Table 6):
Eye: Irr immed
Breath: Fresh air

M

Mineral wool fiber	Formula:	CAS#:	RTECS#: PY8070000	IDLH: N.D.
Conversion:	**DOT:**			

Synonyms/Trade Names: Manmade mineral fibers, Rock wool, Slag wool, Synthetic vitreous fibers
[**Note:** Produced by blowing steam or air through molten rock (rock wool) or various furnace slags that are by-products of metal smelting or refining processes (slag wool).]

Exposure Limits:
NIOSH REL: TWA 3 fibers/cm^3 (fibers ≤ 3.5 µm diameter & ≥ 10 µm in length)
TWA 5 mg/m^3 (total)
OSHA PEL: TWA 15 mg/m^3 (total)
TWA 5 mg/m^3 (resp)

Measurement Methods (see Table 1):
NIOSH 0500, 7400

Physical Description: Typically, a mineral "wool" with diameters >0.5 µm & >1.5 µm in length.

Chemical & Physical Properties:
MW: varies
BP: NA
Sol: Insoluble
Fl.P: NA
IP: NA
Sp.Gr: ?
VP: 0 mmHg (approx)
MLT: ?
UEL: NA
LEL: NA
Noncombustible Fibers

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: Daily
Remove: N.R.
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH
5X REL: Qm
10X REL: 95XQ/Sa
25X REL: Sa:Cf/PaprHie
50X REL: 100F/PaprTHie/ScbaF/SaF
1000X REL: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: None reported

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Irrit eyes, skin, resp sys; dysp
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Breath: Fresh air

Molybdenum	**Formula:** Mo	**CAS#:** 7439-98-7	**RTECS#:** QA4680000	**IDLH:** 5000 mg/m^3 (as Mo)
Conversion:	**DOT:**			

Synonyms/Trade Names: Molybdenum metal

Exposure Limits:
NIOSH REL*: See Appendix D
OSHA PEL*†: TWA 15 mg/m^3
[***Note:** The PEL also applies to other insoluble molybdenum compounds (as Mo).]

Physical Description: Dark gray or black powder with a metallic luster.

Measurement Methods (see Table 1):
NIOSH 7300, 7301, 7303, 9102
OSHA ID121, ID125G

Chemical & Physical Properties:
MW: 95.9
BP: 8717°F
Sol: Insoluble
Fl.P: NA
IP: NA
Sp.Gr: 10.28
VP: 0 mmHg (approx)
MLT: 4752°F
UEL: NA
LEL: NA
Combustible Solid in form of dust or powder.

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
OSHA
75 mg/m^3: Qm
150 mg/m^3: 95XQ/Sa
375 mg/m^3: Sa:Cf/PaprHie
750 mg/m^3: 100F/SaT:Cf/PaprTHie/ ScbaF/SaF
5000 mg/m^3: Sa:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: In animals: irrit eyes, nose, throat; anor, diarr, low-wgt; listlessness; liver, kidney damage
TO: Eyes, resp sys, liver, kidneys

First Aid (see Table 6):
Eye: Irr immed
Breath: Resp support
Swallow: Medical attention immed

M

Molybdenum (soluble compounds, as Mo)	**Formula:**	**CAS#:**	**RTECS#:**	**IDLH:** 1000 mg/m^3 (as Mo)
Conversion:	**DOT:**			

Synonyms/Trade Names: Synonyms vary depending upon the specific soluble molybdenum compound.

Exposure Limits:
NIOSH REL: See Appendix D
OSHA PEL: TWA 5 mg/m^3

Physical Description: Appearance and odor vary depending upon the specific soluble molybdenum compound.

Measurement Methods (see Table 1):
NIOSH 7300, 7301, 7303, 9102
OSHA ID121, ID125G

Chemical & Physical Properties:
Properties vary depending upon the specific soluble molybdenum compound.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
OSHA
25 mg/m^3: Qm*
50 mg/m^3: 95XQ*/Sa*
125 mg/m^3: Sa:Cf*/PaprHie*
250 mg/m^3: 100F/SaT:Cf*/PaprTHie*/ ScbaF/SaF
1000 mg/m^3: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Varies

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: In animals: irrit eyes, nose, throat; anor; inco; dysp; anemia
TO: Eyes, resp sys, kidneys, blood

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush
Breath: Resp support
Swallow: Medical attention immed

Monocrotophos	Formula: $C_7H_{14}NO_5P$	CAS#: 6923-22-4	RTECS#: TC4375000	IDLH: N.D.
Conversion:	**DOT:** 2783 152 (organophosphorus pesticide, solid)			

Synonyms/Trade Names: Azodrin®, 3-Hydroxy-N-methylcrotonamide dimethylphosphate, Monocron

Exposure Limits:
NIOSH REL: TWA 0.25 mg/m^3
OSHA PEL†: none

Physical Description: Colorless to reddish-brown solid with a mild, ester odor. [insecticide]

Measurement Methods (see Table 1):
NIOSH 5600
OSHA PV2045

Chemical & Physical Properties:
MW: 223.2
BP: 257°F
Sol: Miscible
Fl.P: >200°F
IP: ?
Sp.Gr: ?
VP: 0.000007 mmHg
MLT: 129°F
UEL: ?
LEL: ?
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Metals, low molecular weight alcohols & glycols
[**Note:** Corrosive to black iron, drum steel, stainless steel 304 & brass. Should be stored at 70-80°F.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, miosis, blurred vision; dizz, convuls; dysp; salv, abdom cramps, nau, diarr, vomit; in animals: possible terato effects
TO: Eyes, resp sys, CNS, CVS, blood chol, repro sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

M

Monomethyl aniline	Formula: $C_6H_5NHCH_3$	CAS#: 100-61-8	RTECS#: BY4550000	IDLH: 100 ppm
Conversion: 1 ppm = 4.38 mg/m^3	**DOT:** 2294 153			

Synonyms/Trade Names: MA, (Methylamino)benzene, N-Methyl aniline, Methylphenylamine, N-Phenylmethylamine

Exposure Limits:
NIOSH REL: TWA 0.5 ppm (2 mg/m^3) [skin]
OSHA PEL†: TWA 2 ppm (9 mg/m^3) [skin]

Physical Description: Yellow to light-brown liquid with a weak, ammonia-like odor.

Measurement Methods (see Table 1):
NIOSH 3511

Chemical & Physical Properties:
MW: 107.2
BP: 384°F
Sol: Insoluble
Fl.P: 175°F
IP: 7.32 eV
Sp.Gr: 0.99
VP: 0.3 mmHg
FRZ: -71°F
UEL: ?
LEL: ?
Class IIIA Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
5 ppm: Sa
12.5 ppm: Sa:Cf
25 ppm: SaT:Cf/ScbaF/SaF
100 ppm: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS/ScbaE

Incompatibilities and Reactivities: Strong acids, strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Lass, dizz, head; dysp, cyan; methemo; pulm edema; liver, kidney damage
TO: Resp sys, liver, kidneys, blood, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Morpholine

Formula:	CAS#:	RTECS#:	IDLH:
C_4H_9ON	110-91-8	QD6475000	1400 ppm [10%LEL]

Conversion: 1 ppm = 3.56 mg/m^3 **DOT:** 2054 132

Synonyms/Trade Names: Diethylene imidoxide; Diethylene oximide; Tetrahydro-1,4-oxazine; Tetrahydro-p-oxazine

Exposure Limits:
NIOSH REL: TWA 20 ppm (70 mg/m^3) [skin]
ST 30 ppm (105 mg/m^3)
OSHA PEL†: TWA 20 ppm (70 mg/m^3) [skin]

Physical Description: Colorless liquid with a weak, ammonia- or fish-like odor.
[**Note:** A solid below 23°F.]

Measurement Methods (see Table 1):
NIOSH S150 (II-3)

Chemical & Physical Properties:
MW: 87.1
BP: 264°F
Sol: Miscible
Fl.P(oc): 98°F
IP: 8.88 eV
Sp.Gr: 1.007
VP: 6 mmHg
FRZ: 23°F
UEL: 11.2%
LEL: 1.4%
Class IC Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.
Provide: Eyewash (>15%)
Quick drench (>25%)

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
500 ppm: Sa:Cf£/PaprOv£
1000 ppm: CcrFOv/GmFOv/PaprTOv£/ ScbaF/SaF
1400 ppm: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong acids, strong oxidizers, metals, nitro compounds
[**Note:** Corrosive to metals.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, nose, resp sys; vis dist; cough; in animals: liver, kidney damage
TO: Eyes, skin, resp sys, liver, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

N

Naphtha (coal tar)

Formula:	CAS#:	RTECS#:	IDLH:
	8030-30-6	DE3030000	1000 ppm [10%LEL]

Conversion: 1 ppm = 4.50 mg/m^3 (approx) **DOT:**

Synonyms/Trade Names: Crude solvent coal tar naphtha, High solvent naphtha, Naphtha

Exposure Limits:
NIOSH REL: TWA 100 ppm (400 mg/m^3)
OSHA PEL: TWA 100 ppm (400 mg/m^3)

Physical Description: Reddish-brown, mobile liquid with an aromatic odor.

Measurement Methods (see Table 1):
NIOSH 1550

Chemical & Physical Properties:
MW: 110 (approx)
BP: 320-428°F
Sol: Insoluble
Fl.P: 100-109°F
IP: ?
Sp.Gr: 0.89-0.97
VP: <5 mmHg
FRZ: ?
UEL: ?
LEL: ?
Class II Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
1000 ppm: Sa:Cf£/CcrFOv/GmFOv/ PaprOv£/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose; dizz, drow; derm; in animals: liver, kidney damage
TO: Eyes, skin, resp sys, CNS, liver, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

Naphthalene	Formula: $C_{10}H_8$	CAS#: 91-20-3	RTECS#: QJ0525000	IDLH: 250 ppm
Conversion: 1 ppm = 5.24 mg/m^3	**DOT:** 1334 133 (crude or refined); 2304 133 (molten)			

Synonyms/Trade Names: Naphthalin, Tar camphor, White tar

Exposure Limits:
NIOSH REL: TWA 10 ppm (50 mg/m^3)
ST 15 ppm (75 mg/m^3)
OSHA PEL†: TWA 10 ppm (50 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1501
OSHA 35

Physical Description: Colorless to brown solid with an odor of mothballs.
[**Note:** Shipped as a molten solid.]

Chemical & Physical Properties:
MW: 128.2
BP: 424°F
Sol: 0.003%
Fl.P: 174°F
IP: 8.12 eV
Sp.Gr: 1.15
VP: 0.08 mmHg
MLT: 176°F
UEL: 5.9%
LEL: 0.9%
Combustible Solid, but will take some effort to ignite.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
100 ppm: CcrOv95*/Sa*
250 ppm: Sa:Cf*/CcrFOv100/PaprOvHie*/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, chromic anhydride

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes; head, conf, excitement, mal; nau, vomit, abdom pain; irrit bladder; profuse sweat; jaun; hema, renal shutdown; derm, optical neuritis, corn damage
TO: Eyes, skin, blood, liver, kidneys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Molten flush immed/sol-liq soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

N

Naphthalene diisocyanate	Formula: $C_{10}H_6(NCO)_2$	CAS#: 3173-72-6	RTECS#: NQ9600000	IDLH: N.D.
Conversion: 1 ppm = 8.60 mg/m^3	**DOT:**			

Synonyms/Trade Names: 1,5-Diisocyanatonaphthalene; 1,5-Naphthalene diisocyanate; 1,5-Naphthalene ester of isocyanic acid; NDI

Exposure Limits:
NIOSH REL: TWA 0.040 mg/m^3 (0.005 ppm)
C 0.170 mg/m^3 (0.020 ppm) [10-minute]
OSHA PEL: none

Measurement Methods (see Table 1):
NIOSH 5525
OSHA PV2046

Physical Description: White to light-yellow, crystalline flakes.

Chemical & Physical Properties:
MW: 210.2
BP: 505°F
Sol: ?
Fl.P(oc): 311°F
IP: ?
Sp.Gr: ?
VP(75°F): 0.003 mmHg
MLT: 261°F
UEL: ?
LEL: ?
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH
0.05 ppm: Sa*
0.125 ppm: Sa:Cf*
0.25 ppm: ScbaF/SaF
1 ppm: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: None reported

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, nose, throat; resp sens, cough, pulm secretions, chest pain, dysp; asthma
TO: Eyes, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

α-Naphthylamine	Formula: $C_{10}H_7NH_2$	CAS#: 134-32-7	RTECS#: QM1400000	IDLH: Ca [N.D.]
Conversion:	**DOT:** 2077 153			

Synonyms/Trade Names: 1-Aminonaphthalene, 1-Naphthylamine

Exposure Limits:
NIOSH REL: Ca
See Appendix A
OSHA PEL: [1910.1004] See Appendix B

Measurement Methods (see Table 1):
NIOSH 5518
OSHA 93

Physical Description: Colorless crystals with an ammonia-like odor.
[**Note:** Darkens in air to a reddish-purple color.]

Chemical & Physical Properties:
MW: 143.2
BP: 573°F
Sol: 0.002%
Fl.P: 315°F
IP: 7.30 eV
Sp.Gr: 1.12
VP(220°F): 1 mmHg
MLT: 122°F
UEL: ?
LEL: ?
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

See Appendix E (page 351)

Incompatibilities and Reactivities: Oxidizes in air

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Derm; hemorrhagic cystitis; dysp, ataxia, methemo; hema; dysuria; [carc]
TO: Bladder, skin [bladder cancer]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

N

β-Naphthylamine	Formula: $C_{10}H_7NH_2$	CAS#: 91-59-8	RTECS#: QM2100000	IDLH: Ca [N.D.]
Conversion:	**DOT:** 1650 153			

Synonyms/Trade Names: 2-Aminonaphthalene, 2-Naphthylamine

Exposure Limits:
NIOSH REL: Ca
See Appendix A
OSHA PEL: [1910.1009] See Appendix B

Measurement Methods (see Table 1):
NIOSH 5518
OSHA 93

Physical Description: Odorless, white to red crystals with a faint, aromatic odor.
[**Note:** Darkens in air to a reddish-purple color.]

Chemical & Physical Properties:
MW: 143.2
BP: 583°F
Sol: Miscible in hot water
Fl.P: 315°F
IP: 9.71 eV
Sp.Gr(208°F): 1.06
VP(226°F): 1 mmHg
MLT: 232°F
UEL: ?
LEL: ?
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

See Appendix E (page 351)

Incompatibilities and Reactivities: None reported

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Derm; hemorrhagic cystitis; dysp; ataxia; methemo, hema; dysuria; [carc]
TO: Bladder, skin [bladder cancer]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Niax® Catalyst ESN	Formula:	CAS#: 62765-93-9	RTECS#: QR3900000	IDLH: N.D.
Conversion:	DOT:			

Synonyms/Trade Names: None
[**Note:** A mixture of 95% dimethylaminopropionitrile & 5% bis(2-dimethylamino)ethyl ether.]

Exposure Limits:
NIOSH REL: See Appendix C
OSHA PEL: See Appendix C

Measurement Methods (see Table 1):
None available

Physical Description: A liquid mixture.
[**Note:** Used in the past as a catalyst in the manufacture of flexible polyurethane foams.]

Chemical & Physical Properties:
MW: mixture
BP: ?
Sol: ?
Fl.P: ?
IP: ?
Sp.Gr: ?
VP: ?
FRZ: ?
UEL: ?
LEL: ?

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin; urinary dist; neurological disorders; pins & needles in hands & feet; musc weak, lass, nau, vomit; decr nerve conduction in lower legs
TO: Eyes, skin, urinary tract, PNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap flush immed
Breath: Resp support
Swallow: Medical attention immed

N

Nickel carbonyl	Formula: $Ni(CO)_4$	CAS#: 13463-39-3	RTECS#: QR6300000	IDLH: Ca [2 ppm]
Conversion: 1 ppm = 6.98 mg/m^3	DOT: 1259 131			

Synonyms/Trade Names: Nickel tetracarbonyl, Tetracarbonyl nickel

Exposure Limits:
NIOSH REL: Ca
TWA 0.001 ppm (0.007 mg/m^3)
See Appendix A
OSHA PEL: TWA 0.001 ppm (0.007 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 6007

Physical Description: Colorless to yellow liquid with a musty odor. [**Note:** A gas above 110°F.]

Chemical & Physical Properties:
MW: 170.7
BP: 110°F
Sol: 0.05%
Fl.P: <-4°F
IP: 8.28 eV
Sp.Gr(63°F): 1.32
VP: 315 mmHg
FRZ: -13°F
UEL: ?
LEL: 2%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS/ScbaE

Incompatibilities and Reactivities: Nitric acid, bromine, chlorine & other oxidizers; flammable materials

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Abs, Con
SY: Head, dizz; nau, vomit, epigastric pain; substernal pain; cough, hyperpnea; cyan; lass; leucyt, pneu; delirium, convuls; [carc]; in animals: repro, terato effects
TO: Lungs, paranasal sinus, CNS, repro sys [lung & nasal cancer]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Nickel metal and other compounds (as Ni)	Formula: Ni (metal)	CAS#: 7440-02-0 (metal)	RTECS#: QR5950000 (metal)	IDLH: Ca [10 mg/m^3 (as Ni)]
Conversion:	DOT:			

Synonyms/Trade Names: **Nickel metal:** Elemental nickel, Nickel catalyst
Synonyms of other nickel compounds vary depending upon the specific compound.

Exposure Limits:
NIOSH REL*: Ca
TWA 0.015 mg/m^3
See Appendix A
OSHA PEL*†: TWA 1 mg/m^3
[***Note:** The REL and PEL do not apply to Nickel carbonyl.]

Measurement Methods (see Table 1):
NIOSH 7300, 7301, 7303, 9102
OSHA ID121, ID125G

Physical Description: Metal: Lustrous, silvery, odorless solid.

Chemical & Physical Properties:
MW: 58.7
BP: 5139°F
Sol: Insoluble
Fl.P: NA
IP: NA
Sp.Gr: 8.90 (Metal)
VP: 0 mmHg (approx)
MLT: 2831°F
UEL: NA
LEL: NA
Metal: Combustible Solid; nickel sponge catalyst may ignite SPONTANEOUSLY in air.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: N.R.
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Strong acids, sulfur, selenium, wood & other combustibles, nickel nitrate

N

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Sens derm, allergic asthma, pneu; [carc]
TO: Nasal cavities, lungs, skin [lung and nasal cancer]

First Aid (see Table 6):
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

Nicotine	Formula: $C_5H_4NC_4H_7NCH_3$	CAS#: 54-11-5	RTECS#: QS5250000	IDLH: 5 mg/m^3
Conversion:	DOT: 1654 151			

Synonyms/Trade Names: 3-(1-Methyl-2-pyrrolidyl)pyridine

Exposure Limits:
NIOSH REL: TWA 0.5 mg/m^3 [skin]
OSHA PEL: TWA 0.5 mg/m^3 [skin]

Measurement Methods (see Table 1):
NIOSH 2544, 2551

Physical Description: Pale-yellow to dark-brown liquid with a fish-like odor when warm. [insecticide]

Chemical & Physical Properties:
MW: 162.2
BP: 482°F (Decomposes)
Sol: Miscible
Fl.P: 203°F
IP: 8.01 eV
Sp.Gr: 1.01
VP: 0.08 mmHg
FRZ: -110°F
UEL: 4.0%
LEL: 0.7%
Class IIIB Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
5 mg/m^3: Sa/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, strong acids

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Nau, salv, abdom pain, vomit, diarr; head, dizz, hearing, vis dist; conf, lass, inco; card arrhy; convuls, dysp; in animals: terato effects
TO: CNS, CVS, lungs, GI tract, repro sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

Nitric acid	**Formula:** HNO_3	**CAS#:** 7697-37-2	**RTECS#:** QU5775000	**IDLH:** 25 ppm
Conversion: 1 ppm = 2.58 mg/m^3	**DOT:** 2032 157 (fuming); 2031 157 (other than red fuming)			

Synonyms/Trade Names: Aqua fortis, Engravers acid, Hydrogen nitrate, Red fuming nitric acid (RFNA), White fuming nitric acid (WFNA)

Exposure Limits:
NIOSH REL: TWA 2 ppm (5 mg/m^3)
ST 4 ppm (10 mg/m^3)
OSHA PEL†: TWA 2 ppm (5 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 7903
OSHA ID165SG

Physical Description: Colorless, yellow, or red, fuming liquid with an acrid, suffocating odor. [**Note:** Often used in an aqueous solution. Fuming nitric acid is concentrated nitric acid that contains dissolved nitrogen dioxide.]

Chemical & Physical Properties:
MW: 63.0
BP: 181°F
Sol: Miscible
Fl.P: NA
IP: 11.95 eV
Sp.Gr(77°F): 1.50
VP: 48 mmHg
FRZ: -44°F
UEL: NA
LEL: NA
Noncombustible Liquid, but increases the flammability of combustible materials.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash (pH<2.5)
Quick drench (pH<2.5)

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
25 ppm: Sa:Cf*/CcrFS¿/GmFS¿/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS¿/ScbaE

Incompatibilities and Reactivities: Combustible materials, metallic powders, hydrogen sulfide, carbides, alcohols [**Note:** Reacts with water to produce heat. Corrosive to metals.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, muc memb; delayed pulm edema, pneu, bron; dental erosion
TO: Eyes, skin, resp sys, teeth

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

N

Nitric oxide	**Formula:** NO	**CAS#:** 10102-43-9	**RTECS#:** QX0525000	**IDLH:** 100 ppm
Conversion: 1 ppm = 1.23 mg/m^3	**DOT:** 1660 124			

Synonyms/Trade Names: Mononitrogen monoxide, Nitrogen monoxide

Exposure Limits:
NIOSH REL: TWA 25 ppm (30 mg/m^3)
OSHA PEL: TWA 25 ppm (30 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 6014
OSHA ID190

Physical Description: Colorless gas. [**Note:** Shipped as a nonliquefied compressed gas.]

Chemical & Physical Properties:
MW: 30.0
BP: -241°F
Sol: 5%
Fl.P: NA
IP: 9.27 eV
RGasD: 1.04
VP: 34.2 atm
FRZ: -263°F
UEL: NA
LEL: NA
Nonflammable Gas, but will accelerate the burning of combustible materials.

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
100 ppm: Sa:Cf*/CcrFS¿/PaprS*¿/GmFS¿/Sa*/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS¿/ScbaE

Incompatibilities and Reactivities: Fluorine, combustible materials, ozone, NH_3, chlorinated hydrocarbons, metals, carbon disulfide [**Note:** Reacts with water to form nitric acid. Rapidly converted in air to nitrogen dioxide.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh
SY: Irrit eyes, wet skin, nose, throat; drow, uncon; methemo
TO: Eyes, skin, resp sys, blood, CNS

First Aid (see Table 6):
Breath: Resp support

p-Nitroaniline	**Formula:** $NO_2C_6H_4NH_2$	**CAS#:** 100-01-6	**RTECS#:** BY7000000	**IDLH:** 300 mg/m^3
Conversion:	**DOT:** 1661 153			

Synonyms/Trade Names: para-Aminonitrobenzene, 4-Nitroaniline, 4-Nitrobenzenamine, p-Nitrophenylamine, PNA

Exposure Limits:
NIOSH REL: TWA 3 mg/m^3 [skin]
OSHA PEL†: TWA 6 mg/m^3 (1 ppm) [skin]

Measurement Methods (see Table 1):
NIOSH 5033

Physical Description: Bright yellow, crystalline powder with a slight ammonia-like odor.

Chemical & Physical Properties:
MW: 138.1
BP: 630°F
Sol: 0.08%
Fl.P: 390°F
IP: 8.85 eV
Sp.Gr: 1.42
VP: 0.00002 mmHg
MLT: 295°F
UEL: ?
LEL: ?
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily
Provide: Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
30 mg/m^3: Sa*
75 mg/m^3: Sa:Cf*
150 mg/m^3: ScbaF/SaF
300 mg/m^3: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, strong reducers
[**Note:** May result in spontaneous heating of organic materials in the presence of moisture.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit nose, throat; cyan, ataxia; tacar, tachypnea; dysp; irrity; vomit, diarr; convuls; resp arrest; anemia; methemo; jaundice
TO: Resp sys, blood, heart, liver

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

N

Nitrobenzene	**Formula:** $C_6H_5NO_2$	**CAS#:** 98-95-3	**RTECS#:** DA6475000	**IDLH:** 200 ppm
Conversion: 1 ppm = 5.04 mg/m^3	**DOT:** 1662 152			

Synonyms/Trade Names: Essence of mirbane, Nitrobenzol, Oil of mirbane

Exposure Limits:
NIOSH REL: TWA 1 ppm (5 mg/m^3) [skin]
OSHA PEL: TWA 1 ppm (5 mg/m^3) [skin]

Measurement Methods (see Table 1):
NIOSH 2005, 2017

Physical Description: Yellow, oily liquid with a pungent odor like paste shoe polish.
[**Note:** A solid below 42°F.]

Chemical & Physical Properties:
MW: 123.1
BP: 411°F
Sol: 0.2%
Fl.P: 190°F
IP: 9.92 eV
Sp.Gr: 1.20
VP(77°F): 0.3 mmHg
FRZ: 42°F
UEL: ?
LEL(200°F): 1.8%
Class IIIA Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: N.R.
Remove: When wet or contam
Change: Daily
Provide: Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
10 ppm: CcrOv*/Sa*
25 ppm: Sa:Cf*/PaprOv*
50 ppm: CcrFOv/GmFOv/PaprTOv*/ ScbaF/SaF
200 ppm: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Concentrated nitric acid, nitrogen tetroxide, caustics, phosphorus pentachloride, chemically-active metals such as tin or zinc

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin; anoxia; derm; anemia; methemo; in animals: liver, kidney damage; testicular effects
TO: Eyes, skin, blood, liver, kidneys, CVS, repro sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

4-Nitrobiphenyl

Formula:	CAS#:	RTECS#:	IDLH:
$C_6H_5C_6H_4NO_2$	92-93-3	DV5600000	Ca [N.D.]

Conversion: **DOT:**

Synonyms/Trade Names: p-Nitrobiphenyl, p-Nitrodiphenyl, 4-Nitrodiphenyl, p-Phenylnitrobenzene, 4-Phenylnitrobenzene, PNB

Exposure Limits:
NIOSH REL: Ca
See Appendix A
OSHA PEL: [1910.1003] See Appendix B

Measurement Methods (see Table 1):
NIOSH P&CAM273 (II-4)
OSHA PV2082

Physical Description: White to yellow, needle-like, crystalline solid with a sweetish odor.

Chemical & Physical Properties:
MW: 199.2
BP: 644°F
Sol: Insoluble
Fl.P: 290°F
IP: ?
Sp.Gr: ?
VP: ?
MLT: 237°F
UEL: ?
LEL: ?
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

See Appendix E (page 351)

Incompatibilities and Reactivities: Strong reducers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Head, drow, dizz; dysp; ataxia, lass; methemo; urinary burning; acute hemorrhagic cystitis; [carc]
TO: Bladder, blood [in animals: bladder tumors]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

N

p-Nitrochlorobenzene

Formula:	CAS#:	RTECS#:	IDLH:
$ClC_6H_4NO_2$	100-00-5	CZ1050000	Ca [100 mg/m^3]

Conversion: **DOT:** 1578 152

Synonyms/Trade Names: p-Chloronitrobenzene, 4-Chloronitrobenzene, 1-Chloro-4-nitrobenzene, 4-Nitrochlorobenzene, PCNB, PNCB

Exposure Limits:
NIOSH REL: Ca
See Appendix A [skin]
OSHA PEL: TWA 1 mg/m^3 [skin]

Measurement Methods (see Table 1):
NIOSH 2005

Physical Description: Yellow, crystalline solid with a sweet odor.

Chemical & Physical Properties:
MW: 157.6
BP: 468°F
Sol: Slight
Fl.P: 261°F
IP: 9.96 eV
Sp.Gr: 1.52
VP(86°F): 0.2 mmHg
MLT: 182°F
UEL: ?
LEL: ?
Solid that does not burn, or burns with difficulty.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, alkalis

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Anoxia; unpleasant taste; anemia; methemo; in animals: hema; spleen, kidney, bone marrow changes; repro effects; [carc]
TO: Blood, liver, kidneys, CVS, spleen, bone marrow, repro sys [in animals: vascular & liver tumors]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Nitroethane	Formula: $CH_3CH_2NO_2$	CAS#: 79-24-3	RTECS#: KI5600000	IDLH: 1000 ppm
Conversion: 1 ppm = 3.07 mg/m^3	**DOT:** 2842 129			

Synonyms/Trade Names: Nitroetan

Exposure Limits:
NIOSH REL: TWA 100 ppm (310 mg/m^3)
OSHA PEL: TWA 100 ppm (310 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 2526

Physical Description: Colorless, oily liquid with a mild, fruity odor.

Chemical & Physical Properties:
MW: 75.1
BP: 237°F
Sol: 5%
Fl.P: 82°F
IP: 10.88 eV
Sp.Gr: 1.05
VP(77°F): 21 mmHg
FRZ: -130°F
UEL: ?
LEL: 3.4%
Class IC Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
1000 ppm: ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: ScbaE

Incompatibilities and Reactivities: Amines; strong acids, alkalis & oxidizers; hydrocarbons; combustibles; metal oxides

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Derm; in animals: lac; dysp, pulm rales, edema; liver, kidney inj; narco
TO: Skin, resp sys, CNS, kidneys, liver

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

N

Nitrogen dioxide	Formula: NO_2	CAS#: 10102-44-0	RTECS#: QW9800000	IDLH: 20 ppm
Conversion: 1 ppm = 1.88 mg/m^3	**DOT:** 1067 124			

Synonyms/Trade Names: Dinitrogen tetroxide (N_2O_4), Nitrogen peroxide

Exposure Limits:
NIOSH REL: ST 1 ppm (1.8 mg/m^3)
OSHA PEL†: C 5 ppm (9 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 6014
OSHA ID182

Physical Description: Yellowish-brown liquid or reddish-brown gas (above 70°F) with a pungent, acrid odor. [**Note:** In solid form (below 15°F) it is found structurally as N_2O_4.]

Chemical & Physical Properties:
MW: 46.0
BP: 70°F
Sol: Reacts
Fl.P: NA
IP: 9.75 eV
RGasD: 2.62
Sp.Gr: 1.44 (Liquid at 68°F)
VP: 720 mmHg
FRZ: 15°F
UEL: NA
LEL: NA
Noncombustible Liquid/Gas, but will accelerate the burning of combustible materials.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
20 ppm: Sa:Cf£/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS¿/ScbaE

Incompatibilities and Reactivities: Combustible material, water, chlorinated hydrocarbons, carbon disulfide, ammonia [**Note:** Reacts with water to form nitric acid.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, nose, throat; cough, mucoid frothy sputum, decr pulm func, chronic bron, dysp; chest pain; pulm edema, cyan, tachypnea, tacar
TO: Eyes, resp sys, CVS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

Nitrogen trifluoride	Formula: NF_3	CAS#: 7783-54-2	RTECS#: QX1925000	IDLH: 1000 ppm
Conversion: 1 ppm = 2.90 mg/m^3	**DOT:** 2451 122			

Synonyms/Trade Names: Nitrogen fluoride, Trifluoramine, Trifluorammonia

Exposure Limits:
NIOSH REL: TWA 10 ppm (29 mg/m^3)
OSHA PEL: TWA 10 ppm (29 mg/m^3)

Physical Description: Colorless gas with a moldy odor.
[**Note:** Shipped as a nonliquefied compressed gas.]

Measurement Methods (see Table 1):
None available

Chemical & Physical Properties:
MW: 71.0
BP: -200°F
Sol: Slight
Fl.P: NA
IP: 12.97 eV
RGasD: 2.46
VP: >1 atm
FRZ: -340°F
UEL: NA
LEL: NA
Nonflammable Gas

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
100 ppm: CcrS/Sa
250 ppm: Sa:Cf/PaprS
500 ppm: CcrFS/GmFS/PaprTS*/SaT:Cf*/ScbaF/SaF
1000 ppm: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS/ScbaE

Incompatibilities and Reactivities: Water, oil, grease, oxidizable materials, ammonia, carbon monoxide, methane, hydrogen, hydrogen sulfide, activated charcoal, diborane

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh
SY: In animals: anoxia, cyan; methemo; lass, dizz, head; liver, kidney inj
TO: Blood, liver, kidneys

First Aid (see Table 6):
Breath: Resp support

N

Nitroglycerine	Formula: $CH_2NO_3CHNO_3CH_2NO_3$	CAS#: 55-63-0	RTECS#: QX2100000	IDLH: 75 mg/m^3
Conversion: 1 ppm = 9.29 mg/m^3	**DOT:** 1204 127 (≤ 1% solution in alcohol); 3064 127 (1-5% solution in alcohol)			

Synonyms/Trade Names: Glyceryl trinitrate; NG; 1,2,3-Propanetriol trinitrate; Trinitroglycerine

Exposure Limits:
NIOSH REL: ST 0.1 mg/m^3 [skin]
OSHA PEL†: C 0.2 ppm (2 mg/m^3) [skin]

Physical Description: Colorless to pale-yellow, viscous liquid or solid (below 56°F).
[**Note:** An explosive ingredient in dynamite (20-40%) with ethylene glycol dinitrate (80-60%).]

Measurement Methods (see Table 1):
NIOSH 2507
OSHA 43

Chemical & Physical Properties:
MW: 227.1
BP: Begins to decompose at 122-140°F
Sol: 0.1%
Fl.P: Explodes
IP: ?
Sp.Gr: 1.60
VP: 0.0003 mmHg
FRZ: 56°F
UEL: ?
LEL: ?
Explosive Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: Daily
Provide: Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
1 mg/m^3: Sa*
2.5 mg/m^3: Sa:Cf*
5 mg/m^3: SaT:Cf*/ScbaF/SaF
75 mg/m^3: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Heat, ozone, shock, acids [**Note:** An OSHA Class A Explosive (1910.109).]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Throb head; dizz; nau, vomit, abdom pain; hypotension; flush; palp; methemo; delirium, CNS depres; angina; skin irrit
TO: CVS, blood, skin, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Nitromethane

Formula:	CAS#:	RTECS#:	IDLH:
CH_3NO_2	75-52-5	PA9800000	750 ppm

Conversion: 1 ppm = 2.50 mg/m^3

DOT: 1261 129

Synonyms/Trade Names: Nitrocarbol

Exposure Limits:
NIOSH REL: See Appendix D
OSHA PEL: TWA 100 ppm (250 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 2527

Physical Description: Colorless, oily liquid with a disagreeable odor.

Chemical & Physical Properties:
MW: 61.0
BP: 214°F
Sol: 10%
Fl.P: 95°F
IP: 11.08 eV
Sp.Gr: 1.14
VP: 28 mmHg
FRZ: -20°F
UEL: ?
LEL: 7.3%
Class IC Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
OSHA
750 ppm: Sa:Cf£/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: ScbaE

Incompatibilities and Reactivities: Amines; strong acids, alkalis & oxidizers; hydrocarbons & other combustible materials; metallic oxides [**Note:** Slowly corrodes steel & copper when wet.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Derm; in animals: irrit eyes, resp sys; convuls, narco; liver damage
TO: Eyes, skin, CNS, liver

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

N

2-Nitronaphthalene

Formula:	CAS#:	RTECS#:	IDLH:
$C_{10}H_7NO_2$	581-89-5	QJ9760000	Ca [N.D.]

Conversion:

DOT: 2538 133

Synonyms/Trade Names: β-Nitronaphthalene

Exposure Limits:
NIOSH REL: Ca*
See Appendix A
[***Note:** Since metabolized to β-Naphthylamine.]
OSHA PEL: none

Measurement Methods (see Table 1):
None available

Physical Description: Colorless solid.

Chemical & Physical Properties:
MW: 178.2
BP: ?
Sol: Insoluble
Fl.P: ?
IP: 8.67 eV
Sp.Gr: ?
VP: ?
MLT: 174°F
UEL: ?
LEL: ?
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: For "Nitrates" in general: Aluminum, cyanides, esters, phosphorus, tin chlorides, thiocyanates, sodium hypophosphite

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit skin, resp sys; derm; [carc]
TO: Skin, resp sys [bladder cancer]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

1-Nitropropane	Formula: $CH_3CH_2CH_2NO_2$	CAS#: 108-03-2	RTECS#: TZ5075000	IDLH: 1000 ppm
Conversion: 1 ppm = 3.64 mg/m^3	**DOT:** 2608 129			

Synonyms/Trade Names: Nitropropane, 1-NP

Exposure Limits:
NIOSH REL: TWA 25 ppm (90 mg/m^3)
OSHA PEL: TWA 25 ppm (90 mg/m^3)

Measurement Methods (see Table 1):
OSHA 46

Physical Description: Colorless liquid with a somewhat disagreeable odor.

Chemical & Physical Properties:
MW: 89.1
BP: 269°F
Sol: 1%
Fl.P: 96°F
IP: 10.81 eV
Sp.Gr: 1.00
VP: 8 mmHg
FRZ: -162°F
UEL: ?
LEL: 2.2%
Class IC Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: Prevent eye contact
Wash skin: N.R.
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
250 ppm: Sa*
625 ppm: Sa:Cf*
1000 ppm: ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: ScbaE

Incompatibilities and Reactivities: Amines; strong acids, alkalis & oxidizers; hydrocarbons & other combustible materials; metal oxides

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes; head, nau, vomit, diarr; in animals: liver, kidney damage
TO: Eyes, CNS, liver, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

N

2-Nitropropane	Formula: $(CH_3)_2CH(NO_2)$	CAS#: 79-46-9	RTECS#: TZ5250000	IDLH: Ca [100 ppm]
Conversion: 1 ppm = 3.64 mg/m^3	**DOT:** 2608 129			

Synonyms/Trade Names: Dimethylnitromethane, iso-Nitropropane, 2-NP

Exposure Limits:
NIOSH REL: Ca
See Appendix A
OSHA PEL†: TWA 25 ppm (90 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 2528
OSHA 15, 46

Physical Description: Colorless liquid with a pleasant, fruity odor.

Chemical & Physical Properties:
MW: 89.1
BP: 249°F
Sol: 2%
Fl.P: 75°F
IP: 10.71 eV
Sp.Gr: 0.99
VP: 13 mmHg
FRZ: -135°F
UEL: 11.0%
LEL: 2.6%
Class IC Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: ScbaE

Incompatibilities and Reactivities: Amines; strong acids, alkalis & oxidizers; metal oxides; combustible materials

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose, resp sys; head, anor, nau, vomit, diarr; kidney, liver damage; [carc]
TO: Eyes, skin, resp sys, CNS, kidneys, liver [in animals: liver tumors]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

N-Nitrosodimethylamine

Formula:	CAS#:	RTECS#:	IDLH:
$(CH_3)_2N_2O$	62-75-9	IQ0525000	Ca [N.D.]

Conversion: **DOT:**

Synonyms/Trade Names: Dimethylnitrosamine; N,N-Dimethylnitrosamine; DMNA; N-Methyl-N-nitroso-methanamine; NDMA; N-Nitroso-N,N-dimethylamine

Exposure Limits:
NIOSH REL: Ca
See Appendix A
OSHA PEL: [1910.1016] See Appendix B

Measurement Methods (see Table 1):
NIOSH 2522
OSHA 38

Physical Description: Yellow, oily liquid with a faint, characteristic odor.

Chemical & Physical Properties:
MW: 74.1
BP: 306°F
Sol: Soluble
Fl.P: ?
IP: 8.69 eV
Sp.Gr: 1.005
VP: 3 mmHg
FRZ: ?
UEL: ?
LEL: ?
Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

See Appendix E (page 351)

Incompatibilities and Reactivities: Strong oxidizers [**Note:** Should be stored in dark bottles.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Nau, vomit, diarr, abdom cramps; head; fever; enlarged liver, jaun; decr liver, kidney, pulm func; [carc]
TO: Liver, kidneys,lungs [in animals; lung, kidney, liver & nasal cavity tumors]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

N

m-Nitrotoluene

Formula:	CAS#:	RTECS#:	IDLH:
$NO_2C_6H_4CH_3$	99-08-1	XT2975000	200 ppm

Conversion: 1 ppm = 5.61 mg/m^3 **DOT:** 1664 152

Synonyms/Trade Names: m-Methylnitrobenzene, 3-Methylnitrobenzene, meta-Nitrotoluene, 3-Nitrotoluene

Exposure Limits:
NIOSH REL: TWA 2 ppm (11 mg/m^3) [skin]
OSHA PEL†: TWA 5 ppm (30 mg/m^3) [skin]

Measurement Methods (see Table 1):
NIOSH 2005

Physical Description: Yellow liquid with a weak, aromatic odor. [**Note:** A solid below 59°F.]

Chemical & Physical Properties:
MW: 137.1
BP: 450°F
Sol: 0.05%
Fl.P: 223°F
IP: 9.48 eV
Sp.Gr: 1.16
VP: 0.1 mmHg
FRZ: 59°F
UEL: ?
LEL: 1.6%
Class IIIB Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
20 ppm: Sa*
50 ppm: Sa:Cf*
100 ppm: SaT:Cf*/ScbaF/SaF
200 ppm: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, sulfuric acid

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Anoxia, cyan; head, lass, dizz; ataxia; dysp; tacar; nau, vomit
TO: Blood, CNS, CVS, skin, GI tract

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

o-Nitrotoluene	Formula: $NO_2C_6H_4CH_3$	CAS#: 88-72-2	RTECS#: XT3150000	IDLH: 200 ppm
Conversion: 1 ppm = 5.61 mg/m^3	**DOT:** 1664 152			

Synonyms/Trade Names: o-Methylnitrobenzene, 2-Methylnitrobenzene, ortho-Nitrotoluene, 2-Nitrotoluene

Exposure Limits:
NIOSH REL: TWA 2 ppm (11 mg/m^3) [skin]
OSHA PEL†: TWA 5 ppm (30 mg/m^3) [skin]

Physical Description: Yellow liquid with a weak, aromatic odor.
[**Note:** A solid below 25°F.]

Measurement Methods (see Table 1):
NIOSH 2005

Chemical & Physical Properties:
MW: 137.1
BP: 432°F
Sol: 0.07%
Fl.P: 223°F
IP: 9.43 eV
Sp.Gr: 1.16
VP: 0.1 mmHg
FRZ: 25°F
UEL: ?
LEL: 2.2%
Class IIIB Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
20 ppm: Sa*
50 ppm: Sa:Cf*
100 ppm: SaT:Cf*/ScbaF/SaF
200 ppm: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, sulfuric acid

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Anoxia, cyan; head, lass, dizz; ataxia; dysp; tacar; nau, vomit
TO: Blood, CNS, CVS, skin, GI tract

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

N

p-Nitrotoluene	Formula: $NO_2C_6H_4CH_3$	CAS#: 99-99-0	RTECS#: XT3325000	IDLH: 200 ppm
Conversion: 1 ppm = 5.61 mg/m^3	**DOT:** 1664 152			

Synonyms/Trade Names: p-Methylnitrobenzene, 4-Methylnitrobenzene, para-Nitrotoluene, 4-Nitrotoluene

Exposure Limits:
NIOSH REL: TWA 2 ppm (11 mg/m^3) [skin]
OSHA PEL†: TWA 5 ppm (30 mg/m^3) [skin]

Physical Description: Crystalline solid with a weak, aromatic odor.

Measurement Methods (see Table 1):
NIOSH 2005

Chemical & Physical Properties:
MW: 137.1
BP: 460°F
Sol: 0.04%
Fl.P: 223°F
IP: 9.50 eV
Sp.Gr: 1.12
VP: 0.1 mmHg
MLT: 126°F
UEL: ?
LEL: 1.6%
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH
20 ppm: Sa*
50 ppm: Sa:Cf*
100 ppm: SaT:Cf*/ScbaF/SaF
200 ppm: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, sulfuric acid

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Anoxia, cyan; head, lass, dizz; ataxia; dysp; tacar; nau, vomit
TO: Blood, CNS, CVS, skin, GI tract

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Nitrous oxide	Formula: N_2O	CAS#: 10024-97-2	RTECS#: QX1350000	IDLH: N.D.
Conversion: 1 ppm = 1.80 mg/m^3	**DOT:** 1070 122; 2201 122 (refrigerated liquid)			
Synonyms/Trade Names: Dinitrogen monoxide, Hyponitrous acid anhydride, Laughing gas				

Exposure Limits:
NIOSH REL*: TWA 25 ppm (46 mg/m^3) (TWA over the time exposed)
[***Note:** REL for exposure to waste anesthetic gas.]
OSHA PEL: none

Measurement Methods (see Table 1):
NIOSH 3800, 6600
OSHA ID166

Physical Description: Colorless gas with a slightly sweet odor. [inhalation anesthetic]
[**Note:** Shipped as a liquefied compressed gas.]

Chemical & Physical Properties:
MW: 44.0
BP: -127°F
Sol(77°F): 0.1%
Fl.P: NA
IP: 12.89 eV
RGasD: 1.53
VP: 51.3 atm
FRZ: -132°F
UEL: NA
LEL: NA
Nonflammable Gas, but supports combustion at elevated temperatures.

Personal Protection/Sanitation (see Table 2):
Skin: Frostbite
Eyes: Frostbite
Wash skin: N.R.
Remove: N.R.
Change: N.R.
Provide: Frostbite wash

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Aluminum, boron, hydrazine, lithium hydride, phosphine, sodium

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con (liquid)
SY: Dysp; drow, head; asphy; repro effects; liquid: frostbite
TO: Resp sys, CNS, repro sys

First Aid (see Table 6):
Eye: Frostbite
Skin: Frostbite
Breath: Fresh air

N

Nonane	Formula: $CH_3(CH_2)_7CH_3$	CAS#: 111-84-2	RTECS#: RA6115000	IDLH: N.D.
Conversion: 1 ppm = 5.25 mg/m^3	**DOT:** 1920 128			
Synonyms/Trade Names: n-Nonane, Nonyl hydride				

Exposure Limits:
NIOSH REL: TWA 200 ppm (1050 mg/m^3)
OSHA PEL†: none

Measurement Methods (see Table 1):
None available

Physical Description: Colorless liquid with a gasoline-like odor.

Chemical & Physical Properties:
MW: 128.3
BP: 303°F
Sol: Insoluble
Fl.P: 88°F
IP: 10.21 eV
Sp.Gr: 0.72
VP: 3 mmHg
FRZ: -60°F
UEL: 2.9%
LEL: 0.8%
Class IC Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: Prevent eye contact
Wash skin: Daily
Remove: When wet (flamm)
Change: N.R.
Provide: Eyewash

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Strong oxidizers (e.g., peroxides, nitrates, perchlorates)

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose, throat; head, drow, dizz, conf, nau, tremor, inco; chemical pneu (aspir liquid)
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

1-Nonanethiol	Formula: $CH_3(CH_2)_8SH$	CAS#: 1455-21-6	RTECS#:	IDLH: N.D.
Conversion: 1 ppm = 6.56 mg/m^3	**DOT:** 1228 131			

Synonyms/Trade Names: 1-Mercaptononane, n-Nonyl mercaptan, Nonylthiol

Exposure Limits:
NIOSH REL: C 0.5 ppm (3.3 mg/m^3) [15-minute]
OSHA PEL: none

Measurement Methods (see Table 1):
None available

Physical Description: Liquid.

Chemical & Physical Properties:
MW: 160.3
BP: ?
Sol: Insoluble
Fl.P: ?
IP: ?
Sp.Gr: ?
VP: ?
FRZ: ?
UEL: ?
LEL: ?
Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
5 ppm: CcrOv/Sa
12.5 ppm: Sa:Cf/PaprOv
25 ppm: CcrFOv/GmFOv/PaprTOv/ ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Oxidizers, reducing agents, strong acids & bases, alkali metals

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose, throat; lass, cyan, incr respiration, nau, drow, head, vomit
TO: Eyes, skin, resp sys, blood, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Resp support
Swallow: Medical attention immed

O

Octachloronaphthalene	Formula: $C_{10}C_{l8}$	CAS#: 2234-13-1	RTECS#: QK0250000	IDLH: See Appendix F
Conversion:	**DOT:**			

Synonyms/Trade Names: Halowax® 1051; 1,2,3,4,5,6,7,8-Octachloronaphthalene; Perchloronaphthalene

Exposure Limits:
NIOSH REL: TWA 0.1 mg/m^3
ST 0.3 mg/m^3 [skin]
OSHA PEL†: TWA 0.1 mg/m^3 [skin]

Measurement Methods (see Table 1):
NIOSH S97 (II-2)

Physical Description: Waxy, pale-yellow solid with an aromatic odor.

Chemical & Physical Properties:
MW: 403.7
BP: 770°F
Sol: Insoluble
Fl.P: NA
IP: ?
Sp.Gr: 2.00
VP: <1 mmHg
MLT: 365°F
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
1 mg/m^3: Sa/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

See Appendix F

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Acne-form derm; liver damage, jaun
TO: Skin, liver

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

1-Octadecanethiol	Formula: $CH_3(CH_2)_{17}SH$	CAS#: 2885-00-9	RTECS#:	IDLH: N.D.
Conversion: 1 ppm = 11.72 mg/m^3	**DOT:** 1228 131 (liquid)			

Synonyms/Trade Names: 1-Mercaptooctadecane, Octadecyl mercaptan, Stearyl mercaptan

Exposure Limits:
NIOSH REL: C 0.5 ppm (5.9 mg/m^3) [15-minute]
OSHA PEL: none

Measurement Methods (see Table 1):
None available

Physical Description: Solid or liquid (above 77°F).

Chemical & Physical Properties:
MW: 286.6
BP: ?
Sol: Insoluble
Fl.P: ?
IP: ?
Sp.Gr: 0.85
VP: ?
MLT: 77°F
UEL: ?
LEL: ?
Combustible Solid
Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH
5 ppm: CcrOv/Sa
12.5 ppm: Sa:Cf/PaprOv
25 ppm: CcrFOv/GmFOv/PaprTOv/ ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Oxidizers, reducing agents, strong acids & bases, alkali metals

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, resp sys; head, dizz, lass, cyan, nau, convuls
TO: Eyes, skin, resp sys, CNS, blood

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

O

Octane	Formula: $CH_3[CH_2]_6CH_3$	CAS#: 111-65-9	RTECS#: RG8400000	IDLH: 1000 ppm [10%LEL]
Conversion: 1 ppm = 4.67 mg/m^3	**DOT:** 1262 128			

Synonyms/Trade Names: n-Octane, normal-Octane

Exposure Limits:
NIOSH REL: TWA 75 ppm (350 mg/m^3)
C 385 ppm (1800 mg/m^3) [15-minute]
OSHA PEL†: TWA 500 ppm (2350 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1500
OSHA 7

Physical Description: Colorless liquid with a gasoline-like odor.

Chemical & Physical Properties:
MW: 114.2
BP: 258°F
Sol(77°F): 0.00007%
Fl.P: 56°F
IP: 9.82 eV
Sp.Gr: 0.70
VP: 10 mmHg
FRZ: -70°F
UEL: 6.5%
LEL: 1.0%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
750 ppm: Sa*
1000 ppm: Sa:Cf*/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, nose; drow; derm; chemical pneu (aspir liquid); in animals: narco
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

1-Octanethiol	Formula: $CH_3(CH_2)_7SH$	CAS#: 111-88-6	RTECS#:	IDLH: N.D.
Conversion: 1 ppm = 5.98 mg/m^3	**DOT:** 1228 131			

Synonyms/Trade Names: 1-Mercaptooctane, n-Octyl mercaptan, Octylthiol, 1-Octylthiol

Exposure Limits:
NIOSH REL: C 0.5 ppm (3.0 mg/m^3) [15-minute]
OSHA PEL: none

Measurement Methods (see Table 1):
NIOSH 2510

Physical Description: Water-white liquid with a mild odor.

Chemical & Physical Properties:
MW: 146.3
BP: 390°F
Sol: Insoluble
Fl.P(oc): 115°F
IP: ?
Sp.Gr: 0.84
VP(212°F): 3 mmHg
FRZ: -57°F
UEL: ?
LEL: ?
Class II Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
5 ppm: CcrOv/Sa
12.5 ppm: Sa:Cf/PaprOv
25 ppm: CcrFOv/GmFOv/PaprTOv/ ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Oxidizers, reducing agents, strong acids & bases, alkali metals

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose, throat; lass, cyan, incr respiration, nau, drow, head, vomit
TO: Eyes, skin, resp sys, blood, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

O

Oil mist (mineral)	Formula:	CAS#: 8012-95-1	RTECS#: PY8030000	IDLH: 2500 mg/m^3
Conversion:	**DOT:**			

Synonyms/Trade Names: Heavy mineral oil mist, Paraffin oil mist, White mineral oil mist

Exposure Limits:
NIOSH REL: TWA 5 mg/m^3
ST 10 mg/m^3
OSHA PEL: TWA 5 mg/m^3

Measurement Methods (see Table 1):
NIOSH 5026, 5524

Physical Description: Colorless, oily liquid aerosol dispersed in air.
[**Note:** Has an odor like burned lubricating oil.]

Chemical & Physical Properties:
MW: Varies
BP: 680°F
Sol: Insoluble
Fl.P(oc): 380°F
IP: ?
Sp.Gr: 0.90
VP: <0.5 mmHg
FRZ: 0°F
UEL: ?
LEL: ?
Class IIIB Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: N.R.
Wash skin: When contam
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
50 mg/m^3: 100XQ/Sa
125 mg/m^3: Sa:Cf/PaprHie
250 mg/m^3: 100F/SaT:Cf/PaprTHie/ ScbaF/SaF
2500 mg/m^3: Sa:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: None reported

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Irrit eyes, skin, resp sys
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Skin: Soap wash
Breath: Fresh air

Osmium tetroxide

Formula: OsO_4 | **CAS#:** 20816-12-0 | **RTECS#:** RN1140000 | **IDLH:** 1 mg/m^3

Conversion: 1 ppm = 10.40 mg/m^3 | **DOT:** 2471 154

Synonyms/Trade Names: Osmic acid anhydride, Osmium oxide

Exposure Limits:
NIOSH REL: TWA 0.002 mg/m^3 (0.0002 ppm)
ST 0.006 mg/m^3 (0.0006 ppm)
OSHA PEL†: TWA 0.002 mg/m^3

Physical Description: Colorless, crystalline solid or pale-yellow mass with an unpleasant, acrid, chlorine-like odor. [**Note:** A liquid above 105°F.]

Measurement Methods (see Table 1):
None available

Chemical & Physical Properties:
MW: 254.2
BP: 266°F
Sol(77°F): 6%
Fl.P: NA
IP: 12.60 eV
Sp.Gr: 5.10
VP: 7 mmHg
MLT: 105°F
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
0.1 mg/m^3: CcrFS100/GmFS100/ ScbaF/SaF
1 mg/m^3: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS100/ScbaE

Incompatibilities and Reactivities: Hydrochloric acid, easily oxidized organic materials
[**Note:** Begins to sublime below BP. Contact with other materials may cause fire.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, resp sys; lac, vis dist; conj; head; cough, dysp; derm
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

O

Oxalic acid

Formula: $HOOCCOOH \times 2H_2O$ | **CAS#:** 144-62-7 | **RTECS#:** RO2450000 | **IDLH:** 500 mg/m^3

Conversion: | **DOT:**

Synonyms/Trade Names: Ethanedioic acid, Oxalic acid (aqueous), Oxalic acid dihydrate

Exposure Limits:
NIOSH REL: TWA 1 mg/m^3
ST 2 mg/m^3
OSHA PEL†: TWA 1 mg/m^3

Physical Description: Colorless, odorless powder or granular solid.
[**Note:** The anhydrous form $(COOH)_2$ is an odorless, white solid.]

Measurement Methods (see Table 1):
None available

Chemical & Physical Properties:
MW: 126.1
BP: Sublimes
Sol: 14%
Fl.P: ?
IP: ?
Sp.Gr: 1.90
VP: <0.001 mmHg
MLT: 215°F (Sublimes)
UEL: ?
LEL: ?
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
25 mg/m^3: Sa:Cf£/PaprHie£
50 mg/m^3: 100F/ScbaF/SaF
500 mg/m^3: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, silver compounds, strong alkalis, chlorites
[**Note:** Gives off water of crystallization at 215°F and begins to sublime.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, muc memb; eye burns; local pain, cyan; shock, collapse, convuls; kidney damage
TO: Eyes, skin, resp sys, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush prompt
Breath: Resp support
Swallow: Medical attention immed

Oxygen difluoride	Formula: OF_2	CAS#: 7783-41-7	RTECS#: RS2100000	IDLH: 0.5 ppm
Conversion: 1 ppm = 2.21 mg/m^3	**DOT:** 2190 124			

Synonyms/Trade Names: Difluorine monoxide, Fluorine monoxide, Oxygen fluoride

Exposure Limits:
NIOSH REL: C 0.05 ppm (0.1 mg/m^3)
OSHA PEL†: TWA 0.05 ppm (0.1 mg/m^3)

Measurement Methods (see Table 1):
None available

Physical Description: Colorless gas with a peculiar, foul odor.
[**Note:** Shipped as a nonliquefied compressed gas.]

Chemical & Physical Properties:
MW: 54.0
BP: -230°F
Sol: 0.02%
Fl.P: NA
IP: 13.11 eV
RGasD: 1.88
VP: >1 atm
FRZ: -371°F
UEL: NA
LEL: NA
Nonflammable Gas, but a strong oxidizer.

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
0.5 ppm: Sa/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS¿/ScbaE

Incompatibilities and Reactivities: Combustible materials, chlorine, bromine, iodine, platinum, metal oxides, moist air, hydrogen sulfide, hydrocarbons, water [**Note:** Reacts very slowly with water to form hydrofluoric acid.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Irrit eyes, skin, resp sys; head; pulm edema; eye, skin burns (from contact with the gas under pressure)
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support

O

Ozone	Formula: O_3	CAS#: 10028-15-6	RTECS#: RS8225000	IDLH: 5 ppm
Conversion: 1 ppm = 1.96 mg/m^3	**DOT:**			

Synonyms/Trade Names: Triatomic oxygen

Exposure Limits:
NIOSH REL: C 0.1 ppm (0.2 mg/m^3)
OSHA PEL†: TWA 0.1 ppm (0.2 mg/m^3)

Measurement Methods (see Table 1):
OSHA ID214

Physical Description: Colorless to blue gas with a very pungent odor.

Chemical & Physical Properties:
MW: 48.0
BP: -169°F
Sol(32°F): 0.001%
Fl.P: NA
IP: 12.52 eV
RGasD: 1.66
VP: >1 atm
FRZ: -315°F
UEL: NA
LEL: NA
Nonflammable Gas, but a powerful oxidizer.

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
1 ppm: CcrS¿/Sa
2.5 ppm: Sa:Cf/PaprS¿
5 ppm: CcrFS¿/GmFS¿/SaT:Cf/ ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS¿/ScbaE

Incompatibilities and Reactivities: All oxidizable materials (both organic & inorganic)

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Irrit eyes, muc memb; pulm edema; chronic resp disease
TO: Eyes, resp sys

First Aid (see Table 6):
Eye: Medical attention
Breath: Fresh air; 100% O_2

Paraffin wax fume	**Formula:** C_nH_{2n+2}	**CAS#:** 8002-74-2	**RTECS#:** RV0350000	**IDLH:** N.D.
Conversion:	**DOT:**			

Synonyms/Trade Names: Paraffin fume, Paraffin scale fume

Exposure Limits:
NIOSH REL: TWA 2 mg/m^3
OSHA PEL†: none

Measurement Methods (see Table 1):
OSHA PV2047

Physical Description: Paraffin wax is a white to slightly yellowish, odorless solid.
[**Note:** Consists of a mixture of high molecular weight hydrocarbons (e.g., $C_{36}H_{74}$).]

Chemical & Physical Properties:
MW: 350-420
BP: ?
Sol: Insoluble
Fl.P: 390°F
IP: ?
Sp.Gr: 0.88-0.92
VP: ?
MLT: 115-154°F
UEL: ?
LEL: ?
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: Prevent eye contact
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: None reported

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Irrit eyes, skin, resp sys; discomfort, nau
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Breath: Resp support

P

Paraquat (Paraquat dichloride)	**Formula:** $CH_3(C_5H_4N)_2CH_3{\times}2Cl$	**CAS#:** 1910-42-5	**RTECS#:** DW2275000	**IDLH:** 1 mg/m^3
Conversion:	**DOT:**			

Synonyms/Trade Names: 1,1'-Dimethyl-4,4'-bipyridinium dichloride; N,N'-Dimethyl-4,4'-bipyridinium dichloride; Paraquat chloride; Paraquat dichloride
[**Note:** Paraquat is a cation ($C_{12}H_{14}N_2^{++}$; 1,1-Dimethyl-4,4-bipyridinium ion); the commercial product is the dichloride salt of paraquat.]

Exposure Limits:
NIOSH REL: TWA 0.1 mg/m^3 (resp) [skin]
OSHA PEL†: TWA 0.5 mg/m^3 (resp) [skin]

Measurement Methods (see Table 1):
NIOSH 5003

Physical Description: Yellow solid with a faint, ammonia-like odor. [herbicide]
[**Note:** Paraquat may also be found commercially as a methyl sulfate salt $C_{12}H_{14}N_2{\times}2CH_3SO_4$.]

Chemical & Physical Properties:
MW: 257.2
BP: Decomposes
Sol: Miscible
Fl.P: NA
IP: ?
Sp.Gr: 1.24
VP: <0.0000001 mmHg
MLT: 572°F (Decomposes)
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
1 mg/m^3: CcrOv95*/PaprOvHie*/Sa*/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, alkylaryl-sulfonate wetting agents
[**Note:** Corrosive to metals. Decomposes in presence of ultraviolet light.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, nose, throat, resp sys; epis; derm; fingernail damage; irrit GI tract; heart, liver, kidney damage
TO: Eyes, skin, resp sys, heart, liver, kidneys, GI tract

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

Parathion	**Formula:** $(C_2H_5O)_2P(S)OC_6H_4NO_2$	**CAS#:** 56-38-2	**RTECS#:** TF4550000	**IDLH:** 10 mg/m^3
Conversion:	**DOT:** 2783 152			

Synonyms/Trade Names: O,O-Diethyl-O(p-nitrophenyl) phosphorothioate; Diethyl parathion; Ethyl parathion; Parathion-ethyl

Exposure Limits:
NIOSH REL: TWA 0.05 mg/m^3 [skin]
OSHA PEL: TWA 0.1 mg/m^3 [skin]

Physical Description: Pale-yellow to dark-brown liquid with a garlic-like odor.
[**Note:** A solid below 43°F. Pesticide that may be absorbed on a dry carrier.]

Measurement Methods (see Table 1):
NIOSH 5600
OSHA 62

Chemical & Physical Properties:
MW: 291.3
BP: 707°F
Sol: 0.001%
Fl.P(oc): 392°F
IP: ?
Sp.Gr: 1.27
VP: 0.00004 mmHg
FRZ: 43°F
UEL: ?
LEL: ?
Class IIIB Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
0.5 mg/m^3: CcrOv95/Sa
1.25 mg/m^3: Sa:Cf/PaprOvHie
2.5 mg/m^3: CcrFOv100/SaT:Cf/PaprTOvHie/ScbaF/SaF
10 mg/m^3: Sa:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, alkaline materials

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, resp sys; miosis; rhin; head; chest tight, wheez, lar spasm, salv, cyan; anor, nau, vomit, abdom cramps, diarr; sweat; musc fasc, lass, para; dizz, conf, ataxia; convuls, coma; low BP; card irreg
TO: Eyes, skin, resp sys, CNS, CVS, blood chol

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

P

Particulates not otherwise regulated	**Formula:**	**CAS#:**	**RTECS#:**	**IDLH:** N.D.
Conversion:	**DOT:**			

Synonyms/Trade Names: "Inert" dusts, Nuisance dusts, PNOR
[**Note:** Includes all inert or nuisance dusts, whether mineral, inorganic, not listed specifically in 1910.1000.]

Exposure Limits:
NIOSH REL: See Appendix D
OSHA PEL: TWA 15 mg/m^3 (total)
TWA 5 mg/m^3 (resp)

Physical Description: Dusts from solid substances without specific occupational exposure standards.

Measurement Methods (see Table 1):
NIOSH 0500, 0600

Chemical & Physical Properties:
Properties vary depending upon the specific solid.

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Varies

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Irrit eyes, skin, throat, upper resp sys
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Breath: Fresh air

Pentaborane

Formula: B_5H_9 | **CAS#:** 19624-22-7 | **RTECS#:** RY8925000 | **IDLH:** 1 ppm

Conversion: 1 ppm = 2.58 mg/m^3 | **DOT:** 1380 135

Synonyms/Trade Names: Pentaboron nonahydride

Exposure Limits:
NIOSH REL: TWA 0.005 ppm (0.01 mg/m^3)
ST 0.015 ppm (0.03 mg/m^3)
OSHA PEL†: TWA 0.005 ppm (0.01 mg/m^3)

Measurement Methods (see Table 1):
None available

Physical Description: Colorless liquid with a pungent odor like sour milk.

Chemical & Physical Properties:
MW: 63.1
BP: 140°F
Sol: Reacts
Fl.P: 86°F
IP: 9.90 eV
Sp.Gr: 0.62
VP: 171 mmHg
FRZ: -52°F
UEL: ?
LEL: 0.42%
Class IC Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
0.05 ppm: Sa
0.125 ppm: Sa:Cf
0.25 ppm: SaT:Cf/ScbaF/SaF
1 ppm: Sa:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS/ScbaE

Incompatibilities and Reactivities: Oxidizers, halogens, water, halogenated hydrocarbons
[**Note:** May ignite SPONTANEOUSLY in moist air. Corrosive to natural rubber. Hydrolyzes slowly with heat in water to form boric acid.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin; dizz, head, drow, inco, tremor, convuls, behavioral changes; tonic spasm face, neck, abdom, limbs
TO: Eyes, skin, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

P

Pentachloroethane

Formula: $CHCl_2CCl_3$ | **CAS#:** 76-01-7 | **RTECS#:** KI6300000 | **IDLH:** N.D.

Conversion: | **DOT:** 1669 151

Synonyms/Trade Names: Ethane pentachloride, Pentalin

Exposure Limits:
NIOSH REL: Handle with care in the workplace.
See Appendix C (Chloroethanes)
OSHA PEL: none

Measurement Methods (see Table 1):
NIOSH 2517

Physical Description: Colorless liquid with a sweetish, chloroform-like odor.

Chemical & Physical Properties:
MW: 202.3
BP: 322°F
Sol: 0.05%
Fl.P: ?
IP: 11.28 eV
Sp.Gr: 1.68
VP: 3 mmHg
FRZ: -20°F
UEL: ?
LEL: ?
Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: (Sodium-potassium alloy + bromoform), alkalis, metals, water
[**Note:** Hydrolysis produces dichloroacetic acid. Reaction with alkalis & metals produces spontaneously explosive chloroacetylenes.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: In animals: irrit eyes, skin; lass, restless, irreg respiration, musc inco; liver, kidney, lung changes
TO: Eyes, skin, resp sys, CNS, liver, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Resp support
Swallow: Medical attention immed

Pentachloronaphthalene	Formula: $C_{10}H_3Cl_5$	CAS#: 1321-64-8	RTECS#: QK0300000	IDLH: See Appendix F
Conversion:	**DOT:**			

Synonyms/Trade Names: Halowax® 1013; 1,2,3,4,5-Pentachloronaphthalene

Exposure Limits:
NIOSH REL: TWA 0.5 mg/m^3 [skin]
OSHA PEL: TWA 0.5 mg/m^3 [skin]

Measurement Methods (see Table 1):
NIOSH S96 (II-2)

Physical Description: Pale-yellow or white solid or powder with an aromatic odor.

Chemical & Physical Properties:
MW: 300.4
BP: 636°F
Sol: Insoluble
Fl.P: NA
IP: ?
Sp.Gr: 1.67
VP: <1 mmHg
MLT: 248°F
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
5 mg/m^3: Sa*/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

See Appendix F

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Head, lass, dizz, anor; pruritus, acne-form skin eruptions; jaun, liver nec
TO: Skin, liver, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap prompt/molten flush immed
Breath: Resp support
Swallow: Medical Attention immed

Pentachlorophenol	Formula: C_6Cl_5OH	CAS#: 87-86-5	RTECS#: SM6300000	IDLH: 2.5 mg/m^3
Conversion:	**DOT:** 3155 154			

P

Synonyms/Trade Names: PCP; Penta; 2,3,4,5,6-Pentachlorophenol

Exposure Limits:
NIOSH REL: TWA 0.5 mg/m^3 [skin]
OSHA PEL: TWA 0.5 mg/m^3 [skin]

Measurement Methods (see Table 1):
NIOSH 5512

Physical Description: Colorless to white, crystalline solid with a benzene-like odor. [fungicide]

Chemical & Physical Properties:
MW: 266.4
BP: 588°F (Decomposes)
Sol: 0.001%
Fl.P: NA
IP: NA
Sp.Gr: 1.98
VP(77°F): 0.0001 mmHg
MLT: 374°F
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
2.5 mg/m^3: CcrOv95*/PaprOvHie*/ Sa*/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, acids, alkalis

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, nose, throat; sneez, cough; lass, anor, low-wgt; sweat; head, dizz; nau, vomit; dysp, chest pain; high fever; derm
TO: Eyes, skin, resp sys, CVS, liver, kidneys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Pentaerythritol

Formula:	CAS#:	RTECS#:	IDLH:
$C(CH_2OH)_4$	115-77-5	RZ2490000	N.D.

Conversion:

DOT:

Synonyms/Trade Names: 2,2-bis(Hydroxymethyl)-1,3-propanediol; Methane tetramethylol; Monopentaerythritol; PE; Tetrahydroxymethylolmethane; Tetramethylolmethane

Exposure Limits:
NIOSH REL: TWA 10 mg/m^3 (total)
TWA 5 mg/m^3 (resp)
OSHA PEL†: TWA 15 mg/m^3 (total)
TWA 5 mg/m^3 (resp)

Physical Description: Colorless to white, crystalline, odorless powder.
[**Note:** Technical grade is 88% monopentaerythritol & 12% dipentaerythritol.]

Measurement Methods (see Table 1):
NIOSH 0500, 0600

Chemical & Physical Properties:
MW: 136.2
BP: Sublimes
Sol(59°F): 6%
Fl.P: ?
IP: ?
Sp.Gr: 1.38
VP: 0.00000008 mmHg
MLT: 500°F (Sublimes)
UEL: ?
LEL: ?
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Organic acids, oxidizers
[**Note:** Explosive compound is formed when a mixture of PE & thiophosphoryl chloride is heated.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, resp sys
TO: Eyes, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water wash
Breath: Fresh air
Swallow: Medical attention immed

P

n-Pentane

Formula:	CAS#:	RTECS#:	IDLH:
$CH_3[CH_2]_3CH_3$	109-66-0	RZ9450000	1500 ppm [10%LEL]

Conversion: 1 ppm = 2.95 mg/m^3

DOT: 1265 128

Synonyms/Trade Names: Pentane, normal-Pentane

Exposure Limits:
NIOSH REL: TWA 120 ppm (350 mg/m^3)
C 610 ppm (1800 mg/m^3) [15-minute]
OSHA PEL†: TWA 1000 ppm (2950 mg/m^3)

Physical Description: Colorless liquid with a gasoline-like odor.
[**Note:** A gas above 97°F. May be utilized as a fuel.]

Measurement Methods (see Table 1):
NIOSH 1500
OSHA 7

Chemical & Physical Properties:
MW: 72.2
BP: 97°F
Sol: 0.04%
Fl.P: -57°F
IP: 10.34 eV
Sp.Gr: 0.63
VP: 420 mmHg
FRZ: -202°F
UEL: 7.8%
LEL: 1.5%
Class IA Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
1200 ppm: Sa
1500 ppm: Sa:Cf/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose; derm; chemical pneu (aspir liquid); drow; in animals: narco
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water wash prompt
Breath: Resp support
Swallow: Medical attention immed

1-Pentanethiol	Formula: $CH_3(CH_2)_4SH$	CAS#: 110-66-7	RTECS#: SA3150000	IDLH: N.D.
Conversion: 1 ppm = 4.26 mg/m^3	**DOT:** 1111 130			

Synonyms/Trade Names: Amyl hydrosulfide, Amyl mercaptan, Amyl sulfhydrate, Pentyl mercaptan

Exposure Limits:
NIOSH REL: C 0.5 ppm (2.1 mg/m^3) [15-minute]
OSHA PEL: none

Measurement Methods (see Table 1):
None available

Physical Description: Water-white to yellowish liquid with a strong, garlic-like odor.

Chemical & Physical Properties:
MW: 104.2
BP: 260°F
Sol: Insoluble
Fl.P(oc): 65°F
IP: ?
Sp.Gr: 0.84
VP(77°F): 14 mmHg
FRZ: -104°F
UEL: ?
LEL: ?
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
5 ppm: CcrOv/Sa
12.5 ppm: Sa:Cf/PaprOv
25 ppm: CcrFOv/GmFOv/PaprTOv/ ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Oxidizers, reducing agents, alkali metals, calcium hypochlorite, concentrated nitric acid

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose, throat, resp sys; head, nau, dizz; vomit, diarr; derm, skin sens
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

2-Pentanone	Formula: $CH_3COCH_2CH_2CH_3$	CAS#: 107-87-9	RTECS#: SA7875000	IDLH: 1500 ppm
Conversion: 1 ppm = 3.52 mg/m^3	**DOT:** 1249 127			

Synonyms/Trade Names: Ethyl acetone, Methyl propyl ketone, MPK

Exposure Limits:
NIOSH REL: TWA 150 ppm (530 mg/m^3)
OSHA PEL†: TWA 200 ppm (700 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1300, 2555

Physical Description: Colorless to water-white liquid with a characteristic acetone-like odor.

Chemical & Physical Properties:
MW: 86.1
BP: 215°F
Sol: 6%
Fl.P: 45°F
IP: 9.39 eV
Sp.Gr: 0.81
VP: 27 mmHg
FRZ: -108°F
UEL: 8.2%
LEL: 1.5%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
1500 ppm: CcrOv*/PaprOv*/GmFOv/ Sa*/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Oxidizers, bromine trifluoride

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, muc memb; head; derm; narco, coma
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush
Breath: Resp support
Swallow: Medical attention immed

Perchloromethyl mercaptan

Formula:	CAS#:	RTECS#:	IDLH:
Cl_3CSCl	594-42-3	PB0370000	10 ppm

Conversion: 1 ppm = 7.60 mg/m^3 | **DOT:** 1670 157

Synonyms/Trade Names: PCM, PMM, Trichloromethane sulfenyl chloride, Trichloromethyl sulfur chloride

Exposure Limits:
NIOSH REL: TWA 0.1 ppm (0.8 mg/m^3)
OSHA PEL: TWA 0.1 ppm (0.8 mg/m^3)

Measurement Methods (see Table 1):
None available

Physical Description: Pale-yellow, oily liquid with an unbearable, acrid odor.

Chemical & Physical Properties:
MW: 185.9
BP: 297°F (Decomposes)
Sol: Insoluble
Fl.P: NA
IP: ?
Sp.Gr: 1.69
VP: 3 mmHg
FRZ: ?
UEL: NA
LEL: NA
Noncombustible Liquid, but will support combustion.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
1 ppm: CcrOv*/Sa*
2.5 ppm: Sa:Cf*/PaprOv*
5 ppm: CcrFOv/GmFOv/PaprTOv*/SaT:Cf*/ScbaF/SaF
10 ppm: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Alkalis, amines, hot iron, water
[**Note:** Corrosive to most metals. Forms HCl, sulfur & CO_2 on contact with water.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, nose, throat; lac; cough, dysp, deep breath pain, coarse rales; vomit; pallor, tacar; acidosis; anuria; liver, kidney damage
TO: Eyes, skin, resp sys, liver, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

P

Perchloryl fluoride

Formula:	CAS#:	RTECS#:	IDLH:
ClO_3F	7616-94-6	SD1925000	100 ppm

Conversion: 1 ppm = 4.19 mg/m^3 | **DOT:** 3083 124

Synonyms/Trade Names: Chlorine fluoride oxide, Chlorine oxyfluoride, Trioxychlorofluoride

Exposure Limits:
NIOSH REL: TWA 3 ppm (14 mg/m^3)
ST 6 ppm (28 mg/m^3)
OSHA PEL†: TWA 3 ppm (13.5 mg/m^3)

Measurement Methods (see Table 1):
None available

Physical Description: Colorless gas with a characteristic, sweet odor.
[**Note:** Shipped as a liquefied compressed gas.]

Chemical & Physical Properties:
MW: 102.5
BP: -52°F
Sol: 0.06%
Fl.P: NA
IP: 13.60 eV
RGasD: 3.64
VP: 10.5 atm
FRZ: -234°F
UEL: NA
LEL: NA
Nonflammable Gas, but will support combustion.

Personal Protection/Sanitation (see Table 2):
Skin: Frostbite
Eyes: Frostbite
Wash skin: N.R.
Remove: N.R.
Change: N.R.
Provide: Frostbite wash

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
30 ppm: Sa
75 ppm: Sa:Cf*
100 ppm: ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS¿/ScbaE

Incompatibilities and Reactivities: Combustibles, strong bases, amines, finely divided metals, reducing agents, alcohols

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con (liquid)
SY: Irrit resp sys; liquid: frostbite; in animals: methemo; cyan; lass, dizz, head; pulm edema; pneu; anoxia
TO: Skin, resp sys, blood

First Aid (see Table 6):
Eye: Frostbite
Skin: Frostbite
Breath: Resp support

Perlite	Formula:	CAS#: 93763-70-3	RTECS#: SD5254000	IDLH: N.D.
Conversion:	**DOT:**			

Synonyms/Trade Names: Expanded perlite
[**Note:** An amorphous material consisting of fused sodium potassium aluminum silicate.]

Exposure Limits:
NIOSH REL: TWA 10 mg/m^3 (total)
TWA 5 mg/m^3 (resp)
OSHA PEL: TWA 15 mg/m^3 (total)
TWA 5 mg/m^3 (resp)

Measurement Methods (see Table 1):
NIOSH 0500, 0600

Physical Description: Odorless, light-gray to glassy-black solid.
[**Note:** Expanded perlite is a fluffy, white particulate.]

Chemical & Physical Properties:
MW: varies
BP: ?
Sol: <1%
Fl.P: NA
IP: NA
Sp.Gr: 2.2 - 2.4 (crude)
0.05 - 0.3 (expanded)
VP: 0 mmHg (approx)
MLT: >2000°F
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: None reported

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Irrit eyes, skin, throat, upper resp sys
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Breath: Fresh air

P

Petroleum distillates (naphtha)	Formula:	CAS#: 8002-05-9	RTECS#: SE7449000	IDLH: 1100 ppm [10%LEL]
Conversion: 1 ppm = 4.05 mg/m^3	**DOT:**			

Synonyms/Trade Names: Aliphatic petroleum naphtha, Petroleum naphtha, Rubber solvent

Exposure Limits:
NIOSH REL: TWA 350 mg/m^3
C 1800 mg/m^3 [15-minute]
OSHA PEL†: TWA 500 ppm (2000 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1550

Physical Description: Colorless liquid with a gasoline- or kerosene-like odor.
[**Note:** A mixture of paraffins (C_5 to C_{13}) that may contain a small amount of aromatic hydrocarbons.]

Chemical & Physical Properties:
MW: 99 (approx)
BP: 86-460°F
Sol: Insoluble
Fl.P: -40 to -86°F
IP: ?
Sp.Gr: 0.63-0.66
VP: 40 mmHg (approx)
FRZ: -99°F
UEL: 5.9%
LEL: 1.1%
Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
850 ppm: Sa
1100 ppm: Sa:Cf*/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, nose, throat; dizz, drow, head, nau; dry cracked skin; chemical pneu (aspir liquid)
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

Phenol

Formula:	CAS#:	RTECS#:	IDLH:
C_6H_5OH	108-95-2	SJ3325000	250 ppm

Conversion: 1 ppm = 3.85 mg/m^3

DOT: 1671 153 (solid); 2312 153 (molten); 2821 153 (solution)

Synonyms/Trade Names: Carbolic acid, Hydroxybenzene, Monohydroxybenzene, Phenyl alcohol, Phenyl hydroxide

Exposure Limits:
NIOSH REL: TWA 5 ppm (19 mg/m^3) [skin]
C 15.6 ppm (60 mg/m^3) [15-minute]
OSHA PEL: TWA 5 ppm (19 mg/m^3) [skin]

Measurement Methods (see Table 1):
NIOSH 2546
OSHA 32

Physical Description: Colorless to light-pink, crystalline solid with a sweet, acrid odor. [**Note:** Phenol liquefies by mixing with about 8% water.]

Chemical & Physical Properties:
MW: 94.1
BP: 359°F
Sol(77°F): 9%
Fl.P: 175°F
IP: 8.50 eV
Sp.Gr: 1.06
VP: 0.4 mmHg
MLT: 109°F
UEL: 8.6%
LEL: 1.8%
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
50 ppm: CcrOv95/Sa
125 ppm: Sa:Cf/PaprOvHie
250 ppm: CcrFOv100/GmFOv100/PaprTOvHie/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, calcium hypochlorite, aluminum chloride, acids

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, nose, throat; anor, low-wgt; lass, musc ache, pain; dark urine; cyan; liver, kidney damage; skin burns; derm; ochronosis; tremor, convuls, twitch
TO: Eyes, skin, resp sys, liver, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

P

Phenothiazine

Formula:	CAS#:	RTECS#:	IDLH:
$S(C_6H_4)_2NH$	92-84-2	SN5075000	N.D.

Conversion:

DOT:

Synonyms/Trade Names: Dibenzothiazine, Fenothiazine, Thiodiphenylamine

Exposure Limits:
NIOSH REL: TWA 5 mg/m^3 [skin]
OSHA PEL†: none

Measurement Methods (see Table 1):
OSHA PV2048

Physical Description: Grayish-green to greenish-yellow solid. [insecticide]

Chemical & Physical Properties:
MW: 199.3
BP: 700°F
Sol: Insoluble
Fl.P: ?
IP: ?
Sp.Gr: ?
VP: 0 mmHg (approx)
MLT: 365°F
UEL: ?
LEL: ?
Combustible Solid, but not a high fire risk.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: N.R.
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: None reported

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Itching, irrit, reddening skin; hepatitis, hemolytic anemia, abdom cramps, tacar; kidney damage; skin photo sens
TO: Skin, CVS, liver, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

p-Phenylene diamine	Formula: $C_6H_4(NH_2)_2$	CAS#: 106-50-3	RTECS#: SS8050000	IDLH: 25 mg/m^3
Conversion:	**DOT:** 1673 153			

Synonyms/Trade Names: 4-Aminoaniline; 1,4-Benzenediamine; p-Diaminobenzene; 1,4-Diaminobenzene; 1,4-Phenylene diamine

Exposure Limits:
NIOSH REL: TWA 0.1 mg/m^3 [skin]
OSHA PEL: TWA 0.1 mg/m^3 [skin]

Measurement Methods (see Table 1):
OSHA 87

Physical Description: White to slightly red, crystalline solid.

Chemical & Physical Properties:
MW: 108.2
BP: 513°F
Sol(75°F): 4%
Fl.P: 312°F
IP: 6.89 eV
Sp.Gr: ?
VP: <1 mmHg
MLT: 295°F
UEL: ?
LEL: ?
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
2.5 mg/m^3: Sa:Cf£
5 mg/m^3: ScbaF/SaF
25 mg/m^3: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS100/ScbaE

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit pharynx, larynx; bronchial asthma; sens derm
TO: Resp sys, skin

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

P

Phenyl ether (vapor)	Formula: $C_6H_5OC_6H_5$	CAS#: 101-84-8	RTECS#: KN8970000	IDLH: 100 ppm
Conversion: 1 ppm = 6.96 mg/m^3	**DOT:**			

Synonyms/Trade Names: Diphenyl ether, Diphenyl oxide, Phenoxy benzene, Phenyl oxide

Exposure Limits:
NIOSH REL: TWA 1 ppm (7 mg/m^3)
OSHA PEL: TWA 1 ppm (7 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1617
OSHA PV2022

Physical Description: Colorless, crystalline solid or liquid (above 82°F) with a geranium-like odor.

Chemical & Physical Properties:
MW: 170.2
BP: 498°F
Sol: Insoluble
Fl.P: 239°F
IP: 8.09 eV
Sp.Gr: 1.08
VP(77°F): 0.02 mmHg
MLT: 82°F
UEL: 6.0%
LEL: 0.7%
Combustible Solid
Class IIIB Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
25 ppm: Sa:Cf£/PaprOvHie£
50 ppm: CcrFOv100/GmFOv100/ ScbaF/SaF
100 ppm: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Irrit eyes, nose, skin; nau
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support

Phenyl ether-biphenyl mixture (vapor)	Formula: $C_6H_5OC_6H_5/C_6H_5C_6H_5$	CAS#: 8004-13-5	RTECS#: DV1500000	IDLH: 10 ppm
Conversion: 1 ppm = 6.79 mg/m^3 (approx)	**DOT:**			

Synonyms/Trade Names: Diphenyl oxide-diphenyl mixture, Dowtherm® A

Exposure Limits:
NIOSH REL: TWA 1 ppm (7 mg/m^3)
OSHA PEL: TWA 1 ppm (7 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 2013

Physical Description: Colorless to straw-colored liquid or solid (below 54°F) with a disagreeable, aromatic odor.
[**Note:** A mixture typically contains 75% phenyl ether & 25% biphenyl.]

Chemical & Physical Properties:
MW: 166 (approx)
BP: 495°F
Sol: Insoluble
Fl.P: 239°F
IP: ?
Sp.Gr(77°F): 1.06
VP(77°F): 0.08 mmHg
FRZ: 54°F
UEL: ?
LEL: ?
Class IIIB Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
10 ppm: Sa:Cf£/CcrFOv100/GmFOv100/PaprOvHie£/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Irrit eyes, nose, skin; nau
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support

P

Phenyl glycidyl ether	Formula: $C_9H_{10}O_2$	CAS#: 122-60-1	RTECS#: TZ3675000	IDLH: Ca [100 ppm]
Conversion: 1 ppm = 6.14 mg/m^3	**DOT:**			

Synonyms/Trade Names: 1,2-Epoxy-3-phenoxy propane; Glycidyl phenyl ether; PGE; Phenyl 2,3-epoxypropyl ether

Exposure Limits:
NIOSH REL: Ca
C 1 ppm (6 mg/m^3) [15-minute]
See Appendix A
OSHA PEL†: TWA 10 ppm (60 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1619
OSHA 7

Physical Description: Colorless liquid. [**Note:** A solid below 38°F.]

Chemical & Physical Properties:
MW: 150.1
BP: 473°F
Sol: 0.2%
Fl.P: 248°F
IP: ?
Sp.Gr: 1.11
VP: 0.01 mmHg
FRZ: 38°F
UEL: ?
LEL: ?
Class IIIB Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, amines, strong acids, strong bases

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin; upper resp sys; skin sens; narco; possible hemato, repro effects; [carc]
TO: Eyes, skin, CNS, hemato sys, repro sys [in animals: nasal cancer]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

Phenylhydrazine	Formula: $C_6H_5NHNH_2$	CAS#: 100-63-0	RTECS#: MV8925000	IDLH: Ca [15 ppm]
Conversion: 1 ppm = 4.42 mg/m^3	**DOT:** 2572 153			

Synonyms/Trade Names: Hydrazinobenzene, Monophenylhydrazine

Exposure Limits:
NIOSH REL: Ca
C 0.14 ppm (0.6 mg/m^3) [2-hr] [skin]
See Appendix A
OSHA PEL†: TWA 5 ppm (22 mg/m^3) [skin]

Measurement Methods (see Table 1):
NIOSH 3518

Physical Description: Colorless to pale-yellow liquid or solid (below 67°F) with a faint, aromatic odor.

Chemical & Physical Properties:
MW: 108.1
BP: 470°F (Decomposes)
Sol: Slight
Fl.P: 190°F
IP: 7.64 eV
Sp.Gr: 1.10
VP(77°F): 0.04 mmHg
FRZ: 67°F
UEL: ?
LEL: ?
Class IIIA Combustible Liquid
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: ScbaE

Incompatibilities and Reactivities: Strong oxidizers, lead dioxide

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Skin sens, hemolytic anemia, dysp, cyan; jaun; kidney damage; vascular thrombosis; [carc]
TO: Blood, resp sys, liver, kidneys, skin [in animals: tumors of the lungs, liver, blood vessels & intestine]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

P

N-Phenyl-β-naphthylamine	Formula: $C_{10}H_7NHC_6H_5$	CAS#: 135-88-6	RTECS#: QM4550000	IDLH: Ca [N.D.]
Conversion:	**DOT:**			

Synonyms/Trade Names: 2-Anilinonaphthalene, β-Naphthylphenylamine, PBNA, 2-Phenylaminonaphthalene, Phenyl-β-naphthylamine

Exposure Limits:
NIOSH REL: Ca*
See Appendix A
[***Note:** Since metabolized to β-Naphthylamine.]
OSHA PEL: none

Measurement Methods (see Table 1):
OSHA 96

Physical Description: White to yellow crystals or gray to tan flakes or powder.
[**Note:** Commercial product may contain 20-30 ppm of β-Naphthylamine.]

Chemical & Physical Properties:
MW: 219.3
BP: 743°F
Sol: Insoluble
Fl.P: ?
IP: ?
Sp.Gr: 1.24
VP: ?
MLT: 226°F
UEL: ?
LEL: ?
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irritation; leucoplakia; acne, hypersensitivity to sunlight; [carc]
TO: Eyes, skin, bladder [bladder cancer]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Phenylphosphine	**Formula:** $C_6H_5PH_2$	**CAS#:** 638-21-1	**RTECS#:** SZ2100000	**IDLH:** N.D.
Conversion: 1 ppm = 4.50 mg/m^3	**DOT:**			

Synonyms/Trade Names: Fenylfosfin, PF, Phosphaniline

Exposure Limits:
NIOSH REL: C 0.05 ppm (0.25 mg/m^3)
OSHA PEL†: none

Measurement Methods (see Table 1):
None available

Physical Description: Clear, colorless liquid with a foul odor.

Chemical & Physical Properties:
MW: 110.1
BP: 320°F
Sol: Insoluble
Fl.P: ?
IP: ?
Sp.Gr(59°F): 1.001
VP: ?
FRZ: ?
UEL: ?
LEL: ?
Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: Daily
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: None reported [**Note:** Spontaneously combustible in high concentrations in air. Potential exposure to gaseous PF when polyphosphinates are heated above 392°F.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: In animals: blood changes, anemia, testicular degeneration; loss of appetite, diarr, lac, hind leg tremor; derm
TO: Blood, CNS, skin, repro sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Resp support
Swallow: Medical attention immed

P

Phorate	**Formula:** $(C_2H_5O)_2P(S)SCH_2SC_2H_5$	**CAS#:** 298-02-2	**RTECS#:** TD9450000	**IDLH:** N.D.
Conversion:	**DOT:** 3018 152 (organophosphorus pesticide, liquid, toxic)			

Synonyms/Trade Names: O,O-Diethyl S-(ethylthio)methylphosphorodithioate; O,O-Diethyl S-ethylthiomethylthiothionophosphate; Thimet; Timet

Exposure Limits:
NIOSH REL: TWA 0.05 mg/m^3
ST 0.2 mg/m^3 [skin]
OSHA PEL†: none

Measurement Methods (see Table 1):
NIOSH 5600

Physical Description: Clear liquid with a skunk-like odor. [insecticide]

Chemical & Physical Properties:
MW: 260.4
BP: ?
Sol: 0.005%
Fl.P(oc): 320°F
IP: ?
Sp.Gr(77°F): 1.16
VP: 0.0008 mmHg
FRZ: -45°F
UEL: ?
LEL: ?
Class IIIB Combustible Liquid, but does not readily ignite.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Water, alkalis [**Note:** Hydrolyzed in the presence of moisture and by alkalis.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, resp sys; miosis; rhin; head; chest tight, wheez, lar spasm, salv, cyan; anor, nau, vomit, abdom cramps, diarr; sweat; musc fasc, lass, para; dizz, conf, ataxia; convuls, coma; low BP; card irreg
TO: Eyes, skin, resp sys, CNS, CVS, blood chol

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap flush immed
Breath: Resp support
Swallow: Medical attention immed

Phosdrin

Formula:	CAS#:	RTECS#:	IDLH:
$C_7H_{13}PO_6$	7786-34-7	GQ5250000	4 ppm

Conversion: 1 ppm = 9.17 mg/m^3 **DOT:** 2783 152

Synonyms/Trade Names: 2-Carbomethoxy-1-methylvinyl dimethyl phosphate, Mevinphos
[**Note:** Commercial product is a mixture of the cis- & trans-isomers.]

Exposure Limits:
NIOSH REL: TWA 0.01 ppm (0.1 mg/m^3) [skin]
ST 0.03 ppm (0.3 mg/m^3)
OSHA PEL†: TWA 0.1 mg/m^3 [skin]

Physical Description: Pale-yellow to orange liquid with a weak odor.
[**Note:** Insecticide that may be absorbed on a dry carrier.]

Measurement Methods (see Table 1):
NIOSH 5600

Chemical & Physical Properties:
MW: 224.2
BP: Decomposes
Sol: Miscible
Fl.P(oc): 347°F
IP: ?
Sp.Gr: 1.25
VP: 0.003 mmHg
FRZ: 44°F (trans-)
70°F (cis-)
UEL: ?
LEL: ?
Class IIIB Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
0.1 ppm: Sa
0.25 ppm: Sa:Cf
0.5 ppm: SaT:Cf/ScbaF/SaF
4 ppm: Sa:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Strong oxidizers [**Note:** Corrosive to cast iron, some stainless steels & brass.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, resp sys; miosis; rhin; head; chest tight, wheez, lar spasm, salv, cyan; anor, nau, vomit, abdom cramps, diarr; para; ataxia, convuls; low BP, card irreg
TO: Eyes, skin, resp sys, CNS, CVS, blood chol

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

P

Phosgene

Formula:	CAS#:	RTECS#:	IDLH:
$COCl_2$	75-44-5	SY5600000	2 ppm

Conversion: 1 ppm = 4.05 mg/m^3 **DOT:** 1076 125

Synonyms/Trade Names: Carbon oxychloride, Carbonyl chloride, Carbonyl dichloride, Chloroformyl chloride

Exposure Limits:
NIOSH REL: TWA 0.1 ppm (0.4 mg/m^3)
C 0.2 ppm (0.8 mg/m^3) [15-minute]
OSHA PEL: TWA 0.1 ppm (0.4 mg/m^3)

Physical Description: Colorless gas with a suffocating odor like musty hay.
[**Note:** A fuming liquid below 47°F. Shipped as a liquefied compressed gas.]

Measurement Methods (see Table 1):
OSHA 61

Chemical & Physical Properties:
MW: 98.9
BP: 47°F
Sol: Slight
Fl.P: NA
IP: 11.55 eV
RGasD: 3.48
Sp.Gr: 1.43 (Liquid at 32°F)
VP: 1.6 atm
FRZ: -198°F
UEL: NA
LEL: NA
Nonflammable Gas

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact (liquid)
Eyes: Prevent eye contact (liquid)
Wash skin: When contam (liquid)
Remove: When wet or contam (liquid)
Change: N.R.
Provide: Quick drench (liquid)

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
1 ppm: Sa*
2 ppm: ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS/ScbaE

Incompatibilities and Reactivities: Moisture, alkalis, ammonia, alcohols, copper
[**Note:** Reacts slowly in water to form hydrochloric acid & carbon dioxide.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con (liquid)
SY: Irrit eyes; dry burning throat; vomit; cough, foamy sputum, dysp, chest pain, cyan; liquid: frostbite
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed (liquid)
Skin: Water flush immed (liquid)
Breath: Resp support

Phosphine

Formula:	CAS#:	RTECS#:	IDLH:
PH_3	7803-51-2	SY7525000	50 ppm

Conversion: 1 ppm = 1.39 mg/m^3 **DOT:** 2199 119

Synonyms/Trade Names: Hydrogen phosphide, Phosphorated hydrogen, Phosphorus hydride, Phosphorus trihydride

Exposure Limits:
NIOSH REL: TWA 0.3 ppm (0.4 mg/m^3)
ST 1 ppm (1 mg/m^3)
OSHA PEL†: TWA 0.3 ppm (0.4 mg/m^3)

Measurement Methods (see Table 1):
OSHA 1003, ID180

Physical Description: Colorless gas with a fish- or garlic-like odor. [pesticide]
[**Note:** Shipped as a liquefied compressed gas. Pure compound is odorless.]

Chemical & Physical Properties:
MW: 34.0
BP: -126°F
Sol: Slight
Fl.P: NA (Gas)
IP: 9.96 eV
RGasD: 1.18
VP: 41.3 atm
FRZ: -209°F
UEL: ?
LEL: 1.79%
Flammable Gas

Personal Protection/Sanitation (see Table 2):
Skin: Frostbite
Eyes: Frostbite
Wash skin: N.R.
Remove: When wet (flamm)
Change: N.R.
Provide: Frostbite wash

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
3 ppm: Sa
7.5 ppm: Sa:Cf
15 ppm: GmFS/ScbaF/SaF
50 ppm: Sa:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS/ScbaE

Incompatibilities and Reactivities: Air, oxidizers, chlorine, acids, moisture, halogenated hydrocarbons, copper [**Note:** May ignite SPONTANEOUSLY on contact with air.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con (liquid)
SY: Nau, vomit, abdom pain, diarr; thirst; chest tight, dysp; musc pain, chills; stupor or syncope; pulm edema; liquid: frostbite
TO: Resp sys

First Aid (see Table 6):
Eye: Frostbite
Skin: Frostbite
Breath: Resp support

P

Phosphoric acid

Formula:	CAS#:	RTECS#:	IDLH:
H_3PO_4	7664-38-2	TB6300000	1000 mg/m^3

Conversion: **DOT:** 1805 154 (liquid or solution); 3453 154 (solid)

Synonyms/Trade Names: Orthophosphoric acid, Phosphoric acid (aqueous), White phosphoric acid

Exposure Limits:
NIOSH REL: TWA 1 mg/m^3
ST 3 mg/m^3
OSHA PEL†: TWA 1 mg/m^3

Measurement Methods (see Table 1):
NIOSH 7903
OSHA ID165SG

Physical Description: Thick, colorless, odorless, crystalline solid. [**Note:** Often used in an aqueous solution.]

Chemical & Physical Properties:
MW: 98.0
BP: 415°F
Sol: Miscible
Fl.P: NA
IP: ?
Sp.Gr(77°F): 1.87 (pure)
1.33 (50% solution)
VP: 0.03 mmHg
MLT: 108°F
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash (>1.6%)
Quick drench (>1.6%)

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
25 mg/m^3: Sa:Cf*
50 mg/m^3: 100F/ScbaF/SaF
1000 mg/m^3: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Strong caustics, most metals [**Note:** Readily reacts with metals to form flammable hydrogen gas. DO NOT MIX WITH SOLUTIONS CONTAINING BLEACH OR AMMONIA.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, upper resp sys; eye, skin, burns; derm
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush Immed
Breath: Resp support
Swallow: Medical attention immed

Phosphorus (yellow)	Formula: P_4	CAS#: 7723-14-0	RTECS#: TH3500000	IDLH: 5 mg/m^3
Conversion:	**DOT:** 1381 136			

Synonyms/Trade Names: Elemental phosphorus, White phosphorus

Exposure Limits:
NIOSH REL: TWA 0.1 mg/m^3
OSHA PEL: TWA 0.1 mg/m^3

Measurement Methods (see Table 1):
NIOSH 7905

Physical Description: White to yellow, soft, waxy solid with acrid fumes in air.
[**Note:** Usually shipped or stored in water.]

Chemical & Physical Properties:
MW: 124.0
BP: 536°F
Sol: 0.0003%
Fl.P: ?
IP: ?
Sp.Gr: 1.82
VP: 0.03 mmHg
MLT: 111°F
UEL: ?
LEL: ?
Flammable Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact*
[***Note:** Flame retardant personal protective equipment should be provided.]
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
1 mg/m^3: Sa
2.5 mg/m^3: Sa:Cf£
5 mg/m^3: ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: ScbaE

Incompatibilities and Reactivities: Air, oxidizers (including elemental sulfur & strong caustics), halogens
[**Note:** Ignites SPONTANEOUSLY in moist air.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, resp tract; eye, skin burns; abdom pain, nau, jaun; anemia; cachexia; dental pain, salv, jaw pain, swell
TO: Eyes, skin, resp sys, liver, kidneys, jaw, teeth, blood

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

P

Phosphorus oxychloride	Formula: $POCl_3$	CAS#: 10025-87-3	RTECS#: TH4897000	IDLH: N.D.
Conversion: 1 ppm = 6.27 mg/m^3	**DOT:** 1810 137			

Synonyms/Trade Names: Phosphorus chloride, Phosphorus oxytrichloride, Phosphoryl chloride

Exposure Limits:
NIOSH REL: TWA 0.1 ppm (0.6 mg/m^3)
ST 0.5 ppm (3 mg/m^3)
OSHA PEL†: none

Measurement Methods (see Table 1):
None available

Physical Description: Clear, colorless to yellow, oily liquid with a pungent & musty odor.
[**Note:** A solid below 34°F.]

Chemical & Physical Properties:
MW: 153.3
BP: 222°F
Sol: Decomposes
Fl.P: NA
IP: ?
Sp.Gr(77°F): 1.65
VP(81°F): 40 mmHg
FRZ: 34°F
UEL: NA
LEL: NA
Noncombustible Liquid, but may set fire to combustible materials.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Water, combustible materials, carbon disulfide, dimethyl-formamide, metals (except nickel & lead) [**Note:** Decomposes in water to hydrochloric & phosphoric acids.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, resp sys; eye, skin burns; dysp, cough, pulm edema; dizz, head, lass; abdom pain, nau, vomit; neph
TO: Eyes, skin, resp sys, CNS, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

Phosphorus pentachloride	Formula: PCl_5	CAS#: 10026-13-8	RTECS#: TB6125000	IDLH: 70 mg/m^3
Conversion:	DOT: 1806 137			

Synonyms/Trade Names: Pentachlorophosphorus, Phosphoric chloride, Phosphorus perchloride

Exposure Limits:
NIOSH REL: TWA 1 mg/m^3
OSHA PEL: TWA 1 mg/m^3

Measurement Methods (see Table 1):
NIOSH S257 (II-5)

Physical Description: White to pale-yellow, crystalline solid with a pungent, unpleasant odor.

Chemical & Physical Properties:
MW: 208.3
BP: Sublimes
Sol: Reacts
Fl.P: NA
IP: ?
Sp.Gr: 3.60
VP(132°F): 1 mmHg
MLT: 324°F (Sublimes)
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
10 mg/m^3: Sa*
25 mg/m^3: Sa:Cf*
50 mg/m^3: ScbaF/SaF
70 mg/m^3: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Water, magnesium oxide, chemically-active metals such as sodium and potassium, alkalis, amines
[**Note:** Hydrolyzes in water (even in humid air) to form hydrochloric acid & phosphoric acid. Corrosive to metals.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, resp sys; bron; derm
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

P

Phosphorus pentasulfide	Formula: P_2S_5/P_4S_{10}	CAS#: 1314-80-3	RTECS#: TH4375000	IDLH: 250 mg/m^3
Conversion:	DOT: 1340 139			

Synonyms/Trade Names: Phosphorus persulfide, Phosphorus sulfide, Sulfur phosphide

Exposure Limits:
NIOSH REL: TWA 1 mg/m^3
ST 3 mg/m^3
OSHA PEL†: TWA 1 mg/m^3

Measurement Methods (see Table 1):
None available

Physical Description: Greenish-gray to yellow, crystalline solid with an odor of rotten eggs.

Chemical & Physical Properties:
MW: 222.3 (P_2S_5)
444.6 (P_4S_{10})
BP: 957°F
Sol: Reacts
Fl.P: ?
IP: ?
Sp.Gr: 2.09
VP(572°F): 1 mmHg
MLT: 550°F
UEL: ?
LEL: ?
Flammable Solid, which may SPONTANEOUSLY ignite in presence of moisture.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
10 mg/m^3: Sa*
25 mg/m^3: Sa:Cf*
50 mg/m^3: ScbaF/SaF
250 mg/m^3: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS100/ScbaE

Incompatibilities and Reactivities: Water, alcohols, strong oxidizers, acids, alkalis [**Note:** Reacts with water to form hydrogen sulfide, sulfur dioxide, and phosphoric acid.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, resp sys; apnea, coma, convuls; conj pain, lac, photo, kerato-conj, corn vesic; dizz; head; lass; irrity, insom; GI dist
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Dust off solid; water flush
Breath: Resp support
Swallow: Medical attention immed

Phosphorus trichloride

Formula: PCl_3 | **CAS#:** 7719-12-2 | **RTECS#:** TH3675000 | **IDLH:** 25 ppm

Conversion: 1 ppm = 5.62 mg/m^3 | **DOT:** 1809 137

Synonyms/Trade Names: Phosphorus chloride

Exposure Limits:
NIOSH REL: TWA 0.2 ppm (1.5 mg/m^3)
ST 0.5 ppm (3 mg/m^3)
OSHA PEL†: TWA 0.5 ppm (3 mg/m^3)

Physical Description: Colorless to yellow, fuming liquid with an odor like hydrochloric acid.

Measurement Methods (see Table 1):
NIOSH 6402

Chemical & Physical Properties:
MW: 137.4
BP: 169°F
Sol: Reacts
Fl.P: NA
IP: 9.91 eV
Sp.Gr: 1.58
VP: 100 mmHg
FRZ: -170°F
UEL: NA
LEL: NA
Noncombustible Liquid; however, a strong oxidizer that may ignite combustibles upon contact.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
10 ppm: ScbaF/SaF
25 ppm: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS¿/ScbaE

Incompatibilities and Reactivities: Water, chemically-active metals such as sodium & potassium, aluminum, strong nitric acid, acetic acid, organic matter [**Note:** Hydrolyzes in water to form hydrochloric acid and phosphoric acid.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose, throat; pulm edema; eye, skin burns
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

P

Phthalic anhydride

Formula: $C_6H_4(CO)_2O$ | **CAS#:** 85-44-9 | **RTECS#:** TI3150000 | **IDLH:** 60 mg/m^3

Conversion: 1 ppm = 6.06 mg/m^3 | **DOT:** 2214 156

Synonyms/Trade Names: 1,2-Benzenedicarboxylic anhydride; PAN; Phthalic acid anhydride

Exposure Limits:
NIOSH REL: TWA 6 mg/m^3 (1 ppm)
OSHA PEL†: TWA 12 mg/m^3 (2 ppm)

Physical Description: White solid (flake) or a clear, colorless, mobile liquid (molten) with a characteristic, acrid odor.

Measurement Methods (see Table 1):
NIOSH S179 (II-3)
OSHA 90

Chemical & Physical Properties:
MW: 148.1
BP: 563°F
Sol: 0.6%
Fl.P: 305°F
IP: 10.00 eV
Sp.Gr: 1.53 (Flake)
1.20 (Molten)
VP: 0.0015 mmHg
MLT: 267°F
UEL: 10.5%
LEL: 1.7%
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH
30 mg/m^3: Qm*
60 mg/m^3: 95XQ*/95F/PaprHie*/
Sa*/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, water [**Note:** Converted to phthalic acid in hot water.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, upper resp sys; conj; nasal ulcer bleeding; bron, bronchial asthma; derm; in animals: liver, kidney damage
TO: Eyes, skin, resp sys, liver, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

m-Phthalodinitrile	Formula: $C_6H_4(CN)_2$	CAS#: 626-17-5	RTECS#: CZ1900000	IDLH: N.D.
Conversion:	DOT:			

Synonyms/Trade Names: 1,3-Benzenedicarbonitrile; m-Dicyanobenzene; 1,3-Dicyanobenzene; Isophthalodinitrile; m-PDN

Exposure Limits:
NIOSH REL: TWA 5 mg/m^3
OSHA PEL†: none

Physical Description: Needle-like, colorless to white, crystalline, flaky solid with an almond-like odor.

Measurement Methods (see Table 1):
None available

Chemical & Physical Properties:
MW: 128.1
BP: Sublimes
Sol: Slight
Fl.P: ?
IP: ?
Sp.Gr: 4.42
VP: 0.01 mmHg
MLT: 324°F (Sublimes)
UEL: ?
LEL: ?
Combustible Solid and a severe explosion hazard.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: Daily
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Strong oxidizers (e.g., chlorine, bromine, fluorine)

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Head, nau, conf; in animals: irrit eyes, skin
TO: Eyes, skin, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

P

Picloram	Formula: $C_6H_3Cl_3O_2N_2$	CAS#: 1918-02-1	RTECS#: TJ7525000	IDLH: N.D.
Conversion:	DOT:			

Synonyms/Trade Names: 4-Amino-3,5,6-trichloropicolinic acid; 4-Amino-3,5,6-trichloro-2-picolinic acid; ATCP; Tordon®

Exposure Limits:
NIOSH REL: See Appendix D
OSHA PEL†: TWA 15 mg/m^3 (total) TWA 5 mg/m^3 (resp)

Physical Description: Colorless to white crystals with a chlorine-like odor. [herbicide]

Measurement Methods (see Table 1):
NIOSH 0500, 0600

Chemical & Physical Properties:
MW: 241.5
BP: Decomposes
Sol: 0.04%
Fl.P: ?
IP: ?
Sp.Gr: ?
VP(95°F): 0.0000006 mmHg
MLT: 424°F (Decomposes)
UEL: ?
LEL: ?
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: N.R.
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Hot concentrated alkali (hydrolyzes)

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, resp sys; nau; in animals: liver, kidney changes
TO: Eyes, skin, resp sys, liver, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Fresh air
Swallow: Medical attention immed

Picric acid

Formula: $(NO_2)_3C_6H_2OH$ | **CAS#:** 88-89-1 | **RTECS#:** TJ7875000 | **IDLH:** 75 mg/m^3

Conversion: 1 ppm = 9.37 mg/m^3

DOT: 1344 113 (wet, ≥ 10% water);
3364 113 (wetted, ≥ 10% water)

Synonyms/Trade Names: Phenol trinitrate; 2,4,6-Trinitrophenol [**Note:** An OSHA Class A Explosive (1910.109).]

Exposure Limits:
NIOSH REL: TWA 0.1 mg/m^3
ST 0.3 mg/m^3 [skin]
OSHA PEL: TWA 0.1 mg/m^3 [skin]

Physical Description: Yellow, odorless solid. [**Note:** Usually used as an aqueous solution.]

Measurement Methods (see Table 1):
NIOSH S228 (II-4)

Chemical & Physical Properties:
MW: 229.1
BP: Explodes above 572°F
Sol: 1%
Fl.P: 302°F
IP: ?
Sp.Gr: 1.76
VP(383°F): 1 mmHg
MLT: 252°F
UEL: ?
LEL: ?
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
0.5 mg/m^3: Qm
1 mg/m^3: 95XQ/Sa
2.5 mg/m^3: Sa:Cf/PaprHie
5 mg/m^3: 100F/SaT:Cf/PaprTHie/ScbaF/SaF
75 mg/m^3: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Copper, lead, zinc & other metals; salts; plaster; concrete; ammonia [**Note:** Corrosive to metals. An explosive mixture results when the aqueous solution crystallizes.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin; sens derm; yellow-stained hair, skin; lass, myalgia, anuria, polyuria; bitter taste, GI dist; hepatitis, hema, album, neph
TO: Eyes, skin, kidneys, liver, blood

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

P

Pindone

Formula: $C_9H_5O_2C(O)C(CH_3)_3$ | **CAS#:** 83-26-1 | **RTECS#:** NK6300000 | **IDLH:** 100 mg/m^3

Conversion:

DOT:

Synonyms/Trade Names: tert-Butyl valone; 1,3-Dioxo-2-pivaloy-lindane; Pival®; Pivalyl; 2-Pivalyl-1,3-indandione

Exposure Limits:
NIOSH REL: TWA 0.1 mg/m^3
OSHA PEL: TWA 0.1 mg/m^3

Physical Description: Bright-yellow powder with almost no odor. [rodenticide]

Measurement Methods (see Table 1):
None available

Chemical & Physical Properties:
MW: 230.3
BP: Decomposes
Sol(77°F): 0.002%
Fl.P: ?
IP: ?
Sp.Gr: 1.06
VP: Very low
MLT: 230°F
UEL: ?
LEL: ?

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
0.5 mg/m^3: Qm
1 mg/m^3: 95XQ/Sa
2.5 mg/m^3: Sa:Cf/PaprHie
5 mg/m^3: 100F/SaT:Cf/PaprTHie/ScbaF/SaF
100 mg/m^3: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: None reported

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing
SY: Epis, excess bleeding from minor cuts, bruises; smoky urine, black tarry stools; abdom, back pain
TO: Blood prothrombin

First Aid (see Table 6):
Eye: Irr immed
Breath: Resp support
Swallow: Medical attention immed

Piperazine dihydrochloride	Formula: $C_4H_{10}N_2 \times 2HCl$	CAS#: 142-64-3	RTECS#: TL4025000	IDLH: N.D.
Conversion:	DOT:			

Synonyms/Trade Names: Piperazine hydrochloride
[**Note:** The monochloride, $C_4H_{10}N_2 \times HCl$ is also commercially available.]

Exposure Limits:
NIOSH REL: TWA 5 mg/m^3
OSHA PEL†: none

Measurement Methods (see Table 1):
None available

Physical Description: White to cream-colored needles or powder.

Chemical & Physical Properties:
MW: 159.1
BP: ?
Sol: 41%
Fl.P: ?
IP: ?
Sp.Gr: ?
VP: ?
MLT: 635°F
UEL: ?
LEL: ?
Combustible Solid, but does not ignite easily.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Water [**Note:** Slightly hygroscopic (i.e., absorbs moisture from the air).]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, resp sys; skin burns, sens; asthma; GI upset, head, nau, vomit, inco, musc weak
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

P

Plaster of Paris	Formula: $CaSO_4 \cdot 0.5H_2O$	CAS#: 26499-65-0	RTECS#: TP0700000	IDLH: N.D.
Conversion:	DOT:			

Synonyms/Trade Names: Calcium sulfate hemihydrate, Dried calcium sulfate, Gypsum hemihydrate, Hemihydrate gypsum
[**Note:** Plaster of Paris is the hemihydrate form of Calcium Sulfate & Gypsum is the dihydrate form.]

Exposure Limits:
NIOSH REL: TWA 10 mg/m^3 (total)
TWA 5 mg/m^3 (resp)
OSHA PEL: TWA 15 mg/m^3 (total)
TWA 5 mg/m^3 (resp)

Measurement Methods (see Table 1):
NIOSH 0500, 0600

Physical Description: White or yellowish, finely divided, odorless powder.

Chemical & Physical Properties:
MW: 145.2
BP: ?
Sol(77°F): 0.3%
Fl.P: NA
IP: NA
Sp.Gr: 2.5
VP: 0 mmHg (approx)
MLT: 325°F (Loses H_2O)
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Moisture, water
[**Note:** Hygroscopic (i.e., absorbs moisture from the air). Reacts with water to form Gypsum.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, muc memb, resp sys; cough
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Breath: Resp support
Swallow: Medical attention immed

Platinum	Formula: Pt	CAS#: 7440-06-4	RTECS#: TP2160000	IDLH: N.D.
Conversion:	**DOT:**			

Synonyms/Trade Names: Platinum black, Platinum metal, Platinum sponge

Exposure Limits:
NIOSH REL: TWA 1 mg/m^3
OSHA PEL†: none

Physical Description: Silvery, whitish-gray, malleable, ductile metal.

Measurement Methods (see Table 1):
NIOSH 7300, 7303
OSHA ID121, ID130SG

Chemical & Physical Properties:
MW: 195.1
BP: 6921°F
Sol: Insoluble
Fl.P: NA
IP: NA
Sp.Gr: 21.45
VP: 0 mmHg (approx)
MLT: 3222°F
UEL: NA
LEL: NA
Noncombustible Solid in bulk form, but finely divided powder can be dangerous to handle.

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Aluminum, acetone, arsenic, ethane, hydrazine, hydrogen peroxide, lithium, phosphorus, selenium, tellurium, various fluorides

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit skin, resp sys; derm
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Resp support
Swallow: Medical attention immed

P

Platinum (soluble salts, as Pt)	Formula:	CAS#:	RTECS#:	IDLH: 4 mg/m^3 (as Pt)
Conversion:	**DOT:**			

Synonyms/Trade Names: Synonyms vary depending upon the specific soluble platinum salt.

Exposure Limits:
NIOSH REL: TWA 0.002 mg/m^3
OSHA PEL: TWA 0.002 mg/m^3

Physical Description: Appearance and odor vary depending upon the specific soluble platinum salt.

Measurement Methods (see Table 1):
NIOSH 7300, 7303, S191 (II-7)

Chemical & Physical Properties:
Properties vary depending upon the specific soluble platinum salt.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
0.05 mg/m^3: Sa:Cf£
0.1 mg/m^3: 100F/ScbaF/SaF
4 mg/m^3: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Varies

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, nose; cough, dysp, wheez, cyan; derm, sens skin; lymphocytosis
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

Portland cement	**Formula:**	**CAS#:** 65997-15-1	**RTECS#:** VV8770000	**IDLH:** 5000 mg/m^3
Conversion:	**DOT:**			

Synonyms/Trade Names: Cement, Hydraulic cement, Portland cement silicate [**Note:** A class of hydraulic cements containing tri- and dicalcium silicate in addition to alumina, tricalcium aluminate, and iron oxide.]

Exposure Limits:
NIOSH REL: TWA 10 mg/m^3 (total)
TWA 5 mg/m^3 (resp)
OSHA PEL†: TWA 50 mppcf

Measurement Methods (see Table 1):
NIOSH 0500
OSHA ID207

Physical Description: Gray, odorless powder.

Chemical & Physical Properties:
MW: ?
BP: NA
Sol: Insoluble
Fl.P: NA
IP: NA
Sp.Gr: ?
VP: 0 mmHg (approx)
MLT: NA
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
50 mg/m^3: Qm
100 mg/m^3: 95XQ/Sa
250 mg/m^3: Sa:Cf/PaprHie
500 mg/m^3: 100F/SaT:Cf/PaprTHie/ ScbaF/SaF
5000 mg/m^3: Sa:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: None reported

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose; cough, expectoration; exertional dysp, wheez, chronic bron; derm
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Fresh air
Swallow: Medical attention immed

P

Potassium cyanide (as CN)	**Formula:** KCN	**CAS#:** 151-50-8	**RTECS#:** TS8750000	**IDLH:** 25 mg/m^3 (as CN)
Conversion:	**DOT:** 1680 157 (solid); 3413 157 (solution)			

Synonyms/Trade Names: Potassium salt of hydrocyanic acid

Exposure Limits:
NIOSH REL*: C 5 mg/m^3 (4.7 ppm) [10-minute]
OSHA PEL*: TWA 5 mg/m^3
[***Note:** The REL and PEL also apply to other cyanides (as CN) except Hydrogen cyanide.]

Measurement Methods (see Table 1):
NIOSH 6010, 7904

Physical Description: White, granular or crystalline solid with a faint, almond-like odor.

Chemical & Physical Properties:
MW: 65.1
BP: 2957°F
Sol(77°F): 72%
Fl.P: NA
IP: NA
Sp.Gr: 1.55
VP: 0 mmHg (approx)
MLT: 1173°F
UEL: NA
LEL: NA
Noncombustible Solid, but contact with acids releases highly flammable hydrogen cyanide.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
25 mg/m^3: Sa/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS100/ScbaE

Incompatibilities and Reactivities: Strong oxidizers (such as acids, acid salts, chlorates & nitrates)
[**Note:** Absorbs moisture from the air forming a syrup.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, upper resp sys; asphy; lass, head, conf; nau, vomit; incr resp rate, slow gasping respiration; thyroid, blood changes
TO: Eyes, skin, resp sys, CVS, CNS, thyroid, blood

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Potassium hydroxide

Formula:	CAS#:	RTECS#:	IDLH:
KOH	1310-58-3	TT2100000	N.D.

Conversion: **DOT:** 1813 154 (dry, solid); 1814 154 (solution)

Synonyms/Trade Names: Caustic potash, Lye, Potassium hydrate

Exposure Limits:
NIOSH REL: C 2 mg/m^3
OSHA PEL†: none

Measurement Methods (see Table 1):
NIOSH 7401

Physical Description: Odorless, white or slightly yellow lumps, rods, flakes, sticks, or pellets. [**Note:** May be used as an aqueous solution.]

Chemical & Physical Properties:
MW: 56.1
BP: 2415°F
Sol(59°F): 107%
Fl.P: NA
IP: ?
Sp.Gr: 2.04
VP(1317°F): 1 mmHg
MLT: 716°F
UEL: NA
LEL: NA
Noncombustible Solid; however, may react with H_2O & other substances and generate sufficient heat to ignite combustible materials.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Acids, water, metals (when wet), halogenated hydrocarbons, maleic anhydride [**Note:** Heat is generated if KOH comes in contact with H_2O & CO_2 from the air.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, resp sys; cough, sneez; eye, skin burns; vomit, diarr
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

P

Propane

Formula:	CAS#:	RTECS#:	IDLH:
$CH_3CH_2CH_3$	74-98-6	TX2275000	2100 ppm [10%LEL]

Conversion: 1 ppm = 1.80 mg/m^3 **DOT:** 1075 115; 1978 115

Synonyms/Trade Names: Bottled gas, Dimethyl methane, n-Propane, Propyl hydride

Exposure Limits:
NIOSH REL: TWA 1000 ppm (1800 mg/m^3)
OSHA PEL: TWA 1000 ppm (1800 mg/m^3)

Measurement Methods (see Table 1):
NIOSH S87 (II-2)
OSHA PV2077

Physical Description: Colorless, odorless gas. [**Note:** A foul-smelling odorant is often added when used for fuel purposes. Shipped as a liquefied compressed gas.]

Chemical & Physical Properties:
MW: 44.1
BP: -44°F
Sol: 0.01%
Fl.P: NA (Gas)
IP: 11.07 eV
RGasD: 1.55
VP(70°F): 8.4 atm
FRZ: -306°F
UEL: 9.5%
LEL: 2.1%
Flammable Gas

Personal Protection/Sanitation (see Table 2):
Skin: Frostbite
Eyes: Frostbite
Wash skin: N.R.
Remove: When wet (flamm)
Change: N.R.
Provide: Frostbite wash

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
2100 ppm: Sa/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: ScbaE

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con (liquid)
SY: Dizz, conf, excitation, asphy; liquid: frostbite
TO: CNS

First Aid (see Table 6):
Eye: Frostbite
Skin: Frostbite
Breath: Resp support

Propane sultone

Formula:	CAS#:	RTECS#:	IDLH:
$C_3H_6O_3S$	1120-71-4	RP5425000	Ca [N.D.]

Conversion:

DOT:

Synonyms/Trade Names: 3-Hydroxy-1-propanesulphonic acid sultone; 1,3-Propane sultone

Exposure Limits:
NIOSH REL: Ca
See Appendix A
OSHA PEL: none

Measurement Methods (see Table 1):
None available

Physical Description: White, crystalline solid or a colorless liquid (above 86°F). [**Note:** Releases a foul odor as it melts.]

Chemical & Physical Properties:
MW: 122.2
BP: ?
Sol: 10%
Fl.P: >235°F
IP: ?
Sp.Gr: 1.39
VP: ?
MLT: 86°F
UEL: ?
LEL: ?
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: None reported

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, resp sys; [carc]
TO: Eyes, skin, resp sys [in animals: skin tumors, leukemia, gliomas]

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

P

1-Propanethiol

Formula:	CAS#:	RTECS#:	IDLH:
$CH_3CH_2CH_2SH$	107-03-9	TZ7300000	N.D.

Conversion: 1 ppm = 3.12 mg/m^3

DOT: 2402 130

Synonyms/Trade Names: 3-Mercaptopropane, Propane-1-thiol, Propyl mercaptan, n-Propyl mercaptan

Exposure Limits:
NIOSH REL: C 0.5 ppm (1.6 mg/m^3) [15-minute]
OSHA PEL: none

Measurement Methods (see Table 1):
None available

Physical Description: Colorless liquid with an offensive, cabbage-like odor.

Chemical & Physical Properties:
MW: 76.2
BP: 153°F
Sol: Slight
Fl.P: -5°F
IP: 9.195 eV
Sp.Gr: 0.84
VP(77°F): 155 mmHg
FRZ: -172°F
UEL: ?
LEL: ?
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: Prevent eye contact
Wash skin: N.R.
Remove: When wet (flamm)
Change: N.R.
Provide: Eyewash

Respirator Recommendations (see Tables 3 and 4):
NIOSH
5 ppm: CcrOv/Sa
12.5 ppm: Sa:Cf/PaprOv
25 ppm: CcrFOv/GmFOv/PaprTOv/ ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Oxidizers, reducing agents, strong acids & bases, alkali metals, calcium hypochlorite

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose, throat, resp sys; head, nau, dizz, cyan; in animals: liver, kidney damage
TO: Eyes, skin, resp sys, CNS, blood, liver, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Resp support
Swallow: Medical attention immed

Propargyl alcohol	Formula: C_3H_3OH	CAS#: 107-19-7	RTECS#: UK5075000	IDLH: N.D.

Conversion: 1 ppm = 2.29 mg/m^3 **DOT:** 1986 131

Synonyms/Trade Names: 1-Propyn-3-ol; 2-Propyn-1-ol; 2-Propynyl alcohol

Exposure Limits:
NIOSH REL: TWA 1 ppm (2 mg/m^3) [skin]
OSHA PEL†: none

Measurement Methods (see Table 1):
OSHA 97

Physical Description: Colorless to straw-colored liquid with a mild, geranium odor.

Chemical & Physical Properties:
MW: 56.1
BP: 237°F
Sol: Miscible
Fl.P(oc): 97°F
IP: 10.51 eV
Sp.Gr: 0.97
VP: 12 mmHg
FRZ: -62°F
UEL: ?
LEL: ?
Class IC Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Phosphorus pentoxide, oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit skin, muc memb; CNS depres; in animals: liver, kidney damage
TO: Skin, resp sys, CNS, liver, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush prompt
Breath: Resp support
Swallow: Medical attention immed

β-Propiolactone	Formula: $C_3H_4O_2$	CAS#: 57-57-8	RTECS#: RQ7350000	IDLH: Ca [N.D]

Conversion: **DOT:**

Synonyms/Trade Names: BPL; Hydroacrylic acid, β-lactone; 3-Hydroxy-β-lactone; 3-Hydroxy-propionic acid; β-Lactone; 2-Oxetanone; 3-Propiolactone

Exposure Limits:
NIOSH REL: Ca
See Appendix A
OSHA PEL: [1910.1013]
See Appendix B

Measurement Methods (see Table 1):
None available

Physical Description: Colorless liquid with a slightly sweet odor.

Chemical & Physical Properties:
MW: 72.1
BP: 323°F (Decomposes)
Sol: 37%
Fl.P: 165°F
IP: ?
Sp.Gr: 1.15
VP(77°F): 3 mmHg
FRZ: -28°F
UEL: ?
LEL: 2.9%
Class IIIA Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

See Appendix E (page 351)

Incompatibilities and Reactivities: Acetates, halogens, thiocyanates, thiosulfates
[**Note:** May polymerize upon storage.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Skin irrit, blistering, burns; corn opac; frequent urination; dysuria; hema; [carc]
TO: Kidneys, skin, lungs, eyes [in animals: tumors of the liver, skin & stomach]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Propionic acid

Formula:	CAS#:	RTECS#:	IDLH:
CH_3CH_2COOH	79-09-4	UE5950000	N.D.

Conversion: 1 ppm = 3.03 mg/m^3 **DOT:** 1848 132

Synonyms/Trade Names: Carboxyethane, Ethanecarboxylic acid, Ethylformic acid, Metacetonic acid, Methyl acetic acid, Propanoic acid

Exposure Limits:
NIOSH REL: TWA 10 ppm (30 mg/m^3)
ST 15 ppm (45 mg/m^3)
OSHA PEL†: none

Measurement Methods (see Table 1):
None available

Physical Description: Colorless, oily liquid with a pungent, disagreeable, rancid odor. [**Note:** A solid below 5°F.]

Chemical & Physical Properties:
MW: 74.1
BP: 286°F
Sol: Miscible
Fl.P: 126°F
IP: 10.24 eV
Sp.Gr: 0.99
VP: 3 mmHg
FRZ: 5°F
UEL: 12.1%
LEL: 2.9%
Class II Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Alkalis, strong oxidizers (e.g., chromium trioxide) [**Note:** Corrosive to steel.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, nose, throat; blurred vision, corn burns; skin burns; abdom pain, nau, vomit
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

P

Propionitrile

Formula:	CAS#:	RTECS#:	IDLH:
CH_3CH_2CN	107-12-0	UF9625000	N.D.

Conversion: 1 ppm = 2.25 mg/m^3 **DOT:** 2404 131

Synonyms/Trade Names: Cyanoethane, Ethyl cyanide, Propanenitrile, Propionic nitrile, Propiononitrile

Exposure Limits:
NIOSH REL: TWA 6 ppm (14 mg/m^3)
OSHA PEL: none

Measurement Methods (see Table 1):
NIOSH 1606 (adapt)

Physical Description: Colorless liquid with a pleasant, sweetish, ethereal odor. [**Note:** Forms cyanide in the body.]

Chemical & Physical Properties:
MW: 55.1
BP: 207°F
Sol: 11.9%
Fl.P: 36°F
IP: 11.84 eV
Sp.Gr: 0.78
VP: 35 mmHg
FRZ: -133°F
UEL: ?
LEL: 3.1%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
60 ppm: CcrOv/Sa
150 ppm: Sa:Cf/PaprOv
300 ppm: CcrFOv/GmFOv/PaprTOv/ ScbaF/SaF
1000 ppm: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers & reducing agents, strong acids & bases
[**Note:** Hydrogen cyanide is produced when propionitrile is heated to decomposition.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, resp sys; nau, vomit; chest pain; lass; stupor, convuls; in animals: liver, kidney damage
TO: Eyes, skin, resp sys, CVS, CNS, liver, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

Propoxur	Formula: $CH_3NHCOOC_6H_4OCH(CH_3)_2$	CAS#: 114-26-1	RTECS#: FC3150000	IDLH: N.D.
Conversion:	DOT:			

Synonyms/Trade Names: Aprocarb®, o-Isopropoxyphenyl-N-methylcarbamate, N-Methyl-2-isopropoxyphenyl-carbamate

Exposure Limits:
NIOSH REL: TWA 0.5 mg/m^3
OSHA PEL†: none

Physical Description: White to tan, crystalline powder with a faint, characteristic odor. [insecticide]

Measurement Methods (see Table 1):
NIOSH 5601
OSHA PV2007

Chemical & Physical Properties:
MW: 209.3
BP: Decomposes
Sol: 0.2%
Fl.P: >300°F
IP: ?
Sp.Gr: ?
VP: 0.000007 mmHg
MLT: 187-197°F
UEL: ?
LEL: ?
Class IIIB Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: Daily
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Strong oxidizers, alkalis
[**Note:** Emits highly toxic methyl isocyanate fumes when heated to decomposition.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Miosis, blurred vision; sweat, salv; abdom cramps, nau, diarr, vomit; head, lass, musc twitch
TO: CNS, liver, kidneys, GI tract, blood chol

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

P

n-Propyl acetate	Formula: $CH_3COOCH_2CH_2CH_3$	CAS#: 109-60-4	RTECS#: AJ3675000	IDLH: 1700 ppm
Conversion: 1 ppm = 4.18 mg/m^3	DOT: 1276 129			

Synonyms/Trade Names: Propylacetate, n-Propyl ester of acetic acid

Exposure Limits:
NIOSH REL: TWA 200 ppm (840 mg/m^3)
ST 250 ppm (1050 mg/m^3)
OSHA PEL†: TWA 200 ppm (840 mg/m^3)

Physical Description: Colorless liquid with a mild, fruity odor.

Measurement Methods (see Table 1):
NIOSH 1450
OSHA 7

Chemical & Physical Properties:
MW: 102.2
BP: 215°F
Sol: 2%
Fl.P: 55°F
IP: 10.04 eV
Sp.Gr: 0.84
VP: 25 mmHg
FRZ: -134°F
UEL: 8%
LEL(100°F): 1.7%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
1700 ppm: Sa:Cf£/CcrFOv/GmFOv/PaprOv£/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Nitrates; strong oxidizers, alkalis & acids

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: In animals: irrit eyes, nose, throat; narco; derm
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush prompt
Breath: Resp support
Swallow: Medical attention immed

n-Propyl alcohol

Formula:	CAS#:	RTECS#:	IDLH:
$CH_3CH_2CH_2OH$	71-23-8	UH8225000	800 ppm

Conversion: 1 ppm = 2.46 mg/m^3 | **DOT:** 1274 129

Synonyms/Trade Names: Ethyl carbinol, 1-Propanol, n-Propanol, Propyl alcohol

Exposure Limits:
NIOSH REL: TWA 200 ppm (500 mg/m^3) [skin]
ST 250 ppm (625 mg/m^3)
OSHA PEL†: TWA 200 ppm (500 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1401, 1405
OSHA 7

Physical Description: Colorless liquid with a mild, alcohol-like odor.

Chemical & Physical Properties:
MW: 60.1
BP: 207°F
Sol: Miscible
Fl.P: 72°F
IP: 10.15 eV
Sp.Gr: 0.81
VP: 15 mmHg
FRZ: -196°F
UEL: 13.7%
LEL: 2.2%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
800 ppm: CcrOv*/PaprOv*/GmFOv/Sa*/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, nose, throat; dry cracking skin; drow, head; ataxia, GI pain; abdom cramps, nau, vomit, diarr; in animals: narco
TO: Eyes, skin, resp sys, GI tract, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush
Breath: Resp support
Swallow: Medical attention immed

P

Propylene dichloride

Formula:	CAS#:	RTECS#:	IDLH:
$CH_3CHClCH_2Cl$	78-87-5	TX9625000	Ca [400 ppm]

Conversion: 1 ppm = 4.62 mg/m^3 | **DOT:** 1279 130

Synonyms/Trade Names: Dichloro-1,2-propane; 1,2-Dichloropropane

Exposure Limits:
NIOSH REL: Ca
See Appendix A
OSHA PEL†: TWA 75 ppm (350 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1013
OSHA 7

Physical Description: Colorless liquid with a chloroform-like odor. [pesticide]

Chemical & Physical Properties:
MW: 113.0
BP: 206°F
Sol: 0.3%
Fl.P: 60°F
IP: 10.87 eV
Sp.Gr: 1.16
VP: 40 mmHg
FRZ: -149°F
UEL: 14.5%
LEL: 3.4%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, strong acids, active metals

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, resp sys; drow, dizz; liver, kidney damage; in animals: CNS depres; [carc]
TO: Eyes, skin, resp sys, liver, kidneys, CNS [in animals: liver & mammary gland tumors]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

Propylene glycol dinitrate	Formula: $CH_3CNO_2OHCHNO_2OH$	CAS#: 6423-43-4	RTECS#: TY6300000	IDLH: N.D.
Conversion: 1 ppm = 6.79 mg/m^3	**DOT:**			

Synonyms/Trade Names: PGDN; Propylene glycol-1,2-dinitrate; 1,2-Propylene glycol dinitrate

Exposure Limits:
NIOSH REL: TWA 0.05 ppm (0.3 mg/m^3) [skin]
OSHA PEL†: none

Physical Description: Colorless liquid with a disagreeable odor.
[**Note:** A solid below 18°F.]

Measurement Methods (see Table 1):
None available

Chemical & Physical Properties:
MW: 166.1
BP: ?
Sol: 0.1%
Fl.P: ?
IP: ?
Sp.Gr(77°F): 1.23
VP(72°F): 0.07 mmHg
FRZ: 18°F
UEL: ?
LEL: ?
Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Ammonia compounds, amines, oxidizers, reducing agents, combustible materials [**Note:** Similar to Ethylene glycol dinitrate in explosion potential.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes; conj; methemo; head, impaired balance, vis dist; in animals: liver, kidney damage
TO: Eyes, CNS, blood, liver, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Resp support
Swallow: Medical attention immed

Propylene glycol monomethyl ether	Formula: $CH_3OCH_2CHCH_3$	CAS#: 107-98-2	RTECS#: UB7700000	IDLH: N.D.
Conversion: 1 ppm = 3.69 mg/m^3	**DOT:**			

Synonyms/Trade Names: Dowtherm® 209, 1-Methoxy-2-hydroxypropane, 1-Methoxy-2-propanol, 2-Methoxy-1-methylethanol, Propylene glycol methyl ether

Exposure Limits:
NIOSH REL: TWA 100 ppm (360 mg/m^3)
ST 150 ppm (540 mg/m^3)
OSHA PEL†: none

Physical Description: Clear, colorless liquid with a mild, ethereal odor.

Measurement Methods (see Table 1):
NIOSH 2554
OSHA 99

Chemical & Physical Properties:
MW: 90.1
BP: 248°F
Sol: Miscible
Fl.P: 97°F
IP: ?
Sp.Gr: 0.96
VP(77°F): 12 mmHg
FRZ: -139°F (Sets to glass)
UEL(calc): 13.8%
LEL(calc.): 1.6%
Class IC Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: Prevent eye contact
Wash skin: N.R.
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Oxidizers, strong acids [**Note:** Hygroscopic (i.e., absorbs moisture from air). May slowly form reactive peroxides during prolonged storage.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose, throat; head, nau, dizz, drow, inco; vomit, diarr
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water wash
Breath: Resp support
Swallow: Medical attention immed

Propylene imine	Formula: C_3H_7N	CAS#: 75-55-8	RTECS#: CM8050000	IDLH: Ca [100 ppm]
Conversion: 1 ppm = 2.34 mg/m^3	**DOT:** 1921 131P (inhibited)			

Synonyms/Trade Names: 2-Methylaziridine, 2-Methylethyleneimine, Propyleneimine, Propylene imine (inhibited), Propylenimine

Exposure Limits:
NIOSH REL: Ca
TWA 2 ppm (5 mg/m^3) [skin]
See Appendix A
OSHA PEL: TWA 2 ppm (5 mg/m^3) [skin]

Measurement Methods (see Table 1):
None available

Physical Description: Colorless, oily liquid with an ammonia-like odor.

Chemical & Physical Properties:
MW: 57.1
BP: 152°F
Sol: Miscible
Fl.P: 25°F
IP: 9.00 eV
Sp.Gr: 0.80
VP: 112 mmHg
FRZ: -85°F
UEL: ?
LEL: ?
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS/ScbaE

Incompatibilities and Reactivities: Acids, strong oxidizers, water, carbonyl compounds, quinones, sulfonyl halides
[**Note:** Subject to violent polymerization in contact with acids. Hydrolyzes in water to form methylethanolamine.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Eye, skin burns; [carc]
TO: Eyes, skin [in animals: nasal tumors]

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

P

Propylene oxide	Formula: C_3H_6O	CAS#: 75-56-9	RTECS#: TZ2975000	IDLH: Ca [400 ppm]
Conversion: 1 ppm = 2.38 mg/m^3	**DOT:** 1280 127P			

Synonyms/Trade Names: 1,2-Epoxy propane; Methyl ethylene oxide; Methyloxirane; Propene oxide; 1,2-Propylene oxide

Exposure Limits:
NIOSH REL: Ca
See Appendix A
OSHA PEL†: TWA 100 ppm (240 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1612
OSHA 88

Physical Description: Colorless liquid with a benzene-like odor. [**Note:** A gas above 94°F.]

Chemical & Physical Properties:
MW: 58.1
BP: 94°F
Sol: 41%
Fl.P: -35°F
IP: 9.81 eV
Sp.Gr: 0.83
VP: 445 mmHg
FRZ: -170°F
UEL: 36%
LEL: 2.3%
Class IA Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.
Provide: Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS/ScbaE

Incompatibilities and Reactivities: Anhydrous metal chlorides; iron; strong acids, caustics & peroxides
[**Note:** Polymerization may occur due to high temperatures or contamination with alkalis, aqueous acids, amines & acidic alcohols.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, resp sys; skin blisters, burns; [carc]
TO: Eyes, skin, resp sys [in animals: nasal tumors]

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

n-Propyl nitrate

Formula: $CH_3CH_2CH_2ONO_2$ | **CAS#:** 627-13-4 | **RTECS#:** UK0350000 | **IDLH:** 500 ppm

Conversion: 1 ppm = 4.30 mg/m^3 | **DOT:** 1865 131

Synonyms/Trade Names: Propyl ester of nitric acid

Exposure Limits:
NIOSH REL: TWA 25 ppm (105 mg/m^3)
ST 40 ppm (170 mg/m^3)
OSHA PEL†: TWA 25 ppm (110 mg/m^3)

Measurement Methods (see Table 1):
NIOSH S227 (II-3)
OSHA 7

Physical Description: Colorless to straw-colored liquid with an ether-like odor.

Chemical & Physical Properties:
MW: 105.1
BP: 231°F
Sol: Slight
Fl.P: 68°F
IP: 11.07 eV
Sp.Gr: 1.07
VP: 18 mmHg
FRZ: -148°F
UEL: 100%
LEL: 2%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
250 ppm: Sa
500 ppm: Sa:Cf/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS¿/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, combustible materials
[**Note:** Forms explosive mixtures with combustible materials.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: In animals: irrit eyes, skin; methemo, anoxia, cyan; dysp, lass, dizz, head
TO: Eyes, skin, blood

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

P

Pyrethrum

Formula: $C_{20}H_{28}O_3/C_{21}H_{28}O_5/C_{21}H_{30}O_3/C_{22}H_{30}O_5/C_{21}H_{28}O_3/C_{22}H_{28}O_5$ | **CAS#:** 8003-34-7 | **RTECS#:** UR4200000 | **IDLH:** 5000 mg/m^3

Conversion: | **DOT:**

Synonyms/Trade Names: Cinerin I or II, Jasmolin I or II, Pyrethrin I or II, Pyrethrum I or II
[**Note:** Pyrethrum is a variable mixture of Cinerin, Jasmolin, and Pyrethrin.]

Exposure Limits:
NIOSH REL: TWA 5 mg/m^3
OSHA PEL: TWA 5 mg/m^3

Measurement Methods (see Table 1):
NIOSH 5008
OSHA 70

Physical Description: Brown, viscous oil or solid. [insecticide]

Chemical & Physical Properties:
MW: 316-374
BP: ?
Sol: Insoluble
Fl.P: 180-190°F
IP: ?
Sp.Gr: 1 (approx)
VP: Low
MLT: ?
UEL: ?
LEL: ?
Class IIIA Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
50 mg/m^3: CcrOv95*/Sa*
125 mg/m^3: Sa:Cf*/PaprOvHie*
250 mg/m^3: CcrFOv100/PaprTOvHie*/ScbaF/SaF
5000 mg/m^3: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Erythema, derm, papules, pruritus, rhin; sneez; asthma
TO: Resp sys, skin, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Pyridine	Formula: C_5H_5N	CAS#: 110-86-1	RTECS#: UR8400000	IDLH: 1000 ppm
Conversion: 1 ppm = 3.24 mg/m^3	**DOT:** 1282 129			

Synonyms/Trade Names: Azabenzene, Azine

Exposure Limits:
NIOSH REL: TWA 5 ppm (15 mg/m^3)
OSHA PEL: TWA 5 ppm (15 mg/m^3)

Physical Description: Colorless to yellow liquid with a nauseating, fish-like odor.

Measurement Methods (see Table 1):
NIOSH 1613
OSHA 7

Chemical & Physical Properties:
MW: 79.1
BP: 240°F
Sol: Miscible
Fl.P: 68°F
IP: 9.27 eV
Sp.Gr: 0.98
VP: 16 mmHg
FRZ: -44°F
UEL: 12.4%
LEL: 1.8%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
125 ppm: Sa:Cf£/PaprOv£
50 ppm: CcrFOv/GmFOv/PaprTOv£/ ScbaF/SaF
1000 ppm: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, strong acids

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes; head, anxi, dizz, insom; nau, anor; derm; liver, kidney damage
TO: Eyes, skin, CNS, liver, kidneys, GI tract,

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

Quinone	Formula: OC_6H_4O	CAS#: 106-51-4	RTECS#: DK2625000	IDLH: 100 mg/m^3
Conversion: 1 ppm = 4.42 mg/m^3	**DOT:** 2587 153			

Q

Synonyms/Trade Names: 1,4-Benzoquinone; p-Benzoquinone; 1,4-Cyclohexadiene dioxide; p-Quinone

Exposure Limits:
NIOSH REL: TWA 0.4 mg/m^3 (0.1 ppm)
OSHA PEL: TWA 0.4 mg/m^3 (0.1 ppm)

Physical Description: Pale-yellow solid with an acrid, chlorine-like odor.

Measurement Methods (see Table 1):
NIOSH S181 (II-4)

Chemical & Physical Properties:
MW: 108.1
BP: Sublimes
Sol: Slight
Fl.P: 100-200°F
IP: 9.68 eV
Sp.Gr: 1.32
VP(77°F): 0.1 mmHg
MLT: 240°F
UEL: ?
LEL: ?
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
10 mg/m^3: Sa:Cf£
20 mg/m^3: ScbaF/SaF
100 mg/m^3: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Eye irrit, conj; kera; skin irrit
TO: Eyes, skin

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Resorcinol	**Formula:** $C_6H_4(OH)_2$	**CAS#:** 108-46-3	**RTECS#:** VG9625000	**IDLH:** N.D.
Conversion: 1 ppm = 4.50 mg/m^3	**DOT:** 2876 153			

Synonyms/Trade Names: 1,3-Benzenediol; m-Benzenediol; 1,3-Dihydroxybenzene; m-Dihydroxybenzene; 3-Hydroxyphenol; m-Hydroxyphenol

Exposure Limits:
NIOSH REL: TWA 10 ppm (45 mg/m^3)
ST 20 ppm (90 mg/m^3)
OSHA PEL†: none

Measurement Methods (see Table 1):
NIOSH 5701
OSHA PV2053

Physical Description: White needles, plates, crystals, flakes, or powder with a faint odor. [**Note:** Turns pink on exposure to air or light, or contact with iron.]

Chemical & Physical Properties:
MW: 110.1
BP: 531°F
Sol: 110%
Fl.P: 261°F
IP: 8.63 eV
Sp.Gr: 1.27
VP(77°F): 0.0002 mmHg
MLT: 228°F
UEL: ?
LEL(392°F): 1.4%
Class IIIB Combustible Liquid, but may be difficult to ignite.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Acetanilide, albumin, alkalis, antipyrine, camphor, ferric salts, menthol, spirit nitrous ether, strong oxidizers & bases
[**Note:** Hygroscopic (i.e., absorbs moisture from the air).]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose, throat, upper resp sys; methemo; cyan, convuls; restless, bluish skin, incr heart rate, dysp; dizz, drow, hypothermia, hema; spleen, kidney, liver changes; derm
TO: Eyes, skin, resp sys, CVS, CNS, blood, spleen, liver, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water wash immed
Breath: Resp support
Swallow: Medical attention immed

Rhodium (metal fume and insoluble compounds, as Rh)	**Formula:** Rh (metal)	**CAS#:** 7440-16-6 (metal)	**RTECS#:** VI9069000	**IDLH:** 100 mg/m^3 (as Rh)
Conversion:	**DOT:**			

Synonyms/Trade Names: **Rhodium metal:** Elemental rhodium
Synonyms of other insoluble rhodium compounds vary depending upon the specific compound.

Exposure Limits:
NIOSH REL: TWA 0.1 mg/m^3
OSHA PEL: TWA 0.1 mg/m^3

Measurement Methods (see Table 1):
NIOSH S188 (II-3)

Physical Description: Metal: White, hard, ductile, malleable solid with a bluish-gray luster.

Chemical & Physical Properties:
MW: 102.9
BP: 6741°F
Sol: Insoluble
Fl.P: NA
IP: NA
Sp.Gr: 12.41 (metal)
VP: 0 mmHg (approx)
MLT: 3571°F
UEL: NA
LEL: NA
Metal: Noncombustible Solid in bulk form, but flammable as dust or powder.

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
0.5 mg/m^3: Qm
1 mg/m^3: 95XQ/Sa
2.5 mg/m^3: Sa:Cf/PaprHie
5 mg/m^3: 100F/SaT:Cf/PaprTHie/ ScbaF/SaF
100 mg/m^3: Sa:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Chlorine trifluoride, oxygen difluoride

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh
SY: Possible resp sens
TO: Resp sys

First Aid (see Table 6):
Breath: Resp support
Swallow: Medical attention immed

R

Rhodium (soluble compounds, as Rh)	Formula:	CAS#:	RTECS#:	IDLH: 2 mg/m^3 (as Rh)
Conversion:	**DOT:**			

Synonyms/Trade Names: Synonyms vary depending upon the specific soluble rhodium compound.

Exposure Limits:
NIOSH REL: TWA 0.001 mg/m^3
OSHA PEL: TWA 0.001 mg/m^3

Physical Description: Appearance and odor vary depending upon the specific soluble rhodium compound.

Measurement Methods (see Table 1):
NIOSH S189 (II-3)

Chemical & Physical Properties:
Properties vary depending upon the specific soluble rhodium compound.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
0.01 mg/m^3: 100XQ*/Sa*
0.025 mg/m^3: Sa:Cf*/PaprHie*
0.05 mg/m^3: 100F/PaprTHie*/ScbaF/SaF
2 mg/m^3: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Varies

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: In animals: irrit eyes; CNS damage
TO: Eyes, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush
Breath: Resp support
Swallow: Medical attention immed

Ronnel	Formula: $(CH_3O)_2P(S)OC_6H_2Cl_3$	CAS#: 299-84-3	RTECS#: TG0525000	IDLH: 300 mg/m^3
Conversion:	**DOT:**			

Synonyms/Trade Names: O,O-Dimethyl O-(2,4,5-trichlorophenyl) phosphorothioate; Fenchlorophos

Exposure Limits:
NIOSH REL: TWA 10 mg/m^3
OSHA PEL†: TWA 15 mg/m^3

Physical Description: White to light-tan, crystalline solid. [insecticide]
[**Note:** A liquid above 106°F.]

Measurement Methods (see Table 1):
NIOSH 5600
OSHA PV2054

R

Chemical & Physical Properties:
MW: 321.6
BP: Decomposes
Sol(77°F): 0.004%
Fl.P: NA
IP: ?
Sp.Gr(77°F): 1.49
VP(77°F): 0.0008 mmHg
MLT: 106°F
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH
100 mg/m^3: CcrOv95/Sa
250 mg/m^3: Sa:Cf/PaprOvHie
300 mg/m^3: CcrFOv100/GmFOv100/ PaprTOvHie*/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: In animals: irrit eyes; chol inhibition; liver, kidney damage
TO: Eyes, liver, kidneys, blood plasma

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

Rosin core solder, pyrolysis products (as formaldehyde)	**Formula:**	**CAS#:**	**RTECS#:**	**IDLH:** N.D.
Conversion:	**DOT:**			

Synonyms/Trade Names: Rosin flux pyrolysis products, Rosin core soldering flux pyrolysis products

Exposure Limits:
NIOSH REL*: TWA 0.1 mg/m^3
[***Note:** "Ca" in the presence of formaldehyde, acetaldehyde, or malonaldehyde. See Appendices A & C (Aldehydes).]
OSHA PEL†: none

Measurement Methods (see Table 1):
NIOSH 2541, 3500

Physical Description: Pyrolysis products of rosin core solder include acetone, aliphatic aldehydes, methyl alcohol, methane, ethane, various abietic acids (the major components of rosin), CO & CO_2.

Chemical & Physical Properties:
Properties vary depending upon the specific rosin core solder being used.

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

In the presence of Formaldeyde, Acetaldehyde, or Malonaldehyde:
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Varies

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh
SY: Irrit eyes, nose, throat, upper resp sys [carc (in the presence of Formaldehyde, Acetaldehyde, or Malonaldehyde)]
TO: Eyes, resp sys [nasal cancer; thyroid gland tumors in animals (in the presence of Formaldehyde, Acetaldehyde, or Malonaldehyde)]

First Aid (see Table 6):
Eye: Irr immed
Breath: Resp support

Rotenone	**Formula:** $C_{23}H_{22}O_6$	**CAS#:** 83-79-4	**RTECS#:** DJ2800000	**IDLH:** 2500 mg/m^3
Conversion:	**DOT:**			

Synonyms/Trade Names:
1,2,12,12a-Tetrahydro-8,9-dimethoxy-2-(1-methylethenyl)-[1]benzopyrano[3,4-b]furo[2,3-h][1]benzopyran-6(6aH)-one

Exposure Limits:
NIOSH REL: TWA 5 mg/m^3
OSHA PEL: TWA 5 mg/m^3

Measurement Methods (see Table 1):
NIOSH 5007

Physical Description: Colorless to red, odorless, crystalline solid. [insecticide]

Chemical & Physical Properties:
MW: 394.4
BP: Decomposes
Sol: Insoluble
Fl.P: ?
IP: ?
Sp.Gr: 1.27
VP: <0.00004 mmHg
MLT: 330°F
UEL: ?
LEL: ?
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
5 mg/m^3: CcrOv95/Sa
125 mg/m^3: Sa:Cf/PaprOvHie
250 mg/m^3: CcrFOv100/GmFOv100/PaprTOvHie/SaT:Cf/ScbaF/SaF
2500 mg/m^3: Sa:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, alkalis

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, resp sys; numb muc memb; nau, vomit, abdom pain; musc tremor, inco, clonic convuls, stupor
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

R

Rouge	Formula: Fe_2O_3	CAS#: 1309-37-1	RTECS#: NO7400000	IDLH: N.D.
Conversion:	DOT:			

Synonyms/Trade Names: Iron(III)oxide, Iron oxide red, Red iron oxide, Red oxide

Exposure Limits:
NIOSH REL: See Appendix D
OSHA PEL†: TWA 15 mg/m^3 (total)
TWA 5 mg/m^3 (resp)

Physical Description: A fine, red powder of ferric oxide.
[**Note:** Usually used in cake form or impregnated in paper or cloth.]

Measurement Methods (see Table 1):
NIOSH 0500, 0600

Chemical & Physical Properties:
MW: 159.7
BP: ?
Sol: Insoluble
Fl.P: NA
IP: NA
Sp.Gr: 5.24
VP: 0 mmHg (approx)
MLT: 2849°F
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Calcium hypochlorite, carbon monoxide, hydrogen peroxide

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Irrit eyes, skin, resp sys
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Breath: Fresh air

Selenium	Formula: Se	CAS#: 7782-49-2	RTECS#: VS7700000	IDLH: 1 mg/m^3 (as Se)
Conversion:	DOT: 2658 152 (powder)			

Synonyms/Trade Names: Elemental selenium, Selenium alloy

Exposure Limits:
NIOSH REL*: TWA 0.2 mg/m^3
OSHA PEL*: TWA 0.2 mg/m^3
[***Note:** The REL and PEL also apply to other selenium compounds (as Se) except Selenium hexafluoride.]

Physical Description: Amorphous or crystalline, red to gray solid.
[**Note:** Occurs as an impurity in most sulfide ores.]

Measurement Methods (see Table 1):
NIOSH 7300, 7301, 7303, 9102, S190 (II-7)
OSHA ID121

Chemical & Physical Properties:
MW: 79.0
BP: 1265°F
Sol: Insoluble
Fl.P: NA
IP: NA
Sp.Gr: 4.28
VP: 0 mmHg (approx)
MLT: 392°F
UEL: NA
LEL: NA
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: N.R.
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
1 mg/m^3: Qm*/95XQ*/100F/PaprHie*/PaprHie*/Sa*/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Acids, strong oxidizers, chromium trioxide, potassium bromate, cadmium

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose, throat; vis dist; head; chills, fever; dysp, bron; metallic taste, garlic breath, GI dist; derm; eye, skin burns; in animals: anemia; liver nec, cirr; kidney, spleen damage
TO: Eyes, skin, resp sys, liver, kidneys, blood, spleen

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Selenium hexafluoride	Formula: SeF_6	CAS#: 7783-79-1	RTECS#: VS9450000	IDLH: 2 ppm
Conversion: 1 ppm = 7.89 mg/m^3	**DOT:** 2194 125			

Synonyms/Trade Names: Selenium fluoride

Exposure Limits:
NIOSH REL: TWA 0.05 ppm
OSHA PEL: TWA 0.05 ppm (0.4 mg/m^3)

Measurement Methods (see Table 1):
None available

Physical Description: Colorless gas.

Chemical & Physical Properties:
MW: 193.0
BP: -30°F
Sol: Insoluble
Fl.P: NA
IP: ?
RGasD: 6.66
VP: >1 atm
FRZ: -59°F
UEL: NA
LEL: NA
Nonflammable Gas

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
0.5 ppm: Sa
1.25 ppm: Sa:Cf
2 ppm: SaT:Cf/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS/ScbaE

Incompatibilities and Reactivities: Water [**Note:** Hydrolyzes very slowly in cold water.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh
SY: In animals: pulm irrit, edema
TO: Resp sys

First Aid (see Table 6):
Breath: Resp support

Silica, amorphous	Formula: SiO_2	CAS#: 7631-86-9	RTECS#: VV7310000	IDLH: 3000 mg/m^3
Conversion:	**DOT:**			

Synonyms/Trade Names: Diatomaceous earth, Diatomaceous silica, Diatomite, Precipitated amorphous silica, Silica gel, Silicon dioxide (amorphous)

Exposure Limits:
NIOSH REL: TWA 6 mg/m^3
OSHA PEL†: TWA 20 mppcf [(80 mg/m^3)/%SiO_2]

Measurement Methods (see Table 1):
NIOSH 7501

Physical Description: Transparent to gray, odorless powder.
[**Note:** Amorphous silica is the non-crystalline form of SiO_2.]

Chemical & Physical Properties:
MW: 60.1
BP: 4046°F
Sol: Insoluble
Fl.P: NA
IP: NA
Sp.Gr: 2.20
VP: 0 mmHg (approx)
MLT: 3110°F
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
30 mg/m^3: Qm
60 mg/m^3: 95XQ/Sa
150 mg/m^3: Sa:Cf/PaprHie
300 mg/m^3: 100F/SaT:Cf/PaprTHie/ ScbaF/SaF
3000 mg/m^3: Sa:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Fluorine, oxygen difluoride, chlorine trifluoride

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Irrit eyes, pneumoconiosis
TO: Eyes, resp sys

First Aid (see Table 6):
Eye: Irr immed
Breath: Fresh air

S

Silica, crystalline (as respirable dust)	**Formula:** SiO_2	**CAS#:** 14808-60-7	**RTECS#:** VV7330000	**IDLH:** Ca [25 mg/m^3 (cristobalite, tridymite); 50 mg/m^3 (quartz, tripoli)]
Conversion:	**DOT:**			

Synonyms/Trade Names: Cristobalite, Quartz, Tridymite, Tripoli

Exposure Limits:
NIOSH REL: Ca
TWA 0.05 mg/m^3
See Appendix A
OSHA PEL: See Appendix C (Mineral Dusts)

Measurement Methods (see Table 1):
NIOSH 7500, 7601, 7602
OSHA ID142

Physical Description: Colorless, odorless solid. [**Note:** A component of many mineral dusts.]

Chemical & Physical Properties:
MW: 60.1
BP: 4046°F
Sol: Insoluble
Fl.P: NA
IP: NA
Sp.Gr: 2.66
VP: 0 mmHg (approx)
MLT: 3110°F
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
0.5 mg/m^3: 95XQ
1.25 mg/m^3: PaprHie/Sa:Cf
2.5 mg/m^3: 100F/PaprTHie
25 mg/m^3: Sa:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Powerful oxidizers: fluorine, chlorine trifluoride, manganese trioxide, oxygen difluoride, hydrogen peroxide, etc.; acetylene; ammonia

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Cough, dysp, wheez; decr pulm func, progressive resp symptoms (silicosis); irrit eyes; [carc]
TO: Eyes, resp sys [in animals: lung cancer]

First Aid (see Table 6):
Eye: Irr immed
Breath: Fresh air

Silicon	**Formula:** Si	**CAS#:** 7440-21-3	**RTECS#:** VW0400000	**IDLH:** N.D.
Conversion:	**DOT:** 1346 170 (amorphous powder)			

Synonyms/Trade Names: Elemental silicon
[**Note:** Does not occur free in nature, but is found in silicon dioxide (silica) & in various silicates.]

S

Exposure Limits:
NIOSH REL: TWA 10 mg/m^3 (total)
TWA 5 mg/m^3 (resp)
OSHA PEL†: TWA 15 mg/m^3 (total)
TWA 5 mg/m^3 (resp)

Measurement Methods (see Table 1):
NIOSH 0500, 0600

Physical Description: Black to gray, lustrous, needle-like crystals.
[**Note:** The amorphous form is a dark-brown powder.]

Chemical & Physical Properties:
MW: 28.1
BP: 4271°F
Sol: Insoluble
Fl.P: NA
IP: NA
Sp.Gr(77°F): 2.33
VP: 0 mmHg (approx)
MLT: 2570°F
UEL: NA
LEL: NA
MEC: 160 g/m^3
Combustible Solid in powder form.

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: Prevent eye contact
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Chlorine, fluorine, oxidizers, calcium, cesium carbide, alkaline carbonates

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, upper resp sys; cough
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Breath: Fresh air
Swallow: Medical attention immed

Silicon carbide	Formula: SiC	CAS#: 409-21-2	RTECS#: VW0450000	IDLH: N.D.
Conversion:	**DOT:**			

Synonyms/Trade Names: Carbon silicide, Carborundum®, Silicon monocarbide

Exposure Limits:
NIOSH REL: TWA 10 mg/m^3 (total)
TWA 5 mg/m^3 (resp)
OSHA PEL†: TWA 15 mg/m^3 (total)
TWA 5 mg/m^3 (resp)

Measurement Methods (see Table 1):
NIOSH 0500, 0600

Physical Description: Yellow to green to bluish-black, iridescent crystals.

Chemical & Physical Properties:
MW: 40.1
BP: Sublimes
Sol: Insoluble
Fl.P: NA
IP: 9.30 eV
Sp.Gr: 3.23
VP: 0 mmHg (approx)
MLT: 4892°F (Sublimes)
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: None reported [**Note:** Sublimes with decomposition at 4892°F.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, upper resp sys; cough
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Breath: Fresh air
Swallow: Medical attention immed

Silicon tetrahydride	Formula: SiH_4	CAS#: 7803-62-5	RTECS#: VV1400000	IDLH: N.D.
Conversion: 1 ppm = 1.31 mg/m^3	**DOT:** 2203 116			

Synonyms/Trade Names: Monosilane, Silane, Silicane

Exposure Limits:
NIOSH REL: TWA 5 ppm (7 mg/m^3)
OSHA PEL†: none

Measurement Methods (see Table 1):
None available

Physical Description: Colorless gas with a repulsive odor.

Chemical & Physical Properties:
MW: 32.1
BP: -169°F
Sol: Decomposes
Fl.P: NA (Gas)
IP: ?
RGasD: 1.11
VP: >1 atm
FRZ: -301°F
UEL: ?
LEL: ?
Flammable Gas (may ignite SPONTANEOUSLY in air).

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Halogens (bromine, chlorine, carbonyl chloride, antimony pentachloride, tin(IV) chloride), water

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh
SY: Irrit eyes, skin, muc memb; nau, head
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Breath: Resp support

S

Silver (metal dust and soluble compounds, as Ag)	Formula: Ag (metal)	CAS#: 7440-22-4 (metal)	RTECS#: VW3500000 (metal)	IDLH: 10 mg/m^3 (as Ag)
Conversion:	DOT:			

Synonyms/Trade Names: **Silver metal:** Argentum
Synonyms of soluble silver compounds such as Silver nitrate ($AgNO_3$) vary depending upon the specific compound.

Exposure Limits:
NIOSH REL: TWA 0.01 mg/m^3
OSHA PEL: TWA 0.01 mg/m^3

Measurement Methods (see Table 1):
NIOSH 7300, 7301, 9102
OSHA ID121

Physical Description: Metal: White, lustrous solid.

Chemical & Physical Properties:
MW: 107.9
BP: 3632°F
Sol: Insoluble
Fl.P: NA
IP: NA
Sp.Gr: 10.49 (metal)
VP: 0 mmHg (approx)
MLT: 1761°F
UEL: NA
LEL: NA
Metal: Noncombustible Solid, but flammable in form of dust or powder.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam ($AgNO_3$)
Change: Daily
Provide: Eyewash

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
0.25 mg/m^3: Sa:Cf£/PaprHie£
0.5 mg/m^3: 100F/ScbaF/SaF
10 mg/m^3: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Acetylene, ammonia, hydrogen peroxide, bromoazide, chlorine trifluoride, ethyleneimine, oxalic acid, tartaric acid

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Blue-gray eyes, nasal septum, throat, skin; irrit, ulceration skin; GI dist
TO: Nasal septum, skin, eyes

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush
Breath: Resp support
Swallow: Medical attention immed

Soapstone (containing less than 1% quartz)	Formula: 3MgO-4SiO$_2$-H$_2$O	CAS#:	RTECS#: VV8780000	IDLH: 3000 mg/m^3
Conversion:	DOT:			

Synonyms/Trade Names: Massive talc, Soapstone silicate, Steatite

S

Exposure Limits:
NIOSH REL: TWA 6 mg/m^3 (total)
TWA 3 mg/m^3 (resp)
OSHA PEL†: TWA 20 mppcf

Measurement Methods (see Table 1):
NIOSH 0500

Physical Description: Odorless, white-gray powder.

Chemical & Physical Properties:
MW: 379.3
BP: ?
Sol: Insoluble
Fl.P: NA
IP: NA
Sp.Gr: 2.7-2.8
VP: 0 mmHg (approx)
MLT: ?
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
30 mg/m^3: Qm
60 mg/m^3: 95XQ/Sa
150 mg/m^3: PaprHie
300 mg/m^3: 100F/SaT:Cf*/PaprTHie*/ ScbaF/SaF
3000 mg/m^3: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: None reported

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Pneumoconiosis: cough, dysp; digital clubbing; cyan; basal crackles, cor pulmonale
TO: Resp sys, CVS

First Aid (see Table 6):
Eye: Irr immed
Breath: Resp support

Sodium aluminum fluoride (as F)	Formula: Na_3AlF_6	CAS#: 15096-52-3	RTECS#: WA9625000	IDLH: 250 mg/m^3 (as F)
Conversion:	**DOT:**			

Synonyms/Trade Names: Cryocide, Cryodust, Cryolite, Sodium hexafluoroaluminate

Exposure Limits:
NIOSH REL*: TWA 2.5 mg/m^3
OSHA PEL*: TWA 2.5 mg/m^3
[***Note:** The REL and PEL also apply to other inorganic, solid fluorides (as F).]

Measurement Methods (see Table 1):
NIOSH 7902
OSHA ID110

Physical Description: Colorless to dark odorless solid. [pesticide]
[**Note:** Loses color on heating.]

Chemical & Physical Properties:
MW: 209.9
BP: Decomposes
Sol: 0.04%
Fl.P: NA
IP: NA
Sp.Gr: 2.90
VP: 0 mmHg (approx)
MLT: 1832°F
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
12.5 mg/m^3: Qm
25 mg/m^3: 95XQ*/Sa*
62.5 mg/m^3: Sa:Cf*/PaprHie*+
125 mg/m^3: 100F+/ScbaF/SaF
250 mg/m^3: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F+/ScbaE

+Note: May need acid gas sorbent

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, resp sys; nau, abdom pain, diarr; salv, thirst, sweat; stiff spine; derm; calcification of ligaments of ribs, pelvis
TO: Eyes, skin, resp sys, CNS, skeleton, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Fresh air
Swallow: Medical attention immed

Sodium azide	Formula: NaN_3	CAS#: 26628-22-8	RTECS#: VY8050000	IDLH: N.D.
Conversion:	**DOT:** 1687 153			

Synonyms/Trade Names: Azide, Azium, Sodium salt of hydrazoic acid

Exposure Limits:
NIOSH REL: C 0.1 ppm (as HN_3) [skin]
C 0.3 mg/m^3 (as NaN_3) [skin]
OSHA PEL†: none

Measurement Methods (see Table 1):
OSHA ID121, ID211

Physical Description: Colorless to white, odorless, crystalline solid. [pesticide]
[**Note:** Forms hydrazoic acid (HN_3) in water.]

Chemical & Physical Properties:
MW: 65.0
BP: Decomposes
Sol(63°F): 42%
Fl.P: ?
IP: 11.70 eV
Sp.Gr: 1.85
VP: ?
MLT: 527°F (Decomposes)
UEL: ?
LEL: ?
Combustible Solid (if heated above 572°F).

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Acids, metals, water
[**Note:** Over a period of time, sodium azide may react with copper, lead, brass, or solder in plumbing systems to form an accumulation of the HIGHLY EXPLOSIVE compounds of lead azide & copper azide.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin; head, dizz, lass, blurred vision; low BP, bradycardia; kidney changes
TO: Eyes, skin, CNS, CVS, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

Sodium bisulfite	**Formula:** $NaHSO_3$	**CAS#:** 7631-90-5	**RTECS#:** VZ2000000	**IDLH:** N.D.
Conversion:	**DOT:** 2693 154 (solution)			

Synonyms/Trade Names: Monosodium salt of sulfurous acid, Sodium acid bisulfite, Sodium bisulphite, Sodium hydrogen sulfite

Exposure Limits:
NIOSH REL: TWA 5 mg/m^3
OSHA PEL†: none

Measurement Methods (see Table 1):
NIOSH 0500

Physical Description: White crystals or powder with a slight odor of sulfur dioxide.

Chemical & Physical Properties:
MW: 104.1
BP: Decomposes
Sol: 29%
Fl.P: NA
IP: NA
Sp.Gr: 1.48
VP: ?
MLT: Decomposes
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Heat (decomposes) [**Note:** Slowly oxidized to the sulfate on exposure to air.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, muc memb
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Breath: Fresh air
Swallow: Medical attention immed

Sodium cyanide (as CN)	**Formula:** NaCN	**CAS#:** 143-33-9	**RTECS#:** VZ7525000	**IDLH:** 25 mg/m^3 (as CN)
Conversion:	**DOT:** 1689 157 (solid); 3414 157 (solution)			

Synonyms/Trade Names: Sodium salt of hydrocyanic acid

Exposure Limits:
NIOSH REL*: C 5 mg/m^3 (4.7 ppm) [10-minute]
OSHA PEL*: TWA 5 mg/m^3
[***Note:** The REL and PEL also apply to other cyanides (as CN) except Hydrogen cyanide.]

Measurement Methods (see Table 1):
NIOSH 6010, 7904

S

Physical Description: White, granular or crystalline solid with a faint, almond-like odor.

Chemical & Physical Properties:
MW: 49.0
BP: 2725°F
Sol(77°F): 58%
Fl.P: NA
IP: NA
Sp.Gr: 1.60
VP: 0 mmHg (approx)
MLT: 1047°F
UEL: NA
LEL: NA
Noncombustible Solid, but contact with acids releases highly flammable hydrogen cyanide.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
25 mg/m^3: Sa/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS100/ScbaE

Incompatibilities and Reactivities: Strong oxidizers (such as acids, acid salts, chlorates & nitrates) [**Note:** Absorbs moisture from the air forming a syrup.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin; asphy; lass, head, conf; nau, vomit; incr resp rate; slow gasping respiration; thyroid, blood changes
TO: Eyes, skin, CVS, CNS, thyroid, blood

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Sodium fluoride (as F)	Formula: NaF	CAS#: 7681-49-4	RTECS#: WB0350000	IDLH: 250 mg/m^3 (as F)
Conversion:	**DOT:** 1690 154			

Synonyms/Trade Names: Floridine, Sodium monofluoride

Exposure Limits:
NIOSH REL*: TWA 2.5 mg/m^3
OSHA PEL*: TWA 2.5 mg/m^3
[***Note:** The REL and PEL also apply to other inorganic, solid fluorides (as F).]

Measurement Methods (see Table 1):
NIOSH 7902, 7906
OSHA ID110

Physical Description: Odorless, white powder or colorless crystals.
[**Note:** Pesticide grade is often dyed blue.]

Chemical & Physical Properties:
MW: 42.0
BP: 3099°F
Sol: 4%
Fl.P: NA
IP: NA
Sp.Gr: 2.78
VP: 0 mmHg (approx)
MLT: 1819°F
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
12.5 mg/m^3: Qm
25 mg/m^3: 95XQ*/Sa*
62.5 mg/m^3: Sa:Cf*/PaprHie*+
125 mg/m^3: 100F+/ScbaF/SaF
250 mg/m^3: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F+/ScbaE

+Note: May need acid gas sorbent

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, resp sys; nau, abdom pain, diarr; salv, thirst, sweat; stiff spine; derm; calcification of ligaments of ribs, pelvis
TO: Eyes, skin, resp sys, CNS, skeleton, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Fresh air
Swallow: Medical attention immed

Sodium fluoroacetate	Formula: FCH_2COONa	CAS#: 62-74-8	RTECS#: AH9100000	IDLH: 2.5 mg/m^3
Conversion:	**DOT:** 2629 151			

Synonyms/Trade Names: SFA, Sodium monofluoroacetate

Exposure Limits:
NIOSH REL: TWA 0.05 mg/m^3
ST 0.15 mg/m^3 [skin]
OSHA PEL†: TWA 0.05 mg/m^3 [skin]

Measurement Methods (see Table 1):
NIOSH S301 (II-5)

Physical Description: Fluffy, colorless to white (sometimes dyed black), odorless powder. [**Note:** A liquid above 95°F.] [rodenticide]

Chemical & Physical Properties:
MW: 100.0
BP: Decomposes
Sol: Miscible
Fl.P: NA
IP: ?
Sp.Gr: ?
VP: Low
MLT: 392°F
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
0.25 mg/m^3: Qm
0.5 mg/m^3: 95XQ/Sa
1.25 mg/m^3: Sa:Cf/PaprHie
2.5 mg/m^3: 100F/SaT:Cf/PaprTHie/ ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: None reported

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Vomit; anxi, auditory halu; facial pares; twitch face musc; pulsus altenans, ectopic heartbeat, tacar, card arrhy; pulm edema; nystagmus; convuls; liver, kidney damage
TO: Resp sys, CVS, liver, kidneys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

S

Sodium hydroxide	**Formula:** NaOH	**CAS#:** 1310-73-2	**RTECS#:** WB4900000	**IDLH:** 10 mg/m^3
Conversion:	**DOT:** 1823 154 (dry, solid); 1824 154 (solution)			

Synonyms/Trade Names: Caustic soda, Lye, Soda lye, Sodium hydrate

Exposure Limits:
NIOSH REL: C 2 mg/m^3
OSHA PEL†: TWA 2 mg/m^3

Measurement Methods (see Table 1):
NIOSH 7401

Physical Description: Colorless to white, odorless solid (flakes, beads, granular form).

Chemical & Physical Properties:
MW: 40.0
BP: 2534°F
Sol: 111%
Fl.P: NA
IP: NA
Sp.Gr: 2.13
VP: 0 mmHg (approx)
MLT: 605°F
UEL: NA
LEL: NA
Noncombustible Solid, but when in contact with water may generate sufficient heat to ignite combustible materials.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
10 mg/m^3: Sa:Cf£/100F/PaprHie£/ ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Water; acids; flammable liquids; organic halogens; metals such as aluminum, tin & zinc; nitromethane [**Note:** Corrosive to metals.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, muc memb; pneu; eye, skin burns; temporary loss of hair
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

Sodium metabisulfite	**Formula:** $Na_2S_2O_5$	**CAS#:** 7681-57-4	**RTECS#:** UX8225000	**IDLH:** N.D.
Conversion:	**DOT:**			

S

Synonyms/Trade Names: Disodium pyrosulfite, Sodium metabisulphite, Sodium pyrosulfite

Exposure Limits:
NIOSH REL: TWA 5 mg/m^3
OSHA PEL†: none

Measurement Methods (see Table 1):
NIOSH 0500

Physical Description: White to yellowish crystals or powder with an odor of sulfur dioxide.

Chemical & Physical Properties:
MW: 190.1
BP: Decomposes
Sol: 54%
Fl.P: NA
IP: NA
Sp.Gr: 1.4
VP: ?
MLT: >302°F (Decomposes)
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Heat (decomposes)
[**Note:** Slowly oxidized to the sulfate on exposure to air & moisture.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, muc memb
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Breath: Fresh air
Swallow: Medical attention immed

Starch

Formula: $(C_6H_{10}O_5)n$
CAS#: 9005-25-8
RTECS#: GM5090000
IDLH: N.D.

Conversion:
DOT:

Synonyms/Trade Names: Corn starch, Rice starch, Sorghum gum, α-Starch, Starch gum, Tapioca starch

Exposure Limits:
NIOSH REL: TWA 10 mg/m^3 (total)
TWA 5 mg/m^3 (resp)
OSHA PEL: TWA 15 mg/m^3 (total)
TWA 5 mg/m^3 (resp)

Measurement Methods (see Table 1):
NIOSH 0500, 0600

Physical Description: Fine, white, odorless powder.
[**Note:** A carbohydrate polymer composed of 25% amylose & 75% amylpectin.]

Chemical & Physical Properties:
MW: varies
BP: Decomposes
Sol: Insoluble
Fl.P: NA
IP: NA
Sp.Gr: 1.45
VP: 0 mmHg (approx)
MLT: Decomposes
UEL: NA
LEL: NA
MEC: 50 g/m^3
Noncombustible Solid, but may form explosive mixture with air.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: Daily
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Oxidizers, acids, iodine, alkalis

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, muc memb; cough, chest pain; derm; rhin
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Fresh air
Swallow: Medical attention immed

Stibine

Formula: SbH_3
CAS#: 7803-52-3
RTECS#: WJ0700000
IDLH: 5 ppm

Conversion: 1 ppm = 5.10 mg/m^3
DOT: 2676 119

Synonyms/Trade Names: Antimony hydride, Antimony trihydride, Hydrogen antimonide

Exposure Limits:
NIOSH REL: TWA 0.1 ppm (0.5 mg/m^3)
OSHA PEL: TWA 0.1 ppm (0.5 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 6008

Physical Description: Colorless gas with a disagreeable odor like hydrogen sulfide.

Chemical & Physical Properties:
MW: 124.8
BP: -1°F
Sol: Slight
Fl.P: NA (Gas)
IP: 9.51 eV
RGasD: 4.31
VP: >1 atm
FRZ: -126°F
UEL: ?
LEL: ?
Flammable Gas

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
1 ppm: Sa
2.5 ppm: Sa:Cf
5 ppm: SaT:Cf/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS/ScbaE

Incompatibilities and Reactivities: Acids, halogenated hydrocarbons, oxidizers, moisture, chlorine, ozone, ammonia

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh
SY: Head, lass; nau, abdom pain; lumbar pain, hema, hemolytic anemia; jaun; pulm irrit
TO: Blood, liver, kidneys, resp sys

First Aid (see Table 6):
Breath: Resp support

Stoddard solvent	**Formula:**	**CAS#:** 8052-41-3	**RTECS#:** WJ8925000	**IDLH:** 20,000 mg/m^3
Conversion:	**DOT:** 1268 128 (petroleum distillates, n.o.s.)			

Synonyms/Trade Names: Dry cleaning safety solvent, Mineral spirits, Petroleum solvent, Spotting naphtha [**Note:** A refined petroleum solvent with a flash point of 102-110°F, boiling point of 309-396°F, and containing >65% C_{10} or higher hydrocarbons.]

Exposure Limits:
NIOSH REL: TWA 350 mg/m^3
C 1800 mg/m^3 [15-minute]
OSHA PEL†: TWA 500 ppm (2900 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1550

Physical Description: Colorless liquid with a kerosene-like odor.

Chemical & Physical Properties:
MW: Varies
BP: 309-396°F
Sol: Insoluble
Fl.P: 102-110°F
IP: ?
Sp.Gr: 0.78
VP: ?
FRZ: ?
UEL: ?
LEL: ?
Class II Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
3500 mg/m^3: CcrOv*/Sa*
8750 mg/m^3: Sa:Cf*/PaprOv*
17,500 mg/m^3: CcrFOv/GmFOv/PaprTOv*/ ScbaF/SaF
20,000 mg/m^3: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, nose, throat; dizz; derm; chemical pneu (aspir liquid); in animals: kidney damage
TO: Eyes, skin, resp sys, CNS, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

Strychnine	**Formula:** $C_{21}H_{22}N_2O_2$	**CAS#:** 57-24-9	**RTECS#:** WL2275000	**IDLH:** 3 mg/m^3
Conversion:	**DOT:** 1692 151			

Synonyms/Trade Names: Nux vomica, Strynchnos

S

Exposure Limits:
NIOSH REL: TWA 0.15 mg/m^3
OSHA PEL: TWA 0.15 mg/m^3

Measurement Methods (see Table 1):
NIOSH 5016

Physical Description: Colorless to white, odorless, crystalline solid. [pesticide]

Chemical & Physical Properties:
MW: 334.4
BP: Decomposes
Sol: 0.02%
Fl.P: ?
IP: ?
Sp.Gr: 1.36
VP: Low
MLT: 514°F
UEL: ?
LEL: ?
Combustible Solid, but difficult to ignite.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: N.R.
Wash skin: When contam
Remove: N.R.
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
0.75 mg/m^3: Qm
1.5 mg/m^3: 95XQ/Sa
3 mg/m^3: Sa:Cf/PaprHie/100F/ ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Stiff neck, facial musc; restless, anxi, incr acuity of perception; incr reflex excitability; cyan; tetanic convuls with opisthotonos
TO: CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

Styrene	**Formula:** $C_6H_5CH=CH_2$	**CAS#:** 100-42-5	**RTECS#:** WL3675000	**IDLH:** 700 ppm
Conversion: 1 ppm = 4.26 mg/m^3	**DOT:** 2055 128P (inhibited)			

Synonyms/Trade Names: Ethenyl benzene, Phenylethylene, Styrene monomer, Styrol, Vinyl benzene

Exposure Limits:
NIOSH REL: TWA 50 ppm (215 mg/m^3)
ST 100 ppm (425 mg/m^3)
OSHA PEL†: TWA 100 ppm
C 200 ppm
600 ppm (5-minute maximum peak in any 3 hours)

Measurement Methods (see Table 1):
NIOSH 1501, 3800
OSHA 9, 89

Physical Description: Colorless to yellow, oily liquid with a sweet, floral odor.

Chemical & Physical Properties:
MW: 104.2
BP: 293°F
Sol: 0.03%
Fl.P: 88°F
IP: 8.40 eV
Sp.Gr: 0.91
VP: 5 mmHg
FRZ: -23°F
UEL: 6.8%
LEL: 0.9%
Class IC Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
500 ppm: CcrOv*/Sa*
700 ppm: Sa:Cf*/CcrFOv/GmFOv/PaprOv*/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Oxidizers, catalysts for vinyl polymers, peroxides, strong acids, aluminum chloride [**Note:** May polymerize if contaminated or subjected to heat. Usually contains an inhibitor such as tert-butylcatechol.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, nose, resp sys; head, lass, dizz, conf, mal, drow, unsteady gait; narco; defatting derm; possible liver inj; repro effects
TO: Eyes, skin, resp sys, CNS, liver, repro sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush
Breath: Resp support
Swallow: Medical attention immed

Subtilisins	**Formula:**	**CAS#:** 1395-21-7 (BPN) 9014-01-1 (Carlsburg)	**RTECS#:** CO9450000 (BPN) CO9550000 (Carlsburg)	**IDLH:** N.D.
Conversion:	**DOT:**			

Synonyms/Trade Names: Bacillus subtilis, Bacillus subtilis BPN, Bacillus subtilis Carlsburg, Proteolytic enzymes, Subtilisin BPN, Subtilisin Carlsburg [**Note:** Commercial proteolytic enzymes are used in laundry detergents.]

Exposure Limits:
NIOSH REL: ST 0.00006 mg/m^3 [60-minute]
OSHA PEL†: none

Measurement Methods (see Table 1):
None available

Physical Description: Light-colored, free-flowing powders.
[**Note:** A protein containing numerous amino acids.]

Chemical & Physical Properties:
MW: 28,000 (approx)
BP: ?
Sol: ?
Fl.P: NA
IP: NA
Sp.Gr: ?
VP: 0 mmHg (approx)
MLT: ?
UEL: NA
LEL: NA

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: None reported

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, resp sys; resp sens (enzyme asthma): sweat, head, chest pain, flu-like symptoms, cough, breathlessness, wheez
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Resp support
Swallow: Medical attention immed

S

Succinonitrile

Formula:	CAS#:	RTECS#:	IDLH:
$NCCH_2CH_2CN$	110-61-2	WN3850000	N.D.

Conversion: 1 ppm = 3.28 mg/m^3

DOT:

Synonyms/Trade Names: Butanedinitrile; 1,2-Dicyanoethane; Dinile; Ethylene cyanide; Ethylene dicyanide; Succinic dinitrile

Exposure Limits:
NIOSH REL: TWA 6 ppm (20 mg/m^3)
OSHA PEL: none

Measurement Methods (see Table 1):
NIOSH Nitriles Criteria Document

Physical Description: Colorless, odorless, waxy solid.
[**Note:** Forms cyanide in the body.]

Chemical & Physical Properties:
MW: 80.1
BP: 509°F
Sol: 13%
Fl.P: 270°F
IP: ?
Sp.Gr: 0.99
VP(212°F): 2 mmHg
MLT: 134°F
UEL: ?
LEL: ?
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash

Respirator Recommendations (see Tables 3 and 4):
NIOSH
60 ppm: Sa
150 ppm: Sa:Cf
250 ppm: ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, resp sys; head, dizz, lass, conf, convuls; blurred vision; dysp; abdom pain, nau, vomit
TO: Eyes, skin, resp sys, CNS, CVS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water wash immed
Breath: Resp support
Swallow: Medical attention immed

Sucrose

Formula:	CAS#:	RTECS#:	IDLH:
$C_{12}H_{22}O_{11}$	57-50-1	WN6500000	N.D.

Conversion:

DOT:

Synonyms/Trade Names: Beet sugar, Cane sugar, Confectioner's sugar, Granulated sugar, Rock candy, Saccarose, Sugar, Table sugar

S

Exposure Limits:
NIOSH REL: TWA 10 mg/m^3 (total)
TWA 5 mg/m^3 (resp)
OSHA PEL: TWA 15 mg/m^3 (total)
TWA 5 mg/m^3 (resp)

Measurement Methods (see Table 1):
NIOSH 0500, 0600

Physical Description: Hard, white, odorless crystals, lumps, or powder.
[**Note:** May have a characteristic, caramel odor when heated.]

Chemical & Physical Properties:
MW: 342.3
BP: Decomposes
Sol: 200%
Fl.P: NA
IP: NA
Sp.Gr: 1.59
VP: 0 mmHg (approx)
MLT: 320-367°F (Decomposes)
UEL: NA
LEL: NA
MEC: 45 g/m^3
Noncombustible Solid, but fine airborne dust may explode.

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Oxidizers, sulfuric acid, nitric acid

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Irrit eyes, skin, upper resp sys; cough
TO: Eyes, resp sys

First Aid (see Table 6):
Eye: Irr immed
Breath: Fresh air

Sulfur dioxide

Formula:	CAS#:	RTECS#:	IDLH:
SO_2	7446-09-5	WS4550000	100 ppm

Conversion: 1 ppm = 2.62 mg/m^3 **DOT:** 1079 125

Synonyms/Trade Names: Sulfurous acid anhydride, Sulfurous oxide, Sulfur oxide

Exposure Limits:
NIOSH REL: TWA 2 ppm (5 mg/m^3)
ST 5 ppm (13 mg/m^3)
OSHA PEL†: TWA 5 ppm (13 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 3800, 6004
OSHA ID104, ID200

Physical Description: Colorless gas with a characteristic, irritating, pungent odor. [**Note:** A liquid below 14°F. Shipped as a liquefied compressed gas.]

Chemical & Physical Properties:
MW: 64.1
BP: 14°F
Sol: 10%
Fl.P: NA
IP: 12.30 eV
RGasD: 2.26
VP: 3.2 atm
FRZ: -104°F
UEL: NA
LEL: NA
Nonflammable Gas

Personal Protection/Sanitation (see Table 2):
Skin: Frostbite
Eyes: Frostbite
Wash skin: N.R.
Remove: When wet or contam (liquid)
Change: N.R.
Provide: Frostbite wash

Respirator Recommendations (see Tables 3 and 4):
NIOSH
20 ppm: CcrS*/Sa*
50 ppm: Sa:Cf*/PaprS*
100 ppm: CcrFS/GmFS/PaprTS*/SaT:Cf*/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS/ScbaE

Incompatibilities and Reactivities: Powdered alkali metals (such as sodium & potassium), water, ammonia, zinc, aluminum, brass, copper [**Note:** Reacts with water to form sulfurous acid (H_2SO_3).]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Irrit eyes, nose, throat; rhin; choking, cough; reflex bronchoconstriction; liquid: frostbite
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Frostbite
Skin: Frostbite
Breath: Resp support

Sulfur hexafluoride

Formula:	CAS#:	RTECS#:	IDLH:
SF_6	2551-62-4	WS4900000	N.D.

Conversion: 1 ppm = 5.98 mg/m^3 **DOT:** 1080 126

Synonyms/Trade Names: Sulfur fluoride [**Note:** May contain highly toxic sulfur pentafluoride as an impurity.]

Exposure Limits:
NIOSH REL: TWA 1000 ppm (6000 mg/m^3)
OSHA PEL: TWA 1000 ppm (6000 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 6602

Physical Description: Colorless, odorless gas. [**Note:** Shipped as a liquefied compressed gas. Condenses directly to a solid upon cooling.]

Chemical & Physical Properties:
MW: 146.1
BP: Sublimes
Sol(77°F): 0.003%
Fl.P: NA
IP: 19.30 eV
RGasD: 5.11
VP: 21.5 atm
FRZ: -83°F (Sublimes)
UEL: NA
LEL: NA
Nonflammable Gas

Personal Protection/Sanitation (see Table 2):
Skin: Frostbite
Eyes: Frostbite
Wash skin: N.R.
Remove: N.R.
Change: N.R.
Provide: Frostbite wash

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Disilane

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh
SY: Asphy: incr breath rate, pulse rate; slight musc inco, emotional upset; lass, nau, vomit, convuls; liquid: frostbite
TO: Resp sys

First Aid (see Table 6):
Eye: Frostbite
Skin: Frostbite
Breath: Resp support

Sulfuric acid

Formula: H_2SO_4 | **CAS#:** 7664-93-9 | **RTECS#:** WS5600000 | **IDLH:** 15 mg/m^3

Conversion: | **DOT:** 1830 137; 1831 137 (fuming); 1832 137 (spent)

Synonyms/Trade Names: Battery acid, Hydrogen sulfate, Oil of vitriol, Sulfuric acid (aqueous)

Exposure Limits:
NIOSH REL: TWA 1 mg/m^3
OSHA PEL: TWA 1 mg/m^3

Measurement Methods (see Table 1):
NIOSH 7903
OSHA ID113, ID165SG

Physical Description: Colorless to dark-brown, oily, odorless liquid.
[**Note:** Pure compound is a solid below 51°F. Often used in an aqueous solution.]

Chemical & Physical Properties:
MW: 98.1
BP: 554°F
Sol: Miscible
Fl.P: NA
IP: ?
Sp.Gr: 1.84 (96-98% acid)
VP: 0.001 mmHg
FRZ: 51°F
UEL: NA
LEL: NA
Noncombustible Liquid, but capable of igniting finely divided combustible materials.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash (>1%)
Quick drench (>1%)

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
15 mg/m^3: Sa:Cf£/PaprAgHie£/CcrFAg100/GmFAg100/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFAg100/ScbaE

Incompatibilities and Reactivities: Organic materials, chlorates, carbides, fulminates, water, powdered metals
[**Note:** Reacts violently with water with evolution of heat. Corrosive to metals.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose, throat; pulm edema, bron; emphy; conj; stomatis; dental erosion; eye, skin burns; derm
TO: Eyes, skin, resp sys, teeth

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

Sulfur monochloride

Formula: S_2Cl_2 | **CAS#:** 10025-67-9 | **RTECS#:** WS4300000 | **IDLH:** 5 ppm

Conversion: 1 ppm = 5.52 mg/m^3 | **DOT:** 1828 137

Synonyms/Trade Names: Sulfur chloride, Sulfur subchloride, Thiosulfurous dichloride

S

Exposure Limits:
NIOSH REL: C 1 ppm (6 mg/m^3)
OSHA PEL†: TWA 1 ppm (6 mg/m^3)

Measurement Methods (see Table 1):
None available

Physical Description: Light-amber to yellow-red, oily liquid with a pungent, nauseating, irritating odor.

Chemical & Physical Properties:
MW: 135.0
BP: 280°F
Sol: Decomposes
Fl.P: 245°F
IP: 9.40 eV
Sp.Gr: 1.68
VP: 7 mmHg
FRZ: -107°F
UEL: ?
LEL: ?
Class IIIB Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
5 ppm: CcrFS/GmFS/PaprS£/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS/ScbaE

Incompatibilities and Reactivities: Peroxides, oxides of phosphorous, organics, water
[**Note:** Decomposes violently in water to form hydrochloric acid, sulfur dioxide, sulfur, sulfite, thiosulfate, and hydrogen sulfide. Corrosive to metals.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, muc memb; lac; cough; eye, skin burns; pulm edema
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

Sulfur pentafluoride	Formula: S_2F_{10}	CAS#: 5714-22-7	RTECS#: WS4480000	IDLH: 1 ppm
Conversion: 1 ppm = 10.39 mg/m^3	**DOT:**			

Synonyms/Trade Names: Disulfur decafluoride, Sulfur decafluoride

Exposure Limits:
NIOSH REL: C 0.01 ppm (0.1 mg/m^3)
OSHA PEL†: TWA 0.025 ppm (0.25 mg/m^3)

Measurement Methods (see Table 1):
None available

Physical Description: Colorless liquid or gas (above 84°F) with an odor like sulfur dioxide.

Chemical & Physical Properties:
MW: 254.1
BP: 84°F
Sol: Insoluble
Fl.P: NA
IP: ?
RGasD: 8.77
Sp.Gr(32°F): 2.08
VP: 561 mmHg
FRZ: -134°F
UEL: NA
LEL: NA
Noncombustible Liquid
Nonflammable Gas

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: N.R.
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
0.1 ppm: Sa
0.25 ppm: Sa:Cf
0.5 ppm: SaT:Cf/ScbaF/SaF
1 ppm: Sa:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFAg/ScbaE

Incompatibilities and Reactivities: None reported

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, resp sys; in animals: pulm edema, hemorr
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Sulfur tetrafluoride	Formula: SF_4	CAS#: 7783-60-0	RTECS#: WT4800000	IDLH: N.D.
Conversion: 1 ppm = 4.42 mg/m^3	**DOT:** 2418 125			

Synonyms/Trade Names: Tetrafluorosulfurane

Exposure Limits:
NIOSH REL: C 0.1 ppm (0.4 mg/m^3)
OSHA PEL†: none

Measurement Methods (see Table 1):
OSHA ID110

Physical Description: Colorless gas with an odor like sulfur dioxide.
[**Note:** Shipped as a liquefied compressed gas.]

Chemical & Physical Properties:
MW: 108.1
BP: -41°F
Sol: Reacts
Fl.P: NA
IP: 12.63 eV
RGasD: 3.78
VP(70°F): 10.5 atm
FRZ: -185°F
UEL: NA
LEL: NA
Nonflammable Gas

Personal Protection/Sanitation (see Table 2):
Skin: Frostbite
Eyes: Frostbite
Wash skin: N.R.
Remove: N.R.
Change: N.R.
Provide: Frostbite wash

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Moisture, concentrated sulfuric acid, dioxygen difluoride
[**Note:** Readily hydrolyzed by moisture, forming hydrofluoric acid & thionyl fluoride.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Irrit eyes, skin, muc memb; eye, skin burns (from SF_4 releasing hydrofluoric acid on exposure to moisture); liquid: frostbite; in animals: dysp, lass, rhin
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Frostbite
Skin: Frostbite
Breath: Resp support

S

Sulfuryl fluoride

Formula: SO_2F_2 | **CAS#:** 2699-79-8 | **RTECS#:** WT5075000 | **IDLH:** 200 ppm

Conversion: 1 ppm = 4.18 mg/m^3 | **DOT:** 2191 123

Synonyms/Trade Names: Sulfur difluoride dioxide, Vikane®

Exposure Limits:
NIOSH REL: TWA 5 ppm (20 mg/m^3)
ST 10 ppm (40 mg/m^3)
OSHA PEL†: TWA 5 ppm (20 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 6012

Physical Description: Colorless, odorless gas. [insecticide/fumigant]
[**Note:** Shipped as a liquefied compressed gas.]

Chemical & Physical Properties:
MW: 102.1
BP: -68°F
Sol(32°F): 0.2%
Fl.P: NA
IP: 13.04 eV
RGasD: 3.72
VP(70°F): 15.8 atm
FRZ: -212°F
UEL: NA
LEL: NA
Nonflammable Gas

Personal Protection/Sanitation (see Table 2):
Skin: Frostbite
Eyes: Frostbite
Wash skin: N.R.
Remove: N.R.
Change: N.R.
Provide: Frostbite wash

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
50 ppm: Sa*
125 ppm: Sa:Cf*
200 ppm: ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS/ScbaE

Incompatibilities and Reactivities: None reported

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con (liquid)
SY: Conj, rhinitis, pharyngitis, pares; liquid: frostbite: in animals: narco, tremor, convuls; pulm edema; kidney inj
TO: Eyes, skin, resp sys, CNS, kidneys

First Aid (see Table 6):
Eye: Frostbite
Skin: Frostbite
Breath: Resp support

Sulprofos

Formula: $C_{12}H_{19}O_2PS_3$ | **CAS#:** 35400-43-2 | **RTECS#:** TE4165000 | **IDLH:** N.D.

Conversion: 1 ppm = 13.19 mg/m^3 | **DOT:**

Synonyms/Trade Names: Bolstar®, O-Ethyl O-(4-methylthio)phenyl S-propylphosphorodithioate

S

Exposure Limits:
NIOSH REL: TWA 1 mg/m^3
OSHA PEL†: none

Measurement Methods (see Table 1):
NIOSH 5600
OSHA PV2037

Physical Description: Tan-colored liquid with a sulfide-like odor.

Chemical & Physical Properties:
MW: 322.5
BP: ?
Sol: Low
Fl.P: ?
IP: ?
Sp.Gr: 1.20
VP: <8 mmHg
FRZ: ?
UEL: ?
LEL: ?

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: N.R.
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: None reported

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing
SY: Nau, vomit, abdom cramps, diarr, salv; head, dizz, lass; rhin, chest tight; blurred vision, miosis; card irreg; musc fasc; dysp
TO: Resp sys, CNS, CVS, blood chol

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

2,4,5-T	Formula: $Cl_3C_6H_2OCH_2COOH$	CAS#: 93-76-5	RTECS#: AJ8400000	IDLH: 250 mg/m^3
Conversion:	**DOT:** 2765 152			

Synonyms/Trade Names: 2,4,5-Trichlorophenoxyacetic acid

Exposure Limits:
NIOSH REL: TWA 10 mg/m^3
OSHA PEL: TWA 10 mg/m^3

Measurement Methods (see Table 1):
NIOSH 5001

Physical Description: Colorless to tan, odorless, crystalline solid. [herbicide]

Chemical & Physical Properties:
MW: 255.5
BP: Decomposes
Sol(77°F): 0.03%
Fl.P: ?
IP: ?
Sp.Gr: 1.80
VP: 1 x 10^{-7} mmHg
MLT: 307°F
UEL: ?
LEL: ?
Combustible Solid, but burns with difficulty.

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
50 mg/m^3: Qm
100 mg/m^3: 95XQ/Sa
250 mg/m^3: Sa:Cf/100F/PaprHie/ ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: None reported

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: In animals: ataxia; skin irrit, acne-like rash; liver damage
TO: Skin, liver, GI tract

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Resp support
Swallow: Medical attention immed

Talc (containing no asbestos and less than 1% quartz)	Formula: $Mg_3Si_4O_{10}(OH)_2$	CAS#: 14807-96-6	RTECS#: WW2710000	IDLH: 1000 mg/m^3
Conversion:	**DOT:**			

Synonyms/Trade Names: Hydrous magnesium silicate, Steatite talc

Exposure Limits:
NIOSH REL: TWA 2 mg/m^3 (resp)
OSHA PEL†: TWA 20 mppcf

Measurement Methods (see Table 1):
NIOSH P&CAM355 (III)

Physical Description: Odorless, white powder.

Chemical & Physical Properties:
MW: Varies
BP: ?
Sol: Insoluble
Fl.P: NA
IP: NA
Sp.Gr: 2.70-2.80
VP: 0 mmHg (approx)
MLT: 1652°F to 1832°F
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
10 mg/m^3: Qm
20 mg/m^3: 95XQ/Sa
50 mg/m^3: PaprHie/Sa:Cf
100 mg/m^3: 100F/SaT:Cf/PaprTHie/ ScbaF/SaF
1000 mg/m^3: Sa:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: None reported

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Fibrotic pneumoconiosis, irrit eyes
TO: Eyes, resp sys, CVS

First Aid (see Table 6):
Eye: Irr immed
Breath: Fresh air

T

Tantalum (metal and oxide dust, as Ta)

Formula: Ta (metal)
CAS#: 7440-25-7 (metal)
RTECS#: WW5505000 (metal)
IDLH: 2500 mg/m^3 (as Ta)

Conversion:
DOT:

Synonyms/Trade Names: **Tantalum metal:** Tantalum-181
Synonyms of other tantalum dusts (including oxide dusts) vary depending upon the specific compound.

Exposure Limits:
NIOSH REL: TWA 5 mg/m^3
ST 10 mg/m^3
OSHA PEL: TWA 5 mg/m^3

Measurement Methods (see Table 1):
NIOSH 0500

Physical Description: Metal: Steel-blue to gray solid or black, odorless powder.

Chemical & Physical Properties:
MW: 180.9
BP: 9797°F
Sol: Insoluble
Fl.P: NA
IP: NA
Sp.Gr: 16.65 (metal)
14.40 (powder)
VP: 0 mmHg (approx)
MLT: 5425°F
UEL: NA
LEL: NA
MEC: <200 g/m^3
Metal: Combustible Solid; powder ignites SPONTANEOUSLY in air.

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
25 mg/m^3: Qm
50 mg/m^3: 95XQ/Sa
125 mg/m^3: Sa:Cf/PaprHie
250 mg/m^3: 100F/SaT:Cf/PaprTHie/ScbaF/SaF
2500 mg/m^3: Sa:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: HieF/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, bromine trifluoride, fluorine

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Irrit eyes, skin; in animals: pulm irrit
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Breath: Resp support

TEDP

Formula: $[(CH_3CH_2O)_2PS]_2O$
CAS#: 3689-24-5
RTECS#: XN4375000
IDLH: 10 mg/m^3

Conversion: 1 ppm = 13.18 mg/m^3
DOT: 1704 153

Synonyms/Trade Names: Bladafum®, Dithion®, Sulfotep, Tetraethyl dithionopyrophosphate, Tetraethyl dithiopyrophosphate, Thiotepp®

Exposure Limits:
NIOSH REL: TWA 0.2 mg/m^3 [skin]
OSHA PEL: TWA 0.2 mg/m^3 [skin]

Measurement Methods (see Table 1):
None available

Physical Description: Pale-yellow liquid with a garlic-like odor. [**Note:** A pesticide that may be absorbed on a solid carrier or mixed in a more flammable liquid.]

Chemical & Physical Properties:
MW: 322.3
BP: Decomposes
Sol: 0.0007%
Fl.P: ?
IP: ?
Sp.Gr(77°F): 1.20
VP: 0.0002 mmHg
FRZ: ?
UEL: ?
LEL: ?
Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
2 mg/m^3: Sa
5 mg/m^3: Sa:Cf
10 mg/m^3: ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, iron [**Note:** Corrosive to iron.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin; eye pain, blurred vision, lac; rhin; head; cyan; anor, nau, vomit, diarr; local sweat, lass, twitch, para, Cheyne-Stokes respiration, convuls, low BP, card irreg
TO: Eyes, skin, resp sys, CNS, CVS, blood chol

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Tellurium	**Formula:** Te	**CAS#:** 13494-80-9	**RTECS#:** WY2625000	**IDLH:** 25 mg/m^3 (as Te)
Conversion:	**DOT:**			
Synonyms/Trade Names: Aurum paradoxum, Metallum problematum				

Exposure Limits:
NIOSH REL*: TWA 0.1 mg/m^3
OSHA PEL*: TWA 0.1 mg/m^3
[***Note:** The REL and PEL also apply to other tellurium compounds (as Te) except Tellurium hexafluoride and Bismuth telluride.]

Measurement Methods (see Table 1):
NIOSH 7300, 7301, 7303, 9102
OSHA ID121

Physical Description: Odorless, dark-gray to brown, amorphous powder or grayish-white, brittle solid.

Chemical & Physical Properties:
MW: 127.6
BP: 1814°F
Sol: Insoluble
Fl.P: NA
IP: NA
Sp.Gr: 6.24
VP: 0 mmHg (approx)
MLT: 842°F
UEL: NA
LEL: NA
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
0.5 mg/m^3: Qm
1 mg/m^3: 95XQ/Sa
2.5 mg/m^3: Sa:Cf/PaprHie
5 mg/m^3: 100F/SaT:Cf/PaprTHie/ScbaF/SaF
25 mg/m^3: Sa:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Oxidizers, chlorine, cadmium

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Garlic breath, sweat; dry mouth, metallic taste; drow; anor, nau, no sweat; derm; in animals: CNS, red blood cell changes
TO: Skin, CNS, blood

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

Tellurium hexafluoride	**Formula:** TeF_6	**CAS#:** 7783-80-4	**RTECS#:** WY2800000	**IDLH:** 1 ppm
Conversion: 1 ppm = 9.88 mg/m^3	**DOT:** 2195 125			
Synonyms/Trade Names: Tellurium fluoride				

Exposure Limits:
NIOSH REL: TWA 0.02 ppm (0.2 mg/m^3)
OSHA PEL: TWA 0.02 ppm (0.2 mg/m^3)

Measurement Methods (see Table 1):
NIOSH S187 (II-3)

Physical Description: Colorless gas with a repulsive odor.

Chemical & Physical Properties:
MW: 241.6
BP: Sublimes
Sol: Decomposes
Fl.P: NA
IP: ?
RGasD: 8.34
VP: >1 atm
FRZ: -36°F (Sublimes)
UEL: NA
LEL: NA
Nonflammable Gas

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
0.2 ppm: Sa
0.5 ppm: Sa:Cf
1 ppm: SaT:Cf/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS/ScbaE

Incompatibilities and Reactivities: Water [**Note:** Hydrolyzes slowly in water to telluric acid.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh
SY: Head; dysp; garlic breath; in animals: pulm edema
TO: Resp sys

First Aid (see Table 6):
Breath: Resp support

T

Temephos

Formula: $S[C_6H_4OP(S)(OCH_3)_2]_2$ | **CAS#:** 3383-96-8 | **RTECS#:** TF6890000 | **IDLH:** N.D.

Conversion: | **DOT:**

Synonyms/Trade Names: Abate®; Temefos; O,O,O'O'-Tetramethyl O,O'-thiodi-p-phenylene phosphorothioate

Exposure Limits:
NIOSH REL: TWA 10 mg/m^3 (total)
TWA 5 mg/m^3 (resp)
OSHA PEL†: TWA 15 mg/m^3 (total)
TWA 5 mg/m^3 (resp)

Measurement Methods (see Table 1):
NIOSH 0500, 0600
OSHA PV2056

Physical Description: White, crystalline solid or liquid (above 87°F). [insecticide]
[**Note:** Technical grade is a viscous, brown liquid.]

Chemical & Physical Properties:
MW: 466.5
BP: 248-257°F (Decomposes)
Sol: Insoluble
Fl.P: ?
IP: ?
Sp.Gr: 1.32
VP(77°F): 0.00000007 mmHg
MLT: 87°F
UEL: ?
LEL: ?
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: None reported

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, blurred vision; dizz; dysp; salv; abdom cramps, nau, diarr, vomit
TO: Eyes, resp sys, CNS, CVS, blood chol

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

TEPP

Formula: $[(CH_3CH_2O)_2PO]_2O$ | **CAS#:** 107-49-3 | **RTECS#:** UX6825000 | **IDLH:** 5 mg/m^3

Conversion: 1 ppm = 11.87 mg/m^3 | **DOT:** 2783 152 (solid); 3018 152 (liquid)

Synonyms/Trade Names: Ethyl pyrophosphate, Tetraethyl pyrophosphate, Tetron®

Exposure Limits:
NIOSH REL: TWA 0.05 mg/m^3 [skin]
OSHA PEL: TWA 0.05 mg/m^3 [skin]

Measurement Methods (see Table 1):
NIOSH 2504

Physical Description: Colorless to amber liquid with a faint, fruity odor. [insecticide]
[**Note:** A solid below 32°F.]

Chemical & Physical Properties:
MW: 290.2
BP: Decomposes
Sol: Miscible
Fl.P: NA
IP: ?
Sp.Gr: 1.19
VP: 0.0002 mmHg
FRZ: 32°F
UEL: NA
LEL: NA
Noncombustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
0.5 mg/m^3: Sa
1.25 mg/m^3: Sa:Cf
2.5 mg/m^3: SaT:Cf/ScbaF/SaF
5 mg/m^3: Sa:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, alkalis, water
[**Note:** Hydrolyzes quickly in water to form pyrophosphoric acid.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Eye pain, blurred vision, lac; rhin; head, chest tight, cyan; anor, nau, vomit, diarr; lass, twitch, para, Cheyne-Stokes respiration, convuls; low BP, card irreg; sweat
TO: Eyes, resp sys, CNS, CVS, GI tract, blood chol

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

m-Terphenyl

Formula:	CAS#:	RTECS#:	IDLH:
$C_6H_5C_6H_4C_6H_5$	92-06-8	WZ6470000	500 mg/m^3

Conversion: 1 ppm = 9.57 mg/m^3

DOT:

Synonyms/Trade Names: m-Diphenylbenzene; 1,3-Diphenylbenzene; Isodiphenylbenzene; 3-Phenylbiphenyl; 1,3-Terphenyl; meta-Terphenyl; m-Triphenyl

Exposure Limits:
NIOSH REL: C 5 mg/m^3 (0.5 ppm)
OSHA PEL†: C 9 mg/m^3 (1 ppm)

Measurement Methods (see Table 1):
NIOSH 5021

Physical Description: Yellow solid (needles).

Chemical & Physical Properties:
MW: 230.3
BP: 689°F
Sol: Insoluble
Fl.P(oc): 375°F
IP: 8.01
Sp.Gr: 1.23
VP(200°F): 0.01 mmHg
MLT: 192°F
UEL: ?
LEL: ?
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
25 mg/m^3: Qm£
50 mg/m^3: 95XQ£/Sa£
125 mg/m^3: Sa:Cf£/PaprHie£
250 mg/m^3: 100F/ScbaF/SaF
500 mg/m^3: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: None reported

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, muc memb; thermal skin burns; head; sore throat; in animals: liver, kidney damage
TO: Eyes, skin, resp sys, liver, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

o-Terphenyl

Formula:	CAS#:	RTECS#:	IDLH:
$C_6H_5C_6H_4C_6H_5$	84-15-1	WZ6472000	500 mg/m^3

Conversion: 1 ppm = 9.42 mg/m^3

DOT:

Synonyms/Trade Names: o-Diphenylbenzene; 1,2-Diphenylbenzene; 2-Phenylbiphenyl; 1,2-Terphenyl; ortho-Terphenyl; o-Triphenyl

Exposure Limits:
NIOSH REL: C 5 mg/m^3 (0.5 ppm)
OSHA PEL†: C 9 mg/m^3 (1 ppm)

Measurement Methods (see Table 1):
NIOSH 5021

Physical Description: Colorless or light-yellow solid.

Chemical & Physical Properties:
MW: 230.3
BP: 630°F
Sol: Insoluble
Fl.P(oc): 325°F
IP: 7.99 eV
Sp.Gr: 1.1
VP(200°F): 0.09 mmHg
MLT: 136°F
UEL: ?
LEL: ?
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
25 mg/m^3: Qm£
50 mg/m^3: 95XQ£/Sa£
125 mg/m^3: Sa:Cf£/PaprHie£
250 mg/m^3: 100F/ScbaF/SaF
500 mg/m^3: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: None reported

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, muc memb; thermal skin burns; head; sore throat; in animals: liver, kidney damage
TO: Eyes, skin, resp sys, liver, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

p-Terphenyl	Formula: $C_6H_5C_6H_4C_6H_5$	CAS#: 92-94-4	RTECS#: WZ6475000	IDLH: 500 mg/m^3
Conversion: 1 ppm = 9.57 mg/m^3	**DOT:**			

Synonyms/Trade Names: p-Diphenylbenzene; 1,4-Diphenylbenzene; 4-Phenylbiphenyl; 1,4-Terphenyl; para-Terphenyl; p-Triphenyl

Exposure Limits:
NIOSH REL: C 5 mg/m^3 (0.5 ppm)
OSHA PEL†: C 9 mg/m^3 (1 ppm)

Measurement Methods (see Table 1):
NIOSH 5021

Physical Description: White or light-yellow solid.

Chemical & Physical Properties:
MW: 230.3
BP: 761°F
Sol: Insoluble
Fl.P: 405°F
IP: 7.78
Sp.Gr: 1.23
VP: Very low
MLT: 415°F
UEL: ?
LEL: ?
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
25 mg/m^3: Qm£
50 mg/m^3: 95XQ£/Sa£
125 mg/m^3: Sa:Cf£/PaprHie£
250 mg/m^3: 100F/ScbaF/SaF
500 mg/m^3: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: None reported

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, muc memb; thermal skin burns; head; sore throat; in animals: liver, kidney damage
TO: Eyes, skin, resp sys, liver, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

2,3,7,8-Tetrachloro-dibenzo-p-dioxin	Formula: $C_{12}H_4Cl_4O_2$	CAS#: 1746-01-6	RTECS#: HP3500000	IDLH: Ca [N.D.]
Conversion:	**DOT:**			

Synonyms/Trade Names: Dioxin; Dioxine; TCDBD; TCDD; 2,3,7,8-TCDD
[**Note:** Formed during past production of 2,4,5-trichlorophenol, 2,4,5-T & 2(2,4,5-trichlorophenoxy)propionic acid.]

Exposure Limits:
NIOSH REL: Ca
See Appendix A
OSHA PEL: none

Measurement Methods (see Table 1):
None available

Physical Description: Colorless to white, crystalline solid.
[**Note:** Exposure may occur through contact at previously contaminated worksites.]

T

Chemical & Physical Properties:
MW: 322.0
BP: Decomposes
Sol: 0.00000002%
Fl.P: ?
IP: ?
Sp.Gr: ?
VP(77°F): 0.000002 mmHg
MLT: 581°F
UEL: ?
LEL: ?

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: UV light (decomposes)

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes; allergic derm, chloracne; porphyria; GI dist; possible repro, terato effects; in animals: liver, kidney damage; hemorr; [carc]
TO: Eyes, skin, liver, kidneys, repro sys [in animals: tumors at many sites]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap flush immed
Breath: Resp support
Swallow: Medical attention immed

1,1,1,2-Tetrachloro-2,2-difluoroethane	Formula: CCl_3CClF_2	CAS#: 76-11-9	RTECS#: KI1425000	IDLH: 2000 ppm
Conversion: 1 ppm = 8.34 mg/m^3	**DOT:**			

Synonyms/Trade Names: 2,2-Difluoro-1,1,1,2-tetrachloroethane; Freon® 112a; Halocarbon 112a; Refrigerant 112a

Exposure Limits:
NIOSH REL: TWA 500 ppm (4170 mg/m^3)
OSHA PEL: TWA 500 ppm (4170 mg/m^3)

Physical Description: Colorless solid with a slight, ether-like odor.
[**Note:** A liquid above 105°F.]

Measurement Methods (see Table 1):
NIOSH 1016
OSHA 7

Chemical & Physical Properties:
MW: 203.8
BP: 197°F
Sol: 0.01%
Fl.P: NA
IP: ?
Sp.Gr: 1.65
VP: 40 mmHg
MLT: 105°F
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
2000 ppm: Sa/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Chemically-active metals such as potassium, beryllium, powdered aluminum, zinc, calcium, magnesium & sodium; acids

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin; CNS depres; pulm edema; drow; dysp
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

1,1,2,2-Tetrachloro-1,2-difluoroethane	Formula: CCl_2FCCl_2F	CAS#: 76-12-0	RTECS#: KI1420000	IDLH: 2000 ppm
Conversion: 1 ppm = 8.34 mg/m^3	**DOT:**			

Synonyms/Trade Names: 1,2-Difluoro-1,1,2,2-tetrachloroethane; Freon® 112; Halocarbon 112; Refrigerant 112

Exposure Limits:
NIOSH REL: TWA 500 ppm (4170 mg/m^3)
OSHA PEL: TWA 500 ppm (4170 mg/m^3)

Physical Description: Colorless solid or liquid (above 77°F) with a slight, ether-like odor.

Measurement Methods (see Table 1):
NIOSH 1016
OSHA 7

Chemical & Physical Properties:
MW: 203.8
BP: 199°F
Sol(77°F): 0.01%
Fl.P: NA
IP: 11.30 eV
Sp.Gr: 1.65
VP: 40 mmHg
MLT: 77°F
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
2000 ppm: Sa/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Chemically-active metals such as potassium, beryllium, powdered aluminum, zinc, magnesium, calcium & sodium; acids

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: In animals: irrit eyes, skin; conj; pulm edema; narco
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

1,1,1,2-Tetrachloroethane	Formula: CCl_3CH_2Cl	CAS#: 630-20-6	RTECS#: KI8450000	IDLH: N.D.
Conversion:	DOT: 1702 151			

Synonyms/Trade Names: None

Exposure Limits:
NIOSH REL: Handle with caution in the workplace.
See Appendix C (Chloroethanes)
OSHA PEL: none

Measurement Methods (see Table 1):
None available

Physical Description: Yellowish-red liquid.

Chemical & Physical Properties:
MW: 167.9
BP: 267°F
Sol: 0.1%
Fl.P: ?
IP: ?
Sp.Gr: 1.54
VP(77°F): 14 mmHg
FRZ: -94°F
UEL: ?
LEL: ?

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Potassium; sodium; dinitrogen tetraoxide; potassium hydroxide; nitrogen tetroxide; sodium potassium alloy; 2,4-dinitrophenyl disulfide

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin; lass, restless, irreg respiration, musc inco; in animals: liver changes
TO: Eyes, skin, CNS, liver

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

1,1,2,2-Tetrachloroethane	Formula: $CHCl_2CHCl_2$	CAS#: 79-34-5	RTECS#: KI8575000	IDLH: Ca [100 ppm]
Conversion: 1 ppm = 6.87 mg/m^3	DOT: 1702 151			

Synonyms/Trade Names: Acetylene tetrachloride, Symmetrical tetrachloroethane

Exposure Limits:
NIOSH REL: Ca
TWA 1 ppm (7 mg/m^3) [skin]
See Appendix A
See Appendix C (Chloroethanes)
OSHA PEL†: TWA 5 ppm (35 mg/m^3) [skin]

Measurement Methods (see Table 1):
NIOSH 1019, 2562
OSHA 7

T

Physical Description: Colorless to pale-yellow liquid with a pungent, chloroform-like odor.

Chemical & Physical Properties:
MW: 167.9
BP: 296°F
Sol: 0.3%
Fl.P: NA
IP: 11.10 eV
Sp.Gr(77°F): 1.59
VP: 5 mmHg
FRZ: -33°F
UEL: NA
LEL: NA
Noncombustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Chemically-active metals, strong caustics, fuming sulfuric acid
[**Note:** Degrades slowly when exposed to air.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Nau, vomit, abdom pain; tremor fingers; jaun, hepatitis, liver tend; derm; leucyt; kidney damage; [carc]
TO: Skin, liver, kidneys, CNS, GI tract [in animals: liver tumors]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

Tetrachloroethylene	Formula: $Cl_2C=CCl_2$	CAS#: 127-18-4	RTECS#: KX3850000	IDLH: Ca [150 ppm]
Conversion: 1 ppm = 6.78 mg/m^3	**DOT:** 1897 160			

Synonyms/Trade Names: Perchlorethylene, Perchloroethylene, Perk, Tetrachlorethylene

Exposure Limits:
NIOSH REL: Ca
Minimize workplace exposure concentrations.
See Appendix A
OSHA PEL†: TWA 100 ppm
C 200 ppm
300 ppm (5-minute maximum peak in any 3-hours)

Measurement Methods (see Table 1):
NIOSH 1003
OSHA 1001

Physical Description: Colorless liquid with a mild, chloroform-like odor.

Chemical & Physical Properties:
MW: 165.8
BP: 250°F
Sol: 0.02%
Fl.P: NA
IP: 9.32 eV
Sp.Gr: 1.62
VP: 14 mmHg
FRZ: -2°F
UEL: NA
LEL: NA
Noncombustible Liquid, but decomposes in a fire to hydrogen chloride and phosgene.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers; chemically-active metals such as lithium, beryllium & barium; caustic soda; sodium hydroxide; potash

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, nose, throat, resp sys; nau; flush face, neck; dizz, inco; head, drow; skin eryt; liver damage; [carc]
TO: Eyes, skin, resp sys, liver, kidneys, CNS [in animals: liver tumors]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

Tetrachloronaphthalene	Formula: $C_{10}H_4Cl_4$	CAS#: 1335-88-2	RTECS#: QK3700000	IDLH: See Appendix F
Conversion:	**DOT:**			

Synonyms/Trade Names: Halowax®, Nibren wax, Seekay wax

Exposure Limits:
NIOSH REL: TWA 2 mg/m^3 [skin]
OSHA PEL: TWA 2 mg/m^3 [skin]

Measurement Methods (see Table 1):
NIOSH S130 (II-2)

Physical Description: Colorless to pale-yellow solid with an aromatic odor.

Chemical & Physical Properties:
MW: 265.9
BP: 599-680°F
Sol: Insoluble
Fl.P(oc): 410°F
IP: ?
Sp.Gr: 1.59-1.65
VP: <1 mmHg
MLT: 360°F
UEL: ?
LEL: ?
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
20 mg/m^3: ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

See Appendix F

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Acne-form derm; head, lass, anor, dizz; jaun, liver inj
TO: Liver, skin, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

T

Tetraethyl lead (as Pb)	Formula: $Pb(C_2H_5)_4$	CAS#: 78-00-2	RTECS#: TP4550000	IDLH: 40 mg/m^3 (as Pb)
Conversion:	**DOT:** 1649 131			

Synonyms/Trade Names: Lead tetraethyl, TEL, Tetraethylplumbane

Exposure Limits:
NIOSH REL: TWA 0.075 mg/m^3 [skin]
OSHA PEL: TWA 0.075 mg/m^3 [skin]

Measurement Methods (see Table 1):
NIOSH 2533

Physical Description: Colorless liquid (unless dyed red, orange, or blue) with a pleasant, sweet odor.
[**Note:** Main usage is in anti-knock additives for gasoline.]

Chemical & Physical Properties:
MW: 323.5
BP: 228°F (Decomposes)
Sol: 0.00002%
Fl.P: 200°F
IP: 11.10 eV
Sp.Gr: 1.65
VP: 0.2 mmHg
FRZ: -202°F
UEL: ?
LEL: 1.8%
Class IIIB Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact (>0.1%)
Eyes: Prevent eye contact
Wash skin: When contam (>0.1%)
Remove: When wet or contam (>0.1%)
Change: Daily
Provide: Quick drench (>0.1%)

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
0.75 mg/m^3: Sa
1.875 mg/m^3: Sa:Cf
3.75 mg/m^3: SaT:Cf/ScbaF/SaF
40 mg/m^3: Sa:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, sulfuryl chloride, rust, potassium permanganate
[**Note:** Decomposes slowly at room temperature and more rapidly at higher temperatures.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Insom, lass, anxiety; tremor, hyper-reflexia, spasticity; bradycardia, hypotension, hypothermia, pallor, nau, anor, low-wgt; conf, halu, psychosis, mania, convuls, coma; eye irrit
TO: CNS, CVS, kidneys, eyes

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Tetrahydrofuran	Formula: C_4H_8O	CAS#: 109-99-9	RTECS#: LU5950000	IDLH: 2000 ppm [10%LEL]
Conversion: 1 ppm = 2.95 mg/m^3	**DOT:** 2056 127			

Synonyms/Trade Names: Diethylene oxide; 1,4-Epoxybutane; Tetramethylene oxide; THF

Exposure Limits:
NIOSH REL: TWA 200 ppm (590 mg/m^3)
ST 250 ppm (735 mg/m^3)
OSHA PEL†: TWA 200 ppm (590 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1609, 3800
OSHA 7

Physical Description: Colorless liquid with an ether-like odor.

Chemical & Physical Properties:
MW: 72.1
BP: 151°F
Sol: Miscible
Fl.P: 6°F
IP: 9.45 eV
Sp.Gr: 0.89
VP: 132 mmHg
FRZ: -163°F
UEL: 11.8%
LEL: 2%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
2000 ppm: Sa:Cf£/CcrFOv/GmFOv/PaprOv£/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, lithium-aluminum alloys
[**Note:** Peroxides may accumulate upon prolonged storage in presence of air.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con, Ing
SY: Irrit eyes, upper resp sys; nau, dizz, head, CNS depres
TO: Eyes, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush prompt
Breath: Resp support
Swallow: Medical attention immed

Tetramethyl lead (as Pb)	Formula: $Pb(CH_3)_4$	CAS#: 75-74-1	RTECS#: TP4725000	IDLH: 40 mg/m^3 (as Pb)
Conversion:	**DOT:**			

Synonyms/Trade Names: Lead tetramethyl, Tetramethylplumbane, TML

Exposure Limits:
NIOSH REL: TWA 0.075 mg/m^3 [skin]
OSHA PEL: TWA 0.075 mg/m^3 [skin]

Measurement Methods (see Table 1):
NIOSH 2534

Physical Description: Colorless liquid (unless dyed red, orange, or blue) with a fruity odor. [**Note:** Main usage is in anti-knock additives for gasoline.]

Chemical & Physical Properties:
MW: 267.3
BP: 212°F (Decomposes)
Sol: 0.002%
Fl.P: 100°F
IP: 8.50 eV
Sp.Gr: 2.00
VP: 23 mmHg
FRZ: -15°F
UEL: ?
LEL: ?
Class II Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact (>0.1%)
Eyes: Prevent eye contact
Wash skin: When contam (>0.1%)
Remove: When wet or contam (>0.1%)
Change: Daily
Provide: Quick drench (>0.1%)

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
0.75 mg/m^3: Sa
1.875 mg/m^3: Sa:Cf
3.75 mg/m^3: SaT:Cf/ScbaF/SaF
40 mg/m^3: Sa:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers such as sulfuryl chloride or potassium permanganate

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Insom, bad dreams, restless, anxious; hypotension; nau, anor; delirium, mania, convuls; coma
TO: CNS, CVS, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Tetramethyl succinonitrile	Formula: $(CH_3)_2C(CN)C(CN)(CH_3)_2$	CAS#: 3333-52-6	RTECS#: WN4025000	IDLH: 5 ppm
Conversion: 1 ppm = 5.57 mg/m^3	**DOT:**			

Synonyms/Trade Names: Tetramethyl succinodinitrile, TMSN

Exposure Limits:
NIOSH REL: TWA 3 mg/m^3 (0.5 ppm) [skin]
OSHA PEL: TWA 3 mg/m^3 (0.5 ppm) [skin]

Measurement Methods (see Table 1):
NIOSH S155 (II-3)
OSHA 7

Physical Description: Colorless, odorless solid. [**Note:** Forms cyanide in the body.]

Chemical & Physical Properties:
MW: 136.2
BP: Sublimes
Sol: Insoluble
Fl.P: ?
IP: ?
Sp.Gr: 1.07
VP: ?
MLT: 338°F (Sublimes)
UEL: ?
LEL: ?
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
28 mg/m^3: Sa/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Head, nau; convuls, coma; liver, kidney, GI effects
TO: CNS, liver, kidneys, GI tract

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

T

Tetranitromethane	**Formula:** $C(NO_2)_4$	**CAS#:** 509-14-8	**RTECS#:** PB4025000	**IDLH:** 4 ppm
Conversion: 1 ppm = 8.02 mg/m^3	**DOT:** 1510 143			

Synonyms/Trade Names: Tetan, TNM

Exposure Limits:
NIOSH REL: TWA 1 ppm (8 mg/m^3)
OSHA PEL: TWA 1 ppm (8 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 3513

Physical Description: Colorless to pale-yellow liquid or solid (below 57°F) with a pungent odor.

Chemical & Physical Properties:
MW: 196.0
BP: 259°F
Sol: Insoluble
Fl.P: ?
IP: ?
Sp.Gr: 1.62
VP: 8 mmHg
FRZ: 57°F
UEL: ?
LEL: ?
Combustible Liquid, but difficult to ignite.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: Daily
Provide: Eyewash

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
4 ppm: Sa:Cf£/CcrFS¿/GmFS¿/PaprS¿£/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS¿/ScbaE

Incompatibilities and Reactivities: Hydrocarbons, alkalis, metals, oxidizers, aluminum, toluene, cotton
[**Note:** Combustible material wet with tetranitromethane may be highly explosive.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose, throat; dizz, head; chest pain, dysp; methemo, cyan; skin burns
TO: Eyes, skin, resp sys, blood, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

Tetrasodium pyrophosphate	**Formula:** $Na_4P_2O_7$	**CAS#:** 7722-88-5	**RTECS#:** UX7350000	**IDLH:** N.D.
Conversion:	**DOT:**			

Synonyms/Trade Names: Pyrophosphate, Sodium pyrophosphate, Tetrasodium diphosphate, Tetrasodium pyrophosphate (anhydrous), TSPP

Exposure Limits:
NIOSH REL: TWA 5 mg/m^3
OSHA PEL†: none

Measurement Methods (see Table 1):
NIOSH 0500

Physical Description: Odorless, white powder or granules.
[**Note:** The decahydrate ($Na_4P_2O_7 \times 10H_2O$) is in the form of colorless, transparent crystals.]

Chemical & Physical Properties:
MW: 265.9
BP: Decomposes
Sol(77°F): 7%
Fl.P: NA
IP: NA
Sp.Gr: 2.45
VP: 0 mmHg (approx)
MLT: 1810°F
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash (solution)

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Strong acids

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose, throat; derm
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water wash prompt
Breath: Resp support
Swallow: Medical attention immed

Tetryl	**Formula:** $(NO_2)_3C_6H_2N(NO_2)CH_3$	**CAS#:** 479-45-8	**RTECS#:** BY6300000	**IDLH:** 750 mg/m^3
Conversion:	**DOT:**			

Synonyms/Trade Names: N-Methyl-N,2,4,6-tetranitroaniline; Nitramine; 2,4,6-Tetryl; 2,4,6-Trinitrophenyl-N-methylnitramine

Exposure Limits:
NIOSH REL: TWA 1.5 mg/m^3 [skin]
OSHA PEL: TWA 1.5 mg/m^3 [skin]

Physical Description: Colorless to yellow, odorless, crystalline solid.

Measurement Methods (see Table 1):
NIOSH S225 (II-3)

Chemical & Physical Properties:
MW: 287.2
BP: 356-374°F (Explodes)
Sol: 0.02%
Fl.P: Explodes
IP: ?
Sp.Gr: 1.57
VP: <1 mmHg
MLT: 268°F
UEL: ?
LEL: ?
Combustible Solid
(Class A Explosive)

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
7.5 mg/m^3: Qm
15 mg/m^3: 95XQ*/Sa*
37.5 mg/m^3: Sa:Cf*/PaprHie*
75 mg/m^3: 100F/ScbaF/SaF
750 mg/m^3: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Oxidizable materials, hydrazine

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Sens derm, itch, eryt; edema on nasal folds, cheeks, neck; kera; sneez; anemia; cough, coryza; irrity; mal, head, lass, insom; nau, vomit; liver, kidney damage
TO: Eyes, skin, resp sys, CNS, liver, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

Thallium (soluble compounds, as Tl)	**Formula:**	**CAS#:**	**RTECS#:**	**IDLH:** 15 mg/m^3 (as Tl)
Conversion:	**DOT:** 1707 151 (compounds, n.o.s.)			

Synonyms/Trade Names: Synonyms vary depending upon the specific soluble thallium compound.

Exposure Limits:
NIOSH REL: TWA 0.1 mg/m^3 [skin]
OSHA PEL: TWA 0.1 mg/m^3 [skin]

Physical Description: Appearance and odor vary depending upon the specific soluble thallium compound.

Measurement Methods (see Table 1):
NIOSH 7300, 7301, 7303, 9102
OSHA ID121

Chemical & Physical Properties:
Properties vary depending upon the specific soluble thallium compound.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
0.5 mg/m^3: Qm
1 mg/m^3: 95XQ/Sa
2.5 mg/m^3: Sa:Cf/PaprHie
5 mg/m^3: 100F/SaT:Cf/PaprTHie/ScbaF/SaF
15 mg/m^3: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Varies

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Nau, diarr, abdom pain, vomit; ptosis, strabismus; peri neuritis, tremor; retster tight, chest pain, pulm edema; convuls, chorea, psychosis; liver, kidney damage; alopecia; pares legs
TO: Eyes, resp sys, CNS, liver, kidneys, GI tract, body hair

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush prompt
Breath: Resp support
Swallow: Medical attention immed

T

4,4'-Thiobis(6-tert-butyl-m-cresol)	Formula: $[CH_3(OH)C_6H_2C(CH_3)_3]_2S$	CAS#: 96-69-5	RTECS#: GP3150000	IDLH: N.D.
Conversion:	DOT:			

Synonyms/Trade Names: 4,4'-Thiobis(3-methyl-6-tert-butylphenol); 1,1'-Thiobis(2-methyl-4-hydroxy-5-tert-butylbenzene)

Exposure Limits:
NIOSH REL: TWA 10 mg/m^3 (total)
TWA 5 mg/m^3 (resp)
OSHA PEL†: TWA 15 mg/m^3 (total)
TWA 5 mg/m^3 (resp)

Measurement Methods (see Table 1):
NIOSH 0500, 0600

Physical Description: Light-gray to tan powder with a slightly aromatic odor.

Chemical & Physical Properties:
MW: 358.6
BP: ?
Sol: 0.08%
Fl.P: 420°F
IP: ?
Sp.Gr: 1.10
VP: 0.0000006 mmHg
MLT: 302°F
UEL: NA
LEL: NA
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: None reported

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, resp sys
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Breath: Fresh air
Swallow: Medical attention immed

Thioglycolic acid	Formula: $HSCH_2COOH$	CAS#: 68-11-1	RTECS#: AI5950000	IDLH: N.D.
Conversion: 1 ppm = 3.77 mg/m^3	DOT: 1940 153			

Synonyms/Trade Names: Acetyl mercaptan, Mercaptoacetate, Mercaptoacetic acid, 2-Mercaptoacetic acid, 2-Thioglycolic acid, Thiovanic acid

Exposure Limits:
NIOSH REL: TWA 1 ppm (4 mg/m^3) [skin]
OSHA PEL†: none

Measurement Methods (see Table 1):
None available

Physical Description: Colorless liquid with a strong, disagreeable odor characteristic of mercaptans. [**Note:** Olfactory fatigue may occur after short exposures.]

Chemical & Physical Properties:
MW: 92.1
BP: ?
Sol: Miscible
Fl.P: >230°F
IP: ?
Sp.Gr: 1.32
VP(64°F): 10 mmHg
FRZ: 2°F
UEL: ?
LEL: 5.9%
Class IIIB Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Air, strong oxidizers, bases, active metals (e.g., sodium potassium, magnesium, calcium) [**Note:** Readily oxidized by air.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, nose, throat; lac, corn damage; skin burns, blisters; in animals: lass; gasping respirations; convuls
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

Thionyl chloride	Formula: $SOCl_2$	CAS#: 7719-09-7	RTECS#: XM5150000	IDLH: N.D.
Conversion: 1 ppm = 4.87 mg/m^3	**DOT:** 1836 137			

Synonyms/Trade Names: Sulfinyl chloride, Sulfur chloride oxide, Sulfurous dichloride, Sulfurous oxychloride, Thionyl dichloride

Exposure Limits:
NIOSH REL: C 1 ppm (5 mg/m^3)
OSHA PEL†: none

Measurement Methods (see Table 1):
None available

Physical Description: Colorless to yellow to reddish liquid with a pungent odor like sulfur dioxide. [**Note:** Fumes form when exposed to moist air.]

Chemical & Physical Properties:
MW: 119.0
BP: 169°F
Sol: Reacts
Fl.P: NA
IP: ?
Sp.Gr: 1.64
VP(70°F): 100 mmHg
FRZ: -156°F
UEL: NA
LEL: NA
Noncombustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Water, acids, alkalis, ammonia, chloryl perchlorate
[**Note:** Reacts violently with water to form sulfur dioxide & hydrogen chloride.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, muc memb; eye, skin burns
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

Thiram	Formula: $C_6H_{12}N_2S_4$	CAS#: 137-26-8	RTECS#: JO1400000	IDLH: 100 mg/m^3
Conversion:	**DOT:** 2771 151			

Synonyms/Trade Names: bis(Dimethylthiocarbamoyl) disulfide, Tetramethylthiuram disulfide

Exposure Limits:
NIOSH REL: TWA 5 mg/m^3
OSHA PEL: TWA 5 mg/m^3

Measurement Methods (see Table 1):
NIOSH 5005

Physical Description: Colorless to yellow, crystalline solid with a characteristic odor. [**Note:** Commercial pesticide products may be dyed blue.]

Chemical & Physical Properties:
MW: 240.4
BP: Decomposes
Sol: 0.003%
Fl.P: ?
IP: ?
Sp.Gr: 1.29
VP: 0.000008 mmHg
MLT: 312°F
UEL: ?
LEL: ?
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
50 mg/m^3: CcrOv95*/Sa*
100 mg/m^3: Sa:Cf*/CcrFOv100/GmFOv100/PaprOvHie*/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, strong acids, oxidizable materials

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, muc memb; derm; Antabuse-like effects
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

T

Tin	Formula: Sn	CAS#: 7440-31-5	RTECS#: XP7320000	IDLH: 100 mg/m^3 (as Sn)
Conversion:	**DOT:**			

Synonyms/Trade Names: Metallic tin, Tin flake, Tin metal, Tin powder

Exposure Limits:
NIOSH REL*: TWA 2 mg/m^3
OSHA PEL*: TWA 2 mg/m^3
[***Note:** The REL and PEL also apply to other inorganic tin compounds (as Sn) except tin oxides.]

Measurement Methods (see Table 1):
NIOSH 7300, 7301, 7303
OSHA ID121, ID206

Physical Description: Gray to almost silver-white, ductile, malleable, lustrous solid.

Chemical & Physical Properties:
MW: 118.7
BP: 4545°F
Sol: Insoluble
Fl.P: NA
IP: NA
Sp.Gr: 7.28
VP: 0 mmHg (approx)
MLT: 449°F
UEL: NA
LEL: NA
Noncombustible Solid, but powdered form may ignite.

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
10 mg/m^3: Qm*
20 mg/m^3: 95XQ*/Sa*
50 mg/m^3: Sa:Cf*/PaprHie*
100 mg/m^3: 100F/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Chlorine, turpentine, acids, alkalis

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Irrit eyes, skin, resp sys; in animals: vomit, diarr, para with musc twitch
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Tin (organic compounds, as Sn)	Formula:	CAS#:	RTECS#:	IDLH: 25 mg/m^3 (as Sn)
Conversion:	**DOT:**			

Synonyms/Trade Names: Synonyms vary depending upon the specific organic tin compound.
[**Note:** Also see specific listing for Cyhexatin.]

Exposure Limits:
NIOSH REL*: TWA 0.1 mg/m^3 [skin]
[***Note:** The REL applies to all organic tin compounds except Cyhexatin.]
OSHA PEL*: TWA 0.1 mg/m^3
[***Note:** The PEL applies to all organic tin compounds.]

Measurement Methods (see Table 1):
NIOSH 5504

Physical Description: Appearance and odor vary depending upon the specific organic tin compound.

Chemical & Physical Properties:
Properties vary depending upon the specific organic tin compound.

Personal Protection/Sanitation (see Table 2):
Recommendations regarding personal protective clothing vary depending upon the specific compound.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
1 mg/m^3: CcrOv95/Sa
2.5 mg/m^3: Sa:Cf/PaprOvHie
5 mg/m^3: CcrFOv100/GmFOv100/PaprTOvHie/SaT:Cf/ScbaF/SaF
25 mg/m^3: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Varies

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, resp sys; head, dizz; psycho-neurologic dist; sore throat, cough; abdom pain, vomit; urine retention; paresis, focal anes; skin burns, pruritus; in animals: hemolysis; hepatic nec; kidney damage
TO: Eyes, skin, resp sys, CNS, liver, kidneys, urinary tract, blood

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

Tin(II) oxide (as Sn)	Formula: SnO	CAS#: 21651-19-4	RTECS#: XQ3700000	IDLH: N.D.
Conversion:	DOT:			

Synonyms/Trade Names: Stannous oxide, Tin protoxide [**Note:** Also see specific listing for Tin(IV) oxide (as Sn).]

Exposure Limits:
NIOSH REL: TWA 2 mg/m^3
OSHA PEL†: none

Measurement Methods (see Table 1):
NIOSH 7300, 7301, 7303

Physical Description: Brownish-black powder.

Chemical & Physical Properties:
MW: 134.7
BP: Decomposes
Sol: Insoluble
Fl.P: NA
IP: NA
Sp.Gr: 6.3
VP: 0 mmHg (approx)
MLT(600 mmHg): 1976°F (Decomposes)
UEL: NA
LEL: NA

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: None reported

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Stannosis (benign pneumoconiosis): dysp, decr pulm func
TO: Resp sys

First Aid (see Table 6):
Eye: Irr immed
Breath: Fresh air

Tin(IV) oxide (as Sn)	Formula: SnO_2	CAS#: 18282-10-5	RTECS#: XQ4000000	IDLH: N.D.
Conversion:	DOT:			

Synonyms/Trade Names: Stannic dioxide, Stannic oxide, White tin oxide
[**Note:** Also see specific listing for Tin(II) oxide (as Sn).]

Exposure Limits:
NIOSH REL: TWA 2 mg/m^3
OSHA PEL†: none

Measurement Methods (see Table 1):
NIOSH 7300, 7301, 7303

Physical Description: White or slightly gray powder.

Chemical & Physical Properties:
MW: 150.7
BP: Decomposes
Sol: Insoluble
Fl.P: NA
IP: NA
Sp.Gr: 6.95
VP: 0 mmHg (approx)
MLT: 2966°F (Decomposes)
UEL: NA
LEL: NA

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Chlorine trifluoride

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Stannosis (benign pneumoconiosis): dysp, decr pulm func
TO: Resp sys

First Aid (see Table 6):
Eye: Irr immed
Breath: Fresh air

Titanium dioxide	Formula: TiO_2	CAS#: 13463-67-7	RTECS#: XR2275000	IDLH: Ca [5000 mg/m^3]
Conversion:	**DOT:**			

Synonyms/Trade Names: Rutile, Titanium oxide, Titanium peroxide

Exposure Limits:
NIOSH REL: Ca
See Appendix A
OSHA PEL†: TWA 15 mg/m^3

Measurement Methods (see Table 1):
NIOSH S385 (II-3)

Physical Description: White, odorless powder.

Chemical & Physical Properties:
MW: 79.9
BP: 4532-5432°F
Sol: Insoluble
Fl.P: NA
IP: NA
Sp.Gr: 4.26
VP: 0 mmHg (approx)
MLT: 3326-3362°F
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: None reported

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh
SY: Lung fib; [carc]
TO: Resp sys [in animals: lung tumors]

First Aid (see Table 6):
Breath: Resp support

o-Tolidine	Formula: $C_{14}H_{16}N_2$	CAS#: 119-93-7	RTECS#: DD1225000	IDLH: Ca [N.D.]
Conversion:	**DOT:**			

Synonyms/Trade Names: 4,4'-Diamino-3,3'-dimethylbiphenyl; Diaminoditolyl; 3,3'-Dimethylbenzidine; 3,3'-Dimethyl-4,4'-diphenyldiamine; 3,3'-Tolidine

Exposure Limits:
NIOSH REL: Ca
C 0.02 mg/m^3 [60-minute] [skin]
See Appendix A
See Appendix C
OSHA PEL: See Appendix C

Measurement Methods (see Table 1):
NIOSH 5013
OSHA 71

T

Physical Description: White to reddish crystals or powder.
[**Note:** Darkens on exposure to air. Often used in paste or wet cake form. Used as a basis for many dyes.]

Chemical & Physical Properties:
MW: 212.3
BP: 572°F
Sol: 0.1%
Fl.P: ?
IP: ?
Sp.Gr: ?
VP: ?
MLT: 264°F
UEL: ?
LEL: ?
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, nose; in animals: liver, kidney damage; [carc]
TO: Eyes, resp sys, liver, kidneys [in animals: liver, bladder & mammary gland tumors]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap flush immed
Breath: Resp support
Swallow: Medical attention immed

Toluene	**Formula:** $C_6H_5CH_3$	**CAS#:** 108-88-3	**RTECS#:** XS5250000	**IDLH:** 500 ppm
Conversion: 1 ppm = 3.77 mg/m^3	**DOT:** 1294 130			

Synonyms/Trade Names: Methyl benzene, Methyl benzol, Phenyl methane, Toluol

Exposure Limits:
NIOSH REL: TWA 100 ppm (375 mg/m^3)
ST 150 ppm (560 mg/m^3)
OSHA PEL†: TWA 200 ppm
C 300 ppm
500 ppm (10-minute maximum peak)

Measurement Methods (see Table 1):
NIOSH 1500, 1501, 3800, 4000
OSHA 111

Physical Description: Colorless liquid with a sweet, pungent, benzene-like odor.

Chemical & Physical Properties:
MW: 92.1
BP: 232°F
Sol(74°F): 0.07%
Fl.P: 40°F
IP: 8.82 eV
Sp.Gr: 0.87
VP: 21 mmHg
FRZ: -139°F
UEL: 7.1%
LEL: 1.1%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
500 ppm: CcrOv*/PaprOv*/
GmFOv/Sa*/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, nose; lass, conf, euph, dizz, head; dilated pupils, lac; anxi, musc ftg, insom; pares; derm; liver, kidney damage
TO: Eyes, skin, resp sys, CNS, liver, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

Toluenediamine	**Formula:** $CH_3C_6H_3(NH_2)_2$	**CAS#:** 25376-45-8 95-80-7 (2,4-TDA)	**RTECS#:** XS9445000 XS9625000 (2,4-TDA)	**IDLH:** Ca [N.D.]
Conversion:	**DOT:** 1709 151 (2,4-Toluenediamine)			

Synonyms/Trade Names: Diaminotoluene, Methylphenylene diamine, TDA, Toluenediamine isomers, Tolylenediamine [**Note:** Various isomers of TDA exist.]

Exposure Limits:
NIOSH REL: Ca (all isomers)
See Appendix A
OSHA PEL: none

Measurement Methods (see Table 1):
NIOSH 5516
OSHA 65

Physical Description: Colorless to brown, needle-shaped crystals or powder.
[**Note:** Tends to darken on storage and exposure to air. Properties given are for 2,4-TDA.]

Chemical & Physical Properties:
MW: 122.2
BP: 558°F
Sol: Soluble
Fl.P: 300°F
IP: ?
Sp.Gr: 1.05 (Liquid at 212°F)
VP(224°F): 1 mmHg
MLT: 210°F
UEL: ?
LEL: ?
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: None reported

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, nose, throat; derm; ataxia, tacar, nau, vomit, convuls, resp depres; methemo, cyan, head, lass, dizz, bluish skin; liver inj; [carc]
TO: Eyes, skin, resp sys, blood, CVS, liver [in animals: liver, skin & mammary gland tumors]

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

T

Toluene-2,4-diisocyanate

Formula:	CAS#:	RTECS#:	IDLH:
$CH_3C_6H_3(NCO)_2$	584-84-9	CZ6300000	Ca [2.5 ppm]

Conversion: 1 ppm = 7.13 mg/m^3 **DOT:** 2078 156

Synonyms/Trade Names: TDI; 2,4-TDI; 2,4-Toluene diisocyanate

Exposure Limits:
NIOSH REL: Ca
See Appendix A
OSHA PEL†: C 0.02 ppm (0.14 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 2535, 5521, 5522, 5525
OSHA 18, 33, 42

Physical Description: Colorless to pale-yellow solid or liquid (above 71°F) with a sharp, pungent odor.

Chemical & Physical Properties:
MW: 174.2
BP: 484°F
Sol: Insoluble
Fl.P: 260°F
IP: ?
Sp.Gr: 1.22
VP(77°F): 0.01 mmHg
MLT: 71°F
UEL: 9.5%
LEL: 0.9%
Class IIIB Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, water, acids, bases & amines (may cause foam & spatter); alcohols [**Note:** Reacts slowly with water to form carbon dioxide and polyureas.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose, throat; choke, paroxysmal cough; chest pain, retster soreness; nau, vomit, abdom pain; bron, bronchospasm, pulm edema; dysp, asthma; conj, lac; derm, skin sens; [carc]
TO: Eyes, skin, resp sys [in animals: pancreas, liver, mammary gland, circulatory sys & skin tumors]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

m-Toluidine

Formula:	CAS#:	RTECS#:	IDLH:
$CH_3C_6H_4NH_2$	108-44-1	XU2800000	N.D.

Conversion: **DOT:** 1708 153

Synonyms/Trade Names: 3-Amino-1-methylbenzene, 1-Aminophenylmethane, m-Aminotoluene, 3-Methylaniline, 3-Methylbenzenamine, 3-Toluidine, meta-Toluidine, m-Tolylamine

Exposure Limits:
NIOSH REL: See Appendix D
OSHA PEL†: none

Measurement Methods (see Table 1):
NIOSH 2002
OSHA 73

Physical Description: Colorless to light-yellow liquid with an aromatic, amine-like odor. [**Note:** Used as a basis for many dyes.]

Chemical & Physical Properties:
MW: 107.2
BP: 397°F
Sol: 2%
Fl.P: 187°F
IP: 7.50 eV
Sp.Gr: 0.999
VP(106°F): 1 mmHg
FRZ: -23°F
UEL: ?
LEL: ?
Class IIIA Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Oxidizers, acids

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin; derm; hema, methemo; cyan, nau, vomit, low BP, convuls; anemia, lass
TO: Eyes, skin, blood, CVS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

o-Toluidine	Formula: $CH_3C_6H_4NH_2$	CAS#: 95-53-4	RTECS#: XU2975000	IDLH: Ca [50 ppm]
Conversion: 1 ppm = 4.38 mg/m^3	**DOT:** 1708 153			

Synonyms/Trade Names: o-Aminotoluene, 2-Aminotoluene, 1-Methyl-2-aminobenzene, o-Methylaniline, 2-Methylaniline, ortho-Toluidine, o-Tolylamine

Exposure Limits:
NIOSH REL: Ca [skin]
See Appendix A
OSHA PEL: TWA 5 ppm (22 mg/m^3) [skin]

Measurement Methods (see Table 1):
NIOSH 2002, 2017, 8317
OSHA 73

Physical Description: Colorless to pale-yellow liquid with an aromatic, aniline-like odor.

Chemical & Physical Properties:
MW: 107.2
BP: 392°F
Sol: 2%
Fl.P: 185°F
IP: 7.44 eV
Sp.Gr: 1.01
VP: 0.3 mmHg
FRZ: 6°F
UEL: ?
LEL: ?
Class IIIA Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, nitric acid, bases

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes; anoxia, head, cyan; lass, dizz, drow; micro hema; eye burns; derm; [carc]
TO: Eyes, skin, blood, kidneys, liver, CVS [bladder cancer]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

p-Toluidine	Formula: $CH_3C_6H_4NH_2$	CAS#: 106-49-0	RTECS#: XU3150000	IDLH: Ca [N.D.]
Conversion:	**DOT:** 1708 153			

Synonyms/Trade Names: 4-Aminotoluene, 4-Methylaniline, 4-Methylbenzenamine, 4-Toluidine, para-Toluidine, p-Tolylamine

Exposure Limits:
NIOSH REL: Ca
See Appendix A
OSHA PEL†: none

Measurement Methods (see Table 1):
NIOSH 2002
OSHA 73

Physical Description: White solid with an aromatic odor.
[**Note:** Used as a basis for many dyes.]

Chemical & Physical Properties:
MW: 107.2
BP: 393°F
Sol: 0.7%
Fl.P: 188°F
IP: 7.50 eV
Sp.Gr: 1.05
VP(108°F): 1 mmHg
MLT: 111°F
UEL: ?
LEL: ?
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Oxidizers, acids

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin; derm; hema, methemo; cyan, nau, vomit, low BP, convuls; anemia, lass; [carc]
TO: Eyes, skin, blood, CVS [in animals: liver tumors]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

T

Tributyl phosphate

Formula: $(CH_3[CH_2]_3O)_3PO$
CAS#: 126-73-8
RTECS#: TC7700000
IDLH: 30 ppm

Conversion: 1 ppm = 10.89 mg/m^3
DOT:

Synonyms/Trade Names: Butyl phosphate, TBP, Tributyl ester of phosphoric acid, Tri-n-butyl phosphate

Exposure Limits:
NIOSH REL: TWA 0.2 ppm (2.5 mg/m^3)
OSHA PEL†: TWA 5 mg/m^3

Measurement Methods (see Table 1):
NIOSH 5034

Physical Description: Colorless to pale-yellow, odorless liquid.

Chemical & Physical Properties:
MW: 266.3
BP: 552°F (Decomposes)
Sol: 0.6%
Fl.P(oc): 295°F
IP: ?
Sp.Gr: 0.98
VP(77°F): 0.004 mmHg
FRZ: -112°F
UEL: ?
LEL: ?
Class IIIB Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
2 ppm: Sa
5 ppm: Sa:Cf
10 ppm: ScbaF/SaF
30 ppm: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Alkalis, oxidizers, water, moist air

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, resp sys, head; nau
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

Trichloroacetic acid

Formula: CCl_3COOH
CAS#: 76-03-9
RTECS#: AJ7875000
IDLH: N.D.

Conversion: 1 ppm = 6.68 mg/m^3
DOT: 1839 153 (solid); 2564 153 (solution)

Synonyms/Trade Names: TCA, Trichloroethanoic acid

Exposure Limits:
NIOSH REL: TWA 1 ppm (7 mg/m^3)
OSHA PEL†: none

Measurement Methods (see Table 1):
OSHA PV2017

Physical Description: Colorless to white, crystalline solid with a sharp, pungent odor.

Chemical & Physical Properties:
MW: 163.4
BP: 388°F
Sol: Miscible
Fl.P: NA
IP: ?
Sp.Gr: 1.62
VP(124°F): 1 mmHg
MLT: 136°F
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Moisture, iron, zinc, aluminum, strong oxidizers
[**Note:** Decomposes on heating to form phosgene & hydrogen chloride. Corrosive to metals.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose, throat, resp sys; cough, dysp, delayed pulm edema; eye, skin burns; derm; salv, vomit, diarr
TO: Eyes, skin, resp sys, GI tract

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

1,2,4-Trichlorobenzene

Formula:	CAS#:	RTECS#:	IDLH:
$C_6H_3Cl_3$	120-82-1	DC2100000	N.D.

Conversion: 1 ppm = 7.42 mg/m^3

DOT: 2321 153 (liquid)

Synonyms/Trade Names: unsym-Trichlorobenzene; 1,2,4-Trichlorobenzol

Exposure Limits:
NIOSH REL: C 5 ppm (40 mg/m^3)
OSHA PEL†: none

Physical Description: Colorless liquid or crystalline solid (below 63°F) with an aromatic odor.

Measurement Methods (see Table 1):
NIOSH 5517

Chemical & Physical Properties:
MW: 181.4
BP: 416°F
Sol: 0.003%
Fl.P: 222°F
IP: ?
Sp.Gr: 1.45
VP: 1 mmHg
FRZ: 63°F
UEL(302°F): 6.6%
LEL(302°F): 2.5%
Class IIIB Combustible Liquid
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Acids, acid fumes, oxidizers, steam

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, muc memb; in animals: liver, kidney damage; possible terato effects
TO: Eyes, skin, resp sys, liver, repro sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Resp support
Swallow: Medical attention immed

1,1,2-Trichloroethane

Formula:	CAS#:	RTECS#:	IDLH:
$CHCl_2CH_2Cl$	79-00-5	KJ3150000	Ca [100 ppm]

Conversion: 1 ppm = 5.46 mg/m^3

DOT:

Synonyms/Trade Names: Ethane trichloride, β-Trichloroethane, Vinyl trichloride

Exposure Limits:
NIOSH REL: Ca
TWA 10 ppm (45 mg/m^3) [skin]
See Appendix A
See Appendix C (Chloroethanes)
OSHA PEL: TWA 10 ppm (45 mg/m^3) [skin]

Physical Description: Colorless liquid with a sweet, chloroform-like odor.

Measurement Methods (see Table 1):
NIOSH 1003
OSHA 11

Chemical & Physical Properties:
MW: 133.4
BP: 237°F
Sol: 0.4%
Fl.P: ?
IP: 11.00 eV
Sp.Gr: 1.44
VP: 19 mmHg
FRZ: -34°F
UEL: 15.5%
LEL: 6%
Combustible Liquid, forms dense soot.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers & caustics; chemically-active metals (such as aluminum, magnesium powders, sodium & potassium)

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, nose; CNS depres; liver, kidney damage; derm; [carc]
TO: Eyes, resp sys, CNS, liver, kidneys [in animals: liver cancer]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

T

Trichloroethylene

Formula:	CAS#:	RTECS#:	IDLH:
$ClCH=CCl_2$	79-01-6	KX4550000	Ca [1000 ppm]

Conversion: 1 ppm = 5.37 mg/m^3

DOT: 1710 160

Synonyms/Trade Names: Ethylene trichloride, TCE, Trichloroethene, Trilene

Exposure Limits:
NIOSH REL: Ca
See Appendix A
See Appendix C
OSHA PEL†: TWA 100 ppm
C 200 ppm
300 ppm (5-minute maximum peak in any 2 hours)

Measurement Methods (see Table 1):
NIOSH 1022, 3800
OSHA 1001

Physical Description: Colorless liquid (unless dyed blue) with a chloroform-like odor.

Chemical & Physical Properties:
MW: 131.4
BP: 189°F
Sol: 0.1%
Fl.P: ?
IP: 9.45 eV
Sp.Gr: 1.46
VP: 58 mmHg
FRZ: -99°F
UEL(77°F): 10.5%
LEL(77°F): 8%
Combustible Liquid, but burns with difficulty.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong caustics & alkalis; chemically-active metals (such as barium, lithium, sodium, magnesium, titanium & beryllium)

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin; head, vis dist, lass, dizz, tremor, drow, nau, vomit; derm; card arrhy, pares; liver inj; [carc]
TO: Eyes, skin, resp sys, heart, liver, kidneys, CNS [in animals: liver & kidney cancer]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

Trichloronaphthalene

Formula:	CAS#:	RTECS#:	IDLH:
$C_{10}H_5Cl_3$	1321-65-9	QK4025000	See Appendix F

Conversion:

DOT:

Synonyms/Trade Names: Halowax®, Nibren wax, Seekay wax

T

Exposure Limits:
NIOSH REL: TWA 5 mg/m^3 [skin]
OSHA PEL: TWA 5 mg/m^3 [skin]

Measurement Methods (see Table 1):
NIOSH S128 (II-2)

Physical Description: Colorless to pale-yellow solid with an aromatic odor.

Chemical & Physical Properties:
MW: 231.5
BP: 579-669°F
Sol: Insoluble
Fl.P(oc): 392°F
IP: ?
Sp.Gr: 1.58
VP: <1 mmHg
MLT: 199°F
UEL: ?
LEL: ?
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
50 mg/m^3: ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

See Appendix F

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Anor, nau; dizz; jaun, liver inj
TO: Liver

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Resp support
Swallow: Medical attention immed

1,2,3-Trichloropropane

Formula:	CAS#:	RTECS#:	IDLH:
$CH_2ClCHClCH_2Cl$	96-18-4	TZ9275000	Ca [100 ppm]

Conversion: 1 ppm = 6.03 mg/m^3

DOT:

Synonyms/Trade Names: Allyl trichloride, Glycerol trichlorohydrin, Glyceryl trichlorohydrin, Trichlorohydrin

Exposure Limits:
NIOSH REL: Ca
TWA 10 ppm (60 mg/m^3) [skin]
See Appendix A
OSHA PEL†: TWA 50 ppm (300 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1003
OSHA 7

Physical Description: Colorless liquid with a chloroform-like odor.

Chemical & Physical Properties:
MW: 147.4
BP: 314°F
Sol: 0.1%
Fl.P: 160°F
IP: ?
Sp.Gr: 1.39
VP: 3 mmHg
FRZ: 6°F
UEL(302°F): 12.6%
LEL(248°F): 3.2%
Class IIIA Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Chemically-active metals, strong caustics & oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, nose, throat; CNS depres; in animals: liver, kidney inj; [carc]
TO: Eyes, skin, resp sys, CNS, liver, kidneys [in animals: forestomach, liver & mammary gland cancer]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Resp support
Swallow: Medical attention immed

1,1,2-Trichloro-1,2,2-trifluoroethane

Formula:	CAS#:	RTECS#:	IDLH:
CCl_2FCClF_2	76-13-1	KJ4000000	2000 ppm

Conversion: 1 ppm = 7.67 mg/m^3

DOT:

Synonyms/Trade Names: Chlorofluorocarbon-113, CFC-113, Freon® 113, Genetron® 113, Halocarbon 113, Refrigerant 113, TTE

Exposure Limits:
NIOSH REL: TWA 1000 ppm (7600 mg/m^3)
ST 1250 ppm (9500 mg/m^3)
OSHA PEL†: TWA 1000 ppm (7600 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1020
OSHA 113

Physical Description: Colorless to water-white liquid with an odor like carbon tetrachloride at high concentrations. [**Note:** A gas above 118°F.]

Chemical & Physical Properties:
MW: 187.4
BP: 118°F
Sol(77°F): 0.02%
Fl.P: ?
IP: 11.99 eV
Sp.Gr(77°F): 1.56
VP: 285 mmHg
FRZ: -31°F
UEL: ?
LEL: ?
Noncombustible Liquid at ordinary temperatures, but the gas will ignite and burn weakly at 1256°F.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
2000 ppm: Sa/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Chemically-active metals such as calcium, powdered aluminum, zinc, magnesium & beryllium
[**Note:** Decomposes if in contact with alloys containing >2% magnesium.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit skin, throat, drow, derm; CNS depres; in animals: card arrhy, narco
TO: Skin, heart, CNS, CVS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

T

Triethylamine

Formula:	CAS#:	RTECS#:	IDLH:
$(C_2H_5)_3N$	121-44-8	YE0175000	200 ppm

Conversion: 1 ppm = 4.14 mg/m^3

DOT: 1296 132

Synonyms/Trade Names: TEA

Exposure Limits:
NIOSH REL: See Appendix D
OSHA PEL†: TWA 25 ppm (100 mg/m^3)

Physical Description: Colorless liquid with a strong, ammonia-like odor.

Measurement Methods (see Table 1):
NIOSH S152 (II-3)
OSHA PV2060

Chemical & Physical Properties:
MW: 101.2
BP: 193°F
Sol: 2%
Fl.P: 20°F
IP: 7.50 eV
Sp.Gr: 0.73
VP: 54 mmHg
FRZ: -175°F
UEL: 8.0%
LEL: 1.2%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.
Provide: Eyewash (>1%)
Quick drench (>1%)

Respirator Recommendations (see Tables 3 and 4):
OSHA
200 ppm: Sa:Cf£/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, strong acids, chlorine, hypochlorite, halogenated compounds

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, resp sys; in animals: myocardial, kidney, liver damage
TO: Eyes, skin, resp sys, CVS, liver, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Trifluorobromomethane

Formula:	CAS#:	RTECS#:	IDLH:
$CBrF_3$	75-63-8	PA5425000	40,000 ppm

Conversion: 1 ppm = 6.09 mg/m^3

DOT: 1009 126

Synonyms/Trade Names: Bromotrifluoromethane, Fluorocarbon 1301, Freon® 13B1, Halocarbon 13B1, Halon® 1301, Monobromotrifluoromethane, Refrigerant 13B1, Trifluoromonobromomethane

Exposure Limits:
NIOSH REL: TWA 1000 ppm (6100 mg/m^3)
OSHA PEL: TWA 1000 ppm (6100 mg/m^3)

Physical Description: Colorless, odorless gas. [**Note:** Shipped as a liquefied compressed gas.]

Measurement Methods (see Table 1):
NIOSH 1017

Chemical & Physical Properties:
MW: 148.9
BP: -72°F
Sol: 0.03%
Fl.P: NA
IP: 11.78 eV
RGasD: 5.14
VP: >1 atm
FRZ: -267°F
UEL: NA
LEL: NA
Nonflammable Gas

Personal Protection/Sanitation (see Table 2):
Skin: Frostbite
Eyes: Frostbite
Wash skin: N.R.
Remove: N.R.
Change: N.R.
Provide: Frostbite wash

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
10,000 ppm: Sa
25,000 ppm: Sa:Cf
40,000 ppm: SaT:Cf/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Chemically-active metals (such as calcium, powdered aluminum, zinc, and magnesium)

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con (liquid)
SY: Dizz; card arrhy; liquid: frostbite
TO: CNS, heart

First Aid (see Table 6):
Eye: Frostbite
Skin: Frostbite
Breath: Resp support

Trimellitic anhydride

Formula:	CAS#:	RTECS#:	IDLH:
$C_9H_4O_5$	552-30-7	DC2050000	N.D.

Conversion: 1 ppm = 7.86 mg/m^3

DOT:

Synonyms/Trade Names: 1,2,4-Benzenetricarboxylic anhydride; 4-Carboxyphthalic anhydride; TMA; TMAN; Trimellic acid anhydride [**Note:** TMA is also a synonym for Trimethylamine.]

Exposure Limits:
NIOSH REL: TWA 0.005 ppm (0.04 mg/m^3)
Should be handled in the workplace as an extremely toxic substance.
OSHA PEL†: none

Measurement Methods (see Table 1):
NIOSH 5036
OSHA 98

Physical Description: Colorless solid.

Chemical & Physical Properties:
MW: 192.1
BP: ?
Sol: ?
Fl.P: NA
IP: ?
Sp.Gr: ?
VP: 0.000004 mmHg
MLT: 322°F
UEL: NA
LEL: NA
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: None reported

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose, resp sys; pulm edema, resp sens; rhinitis, asthma, cough, wheez, dysp, mal, fever, musc aches, sneez
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Resp support
Swallow: Medical attention immed

Trimethylamine

Formula:	CAS#:	RTECS#:	IDLH:
$(CH_3)_3N$	75-50-3	PA0350000	N.D.

Conversion: 1 ppm = 2.42 mg/m^3

DOT: 1083 118 (anhydrous); 1297 132 (aqueous solution)

Synonyms/Trade Names: N,N-Dimethylmethanamine; TMA
[**Note:** May be used in an aqueous solution (typically 25%, 30%, or 40% TMA.]

Exposure Limits:
NIOSH REL: TWA 10 ppm (24 mg/m^3)
ST 15 ppm (36 mg/m^3)
OSHA PEL†: none

Measurement Methods (see Table 1):
OSHA PV2060

Physical Description: Colorless gas with a fishy, amine odor.
[**Note:** A liquid below 37°F. Shipped as a liquefied compressed gas.]

Chemical & Physical Properties:
MW: 59.1
BP: 37°F
Sol(86°F): 48%
Fl.P: NA (Gas)
20°F (Liquid)
IP: 7.82 eV
RGasD: 2.09
VP(70°F): 1454 mmHg
FRZ: -179°F
UEL: 11.6%
LEL: 2.0%
Flammable Gas

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact (liquid/solution)
Frostbite
Eyes: Prevent eye contact (liquid/solution)
Frostbite
Wash skin: When contam (solution)
Remove: When wet (flamm)
Change: N.R.
Provide: Eyewash (liquid/solution)
Quick drench (liquid/solution)
Frostbite wash

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Strong oxidizers (including bromine), ethylene oxide, nitrosating agents (e.g., sodium nitrite), mercury, strong acids [**Note:** Corrosive to many metals (e.g., zinc, brass, aluminum, copper).]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing (solution), Con
SY: Irrit eyes, skin, nose, throat, resp sys; cough, dysp, delayed pulm edema; blurred vision, corn nec; skin burns; liquid: frostbite
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed (liquid/solution)/Frostbite
Skin: Water flush immed (liquid/solution)/Frostbite
Breath: Resp support
Swallow: Medical attention immed (solution)

T

1,2,3-Trimethylbenzene	Formula: $C_6H_3(CH_3)_3$	CAS#: 526-73-8	RTECS#: DC3300000	IDLH: N.D.
Conversion: 1 ppm = 4.92 mg/m^3	**DOT:**			

Synonyms/Trade Names: Hemellitol
[**Note:** Hemimellitene is a mixture of the 1,2,3-isomer with up to 10% of related aromatics such as the 1,2,4-isomer.]

Exposure Limits:
NIOSH REL: TWA 25 ppm (125 mg/m^3)
OSHA PEL†: none

Measurement Methods (see Table 1):
OSHA PV2091

Physical Description: Clear, colorless liquid with a distinctive, aromatic odor.

Chemical & Physical Properties:
MW: 120.2
BP: 349°F
Sol: Low
Fl.P: ?
IP: 8.48 eV
Sp.Gr: 0.89
VP(62°F): 1 mmHg
FRZ: -14°F
UEL: 6.6%
LEL: 0.8%
Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Oxidizers, nitric acid

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose, throat, resp sys; bron; hypochromic anemia; head, drow, lass, dizz, nau, inco; vomit, conf; chemical pneu (aspir liquid)
TO: Eyes, skin, resp sys, CNS, blood

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Resp support
Swallow: Medical attention immed

1,2,4-Trimethylbenzene	Formula: $C_6H_3(CH_3)_3$	CAS#: 95-63-6	RTECS#: DC3325000	IDLH: N.D.
Conversion: 1 ppm = 4.92 mg/m^3	**DOT:**			

Synonyms/Trade Names: Asymmetrical trimethylbenzene, psi-Cumene, Pseudocumene
[**Note:** Hemimellitene is a mixture of the 1,2,3-isomer with up to 10% of related aromatics such as the 1,2,4-isomer.]

Exposure Limits:
NIOSH REL: TWA 25 ppm (125 mg/m^3)
OSHA PEL†: none

Measurement Methods (see Table 1):
OSHA PV2091

Physical Description: Clear, colorless liquid with a distinctive, aromatic odor.

Chemical & Physical Properties:
MW: 120.2
BP: 337°F
Sol: 0.006%
Fl.P: 112°F
IP: 8.27 eV
Sp.Gr: 0.88
VP(56°F): 1 mmHg
FRZ: -77°F
UEL: 6.4%
LEL: 0.9%
Class II Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Oxidizers, nitric acid

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose, throat, resp sys; bron; hypochromic anemia; head, drow, lass, dizz, nau, inco; vomit, conf; chemical pneu (aspir liquid)
TO: Eyes, skin, resp sys, CNS, blood

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Resp support
Swallow: Medical attention immed

1,3,5-Trimethylbenzene	Formula: $C_6H_3(CH_3)_3$	CAS#: 108-67-8	RTECS#: OX6825000	IDLH: N.D.
Conversion: 1 ppm = 4.92 mg/m^3	**DOT:** 2325 129			

Synonyms/Trade Names: Mesitylene, Symmetrical trimethylbenzene, sym-Trimethylbenzene

Exposure Limits:
NIOSH REL: TWA 25 ppm (125 mg/m^3)
OSHA PEL†: none

Measurement Methods (see Table 1):
OSHA PV2091

Physical Description: Clear, colorless liquid with a distinctive, aromatic odor.

Chemical & Physical Properties:
MW: 120.2
BP: 329°F
Sol: 0.002%
Fl.P: 122°F
IP: 8.39 eV
Sp.Gr: 0.86
VP: 2 mmHg
FRZ: -49°F
UEL: ?
LEL: ?
Class II Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Oxidizers, nitric acid

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose, throat, resp sys; bron; hypochromic anemia; head, drow, lass, dizz, nau, inco; vomit, conf; chemical pneu (aspir liquid)
TO: Eyes, skin, resp sys, CNS, blood

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Resp support
Swallow: Medical attention immed

Trimethyl phosphite	Formula: $(CH_3O)_3P$	CAS#: 121-45-9	RTECS#: TH1400000	IDLH: N.D.
Conversion: 1 ppm = 5.08 mg/m^3	**DOT:** 2329 129			

Synonyms/Trade Names: Methyl phosphite, Trimethoxyphosphine, Trimethyl ester of phosphorous acid

Exposure Limits:
NIOSH REL: TWA 2 ppm (10 mg/m^3)
OSHA PEL†: none

Measurement Methods (see Table 1):
None available

Physical Description: Colorless liquid with a distinctive, pungent odor.

Chemical & Physical Properties:
MW: 124.1
BP: 232°F
Sol: Reacts
Fl.P: 82°F
IP: ?
Sp.Gr: 1.05
VP(77°F): 24 mmHg
FRZ: -108°F
UEL: ?
LEL: ?
Class IC Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.
Provide: Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Magnesium perchlorate, water [**Note:** Reacts (hydrolyzes) with water.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, upper resp sys; derm; in animals: terato effects
TO: Eyes, skin, resp sys, repro sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap flush immed
Breath: Resp support
Swallow: Medical attention immed

T

2,4,6-Trinitrotoluene

Formula: $CH_3C_6H_2(NO_2)_3$ | **CAS#:** 118-96-7 | **RTECS#:** XU0175000 | **IDLH:** 500 mg/m^3

Conversion: | **DOT:** 1356 113 (wet)

Synonyms/Trade Names: 1-Methyl-2,4,6-trinitrobenzene; TNT; Trinitrotoluene; sym-Trinitrotoluene; Trinitrotoluol

Exposure Limits:
NIOSH REL: TWA 0.5 mg/m^3 [skin]
OSHA PEL†: TWA 1.5 mg/m^3 [skin]

Measurement Methods (see Table 1):
OSHA 44

Physical Description: Colorless to pale-yellow, odorless solid or crushed flakes.

Chemical & Physical Properties:
MW: 227.1
BP: 464°F (Explodes)
Sol(77°F): 0.01%
Fl.P: ? (Explodes)
IP: 10.59 eV
Sp.Gr: 1.65
VP: 0.0002 mmHg
MLT: 176°F
UEL: ?
LEL: ?
Combustible Solid (Class A Explosive)

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH
5 mg/m^3: Sa*
12.5 mg/m^3: Sa:Cf*
25 mg/m^3: ScbaF/SaF
500 mg/m^3: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, ammonia, strong alkalis, combustible materials, heat
[**Note:** Rapid heating will result in detonation.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit skin, muc memb; liver damage, jaun; cyan; sneez; cough, sore throat; peri neur, musc pain; kidney damage; cataract; sens derm; leucyt; anemia; card irreg
TO: Eyes, skin, resp sys, blood, liver, CVS, CNS, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

Triorthocresyl phosphate

Formula: $(CH_3C_6H_40)_3PO$ | **CAS#:** 78-30-8 | **RTECS#:** TD0350000 | **IDLH:** 40 mg/m^3

Conversion: | **DOT:** 2574 151

Synonyms/Trade Names: TCP, TOCP, Tri-o-cresyl ester of phosphoric acid, Tri-o-cresyl phosphate

Exposure Limits:
NIOSH REL: TWA 0.1 mg/m^3 [skin]
OSHA PEL†: TWA 0.1 mg/m^3

Measurement Methods (see Table 1):
NIOSH 5037

Physical Description: Colorless to pale-yellow, odorless liquid or solid (below 52°F).

Chemical & Physical Properties:
MW: 368.4
BP: 770°F (Decomposes)
Sol: Slight
Fl.P: 437°F
IP: ?
Sp.Gr: 1.20
VP(77°F): 0.00002 mmHg
FRZ: 52°F
UEL: ?
LEL: ?
Class IIIB Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: N.R.
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
0.5 mg/m^3: Qm
1 mg/m^3: 95XQ/Sa
2.5 mg/m^3: Sa:Cf/PaprHie
5 mg/m^3: 100F/SaT:Cf/PaprTHie/ ScbaF/SaF
40 mg/m^3: Sa:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: GI dist; peri neur; cramps in calves, pares in feet or hands; weak feet, wrist drop, para
TO: PNS, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Triphenylamine	Formula: $(C_6H_5)_3N$	CAS#: 603-34-9	RTECS#: YK2680000	IDLH: N.D.
Conversion:	DOT:			

Synonyms/Trade Names: N,N-Diphenylaniline; N,N-Diphenylbenzenamine

Exposure Limits:
NIOSH REL: TWA 5 mg/m^3
OSHA PEL†: none

Measurement Methods (see Table 1):
None available

Physical Description: Colorless solid.

Chemical & Physical Properties:
MW: 245.3
BP: 689°F
Sol: Insoluble
Fl.P: ?
IP: 7.60 eV
Sp.Gr: 0.77
VP: ?
MLT: 261°F
UEL: ?
LEL: ?

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: Daily
Remove: N.R.
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: None reported

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: In animals: irrit skin
TO: Skin

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Resp support
Swallow: Medical attention immed

Triphenyl phosphate	Formula: $(C_6H_5O)_3PO$	CAS#: 115-86-6	RTECS#: TC8400000	IDLH: 1000 mg/m^3
Conversion:	DOT:			

Synonyms/Trade Names: Phenyl phosphate, TPP, Triphenyl ester of phosphoric acid

Exposure Limits:
NIOSH REL: TWA 3 mg/m^3
OSHA PEL: TWA 3 mg/m^3

Measurement Methods (see Table 1):
NIOSH 5038

Physical Description: Colorless, crystalline powder with a phenol-like odor.

Chemical & Physical Properties:
MW: 326.3
BP: 776°F
Sol(129°F): 0.002%
Fl.P: 428°F
IP: ?
Sp.Gr: 1.29
VP(380°F): 1 mmHg
MLT: 120°F
UEL: ?
LEL: ?
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
15 mg/m^3: Qm
30 mg/m^3: 95XQ/Sa
75 mg/m^3: Sa:Cf/PaprHie
150 mg/m^3: 100F/SaT:Cf/PaprTHie/ ScbaF/SaF
1000 mg/m^3: Sa:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: None reported

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing
SY: Minor changes in blood enzymes; in animals: musc weak, para
TO: Blood, PNS

First Aid (see Table 6):
Breath: Resp support
Swallow: Medical attention immed

T

Tungsten	**Formula:** W	**CAS#:** 7440-33-7	**RTECS#:** YO7175000	**IDLH:** N.D.
Conversion:	**DOT:**			

Synonyms/Trade Names: Tungsten metal, Wolfram

Exposure Limits:
NIOSH REL*: TWA 5 mg/m^3
ST 10 mg/m^3
[***Note:** The REL also applies to other insoluble tungsten compounds (as W).]
OSHA PEL†: none

Physical Description: Hard, brittle, steel-gray to tin-white solid.

Measurement Methods (see Table 1):
NIOSH 7074, 7300, 7301
OSHA ID213

Chemical & Physical Properties:
MW: 183.9
BP: 10,701°F
Sol: Insoluble
Fl.P: NA
IP: NA
Sp.Gr: 19.3
VP: 0 mmHg (approx)
MLT: 6170°F
UEL: NA
LEL: NA
Combustible in the form of finely divided powder; may ignite spontaneously.

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
50 mg/m^3: 100XQ/Sa/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100XQ/ScbaE

Incompatibilities and Reactivities: Bromine trifluoride, chlorine trifluoride, fluorine, iodine pentafluoride

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, resp sys; diffuse pulm fib; loss of appetite, nau, cough; blood changes
TO: Eyes, skin, resp sys, blood

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Fresh air
Swallow: Medical attention immed

Tungsten (soluble compounds, as W)	**Formula:**	**CAS#:**	**RTECS#:**	**IDLH:** N.D.
Conversion:	**DOT:**			

Synonyms/Trade Names: Synonyms vary depending upon the specific soluble tungsten compound.

Exposure Limits:
NIOSH REL: TWA 1 mg/m^3
ST 3 mg/m^3
OSHA PEL†: none

Physical Description: Appearance and odor vary depending upon the specific soluble tungsten compound.

Measurement Methods (see Table 1):
NIOSH 7074, 7300, 7301
OSHA ID213

Chemical & Physical Properties:
Properties vary depending upon the specific soluble tungsten compound.

Personal Protection/Sanitation (see Table 2):
Recommendations regarding personal protective clothing vary depending upon the specific compound.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
10 mg/m^3: 100XQ/Sa
25 mg/m^3: Sa:Cf
50 mg/m^3: 100F/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Varies

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, resp sys; in animals: CNS disturbances; diarr; resp failure; behavioral, body weight, blood changes
TO: Eyes, skin, resp sys, CNS, GI tract

First Aid (see Table 6):
Eye: Irr immed
Skin: Water wash
Breath: Resp support
Swallow: Medical attention immed

Tungsten carbide (cemented)

Formula: WC/Co/Ni/Ti

CAS#: 1: 11107-01-0 2: 12718-69-3 3: 37329-49-0

RTECS#: 1: YO7350000 2: YO7525000 3: YO7700000

IDLH: N.D.

Conversion:

DOT:

Synonyms/Trade Names: Cemented tungsten carbide, Cemented WC, Hard metal
[**Note:** The tungsten carbide (WC) content is generally 85-95% & the cobalt content is generally 5-15%.]
[**1:** 85% WC, 15% Co; **2:** 92% WC, 8% Co; **3:** 78% WC, 14% Co, 8% Ti]

Exposure Limits:
NIOSH REL: See Appendix C **OSHA PEL†:** See Appendix C

Measurement Methods (see Table 1):
None available

Physical Description: A mixture of tungsten carbide, cobalt, and sometimes other metals & metal oxides or carbides.

Chemical & Physical Properties:
Properties vary depending upon the specific mixture.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily (Ni)
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH
0.25 mg Co/m^3: Qm
0.5 mg Co/m^3: 95XQ*/Sa*
1.25 mg Co/m^3: Sa:Cf*/PaprHie*/PaprHie*
2.5 mg Co/m^3: 100F/ScbaF/SaF
20 mg Co/m^3: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Tungsten carbide (cemented) containing Nickel:
NIOSH
¥:ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Tungsten carbide: Fluorine, chlorine trifluoride, oxides of nitrogen, lead dioxide

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, resp sys; possible skin sens to cobalt, nickel; diffuse pulm fib; loss of appetite, nau, cough; blood changes
TO: Eyes, skin, resp sys, blood

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Fresh air
Swallow: Medical attention immed

Turpentine

Formula: $C_{10}H_{16}$ (approx)

CAS#: 8006-64-2

RTECS#: YO8400000

IDLH: 800 ppm

Conversion: 1 ppm = 5.56 mg/m^3 (approx)

DOT: 1299 128

Synonyms/Trade Names: Gumspirits, Gum turpentine, Spirits of turpentine, Steam distilled turpentine, Sulfate wood turpentine, Turps, Wood turpentine

Exposure Limits:
NIOSH REL: TWA 100 ppm (560 mg/m^3)
OSHA PEL: TWA 100 ppm (560 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1551

Physical Description: Colorless liquid with a characteristic odor.

Chemical & Physical Properties:
MW: 136 (approx)
BP: 309-338°F
Sol: Insoluble
Fl.P: 95°F
IP: ?
Sp.Gr: 0.86
VP: 4 mmHg
FRZ: -58 to -76°F
UEL: ?
LEL: 0.8%
Class IC Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
800 ppm: Sa:Cf£/PaprOv£/CcrFOv/GmFOv/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, chlorine, chromic anhydride, stannic chloride, chromyl chloride

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, nose, throat; head, dizz, convuls; skin sens; hema, prot; kidney damage; abdom pain, nau, vomit, diarr; chemical pneu (aspir liquid)
TO: Eyes, skin, resp sys, CNS, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

T

1-Undecanethiol	Formula: $CH_3(CH_2)_{10}SH$	CAS#: 5332-52-5	RTECS#:	IDLH: N.D.
Conversion: 1 ppm = 7.71 mg/m^3	DOT: 1228 131			

Synonyms/Trade Names: Undecyl mercaptan

Exposure Limits:
NIOSH REL: C 0.5 ppm (3.9 mg/m^3) [15-minute]
OSHA PEL: none

Measurement Methods (see Table 1):
None available

Physical Description: Liquid.

Chemical & Physical Properties:
MW: 188.4
BP: 495°F
Sol: Insoluble
Fl.P: ?
IP: ?
Sp.Gr: 0.84
VP: ?
FRZ: 27°F
UEL: ?
LEL: ?
Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
5 ppm: CcrOv/Sa
12.5 ppm: Sa:Cf/PaprOv
25 ppm: CcrFOv/GmFOv/PaprTOv/ ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Oxidizers, reducing agents, strong acids & bases, alkali metals

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, resp sys; conf, dizz, head, drow, nau, vomit, lass, convuls
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Resp support
Swallow: Medical attention immed

Uranium (insoluble compounds, as U)	Formula: U (metal)	CAS#: 7440-61-1 (metal)	RTECS#: YR3490000 (metal)	IDLH: Ca [10 mg/m^3 (as U)]
Conversion:	DOT: 2979 162 (metal, pyrophoric)			

Synonyms/Trade Names: **Uranium metal:** Uranium I
Synonyms of other insoluble uranium compounds vary depending upon the specific compound.

Exposure Limits:
NIOSH REL: Ca
TWA 0.2 mg/m^3
ST 0.6 mg/m^3
See Appendix A
OSHA PEL†: TWA 0.25 mg/m^3

Measurement Methods (see Table 1):
None available

Physical Description: Metal: Silver-white, malleable, ductile, lustrous solid. [**Note:** Weakly radioactive.]

U

Chemical & Physical Properties:
MW: 238.0
BP: 6895°F
Sol: Insoluble
Fl.P: NA
IP: NA
Sp.Gr: 19.05 (metal)
VP: 0 mmHg (approx)
MLT: 2097°F
UEL: NA
LEL: NA
MEC: 60 g/m^3
Metal: Combustible Solid, especially turnings and powder.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily
Provide: Eyewash

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Carbon dioxide, carbon tetrachloride, nitric acid, fluorine [**Note:** Complete coverage of uranium metal scrap with oil is essential for prevention of fire.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Derm; kidney damage; blood changes; [carc]; in animals: lung, lymph node damage; [carc] Potential for cancer is a result of alpha-emitting properties & radioactive decay products (e.g., radon).
TO: Skin, kidneys, bone marrow, lymphatic sys [lung cancer]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

Uranium (soluble compounds, as U)	Formula:	CAS#:	RTECS#:	IDLH: Ca [10 mg/m^3 (as U)]
Conversion:	**DOT:**			

Synonyms/Trade Names: Synonyms vary depending upon the specific soluble uranium compound.

Exposure Limits:
NIOSH REL: Ca
TWA 0.05 mg/m^3
See Appendix A
OSHA PEL: TWA 0.05 mg/m^3

Measurement Methods (see Table 1):
None available

Physical Description: Appearance and odor vary depending upon the specific soluble uranium compound.

Chemical & Physical Properties:
Properties vary depending upon the specific soluble uranium compound.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam/Daily
Remove: When wet or contam
Change: Daily
Provide: Eyewash (UF_6), Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape (Halides): GmFAg100/ScbaE
Escape (Non-halides): 100F/ScbaE

Incompatibilities and Reactivities: **Uranyl nitrate:** combustibles; **Uranium hexafluoride:** water

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Lac, conj; short breath, cough, chest rales; nau, vomit; skin burns; RBC, casts in urine; prot; high BUN; [carc] Potential for cancer is a result of alpha-emitting properties & radioactive decay products (e.g., radon).
TO: Resp sys, blood, liver, kidneys, lymphatic sys, skin, bone marrow [lung cancer]

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

n-Valeraldehyde	Formula: $CH_3(CH_2)_3CHO$	CAS#: 110-62-3	RTECS#: YV3600000	IDLH: N.D.
Conversion: 1 ppm = 3.53 mg/m^3	**DOT:** 2058 129			

Synonyms/Trade Names: Amyl aldehyde, Pentanal, Valeral, Valeraldehyde, Valeric aldehyde

Exposure Limits:
NIOSH REL: TWA 50 ppm (175 mg/m^3)
See Appendix C (Aldehydes)
OSHA PEL†: none

Measurement Methods (see Table 1):
NIOSH 2018, 2536
OSHA 85

Physical Description: Colorless liquid with a strong, acrid, pungent odor.

Chemical & Physical Properties:
MW: 86.2
BP: 217°F
Sol: Slight
Fl.P: 54°F
IP: 9.82 eV
Sp.Gr: 0.81
VP: 26 mmHg
FRZ: -133°F
UEL: ?
LEL: ?
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: None reported

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose, throat
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap flush immed
Breath: Resp support
Swallow: Medical attention immed

V

Vanadium dust

Formula:	CAS#:	RTECS#:	IDLH:
V_2O_5	1314-62-1	YW2450000	35 mg/m^3 (as V)

Conversion: **DOT:** 2862 151

Synonyms/Trade Names: Divanadium pentoxide dust, Vanadic anhydride dust, Vanadium oxide dust, Vanadium pentaoxide dust. Other synonyms vary depending upon the specific vanadium compound.

Exposure Limits:
NIOSH REL*: C 0.05 mg V/m^3 [15-minute]
[***Note:** The REL applies to all vanadium compounds except Vanadium metal and Vanadium carbide (see Ferrovanadium dust).]
OSHA PEL†: C 0.5 mg V_2O_5/m^3 (resp)

Measurement Methods (see Table 1):
NIOSH 7300, 7301, 7303, 7504, 9102
OSHA ID185

Physical Description: Yellow-orange powder or dark-gray, odorless flakes dispersed in air.

Chemical & Physical Properties:
MW: 181.9
BP: 3182°F (Decomposes)
Sol: 0.8%
Fl.P: NA
IP: NA
Sp.Gr: 3.36
VP: 0 mmHg (approx)
MLT: 1274°F
UEL: NA
LEL: NA
Noncombustible Solid, but may increase intensity of fire when in contact with combustible materials.

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH (as V)
0.5 mg/m^3: 100XQ*/Sa*
1.25 mg/m^3: Sa:Cf*/PaprHie*
2.5 mg/m^3: 100F/PaprTHie*/ScbaF/SaF
35 mg/m^3: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Lithium, chlorine trifluoride

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, throat; green tongue, metallic taste, eczema; cough; fine rales, wheez, bron, dysp
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

Vanadium fume

Formula:	CAS#:	RTECS#:	IDLH:
V_2O_5	1314-62-1	YW2460000	35 mg/m^3 (as V)

Conversion: **DOT:** 2862 151

Synonyms/Trade Names: Divanadium pentoxide fume, Vanadic anhydride fume, Vanadium oxide fume, Vanadium pentaoxide fume. Other synonyms vary depending upon the specific vanadium compound.

Exposure Limits:
NIOSH REL: C 0.05 mg V/m^3 [15-minute]
OSHA PEL†: C 0.1 mg V_2O_5/m^3

Measurement Methods (see Table 1):
NIOSH 7300, 7301, 7303, 7504
OSHA ID185

Physical Description: Finely divided particulate dispersed in air.

Chemical & Physical Properties:
MW: 181.9
BP: 3182°F (Decomposes)
Sol: 0.8%
Fl.P: NA
IP: NA
Sp.Gr: 3.36
VP: 0 mmHg (approx)
MLT: 1274°F
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH (as V)
0.5 mg/m^3: 100XQ*/Sa*
1.25 mg/m^3: Sa:Cf*/PaprHie*
2.5 mg/m^3: 100F/PaprTHie*/ScbaF/SaF
35 mg/m^3: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Lithium, chlorine trifluoride

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Irrit eyes, throat; green tongue, metallic taste; cough, fine rales, wheez, bron, dysp; eczema
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Breath: Resp support

Vegetable oil mist

Formula:	CAS#:	RTECS#:	IDLH:
	68956-68-3	YX1850000	N.D.

Conversion:

DOT:

Synonyms/Trade Names: Vegetable mist

Exposure Limits:
NIOSH REL: TWA 10 mg/m^3 (total)
TWA 5 mg/m^3 (resp)
OSHA PEL: TWA 15 mg/m^3 (total)
TWA 5 mg/m^3 (resp)

Measurement Methods (see Table 1):
NIOSH 0500, 0600

Physical Description: An oil extracted from the seeds, fruit, or nuts of vegetables or other plant matter.

Chemical & Physical Properties:
MW: varies
BP: ?
Sol: Insoluble
Fl.P: 323-540°F
IP: ?
Sp.Gr: 0.91-0.95
VP: ?
FRZ: ?
UEL: ?
LEL: ?
Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: None reported

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Irrit eyes, skin, resp sys; lac
TO: Eyes, skin, resp sys Determine based on working conditions

First Aid (see Table 6):
Eye: Irr immed
Breath: Fresh air

Vinyl acetate

Formula:	CAS#:	RTECS#:	IDLH:
CH_2=CHOOCCH$_3$	108-05-4	AK0875000	N.D.

Conversion: 1 ppm = 3.52 mg/m^3

DOT: 1301 129P

Synonyms/Trade Names: 1-Acetoxyethylene, Ethenyl acetate, Ethenyl ethanoate, VAC, Vinyl acetate monomer, Vinyl ethanoate

Exposure Limits:
NIOSH REL: C 4 ppm (15 mg/m^3) [15-minute]
OSHA PEL†: none

Measurement Methods (see Table 1):
NIOSH 1453
OSHA 51

Physical Description: Colorless liquid with a pleasant, fruity odor.
[**Note:** Raw material for many polyvinyl resins.]

Chemical & Physical Properties:
MW: 86.1
BP: 162°F
Sol: 2%
Fl.P: 18°F
IP: 9.19 eV
Sp.Gr: 0.93
VP: 83 mmHg
FRZ: -136°F
UEL: 13.4%
LEL: 2.6%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
40 ppm: CcrOv*/Sa*
100 ppm: Sa:Cf*/PaprOv*
200 ppm: CcrFOv/GmFOv/PaprTOv*/ ScbaF/SaF
4000 ppm: Sa:Pd,Pp*
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Acids, bases, silica gel, alumina, oxidizers, azo compounds, ozone
[**Note:** Usually contains a stabilizer (e.g., hydroquinone or diphenylamine) to prevent polymerization.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, nose, throat; hoarseness, cough; loss of smell; eye burns, skin blisters
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap flush immed
Breath: Resp support
Swallow: Medical attention immed

V

Vinyl bromide

Formula:	CAS#:	RTECS#:	IDLH:
CH_2=CHBr	593-60-2	KU8400000	Ca [N.D.]

Conversion: 1 ppm = 4.38 mg/m^3

DOT: 1085 116P (inhibited)

Synonyms/Trade Names: Bromoethene, Bromoethylene, Monobromoethylene

Exposure Limits:
NIOSH REL: Ca
See Appendix A
OSHA PEL†: none

Measurement Methods (see Table 1):
NIOSH 1009
OSHA 8

Physical Description: Colorless gas or liquid (below 60°F) with a pleasant odor.
[**Note:** Shipped as a liquefied compressed gas with 0.1% phenol added to prevent polymerization.]

Chemical & Physical Properties:
MW: 107.0
BP: 60°F
Sol: Insoluble
Fl.P: NA (Gas)
IP: 9.80 eV
RGasD: 3.79
Sp.Gr: 1.49 (Liquid at 60°F)
VP: 1.4 atm
FRZ: -219°F
UEL: 15%
LEL: 9%
Flammable Gas

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact (liquid)
Eyes: Prevent eye contact (liquid)
Wash skin: When contam (liquid)
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers (e.g., perchlorates, peroxides, chlorates, permanganates & nitrates.)
[**Note:** May polymerize in sunlight.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing (liquid), Con
SY: Irrit eyes, skin; dizz, conf, inco, narco, nau, vomit; liquid: frostbite; [carc]
TO: Eyes, skin, CNS, liver [in animals: liver & lymph node tumors]

First Aid (see Table 6):
Eye: Irr immed (liquid)
Skin: Water flush immed (liquid)
Breath: Resp support
Swallow: Medical attention immed (liquid)

Vinyl chloride

Formula:	CAS#:	RTECS#:	IDLH:
CH_2=CHCl	75-01-4	KU9625000	Ca [N.D.]

Conversion: 1 ppm = 2.56 mg/m^3

DOT: 1086 116P (inhibited)

Synonyms/Trade Names: Chloroethene, Chloroethylene, Ethylene monochloride, Monochloroethene, Monochloroethylene, VC, Vinyl chloride monomer (VCM)

Exposure Limits:
NIOSH REL: Ca
See Appendix A
OSHA PEL: [1910.1017] TWA 1 ppm
C 5 ppm [15-minute]

Measurement Methods (see Table 1):
NIOSH 1007
OSHA 4, 75

Physical Description: Colorless gas or liquid (below 7°F) with a pleasant odor at high concentrations.
[**Note:** Shipped as a liquefied compressed gas.]

Chemical & Physical Properties:
MW: 62.5
BP: 7°F
Sol(77°F): 0.1%
Fl.P: NA (Gas)
IP: 9.99 eV
RGasD: 2.21
VP: 3.3 atm
FRZ: -256°F
UEL: 33.0%
LEL: 3.6%
Flammable Gas

Personal Protection/Sanitation (see Table 2):
Skin: Frostbite
Eyes: Frostbite
Wash skin: N.R.
Remove: When wet (flamm)
Change: N.R.
Provide: Frostbite wash

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFS/ScbaE

See Appendix E (page 351)

Incompatibilities and Reactivities: Copper, oxidizers, aluminum, peroxides, iron, steel [**Note:** Polymerizes in air, sunlight, or heat unless stabilized by inhibitors such as phenol. Attacks iron & steel in presence of moisture.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con (liquid)
SY: Lass; abdom pain, GI bleeding; enlarged liver; pallor or cyan of extremities; liquid: frostbite; [carc]
TO: Liver, CNS, blood, resp sys, lymphatic sys [liver cancer]

First Aid (see Table 6):
Eye: Frostbite
Skin: Frostbite
Breath: Resp support

Vinyl cyclohexene dioxide

Formula:	CAS#:	RTECS#:	IDLH:
$C_8H_{12}O_2$	106-87-6	RN8640000	Ca [N.D.]

Conversion: 1 ppm = 5.73 mg/m^3

DOT:

Synonyms/Trade Names: 1-Epoxyethyl-3,4-epoxy-cyclohexane; 4-Vinylcyclohexene diepoxide; 4-Vinyl-1-cyclohexene dioxide

Exposure Limits:
NIOSH REL: Ca
TWA 10 ppm (60 mg/m^3) [skin]
See Appendix A
OSHA PEL†: none

Measurement Methods (see Table 1):
OSHA PV2083

Physical Description: Colorless liquid.

Chemical & Physical Properties:
MW: 140.2
BP: 441°F
Sol: High
Fl.P(oc): 230°F
IP: ?
Sp.Gr: 1.10
VP: 0.1 mmHg
FRZ: -164°F
UEL: ?
LEL: ?
Class IIIB Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Alcohols, amines, water [**Note:** Slowly hydrolyzes in water.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: In animals: irrit eyes, skin, resp sys; testicular atrophy; leupen, nec thymus; skin sens; [carc]
TO: Eyes, skin, resp sys, blood, thymus, repro sys [in animals: skin tumors]

First Aid (see Table 6):
Eye: Irr immed
Skin: Water wash immed
Breath: Resp support
Swallow: Medical attention immed

Vinyl fluoride

Formula:	CAS#:	RTECS#:	IDLH:
CH_2=CHF	75-02-5	YZ3510000	N.D.

Conversion: 1 ppm = 1.89 mg/m^3

DOT: 1860 116P (inhibited)

Synonyms/Trade Names: Fluoroethene, Fluoroethylene, Monofluoroethylene, Vinyl fluoride monomer

Exposure Limits:
NIOSH REL: TWA 1 ppm
C 5 ppm [use 1910.1017]
OSHA PEL: none

Measurement Methods (see Table 1):
None available

Physical Description: Colorless gas with a faint, ethereal odor.
[**Note:** Shipped as a liquefied compressed gas.]

Chemical & Physical Properties:
MW: 46.1
BP: -98°F
Sol: Insoluble
Fl.P: NA (Gas)
IP: 10.37 eV
RGasD: 1.60
VP: 25.2 atm
FRZ: -257°F
UEL: 21.7%
LEL: 2.6%
Flammable Gas

Personal Protection/Sanitation (see Table 2):
Skin: Frostbite
Eyes: Frostbite
Wash skin: N.R.
Remove: When wet (flamm)
Change: N.R.
Provide: Frostbite wash

Respirator Recommendations (see Tables 3 and 4):
NIOSH
10 ppm: CcrOv/Sa
25 ppm: Sa:Cf/PaprOv
50 ppm: CcrFOv/GmFOv/PaprTOv/ ScbaF/SaF
200 ppm: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: None reported [**Note:** Inhibited with 0.2% terpenes to prevent polymerization.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con (liquid)
SY: Head, dizz, conf, inco, narco, nau, vomit; liquid: frostbite
TO: CNS

First Aid (see Table 6):
Eye: Frostbite
Skin: Frostbite
Breath: Resp support

Vinylidene chloride	Formula: $CH_2=CCl_2$	CAS#: 75-35-4	RTECS#: KV9275000	IDLH: Ca [N.D.]
Conversion:	DOT: 1303 130P (inhibited)			

Synonyms/Trade Names: 1,1-DCE; 1,1-Dichloroethene; 1,1-Dichloroethylene; VDC; Vinylidene chloride monomer; Vinylidene dichloride

Exposure Limits:
NIOSH REL: Ca
See Appendix A
OSHA PEL†: none

Measurement Methods (see Table 1):
NIOSH 1015
OSHA 19

Physical Description: Colorless liquid or gas (above 89°F) with a mild, sweet, chloroform-like odor.

Chemical & Physical Properties:
MW: 96.9
BP: 89°F
Sol: 0.04%
Fl.P: -2°F
IP: 10.00 eV
Sp.Gr: 1.21
VP: 500 mmHg
FRZ: -189°F
UEL: 15.5%
LEL: 6.5%
Class IA Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Aluminum, sunlight, air, copper, heat
[**Note:** Polymerization may occur if exposed to oxidizers, chlorosulfonic acid, nitric acid, or oleum. Inhibitors such as the monomethyl ether of hydroquinone are added to prevent polymerization.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, throat; dizz, head, nau, dysp; liver, kidney dist; pneu; [carc]
TO: Eyes, skin, resp sys, CNS, liver, kidneys [in animals: liver & kidney tumors]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap flush immed
Breath: Resp support
Swallow: Medical attention immed

Vinylidene fluoride	Formula: $CH_2=CF_2$	CAS#: 75-38-7	RTECS#: KW0560000	IDLH: N.D.
Conversion: 1 ppm = 2.62 mg/m^3	DOT: 1959 116P			

Synonyms/Trade Names: Difluoro-1,1-ethylene; 1,1-Difluoroethene; 1,1-Difluoroethylene; Halocarbon 1132A; VDF; Vinylidene difluoride

Exposure Limits:
NIOSH REL: TWA 1 ppm
C 5 ppm [use 1910.1017]
OSHA PEL: none

Measurement Methods (see Table 1):
NIOSH 3800

Physical Description: Colorless gas with a faint, ethereal odor. [**Note:** Shipped as a liquefied compressed gas.]

V

Chemical & Physical Properties:
MW: 64.0
BP: -122°F
Sol: Insoluble
Fl.P: NA (Gas)
IP: 10.29 eV
RGasD: 2.21
VP: 35.2 atm
FRZ: -227°F
UEL: 21.3%
LEL: 5.5%
Flammable Gas

Personal Protection/Sanitation (see Table 2):
Skin: Frostbite
Eyes: Frostbite
Wash skin: N.R.
Remove: When wet (flamm)
Change: N.R.
Provide: Frostbite wash

Respirator Recommendations (see Tables 3 and 4):
NIOSH
10 ppm: CcrOv/Sa
25 ppm: Sa:Cf/PaprOv
50 ppm: CcrFOv/GmFOv/PaprTOv/ ScbaF/SaF
200 ppm: SaF:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Oxidizers, aluminum chloride
[**Note:** Violent reaction with hydrogen chloride when heated under pressure.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con (liquid)
SY: Dizz, head, nau; liquid: frostbite
TO: CNS

First Aid (see Table 6):
Eye: Frostbite
Skin: Frostbite
Breath: Resp support

Vinyl toluene	Formula: $CH_2=CHC_6H_4CH_3$	CAS#: 25013-15-4 (inhibited)	RTECS#: WL5075000	IDLH: 400 ppm
Conversion: 1 ppm = 4.83 mg/m^3	**DOT:** 2618 130P (inhibited)			

Synonyms/Trade Names: Ethenylmethylbenzene, Methylstyrene, Tolyethylene

Exposure Limits:
NIOSH REL: TWA 100 ppm (480 mg/m^3)
OSHA PEL: TWA 100 ppm (480 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1501
OSHA 7

Physical Description: Colorless liquid with a strong, disagreeable odor.

Chemical & Physical Properties:
MW: 118.2
BP: 339°F
Sol: 0.009%
Fl.P: 127°F
IP: 8.20 eV
Sp.Gr: 0.89
VP: 1 mmHg
FRZ: -106°F
UEL: 11.0%
LEL: 0.8%
Class II Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
400 ppm: CcrOv*/PaprOv*/GmFOv/Sa*/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Oxidizers, peroxides, strong acids, iron or aluminum salts
[**Note:** Usually inhibited with tert-butyl catechol to prevent polymerization.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, upper resp sys; drow; in animals: narco
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap flush prompt
Breath: Resp support
Swallow: Medical attention immed

VM & P Naphtha	Formula:	CAS#: 8032-32-4	RTECS#: OI6180000	IDLH: N.D.
Conversion:	**DOT:** 1268 128 (petroleum distillates, n.o.s.)			

Synonyms/Trade Names: Ligroin, Painters naphtha, Petroleum ether, Petroleum spirit, Refined solvent naphtha, Varnish makers' & painters' naphtha

Exposure Limits:
NIOSH REL: TWA 350 mg/m^3
C 1800 mg/m^3 [15-minute]
OSHA PEL†: none

Measurement Methods (see Table 1):
NIOSH 1550
OSHA 48

Physical Description: Clear to yellowish liquid with a pleasant, aromatic odor.

Chemical & Physical Properties:
MW: 87-114 (approx)
BP: 203-320°F
Sol: Insoluble
Fl.P: 20-55°F
IP: ?
Sp.Gr(60°F): 0.73-0.76
VP: 2-20 mmHg
FRZ: ?
UEL: 6.0%
LEL: 1.2%
Class IB Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
3500 mg/m^3: CcrOv/Sa
8750 mg/m^3: Sa:Cf/PaprOv
17,500 mg/m^3: CcrFOv/GmFOv/PaprTOv/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: None reported
[**Note:** VM&P Naphtha is a refined petroleum solvent predominantly C_7-C_{11} which is typically 55% paraffins, 30% monocycloparaffins, 2% dicycloparaffins & 12% alklybenzenes.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, upper resp sys; derm; CNS depres; chemical pneu (aspir liquid)
TO: Eyes, skin, resp sys, CNS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

V

Warfarin	**Formula:** $C_{19}H_{16}O_4$	**CAS#:** 81-81-2	**RTECS#:** GN4550000	**IDLH:** 100 mg/m^3
Conversion:	**DOT:**			

Synonyms/Trade Names: 3-(α-Acetonyl)-benzyl-4-hydroxycoumarin; 4-Hydroxy-3-(3-oxo-1-phenyl butyl)-2H-1-benzopyran-2-one; WARF

Exposure Limits:
NIOSH REL: TWA 0.1 mg/m^3
OSHA PEL: TWA 0.1 mg/m^3

Measurement Methods (see Table 1):
NIOSH 5002

Physical Description: Colorless, odorless, crystalline powder. [rodenticide]

Chemical & Physical Properties:
MW: 308.3
BP: Decomposes
Sol: 0.002%
Fl.P: ?
IP: ?
Sp.Gr: ?
VP(71°F): 0.09 mmHg
MLT: 322°F
UEL: ?
LEL: ?
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: N.R.
Wash skin: When contam
Remove: When wet or contam
Change: Daily

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
0.5 mg/m^3: Qm
1 mg/m^3: 95XQ/Sa
2.5 mg/m^3: Sa:Cf/PaprHie
5 mg/m^3: 100F/SaT:Cf/PaprTHie/ ScbaF/SaF
100 mg/m^3: Sa:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Strong oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Hema, back pain; hematoma arms, legs; epis, bleeding lips, muc memb hemorr; abdom pain, vomit, fecal blood; petechial rash; abnor hematologic indices
TO: Blood, CVS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

Welding fumes	**Formula:**	**CAS#:**	**RTECS#:** ZC2550000	**IDLH:** Ca [N.D.]
Conversion:	**DOT:**			

Synonyms/Trade Names: Synonyms vary depending upon the specific component of the welding fumes.

Exposure Limits:
NIOSH REL: Ca
See Appendix A
OSHA PEL†: none

Measurement Methods (see Table 1):
NIOSH 7300, 7301, 7303

Physical Description: Fumes generated by the process of joining or cutting pieces of metal by heat, pressure, or both.

Chemical & Physical Properties:
Properties vary depending upon the specific component of the welding fumes.

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv100/ScbaE

Incompatibilities and Reactivities: Varies

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Symptoms vary depending upon the specific component of the welding fumes; metal fume fever: flu-like symptoms, dysp, cough, musc pain, fever, chills; interstitial pneu; [carc]
TO: Eyes, skin, resp sys, CNS [lung cancer]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Resp support

Wood dust	Formula:	CAS#:	RTECS#:	IDLH:
			ZC9850000	Ca [N.D.]
Conversion:	**DOT:**			

Synonyms/Trade Names: Hard wood dust, Soft wood dust, Western red cedar dust

Exposure Limits:
NIOSH REL: Ca
TWA 1 mg/m^3
See Appendix A
OSHA PEL†: TWA 15 mg/m^3 (total)
TWA 5 mg/m^3 (resp)

Measurement Methods (see Table 1):
NIOSH 0500

Physical Description: Dust from various types of wood.

Chemical & Physical Properties:
MW: varies
BP: NA
Sol: ?
Fl.P: NA
IP: NA
Sp.Gr: ?
VP: 0 mmHg (approx)
MLT: NA
UEL: NA
LEL: NA
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH
¥: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: None reported

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Irrit eyes; epis; derm; resp hypersensitivity; granulomatous pneu; asthma, cough, wheez, sinusitis; prolonged colds; [carc]
TO: Eyes, skin, resp sys [nasal cancer]

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Fresh air

m-Xylene	Formula:	CAS#:	RTECS#:	IDLH:
	$C_6H_4(CH_3)_2$	108-38-3	ZE2275000	900 ppm
Conversion: 1 ppm = 4.34 mg/m^3	**DOT:** 1307 130			

Synonyms/Trade Names: 1,3-Dimethylbenzene; meta-Xylene; m-Xylol

Exposure Limits:
NIOSH REL: TWA 100 ppm (435 mg/m^3)
ST 150 ppm (655 mg/m^3)
OSHA PEL†: TWA 100 ppm (435 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1501, 3800
OSHA 1002

Physical Description: Colorless liquid with an aromatic odor.

Chemical & Physical Properties:
MW: 106.2
BP: 282°F
Sol: Slight
Fl.P: 82°F
IP: 8.56 eV
Sp.Gr: 0.86
VP: 9 mmHg
FRZ: -54°F
UEL: 7.0%
LEL: 1.1%
Class IC Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
900 ppm: CcrOv*/PaprOv*/Sa*/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, strong acids

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, nose, throat; dizz, excitement, drow, inco, staggering gait; corn vacuolization; anor, nau, vomit, abdom pain; derm
TO: Eyes, skin, resp sys, CNS, GI tract, blood, liver, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

o-Xylene	Formula: $C_6H_4(CH_3)_2$	CAS#: 95-47-6	RTECS#: ZE2450000	IDLH: 900 ppm
Conversion: 1 ppm = 4.34 mg/m^3	**DOT:** 1307 130			

Synonyms/Trade Names: 1,2-Dimethylbenzene; ortho-Xylene; o-Xylol

Exposure Limits:
NIOSH REL: TWA 100 ppm (435 mg/m^3)
ST 150 ppm (655 mg/m^3)
OSHA PEL†: TWA 100 ppm (435 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1501, 3800
OSHA 1002

Physical Description: Colorless liquid with an aromatic odor.

Chemical & Physical Properties:
MW: 106.2
BP: 292°F
Sol: 0.02%
Fl.P: 90°F
IP: 8.56 eV
Sp.Gr: 0.88
VP: 7 mmHg
FRZ: -13°F
UEL: 6.7%
LEL: 0.9%
Class IC Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
900 ppm: CcrOv*/PaprOv*/Sa*/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, strong acids

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, nose, throat; dizz, excitement, drow, inco, staggering gait; corn vacuolization; anor, nau, vomit, abdom pain; derm
TO: Eyes, skin, resp sys, CNS, GI tract, blood, liver, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

p-Xylene	Formula: $C_6H_4(CH_3)_2$	CAS#: 106-42-3	RTECS#: ZE2625000	IDLH: 900 ppm
Conversion: 1 ppm = 4.41 mg/m^3	**DOT:** 1307 130			

Synonyms/Trade Names: 1,4-Dimethylbenzene; para-Xylene; p-Xylol

Exposure Limits:
NIOSH REL: TWA 100 ppm (435 mg/m^3)
ST 150 ppm (655 mg/m^3)
OSHA PEL†: TWA 100 ppm (435 mg/m^3)

Measurement Methods (see Table 1):
NIOSH 1501, 3800
OSHA 1002

Physical Description: Colorless liquid with an aromatic odor. [**Note:** A solid below 56°F.]

Chemical & Physical Properties:
MW: 106.2
BP: 281°F
Sol: 0.02%
Fl.P: 81°F
IP: 8.44 eV
Sp.Gr: 0.86
VP: 9 mmHg
FRZ: 56°F
UEL: 7.0%
LEL: 1.1%
Class IC Flammable Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet (flamm)
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
900 ppm: CcrOv*/PaprOv*/Sa*/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, strong acids

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Irrit eyes, skin, nose, throat; dizz, excitement, drow, inco, staggering gait; corn vacuolization; anor, nau, vomit, abdom pain; derm
TO: Eyes, skin, resp sys, CNS, GI tract, blood, liver, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

m-Xylene α,α'-diamine	Formula: $C_6H_4(CH_2NH_2)_2$	CAS#: 1477-55-0	RTECS#: PF8970000	IDLH: N.D.
Conversion:	**DOT:**			

Synonyms/Trade Names: 1,3-bis(Aminomethyl)benzene; 1,3-Benzenedimethanamine; MXDA; m-Phenylenebis(methylamine); m-Xylylenediamine

Exposure Limits:
NIOSH REL: C 0.1 mg/m^3 [skin]
OSHA PEL†: none

Measurement Methods (see Table 1):
OSHA 105

Physical Description: Colorless liquid.

Chemical & Physical Properties:
MW: 136.2
BP: 477°F
Sol: Miscible
Fl.P: 243°F
IP: ?
Sp.Gr: 1.032
VP(77°F): 0.03 mmHg
FRZ: 58°F
UEL: ?
LEL: ?
Class IIIB Combustible Liquid

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: None reported

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: In animals: irrit eyes, skin; liver, kidney, lung damage
TO: Eyes, skin, resp sys, liver, kidneys

First Aid (see Table 6):
Eye: Irr immed
Skin: Water flush immed
Breath: Resp support
Swallow: Medical attention immed

Xylidine	Formula: $(CH_3)_2C_6H_3NH_2$	CAS#: 1300-73-8	RTECS#: ZE8575000	IDLH: 50 ppm
Conversion: 1 ppm = 4.96 mg/m^3	**DOT:** 1711 153			

Synonyms/Trade Names: Aminodimethylbenzene, Aminoxylene, Dimethylaminobenzene, Dimethylaniline, Xylidine isomers (e.g., 2,4-Dimethylaniline)
[**Note:** Dimethylaniline is also used as a synonym for N,N-Dimethylaniline.]

Exposure Limits:
NIOSH REL: TWA 2 ppm (10 mg/m^3) [skin]
OSHA PEL†: TWA 5 ppm (25 mg/m^3) [skin]

Measurement Methods (see Table 1):
NIOSH 2002

Physical Description: Pale-yellow to brown liquid with a weak, aromatic, amine-like odor.

Chemical & Physical Properties:
MW: 121.2
BP: 415-439°F
Sol: Slight
Fl.P: 206°F (2,3-)
IP: 7.65 eV (2,4-)
7.30 eV (2,6-)
Sp.Gr: 0.98
VP: <1 mmHg
FRZ: -33°F
UEL: ?
LEL: 1.0% (o-isomer)
Class IIIB Combustible Liquid (2,3-)

Personal Protection/Sanitation (see Table 2):
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contam
Remove: When wet or contam
Change: N.R.
Provide: Eyewash
Quick drench

Respirator Recommendations (see Tables 3 and 4):
NIOSH
20 ppm: CcrOv/Sa
50 ppm: Sa:Cf/CcrFOv/GmFOv/PaprOv/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: GmFOv/ScbaE

Incompatibilities and Reactivities: Strong oxidizers, hypochlorite salts

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Abs, Ing, Con
SY: Anoxia, cyan, methemo; lung, liver, kidney damage
TO: Resp sys, blood, liver, kidneys, CVS

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash immed
Breath: Resp support
Swallow: Medical attention immed

Yttrium

Formula: Y | **CAS#:** 7440-65-5 | **RTECS#:** ZG2980000 | **IDLH:** 500 mg/m^3 (as Y)

Conversion: | **DOT:**

Synonyms/Trade Names: Yttrium metal

Exposure Limits:
NIOSH REL*: TWA 1 mg/m^3
OSHA PEL*: TWA 1 mg/m^3
[***Note:** The REL and PEL also apply to other yttrium compounds (as Y).]

Measurement Methods (see Table 1):
NIOSH 7300, 7301, 7303, 9102
OSHA ID121

Physical Description: Dark-gray to black, odorless solid.

Chemical & Physical Properties:
MW: 88.9
BP: 5301°F
Sol: Soluble in hot H_2O
Fl.P: NA
IP: NA
Sp.Gr: 4.47
VP: 0 mmHg (approx)
MLT: 2732°F
UEL: NA
LEL: NA
Noncombustible Solid in bulk form.

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
5 mg/m^3: Qm
10 mg/m^3: 95XQ/Sa
25 mg/m^3: Sa:Cf/PaprHie
50 mg/m^3: 100F/SaT:Cf/PaprTHie/ ScbaF/SaF
500 mg/m^3: Sa:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Oxidizers

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes; in animals: pulm irrit; eye inj; possible liver damage
TO: Eyes, resp sys, liver

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash prompt
Breath: Resp support
Swallow: Medical attention immed

Zinc chloride fume

Formula: $ZnCl_2$ | **CAS#:** 7646-85-7 | **RTECS#:** ZH1400000 | **IDLH:** 50 mg/m^3

Conversion: | **DOT:** 2331 154

Synonyms/Trade Names: Zinc dichloride fume

Exposure Limits:
NIOSH REL: TWA 1 mg/m^3
ST 2 mg/m^3
OSHA PEL†: TWA 1 mg/m^3

Measurement Methods (see Table 1):
OSHA ID121

Physical Description: White particulate dispersed in air.

Chemical & Physical Properties:
MW: 136.3
BP: 1350°F
Sol(70°F): 435%
Fl.P: NA
IP: NA
Sp.Gr(77°F): 2.91
VP: 0 mmHg (approx)
MLT: 554°F
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
10 mg/m^3: 95XQ*/Sa*
25 mg/m^3: Sa:Cf*/PaprHie*
50 mg/m^3: 100F/PaprTHie*/ScbaF/SaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Potassium

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Irrit eyes, skin, nose, throat; conj; cough, copious sputum; dysp, chest pain, pulm edema, pneu; pulm fib, cor pulmonale; fever; cyan; tachypnea; skin burns
TO: Eyes, skin, resp sys, CVS

First Aid (see Table 6):
Breath: Resp support

Zinc oxide

Formula:	CAS#:	RTECS#:	IDLH:
ZnO	1314-13-2	ZH4810000	500 mg/m^3

Conversion: **DOT:** 1516 143

Synonyms/Trade Names: Zinc peroxide

Exposure Limits:
NIOSH REL: Dust: TWA 5 mg/m^3
C 15 mg/m^3
Fume: TWA 5 mg/m^3
ST 10 mg/m^3
OSHA PEL†: TWA 5 mg/m^3 (fume)
TWA 15 mg/m^3 (total dust)
TWA 5 mg/m^3 (resp dust)

Measurement Methods (see Table 1):
NIOSH 7303, 7502
OSHA ID121, ID143

Physical Description: White, odorless solid.

Chemical & Physical Properties:
MW: 81.4
BP: ?
Sol(64°F): 0.0004%
Fl.P: NA
IP: NA
Sp.Gr: 5.61
VP: 0 mmHg (approx)
MLT: 3587°F
UEL: NA
LEL: NA
Noncombustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
50 mg/m^3: 95XQ/Sa
125 mg/m^3: Sa:Cf/PaprHie
250 mg/m^3: 100F/SaT:Cf/PaprTHie/ScbaF/SaF
500 mg/m^3: Sa:Pd,Pp
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Chlorinated rubber (at 419°F), water
[**Note:** Slowly decomposed by water.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh
SY: Metal fume fever: chills, musc ache, nau, fever, dry throat, cough; lass; metallic taste; head; blurred vision; low back pain; vomit; mal; chest tight; dysp, rales, decr pulm func
TO: Resp sys

First Aid (see Table 6):
Breath: Resp support

Zinc stearate

Formula:	CAS#:	RTECS#:	IDLH:
$Zn(C_{18}H_{35}O_2)_2$	557-05-1	ZH5200000	N.D.

Conversion: **DOT:**

Synonyms/Trade Names: Dibasic zinc stearate, Zinc salt of stearic acid, Zinc distearate

Exposure Limits:
NIOSH REL: TWA 10 mg/m^3 (total)
TWA 5 mg/m^3 (resp)
OSHA PEL†: TWA 15 mg/m^3 (total)
TWA 5 mg/m^3 (resp)

Measurement Methods (see Table 1):
NIOSH 0500, 0600

Physical Description: Soft, white powder with a slight, characteristic odor.

Chemical & Physical Properties:
MW: 632.4
BP: ?
Sol: Insoluble
Fl.P(oc): 530°F
IP: NA
Sp.Gr: 1.10
VP: 0 mmHg (approx)
MLT: 266°F
UEL: ?
LEL: ?
MEC: 20 g/m^3
Combustible Solid

Personal Protection/Sanitation (see Table 2):
Skin: N.R.
Eyes: N.R.
Wash skin: N.R.
Remove: N.R.
Change: N.R.

Respirator Recommendations (see Tables 3 and 4):
Not available.

Incompatibilities and Reactivities: Oxidizers, dilute acids
[**Note:** Hydrophobic (i.e., repels water).]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Ing, Con
SY: Irrit eyes, skin, upper resp sys; cough
TO: Eyes, skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Fresh air
Swallow: Medical attention immed

Zirconium compounds (as Zr)	**Formula:** Zr (metal)	**CAS#:** 7440-67-7 (metal)	**RTECS#:** ZH7070000 (metal)	**IDLH:** 50 mg/m^3 (as Zr)
Conversion:	**DOT:** 1358 170 (powder, wet); 1932 135 (scrap); 2008 135 (powder, dry)			

Synonyms/Trade Names: **Zirconium metal:** Zirconium
Synonyms of other zirconium compounds vary depending upon the specific compound.

Exposure Limits:
NIOSH REL*: TWA 5 mg/m^3
ST 10 mg/m^3
[***Note:** The REL applies to all zirconium compounds (as Zr) except Zirconium tetrachloride.]
OSHA PEL†: TWA 5 mg/m^3

Measurement Methods (see Table 1):
NIOSH 7300, 7301, 9102
OSHA ID121

Physical Description: Metal: Soft, malleable, ductile, solid or gray to gold, amorphous powder.

Chemical & Physical Properties:
MW: 91.2
BP: 6471°F
Sol: Insoluble
Fl.P: NA
IP: NA
Sp.Gr: 6.51 (Metal)
VP: 0 mmHg (approx)
MLT: 3375°F
UEL: NA
LEL: NA
Metal: Combustible, but solid form is difficult to ignite; however, powder form may ignite SPONTANEOUSLY and can continue burning under water.

Personal Protection/Sanitation (see Table 2):
Recommendations regarding personal protective clothing vary depending upon the specific compound.

Respirator Recommendations (see Tables 3 and 4):
NIOSH/OSHA
25 mg/m^3: Qm
50 mg/m^3: 95XQ/PaprHie/100F/Sa/ScbaF
§: ScbaF:Pd,Pp/SaF:Pd,Pp:AScba
Escape: 100F/ScbaE

Incompatibilities and Reactivities: Potassium nitrate, oxidizers
[**Note:** Fine powder may be stored completely immersed in water.]

Exposure Routes, Symptoms, Target Organs (see Table 5):
ER: Inh, Con
SY: Skin, lung granulomas; in animals: irrit skin, muc memb; X-ray evidence of retention in lungs
TO: Skin, resp sys

First Aid (see Table 6):
Eye: Irr immed
Skin: Soap wash
Breath: Resp support
Swallow: Medical attention immed

Z

APPENDIX C
List of Approved Amendments/changes
HASP Acknowledgement/Agreement Form
Visitors Log
Tailgate Safety Meeting Form
Air Quality Monitoring Record
Equipment Calibration Log
Checklist for Subsurface Investigation
Monthly Heavy Equipment Safety Inspection Checklist

HEALTH AND SAFETY PLAN (HASP)
List of Approved Amendments/Changes

Date	Name	Signature	Changes/Comments	Section Added

HEALTH AND SAFETY PLAN (HASP)
Acknowledgement/Agreement Form

(All ATC, Subcontractor & Client Personnel Must Sign)

Client Site Name: _____ Project Site No. _____

ATC Project No. _____ Task No. _____

I acknowledge I have reviewed a copy of the Health and Safety Plan for this project, understand it, and agree to comply with all of its provisions. I also understand I could be prohibited by the Site Health and Safety Coordinator or other ATC personnel from working on this project for not complying with any aspect of this Health and Safety Plan:

PRINT NAME	SIGNATURE	COMPANY	DATE

HEALTH AND SAFETY PLAN (HASP)
Visitors Log

Client Site Name: _____ Project Site No. _____

ATC Project No. _____ Task No. _____

PRINT NAME	SIGNATURE	COMPANY	DATE

HEALTH AND SAFETY PLAN (HASP)
Tailgate Safety Meeting Form

Site Name & Number: _____

ATC Project Number: _____

Work Being Performed: _____

Date & Time of Meeting: _____

Name of Presenter: _____

NOTE: On the initial day of the project, the Project Manager or designee should conduct a visual inspection of the project site (using the Site Safety Checklist) prior to the Tailgate Safety Meeting. This inspection should include a review of project site equipment, hazards, and specific job tasks, activities or operations to be performed for that day. These specific items must be covered during the Tailgate Safety Meeting. For subsequent days, any changes to the site or operations must be covered in the Tailgate Safety Meeting. In addition, "Task-Specific" Job Safety Analysis (JSA) for the tasks/activities at the project site must be integrated into the HASP and Tailgate discussions.

Itemize the Specific Topics Discussed (if more space is needed use the back of this page):

❑ Are all employees okay? ❑ Are all employees physically able to perform their job duties? ❑ "Shared Learning" items?
❑ Has PPE been checked? ❑Emergency evacuation area identified? ❑ Asked for Sub interactions or questions?

❑ **Client Requirements** - By checking the box to the left, the Presenter of the Tailgate Meeting acknowledges that all Client-specific requirements have been completed for both ATC and Subcontractor employees.

Participants (if needed, list additional participants on back of this page):

Print Name	Signature	Company	Date

A Tailgate Safety Meeting must be conducted and documented at the beginning of each workday when two or more ATC employees and/or Subcontractor representatives are present on site. Employees, client representatives and subcontractors who arrive at the site after the Tailgate Safety Meeting has been conducted must be briefed on the topics and acknowledge by signing this form. The JSA must be completed at the beginning of each day when one or more ATC employees and/or subcontractor representatives are present on a site.

HEALTH AND SAFETY PLAN (HASP)
Air Quality Monitoring Record

DATE	TIME	LOCATION	INSTRUMENT	CONCENTRATION (UNITS)	SAMPLED BY

Equipment Calibration Log

DATE	INSTRUMENT/ MODEL NO.	ZERO ADJUST OK?	CALIBRATION GAS (PPM)	READING (PPM)	LEAK CHECK	PERFORMED BY	COMMENTS

CHECKLIST FOR SUBSURFACE CLEARANCE

MUST be filled out PRIOR to the Start of Field Activities
NO subsurface work in road Right of Ways or Off-Site (property boundary) without Written Authorization

Site Name: _____

Site Address: _____

Project No.: _____

To understand and use this checklist correctly you must refer to and follow ATC's Subsurface Investigation Procedures.

	Person Verifying Each Item to Place Initials On Lines Below and Sign Bottom of Page	Comments
PRE-DRILLING PREPARATION		
Review definition of "Critical" and "Non-Critical" areas.		
Request as-built drawings, and/or approval to use private utility locator service and/or air knife to locate/protect subsurface utilities.		
Obtain Site access agreement.		
Pre-plan boring locations.		
Establish surface boring method.		If not using Air Knife-type technology, why?
Obtain permits and clearances.		
Do borehole and utility markouts.		
Establish Site-specific Health and Safety Plan		
Notify Client, owner, operator prior to mobilization.		
ON-SITE PROCEDURES		
Conduct tailgate safety meeting with topics as indicated in procedure.		
Read and follow Drilling/Probing procedures		
--1. Do Site walk and verify that utility location checklist is complete.		
--2. Locate all markouts and planned borehole locations. Start intrusive procedures at least 5 feet away from and perpendicular to utility markouts.		
--3. Break surface cover.		
--4. Do surface boring to required depth using hand auger, post-hole digger, shovel or "air knife".		
--5. If necessary, use alternate procedure for surface boring.		
--6. Collect soil samples by hand augering to required depth.		
--7. Protect the borehole from pedestrian and vehicular traffic.		

*Buried utilities can be found at any depth, but are most often found within the first 5 feet below the ground surface. Proceed slowly and with extra caution when working within 5 feet of the ground surface.

NOTES:

_____

SIGNATURE DATE

MUST be filled out PRIOR to the Start of Field Activities

NO subsurface work in road Right of Ways or Off-Site (property boundary) without Written Authorization

Site Address: _____ **If Present --**

_____

Site Safety Documents (on-site during activities)	**"Yes or No"**		**Fill Out, as applicable**		
Utility Staking Request Form (properly completed for current scope of work)?	**Yes**	**No**	Ticket # and Expir. Date: #	/	/
Site Health and Safety Plan?	**Yes**	**No**	Hospital Location Map Available	**Yes**	**No**

Utility Identification "color" **Above Ground (AG) / Buried (B)**				**Identify on a Site Map the Location of ALL Lines & Meters (or actual utility) and Indicate Nearest Building Quadrant (NE, SE, SW, or NW)**			
Natural Gas (Yellow) / Staked?	AG / B	**Yes**	**No**	NW	NE	SE	SW
Electrical (Red) / Staked?	AG / B	**Yes**	**No**	NW	NE	SE	SW
Telephone/Fiber Optic (Orange) / Staked?	AG / B	**Yes**	**No**	NW	NE	SE	SW
Cable TV (Orange) / Staked?	AG / B	**Yes**	**No**	NW	NE	SE	SW
Water (Blue) / Staked?	AG / B	**Yes**	**No**	NW	NE	SE	SW
Sewer (Green) / Staked?	AG / B	**Yes**	**No**	NW	NE	SE	SW

Significant Site Features			**Site Feature Located in Closest Property Quadrant (NE, SE, SW, or NW). Also Identify on Site Map.**
UST system (UST cavity, dispenser islands, piping runs, vent pipes etc.)?	**Yes**	**No**	
Above Ground Storage Tanks – ASTs (dispenser islands, piping runs)?	**Yes**	**No**	
Electrical Transformers?	**Yes**	**No**	
Area Lighting (Pole mounted lighting, etc.)?	**Yes**	**No**	
Signage with electrical power (Business/Company signs, etc.)?	**Yes**	**No**	
Underground lawn/landscaping sprinkler system?	**Yes**	**No**	
Storm drain catch basins / man-ways and potential connecting conduits/lines?	**Yes**	**No**	

Other			**"Other" Concerns Located in Closest Property Quadrant (NE, SE, SW, or NW). Identify on Site Map.**
Pavement distress (Cracked pavement, "buckled" asphalt, etc.)?	**Yes**	**No**	

*Buried utilities can be found at any depth, but are most often found within the first 5 feet below the ground surface. Proceed slowly and with extra caution when working within 5 feet of the ground surface.

NOTES:

_____

SIGNATURE DATE

Monthly Mobile/Heavy Equipment Safety Inspection Checklist

This form is to be completed by the qualified operator of the equipment

Date:		Project No.:		Site/Location:	
Equipment Type:		Model No.:		Odometer:	
Operator/Inspector Name:				Machine Hours:	

Warning: Do not operate a malfunctioning machine until corrective measures have been taken and all discrepancies have been cleared by a qualified operator/mechanic. In addition to elements on this checklist, the owner's manual for the specific piece of equipment being operated may contain other daily inspection checks and/or preventative maintenance procedures.

General Safety	☐	Operator Qualification	☐	PPE Supplies	☐	Fire Extinguisher (ready-to-use)
	☐	Owner's Manual (present)	☐	DriverCheck (decal in place)	☐	First-Aid Kit (present & stocked)
	☐	Manufacturer Specs Followed	☐	Access Ladder (secure and ok)	☐	Housekeeping (clean)
	☐	Emergency Kit (signs, flares)	☐	Flashlight	☐	Markers (cones, barricades, etc.)
Vehicle, Engine, and Hydraulic Systems (note any added fluid)	☐	Engine Oil (fluid level, condition)	☐	Fuel Level	☐	Other Fluid
	☐	Transmission (fluid level, fluid condition, unit operation)	☐	Brake Fluid	☐	Steering (power steering fluid level, no play in steering)
	☐	Radiator (coolant level, hose condition)	☐	Fan Belts (tension/condition)	☐	Brakes (vehicle, parking)
	☐	Hydraulic System (fluid level, fluid condition, hose condition, cylinders, leakage)	☐	Chassis (proper lubrication)	☐	Tires (condition, inflation)
	☐	Outriggers (operational, if equipped)	☐		☐	
Tracked Vehicles	☐	Track Tension (proper tension)	☐	Plates and/or Shoes	☐	Grouser Plates
	☐	Rollers	☐	Drive Sprockets		
Lights and alarms (clean and functional)	☐	Headlights (hi, low, run beams)	☐	Parking Lights	☐	Revolving Flashing Lights (if required)
	☐	Reverse Lights (backup)	☐	Equipment Work Lights	☐	Horn
	☐	Brake/Tail Lights	☐	Turn Signals/Hazard Flashers	☐	Reverse Alarms (backup)
Vehicle cab (clean and functional)	☐	Seatbelts (if required)	☐	Windshield Wipers	☐	Body Damage
	☐	Housekeeping	☐	2 Way Communication	☐	Speed/Hour Meter
	☐	Fuel Gauge	☐	Horn (operational)	☐	Windshield (glass ok, clean)
	☐	Controls Operational	☐	Mirrors (rear view, side)		

Maintenance/ Equipment Request	Corrected By:	Date:

Inspectors Signature:		
		Date

APPENDIX D
Excavating & Trenching

All ATC employees and subcontractors shall be trained and be familiar with the OSHA Excavation Standard and the ATC Employee Health and Safety Policy Manual, Policy No. 16 (Excavation and Trenching) and Policy No. 33 (Subsurface Investigation).

1.0 UNDERGROUND UTILITIES

Prior to any work beginning, the estimated location of utility installations (such as sewer, telephone, fuel, electric, water lines, or any other underground installation) that reasonably may be expected to be encountered during excavation work must be determined prior to opening an excavation. Utility companies or owners shall be contacted and advised of the proposed work and asked to establish the location of the utility underground installations. When utility companies or owners cannot respond to a request to locate underground utilities within 24-48 hours (unless a longer period is required by State or local law), or cannot establish the exact location of these installations, the work may proceed, provided that the work is conducted with caution, and provided detection equipment or other acceptable means to located utilities are used.

When excavation operations approach the estimated location of underground installations (approximately 18 inches from the installation), the exact location of the installations shall be determined by a safe and acceptable means. While the excavation is open, underground installations shall be protected, supported, or removed to safeguard employees.

2.0 ENTERING EXCAVATIONS OR TRENCHES

Daily inspections of excavations, the adjacent areas, and protective systems shall be made by a "*Competent Person"* for evidence of a situation that could result in a possible cave-in, indications of failure of protective systems, hazardous atmospheres, or other hazardous conditions. An inspection shall be conducted by the Competent Person prior to the start of work and as needed throughout the shift. Inspections shall also be made after every rainstorm or other hazard increasing occurrence. All inspections made by the Competent Person should be recorded in the field log book.

No person(s) shall perform work in a trench or excavation that contains accumulated water.

2.1.1 Access/Egress

A stairway, ladder, ramp, or other safe means of egress shall be located in trench excavations that are 4 feet or more in depth so as to require no more than 25 feet of lateral travel distance in any direction.

2.1.2 Exposure to Falling Loads

No employee or subcontractor is permitted underneath loads handled by lifting or digging equipment. All personnel shall be required to stand away from any vehicle being loaded or unloaded to avoid being struck by spilling or falling materials. Operators may remain in the cabs of vehicles being loaded or unloaded when the equipment is provided with a cab shield and/or canopy adequate to protect the operator from falling materials.

2.1.3 Warning Systems

When mobile equipment is operated adjacent to an excavation and the operators/drivers do not have a clear and direct view of the edge of the excavation, a warning system such as barricades, hand or mechanical signals, or stop logs are required.

APPENDIX D
Excavating & Trenching

2.1.4 Protection from Loose Rock or Soil

Adequate protection shall be provided to protect employees from loose rock or soil that could pose a hazard to personnel in the excavation. All temporary spoil piles shall be kept at least 2 feet away from the edge of the excavation. Spoil piles should be placed to channel rainwater or other run-off water away from the excavation.

2.1.5 Hazardous Atmospheres

All excavations deeper than 4 feet deep and which have the potential to have a hazardous atmosphere or oxygen deficient atmospheres (Less than 19.5% oxygen) must be tested to ensure safe working conditions, prior to entry. Air monitoring shall be conducted in accordance with Section 4.0 of the HASP.

2.1.6 Protective Systems

Each employee in an excavation shall be protected from cave-ins by an adequate protective system except when excavations are made entirely in stable rock or the excavation is less than 5 feet in depth and examination by the Competent Person provides no indication of a potential cave-in. Protective systems consist of sloping or benching, use of trench boxes or other shielding mechanisms, or the use of a shoring system in accordance with the regulations.

APPENDIX E
Lockout/Tagout Requirements & Procedures

1.0 DEFINITIONS

1. Lockout – Involves using a device such as a padlock, blank pipe flange, chain key block, etc. to isolate energy from employee exposure.
2. Tagout – Involves applying a tag to the energy isolating device with written information concerning the date and name of person who applied the lock and tag.

2.0 LOCKOUT/TAGOUT POLICY

This procedure establishes the minimum requirements for lockout/tagout of electrical energy sources, mechanical, hydraulic, pneumatic, thermal or chemical process energy. It is to be used to ensure that conductors and circuit parts are disconnected from sources of electrical energy, locked (tagged), and tested before work begins where employees or subcontractor could be exposed to dangerous conditions. Sources of stored energy, such as capacitors or springs, shall be relieved of their energy, and a mechanism shall be engaged to prevent the re-accumulation of energy.

Lockout/tagout procedures shall be used prior to performing tie-in operations, maintenance, repair or adjustment of any device where exposure to hazardous energy sources may occur.

3.0 RESPONSIBILITY

All effected employees and subcontractors shall be instructed in the safety significance of the lockout/tagout procedure. All new or transferred employees and all other persons whose work operations are or might be in the area shall be instructed in the purpose and use of this procedure. The ATC Project Manager shall ensure that appropriate personnel receive instructions on their roles and responsibilities. All persons installing a lockout/tagout device shall sign their names and the date on the tag and on the Lockout/Tagout Isolation Record (see Appendix E.1).

4.0 PREPARATION FOR LOCKOUT/TAGOUT

1. Review current diagrammatic drawings (or other equally effective means), tags, labels, and signs to identify and locate all disconnecting means to determine that the source of energy is interrupted by a physical break and not deenergized by a circuit interlock. Make a list of disconnecting means to be locked/tagged.
2. Review other work activities to identify where and how other personnel might be exposed to sources of energy. Establish energy control methods for control of other hazardous energy sources in the area.
3. Provide an adequately rated voltage detector to test each electrical phase conductor or circuit part to verify that they are deenergized. Test the voltage detector to make sure that it is working properly.

5.0 LOCKOUT PROCEDURE

1. Complete the Lockout/Tagout Isolation Record (see Appendix E.1).
2. All affected employees in the area shall be notified that a lockout is being performed.
3. The equipment being locked out shall be shut down using normal shutdown procedures. (i.e. operator's control station, stop button, etc.).
4. Any residual energy shall be identified and dissipated at this time.
5. All equipment energy sources shall be neutralized. (i.e. electrical disconnects shall be opened, valves closed, blanks inserted in piping, springs returned to neutral position, other energy sources as required)

6. The qualified employee performing the lockout shall place his/her personal lock and tag on EACH energy isolation point isolated in Step 4. If more than two (2) isolation points are required to lockout the device, a group lockbox may be used. A tag indicating all persons who applied a lock, date, time, equipment type, and number and duration of lockout shall also be applied at this time. A subcontractor representative and an ATC employee shall also apply a lock at this time.
7. Test the lockout by clearing the area and attempting to operate the machine or attempting to operate disconnecting means to determine that the operation is prohibited. A voltage-detecting instrument should be used for electrical components. Inspect the instrument prior to use for physical damage and operation.

6.0 REMOVAL OF LOCKOUT/TAGOUT

1. Upon completion of the lockout an authorized employee must check the area for completeness of work. If the employee who initiated the lockout is available, he/she should conduct this inspection.
2. Remove all tools and nonessential items from the area.
3. Replace all guards.
4. Ensure all employees are clear of the equipment/process.
5. Notify all affected employees in the area that the lockout device(s) are being removed.
6. Remove lockout device(s).
7. Restart the machine to insure proper operation.

7.0 GROUP LOCKOUT

1. When multiple isolation points, three (3) or more, must be controlled during a lockout, or when multiple persons (craft) are involved, a group lockout shall be used.
2. Follow the steps for a normal lockout as documented in steps 1-6 above.
3. Each key for the locks used shall be placed in a group lockout box. The group lockbox shall be kept in view of the work being performed when practical.
4. A Job Control Lock shall be installed on the group lockbox by an ATC Employee. This lock shall remain in place until the lockout has been completed.
5. Each employee shall remove their own lock when their portion of the work is completed or at the end of each shift.
6. Upon completion of the work, the ATC employee shall inspect the work area for completeness.
7. When all of the conditions of the lockout termination procedures have been satisfied, the Job Control Lock shall be removed from the group lockbox.

8.0 EMERGENCY REMOVAL LOCKOUT/TAGOUT DEVICE

1. If an employee leaves the facility without removing his/her lock and tag, an effort shall be made to notify the employee that the supervisor in charge will authorize the removal of their lock. It must be deemed necessary that removal of the lock is required by at least two supervisory personnel, but only after confirming beyond any doubt it is safe to do so.
2. Verify the employee has left the Site.
3. Check with co-workers.
4. Check the employee's time card.
5. Attempt to reach him/her at home.

APPENDIX E
Lockout/Tagout Requirements & Procedures

6. Verify the employee is not in the equipment.
7. Visually confirm the completeness of work.
8. Contact the Regional Safety Coordinator and the Project Manager.
9. An authorized employee, under the direct supervision of an ATC Supervisor shall remove the lock.
10. Upon return to the Site by the employee involved, he/she shall be informed of the removal.
11. A review of the incident may be conducted by the ATC RSC Coordinator to determine any disciplinary actions necessary.

APPENDIX E-1
Lockout/Tagout Isolation Record

System:		Isolation Record	Status	Tagging Authority
Equipment Tag:		Equipment Description:	☐ Construction	
			☐ Startup	
			☐ Operations	

LOTO No.	DNO Tag No.	Equipment Tag No.	Equipment Description	Pos.	LOTO Placed By:	Date	LOTO Removed BY:	Date

Tagging Authority Approval:		
	Signature	Date

Holder List:

PTW No.	Signed Onto LOTO Name	Date / Time	Signed Off LOTO Name	Date / Time

APPENDIX 7

PREVIOUS REGULATORY CORRESPONDENCE

Environmental Protection

Caswell F. Holloway
Commissioner

Angela Licata
Deputy Commissioner
Bureau of Environmental Planning and Analysis
alicata@dep.nyc.gov

59-17 Junction Boulevard
Flushing, NY 11373
T: (718) 595-4398
F: (718) 595-4479

July 9, 2010

Robert Dobruskin
Director, Environmental Assessment and Review
New York City Department of City Planning
22 Reade Street, Room 4E
New York, New York 10017

Re: Sugar Hill Rezoning
Block 2069, Lots 14, 21, 26 and 28
10DCP031M/ 10DEPTECH074M

Dear Mr. Dobruskin:

The New York City Department of Environmental Protection, Bureau of Environmental Planning and Analysis (DEP) has reviewed the March 2008 Phase I Environmental Site Assessment (Phase I) and the January 2009 Phase II Environmental Site Investigation Work Plan (Workplan) prepared by ATC Associates Inc. on behalf of Broadway Housing Communities (applicant) for the above-referenced project. It is our understanding that the applicant is seeking zoning map amendments from the New York City Department of City Planning (DCP) to change the zoning for Block 2069, Lots 21, 28, and part of lots 14 from a C8-3 and R7-2 zoning to a R8A zoning district in addition to acquisition/disposition of City-owned property. The site is bounded by West 155th Street on the north, St. Nicholas Avenue on the west, St. Nicholas Place on the east, and West 153rd Street on the south in the Hamilton Heights North neighborhood of West Harlem, in Manhattan Community District 9. The proposed actions would facilitate the development of an approximately 169,333 gsf (gross square feet) 13-story mixed-use building with 124 dwelling units on Lot 21. As currently proposed, the building will consist of an approximately 18,036 sf (square feet) Faith Ringgold Children's Museum of Art and Storytelling, a 12,196 sf day care facility and early childhood center, a 2,350 sf of non-profit program and office space, and a 114-space below-grade accessory parking garage. The project site currently consists of a two-story building with a 300-space cellar public parking garage on an approximately 21,685 sf lot. The existing on-site facility would be demolished to allow construction of the proposed new building. It is our understanding that the proposed action would not result in development on Lots 14 and 28, and improvements to Lot 26 (City-owned) would be limited to landscaping and paving to provide access to the uses on Lot 21.

The March 2008 Phase I revealed that historical on-site land and surrounding area land uses consisted of commercial and industrial uses including auto repair shop and a garage. Petroleum staining was observed on the floor and

the presences of two (2) 275-gallon lube oil tanks were located in the cellar of the on-site structure.

It should be noted that adjacent to the east of the site is a historical gasoline filling and service station with documented soil and groundwater contamination that is reportedly being remediated. The January 2009 Workplan proposes to collect six composite soil samples (from 14 to 16 feet below ground surface) and analyze for volatile organic compounds (VOCs) and methyl tertiary butyl ether (MTBE) using EPA method 8260 (full list), target compounds list (TCL) semi volatile organic compounds, target analyte list (TAL) metals, polychlorinated biphenyls (PCBs) and pesticides. The six soil borings will be converted to monitoring wells, if groundwater is encountered.

Based upon our review of the submitted documentations, we have the following comments/ recommendations:

Proposed Development Site (Block 2069, Lot 21)

Workplan

DEP finds the January 2009 Phase II Workplan for the proposed project acceptable as long as the following information is incorporated into the Workplan

- Soil and groundwater samples should be collected and analyzed by a New York State Department of Health Environmental Laboratory Approval Program certified (NYSDOH ELAP-certified) laboratory for the presence of Volatile Organic Compounds (VOCs) by U.S. EPA Method 8260, Semi-Volatile Organic Compounds (SVOCs) by Method 8270, Pesticides/Polychlorinated Biphenyl (Pesticides/PCBs) by Method 8081/8082 and Target Analyte List (TAL) metals.

- Upon completion of the investigation activities, the consultant should submit a detailed Phase II report to DEP for review and approval. The report should include, at a minimum, an executive summary, narrative of the field activities, laboratory data and conclusions, comparison of soil and groundwater analytical result (i.e., New York State Depart of Environmental Conservation 6NYCRR Part 375 and NYSDEC Water Quality Regulations), updated site plans depicting sample locations, boring logs, and remedial recommendations.

Health and Safety Plan

DCP should instruct the applicant that an Investigation Health and Safety Plan must be submitted to DEP for review and approval prior to any field work.

In order to ensure that the aforementioned comments/recommendations are implemented for Lot 21, a Restrictive Declaration should be recorded to ensure that the potential hazardous materials issues are adequately addressed prior to and during construction activities. This institutional control would bind the property owners and their successors or assigns to address these

recommendations prior to construction activities. The Restrictive Declaration should be drafted and submitted to the DEP for review and approval. Once approved, the Restrictive Declaration should be fully executed to ensure remedial measures are implemented and future construction proceeds in a manner protective of public health.

Proposed Access Easement Site (Block 2069, Lot 26)

The Proposed Development Site is bounded on its western side by a roughly triangular, 4,597 square foot paved portion of City-owned property on Lot 26 that has frontage along St. Nicholas Avenue. The applicant would acquire an easement over this area for use as a plaza, which would be paved and landscaped to provide access to the primary entrances for the museum, day care and residential spaces of the Proposed Development; the existing uses (DEP vehicle parking and storage) would be relocated under a Reciprocal Easement Agreement to the southern portion of the Proposed Development Site.

It is our understanding that the applicant commits through the Reciprocal Easement Agreement to prepare and submit to DEP a site specific Health and Safety Plan to protect workers during paving and landscaping activities; this measure will prevent significant adverse hazardous materials impacts for activities on Lot 26.

This letter supersedes our June 14, 2010 correspondence. Future correspondence related to this project should include the following tracking number 10DEPTECH074M. If you have any questions or comments, you may contact me at (718) 595-4473 or Ms. Mahalia Myrie at (718) 595-3212.

Sincerely,

Terrell Estesen
Director, Wastewater Review and Special Projects

c: G. Heath
J. Wuthenow
M. Winter
M. Myrie
T. Estesen
O. Abinader – DCP
D. Cole – OER

APPENDIX 8

SAMPLE OF HAZARDOUS OR NON-HAZARDOUS SOIL DISPOSAL MANIFEST

Transportation Charter / Manifest

Generator:

1

Authorized By (print)

Authorized By (title)

Authorized By (sig)

TIME:_____ DATE:_____

Transporter:

2

Driven By

Truck/Trailer Plate

Driver Signature

TIME:_____ DATE:_____

Material/Note(s):

Manifest Number 17629

TARE WEIGHT MUST BE INCLUDED

NET WEIGHT _____ GROSS WEIGHT _____

NET TONS _____ TARE WEIGHT _____

TICKET NUMBER _____

Received By (print)

Receiving Facility:

3

Date/Time

By signing this manifest the Hauler accepts that it is solely responsible for the amount of material that is being transported as well as the methods and means for its travel.

Driven By (sig)

APPENDIX 9

DESIGN DIAGRAMS AND SPECIFICATIONS FOR VAPOR BARRIER/WATERPROOFING MEMBRANE

STEGO® WRAP VAPOR BARRIER

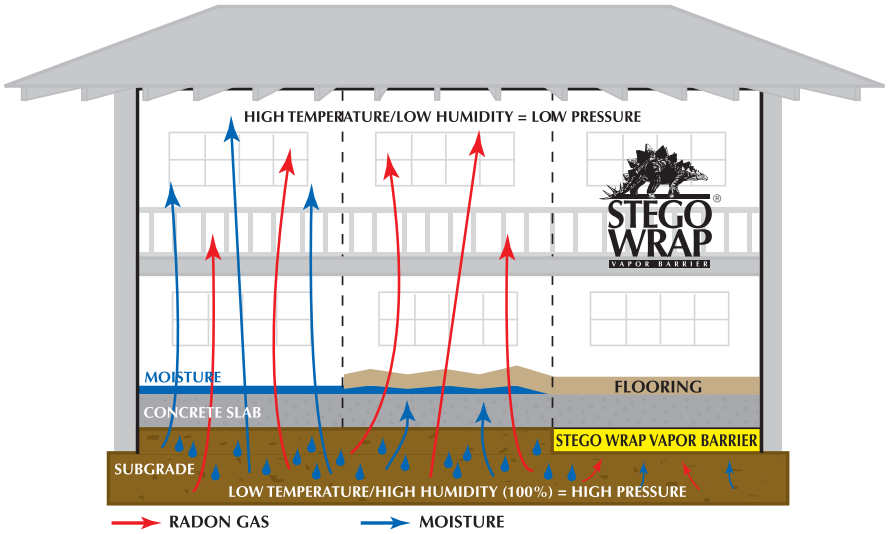
ASTM E 1745 Class A-B-C Compliant

STEGO® WRAP VAPOR BARRIER

represents a recent breakthrough in state-of-the-art plastic extrusion processes. By combining multi-layer extrusion technology with our proven trade secret blend of prime virgin resins and additives, we at Stego Industries have produced an ASTM E 1745 Class A polyolefin **VAPOR BARRIER**. Stego's emphasis has always been very low permeance (the most important quality according to industry experts). Our latest blend continues to provide next to zero permeance, while exceeding ASTM E 1745 Class A requirements for puncture resistance and tensile strength. All this comes with the same competitive pricing our customers have come to expect.

FEATURES & BENEFITS

- Unsurpassed Permeance Characteristics
- Life of the Building Protection
- Exceptional Tear and Puncture Resistance
- Easy, Reliable Installation
- Competitively Priced
- Available Nationwide



Regardless of the location of the water table, humidity below concrete slabs approximates 100%. Typical below slab vapor pressure is more than twice that of building interiors at room temperature, creating vapor drive from the substrate, up through the slab, and into the building.

THE STEGO® ADVANTAGES

SUPERIOR DEFENSE Against Floor Failures:

Experts say "the need for a vapor barrier (as opposed to a vapor retarder) is becoming increasingly clear." Concrete Construction Magazine, August 2003, p.18.

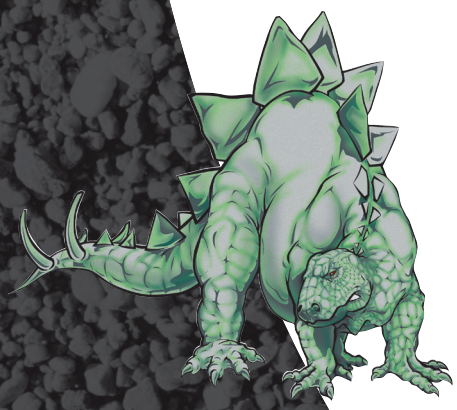
Infiltration of moisture through concrete slabs is a major building defect liability. Stego Wrap Vapor Barrier has an extremely low permeance preventing water vapor, soil gases (i.e. Radon), alkaline salts and soil sulfates from compromising the integrity of the building envelope and leading to serious problems with the concrete slab, floor coverings and indoor air quality. Stego Wrap Vapor Barrier is the best protection against these costly failures.

MOLD PREVENTION:

Mold needs three things to survive: moisture, sustained temperature (between 50° and 122° F), and a food source (dust, drywall, etc.). In any given building environment, contractors can only control one of these variables: moisture. Mold spores are present in 100% of building interiors. If moisture is allowed into your building environment, mold can and will grow. Toxic molds like Stachybotyrus can be fatal for nearly 5% of people (Institute of Medicine 1993), and cause a variety of serious health problems in others. Several recent well-publicized cases involving toxic mold have resulted in multimillion-dollar insurance settlements. Many of the nation's leading Insurance companies have severely limited or removed coverage for mold claims fearing that these claims will bankrupt their companies. Now more than ever, it is critically important that extra attention be paid to preventing the intrusion of moisture vapor from your below-slab environment. Stego Wrap Vapor Barrier offers the level of protection that many architects are now seeking and is considered to be inexpensive insurance against these costly failures.

LONGEVITY AND STRENGTH:

Stego Wrap Vapor Barrier is NOT made with recycled materials and will not degrade. Prime, virgin resins are the key. Molecules within Stego Wrap "interlock" to provide strength, durability and unprecedented resistance to moisture vapor and radon gas. Stego Wrap's puncture resistance is excellent. Stego Wrap will not tear, crack, flake, snag or puncture, even when 18,000 lb. laser-screed machines are driving directly across the barrier (see the reverse side for Stego Wrap Vapor Barrier's specifications).



Stego Industries, LLC · San Clemente, CA
Tel: 949-257-4100 · Toll Free: 877-464-7834 · Fax: 949-257-4113
www.stegoindustries.com

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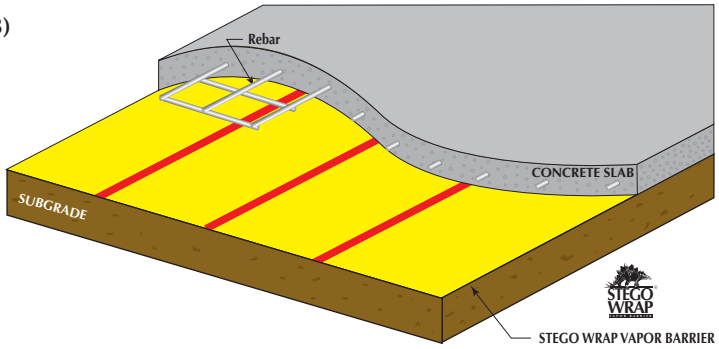
STEGO® WRAP VAPOR BARRIER SPECIFICATIONS

PROPERTIES	TEST METHOD	ASTM E 1745 Class A Requirements	TEST RESULT	EXPLANATION
Permeance	ASTM F 1249	0.1 perms	0.0084 perms * 0.0035 WVTR	Very impermeable to water vapor
Puncture Resistance	ASTM D 1709	2200 grams	Method B 2326 grams	Resistant to puncturing from construction abuse
Tensile Strength	ASTM D 882	45.0 lbf./in.	79.6 lbf./in.	Will not tear easily
Permeance After Conditioning (ASTM E 1745 Sections 7.1.2 - 7.1.5)	ASTM E 154 section 8	0.1 perms	0.0091 perms	Permeance after wetting, drying, and soaking
	ASTM E 154 section 11	0.1 perms	0.0092 perms	Permeance after heat conditioning
	ASTM E 154 section 12	0.1 perms	0.0089 perms	Permeance after low temperature conditioning
	ASTM E 154 section 13	0.1 perms	0.0092 perms	Permeance after soil organism exposure
Methane Transmission Rate	ASTM D 1434		**149.6 GTR 2.12×10^{-6} perms	Greatly impedes the transmission of methane gas
Radon Diffusion Coefficient			$1.3 \times 10^{-13} m^2$/second	Greatly impedes the transmission of radon gas
Thickness			15 mils	Stronger, tougher and less permeable than much thicker membranes
Roll Dimensions			14 ft. X 140 ft.	1,960 ft^2/roll - allows for a minimum of seams
Roll Weight			140 lbs.	Easy to unroll and install

Note: perm unit = grains/(ft^2 *hr* in.Hg) * WVTR = water vapor transmission rate **GTR = Gas Transmission Rate

INSTALLATION INSTRUCTIONS: (Based on ASTM E 1643)

Unroll Stego Wrap over the area where the slab is to be placed. Stego Wrap should completely cover the concrete placement area. Overlap seams 6 inches and tape using Stego Tape. All penetrations and blockouts should be sealed using a combination of Stego Wrap, Stego Tape and/or Stego Mastic. If the Stego Wrap is damaged, cut a piece from the Stego Wrap roll, place over the damaged area, and tape around all edges. Concrete may be placed directly on Stego Wrap.



STEGO® TAPE:

STEGO WRAP RED POLYETHYLENE TAPE (3.75" x 180'/roll) is specially designed to seal seams and penetrations on Stego Wrap installations. The acrylic, pressure-sensitive adhesive provides permanent bonding and quick-stick properties. The area to be bonded should be free of dust, dirt and moisture. If properly installed Stego Tape will provide years of continuous protection.

WARRANTY:

STEGO INDUSTRIES, LLC believes, to the best of its knowledge, that specifications and recommendations herein are accurate and reliable. However, since site conditions and installations are not within our control, STEGO INDUSTRIES, LLC does not guarantee results from use of the information provided and disclaims all liability from any loss or damage. NO WARRANTY EXPRESS OR IMPLIED IS GIVEN AS TO THE MERCHANTABILITY, FITNESS FOR PARTICULAR PURPOSE, OR OTHERWISE WITH RESPECT TO THE PRODUCTS REFERRED TO.

DISTRIBUTED BY:

Stego Industries, LLC · San Clemente, CA
Tel: 949-257-4100 · Toll Free: 877-464-7834 · Fax: 949-257-4113 · www.stegoindustries.com

12/09

Stego® Wrap Vapor Barrier

STEGO INDUSTRIES, LLC

Vapor Retarders
07260, 03300

Manufacturer
Stego Industries, LLC
216 Avenida Fabricante, Suite 101
San Clemente, CA 92672
Sales, Technical Assistance
Ph: (877) 464-7834
Fx: (949) 257-4113
www.stegoindustries.com

Product Description
USES: Stego Wrap Vapor Barrier is used as a true below-slab vapor barrier, and as a protection course for below grade waterproofing applications.
COMPOSITION: Stego Wrap Vapor Barrier is a multi-layer plastic extrusion manufactured with only the highest grade of prime, virgin, polyolefin resins.
ENVIRONMENTAL FACTORS:
Stego Wrap Vapor Barrier can be used in systems for the control of soil gases (radon, methane), soil poisons (oil by-products) and sulfates.

Installation
UNDER SLAB: Unroll Stego Wrap Vapor Barrier over an aggregate, sand or tamped earth base. Overlap all seams a minimum of six inches and tape using Stego Tape. All penetrations must be sealed using a combination of Stego Wrap Vapor Barrier, Stego Tape and/or Stego Mastic.

VERTICAL WALL: Install Stego Wrap Vapor Barrier over the waterproofing membrane while still tacky. Mechanically fasten Stego Wrap Vapor Barrier to the wall at the top with termination bar and concrete nails. Drape Stego Wrap Vapor Barrier down across the footer and under the french drain.

Availability & Cost
Stego Wrap Vapor Barrier is available nationally via building supply distributors. For current cost information, contact your local Stego Wrap distributor or Stego Industries' sales department.

Warranty
Stego Industries, LLC believes to the best of its knowledge, that specifications and recommendations herein are accurate and reliable. However, since site conditions are not within its control, Stego Industries does not guarantee results from the use of the information provided and disclaims all liability from any loss or damage. No warranty, express or implied, is given as to the merchantability, fitness for a particular purpose, or otherwise with respect to the products referred to.

Maintenance
None required.

Technical Services
Technical advice, custom CAD drawings, and additional information can be obtained by contacting Stego Industries' technical assistance department or via the website.

Filing Systems
- Stego Industries' website
- Buildsite
- GreenFormat
- 4Specs

Technical Data

TABLE 1: PHYSICAL PROPERTIES OF STEGO WRAP VAPOR BARRIER

PROPERTY	TEST	RESULTS
Under Slab Vapor Retarders	ASTM E 1745 Class A, B & C – Standard Specification for Water Vapor Retarders Used in Contact with Soil or Granular Fill under Concrete Slabs	Exceeds Class A, B & C
Water Vapor Permeance	ASTM F 1249 – Test Method for Water Vapor Transmission Rate Through Plastic Film and Sheeting Using a Modulated Infrared Sensor	0.0084 perms *0.0035 WVTR
Puncture Resistance	ASTM D 1709 – Test Methods for Impact Resistance of Plastic Film by Free-Falling Dart Method	2326 grams
Tensile Strength	ASTM D 882 – Test Method for Tensile Properties of Thin Plastic Sheeting	79.6 lbf/in.
Permeance After Conditioning (ASTM E 1745 Sections 7.1.2 - 7.1.5)	ASTM E 154 Section 8, F 1249 – Permeance after wetting, drying, and soaking ASTM E 154 Section 11, F 1249 – Permeance after heat conditioning ASTM E 154 Section 12, F 1249 – Permeance after low temperature conditioning ASTM E 154 Section 13, F 1249 – Permeance after soil organism exposure	0.0091 perms 0.0092 perms 0.0089 perms 0.0092 perms
Methane Transmission Rate	ASTM D 1434 – Standard Test Method for Determining Gas Permeability Characteristics of Plastic Film and Sheeting	**149.6 GTR 2.12×10^{-6} perms
Radon Diffusion Coefficient		$1.3 \times 10^{-13} m^2$/second
Thickness	ACI 302.1R-04 – Minimum Thickness (10 mils)	15 mils
Roll Dimensions		14 ft. wide x 140 ft. long or 1,960 ft^2
Roll Weight		140 lbs.

Note: perm unit = grains/(ft^2 *hr* in.Hg) * WVTR = Water Vapor Transmission Rate ** GTR = Gas Transmission Rate

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Stego® Tape

STEGO INDUSTRIES, LLC

Vapor Retarders
07260, 03300

Manufacturer
Stego Industries, LLC
216 Avenida Fabricante, Suite 101
San Clemente, CA 92672
Sales, Technical Assistance
Ph: (877) 464-7834
Fx: (949) 257-4113
www.stegoindustries.com

Product Description
USES: Stego Tape is a low permeance tape designed for protective sealing, hanging, seaming, splicing, and patching applications where a highly conformable material is required. It has been engineered to bond specifically to Stego Wrap, making it ideal for sealing Stego Wrap seams and penetrations.
COMPOSITION: Stego Tape is composed of polyethylene film and an acrylic, pressure-sensitive adhesive.
SIZE: Stego Tape is 3.75" wide and 180' long. Stego Tape ships 12 rolls in a case.

Technical Data
APPLICABLE STANDARDS:
Pressure Sensitive Tape Council (PSTC)
- PSTC 101 – International Standard for Peel Adhesion of Pressure Sensitive Tape

American Society for Testing & Materials (ASTM)
- ASTM E 1643 - Standard Practice for Installation of Water Vapor Retarders Used in Contact with Earth or Granular Fill under Concrete Slabs

Installation
SEAMS:
Overlap Stego Wrap six inches and seal with Stego Tape. Make sure the area of adhesion is free from dust, dirt and moisture to allow maximum adhesion of the pressure sensitive tape.

PIPE PENETRATION SEALING
1) Install Stego Wrap around pipe by slitting/cutting material
2) If void space around pipe is minimal, seal around base of pipe with Stego Tape (Stego Mastic can be used for additional coverage)

DETAIL PATCH FOR PIPE PENETRATION SEALING

1) Cut a piece of Stego Wrap that creates a six inch overlap around all edges of the void space
2) Cut an "X" in the center of the detail patch
3) Slide detail patch over pipe, secure tightly
4) Tape down all sides of detail patch with Stego Tape
5) Seal around base of pipe with Stego Tape (Stego Mastic can be used for additional coverage)

Stego Tape should be installed above 40 °F

NOTE: See Stego's installation instructions for complete instructions and detailed drawings. Each user should make their own tests to determine the products suitability for their own intended use and shall assume all risks and liability in connection therewith.

Availability & Cost
Stego Tape is available nationally via building supply distributors. For current cost information, contact your local Stego distributor or Stego Industries' sales department.

Warranty
Stego Industries, LLC believes to the best of its knowledge, that specifications and recommendations herein are accurate and reliable. However, since site conditions are not within its control, Stego Industries does not guarantee results from the use of the information provided and disclaims all liability from any loss or damage. No warranty, express or implied, is given as to the merchantability, fitness for a particular purpose, or otherwise with respect to the products referred to.

Maintenance
None required.

Technical Services
Technical advice, custom CAD drawings, and additional information can be obtained by contacting Stego Industries' technical assistance department or by visiting the website.

Filing Systems
- Stego Industries' website
- Buildsite

TABLE 1: PHYSICAL PROPERTIES OF STEGO TAPE

PROPERTY	RESULTS
Total Thickness	6 mils
Permeance	0.03 perms
Tensile Strength	17 lbs./in. width
Elongation (at break) MD	1060%
Adhesion (20 min dwell ss, PSTC 101)	95-oz./in. width
Ultraviolet Resistance	Excellent

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Stego® Mastic

STEGO INDUSTRIES, LLC

Vapor Retarders
07260, 03300

1. Product Name
Stego Mastic

2. Manufacturer
Stego Industries, LLC
216 Avenida Fabricante, Suite 101
San Clemente, CA 92672
Sales, Technical Assistance
Ph: (877) 464-7834
Fx: (949) 257-4113
www.stegoindustries.com

3. Product Description
USES: Stego Mastic is designed to be used as a waterproofing and vapor retardant membrane for use in conjunction with Stego Wrap 10-mil and 15-mil Vapor Retarder/Barrier. Stego Mastic can be used as an alternate to boots for pipe penetrations in Stego Wrap Vapor Barrier. Stego Mastic can also be used as a primary waterproofing for below grade walls.
COMPOSITION: Stego Mastic is a medium-viscosity, water-based, polymer-modified anionic bituminous/asphalt emulsion, which exhibits bonding, elongation and waterproofing characteristics.
SIZE: Stego Mastic comes in five-gallon buckets.

4. Technical Data
APPLICABLE STANDARDS:
American Society for Testing and Materials (ASTM)

- ASTM D 412 Standard Test Method for Vulcanized Rubber and Thermoplastic Elastomers - Tension
- ASTM E 154 Standard Test Methods for Water Vapor Retarders Used in Contact with Earth under Concrete Slabs, on Walls, or as Ground Cover
- ASTM G 23 Practice for Operating Light-Exposure Apparatus (Carbon-Arc Type) With and Without Water for Exposure of Nonmetallic Materials (Withdrawn 2000)
- ASTM E 96 Standard Test Methods for Water Vapor Transmission of Materials
- ASTM D 751 Standard Test Methods for Coated Fabrics
- ASTM D 1434 Standard Test Method for Determining Gas Permeability Characteristics of Plastic Film and Sheeting
- ASTM C 836 Standard Specification for High Solids Content, Cold Liquid-Applied Elastomeric Waterproofing Membrane for Use with Separate Wearing Course.
- ASTM E 1643 Standard Practice for Installation of Water Vapor Retarders Used in Contact with Earth or Granular Fill under Concrete Slabs.

5. Installation
PREPARATION:

- A test application simulating the project environment should always be done prior to final usage of Stego Mastic.
- All Surfaces should be dry and free of loose materials, oils and other contaminants. The surfaces should be cleaned in the same fashion as the test surface in order to ensure proper results.
- Store above 40°F

PENETRATIONS:
For small pipe and rebar penetrations in Stego Wrap Vapor Barrier cut Stego Wrap just big enough for the penetration. Liberally apply Stego Mastic around the penetration to keep the integrity of the membrane intact. Stego Mastic can be applied by brush, roller, or sprayer.
NOTES: 1) For larger penetrations or wide cut-outs of Stego Wrap, use Stego Wrap and Stego Red Polyethylene Tape to repair and seal. 2) Solvent-based products should not be applied over this product.

CLEANING:
Clean all tools with kerosene and/or oil-based cleaners.

6. Availability & Cost
Stego Mastic is available nationally via building supply distributors. For current cost information, contact your local Stego distributor or Stego Industries' sales department.

7. Warranty
Stego Industries, LLC believes to the best of its knowledge, that specifications and recommendations herein are accurate and reliable. However, since site conditions are not within its control, Stego Industries does not guarantee results from the use of the information provided and disclaims all liability from any loss or damage. No warranty, express or implied, is given as to the merchantability, fitness for a particular purpose, or otherwise with respect to the products referred to.

8. Maintenance
None required.

9. Technical Services
Technical advice, custom CAD drawings, and additional information can be obtained by contacting Stego Industries' technical assistance department or by visiting the website.

10. Filing Systems
- Stego Industries' website
- Buildsite

TABLE 1: PHYSICAL PROPERTIES OF STEGO MASTIC

Property and Test	Stego Mastic
Tensile/Elongation, ASTM D 412	32 psi / 3860%
Resistance to Decay, ASTM E 154	9% perm loss
Accelerated Aging, ASTM G 23	No Effect
Permeance, ASTM E 96	0.17 Perms
Hydrostatic Water Pressure, ASTM D 751	28 psi
Methane Transmission Rate, ASTM D 1434	0
Adhesion to Concrete & Masonry, ASTM C 836	7 lbf./in.
Hardness, ASTM C 836	85
Crack Bridging, ASTM C 836	No Cracking
Low Temp Flexibility, ASTM C 836	No Cracking at -20°C
Resistance to Acids:	
Acetic	30%
Sulfuric and Hydrochloric	15%
Temperature Effect:	
Stable	248°F
Flexible	13°F

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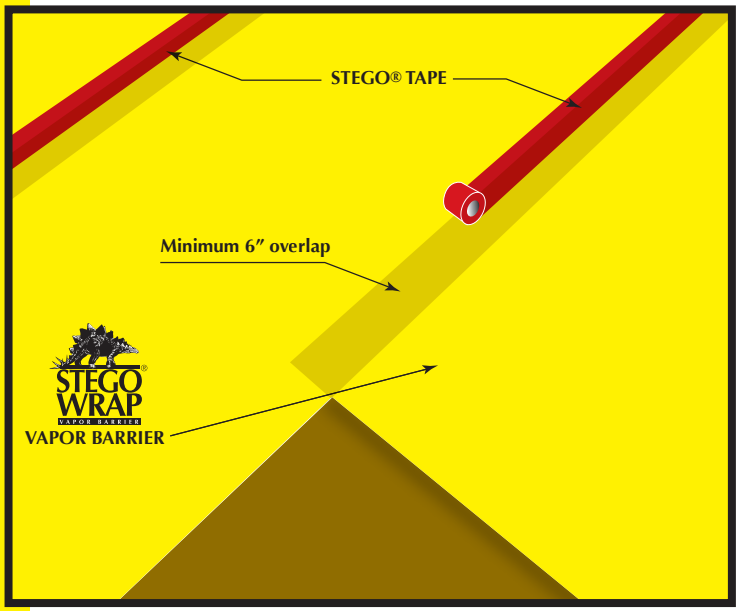
Note: perm unit = grains/(ft^2 *hr* in.Hg)

PART 1

STEGO WRAP VAPOR BARRIER/RETARDER INSTALLATION INSTRUCTIONS

IMPORTANT: Please read these installation instructions completely, prior to beginning any Stego Wrap installation to ensure suitable use of the product. The following installation instructions are based on ASTM E 1643 - Standard Practice for Installation of Water Vapor Retarders Used in Contact with Earth or Granular Fill under Concrete Slabs.

FIGURE 1: UNDER-SLAB INSTALLATION



UNDER-SLAB INSTRUCTIONS:

1. Stego Wrap can be installed over an aggregate, sand, or tamped earth base. It is not necessary to have a cushion layer or sand base, as Stego Wrap is tough enough to withstand rugged construction environments.

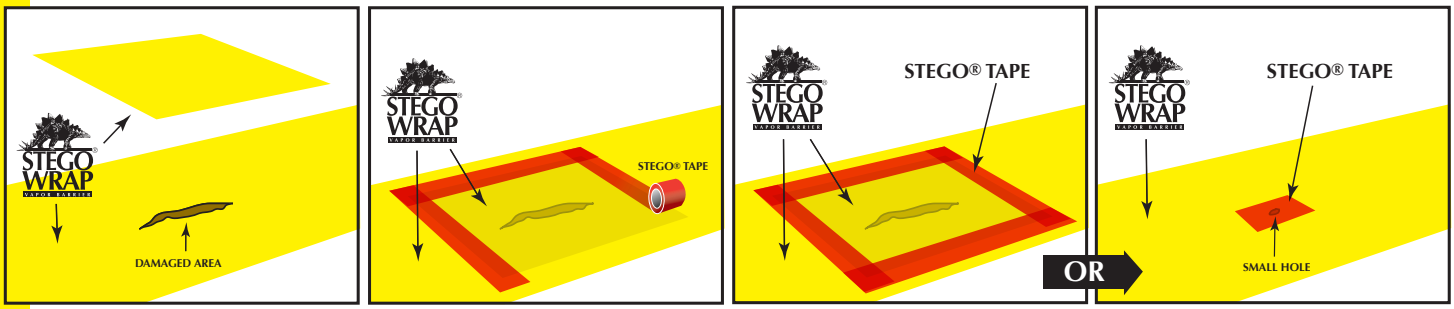
2. Unroll Stego Wrap over the area where the slab is to be placed. Stego Wrap should completely cover the concrete placement area. All joints/seams both lateral and butt should be overlapped six inches and taped using Stego Tape.

NOTE: The area of adhesion should be free from dust, dirt and moisture to allow maximum adhesion of the pressure sensitive tape.

3. The most effective installation method includes positioning Stego Wrap on top of the footing and against the vertical wall. Stego Wrap will then be sandwiched between the footing, vertical wall and placed concrete floor (see part 2, figure 6a, Basement/Below Grade Wall Installation). This method will help protect the concrete slab from external moisture sources after the slab has been placed.

4. In the event that Stego Wrap is damaged during or after installation, repairs must be made. Stego Tape can be used to repair small holes in the material. For larger holes, cut a piece of Stego Wrap to a size and shape that covers any damage by a minimum overlap of six inches in all directions. Clean all adhesion areas of dust, dirt and moisture. Tape down all edges using Stego Tape (see figure 2, Sealing Damaged Areas).

FIGURE 2: SEALING DAMAGED AREAS



NOTE: These installation instructions are based on practices outlined in ASTM E 1643 - Standard Practice for Installation of Water Vapor Retarders Used in Contact with Earth or Granular Fill Under Concrete Slabs. These instructions are meant to be used as a guide, and do not take into account specific job site situations. Consult local building codes and regulations along with the building owner or owner's representative before proceeding. If you have any questions regarding the above mentioned installation instructions, Stego products, or a specific job site situation, please call us at 877-464-7834 for technical assistance.

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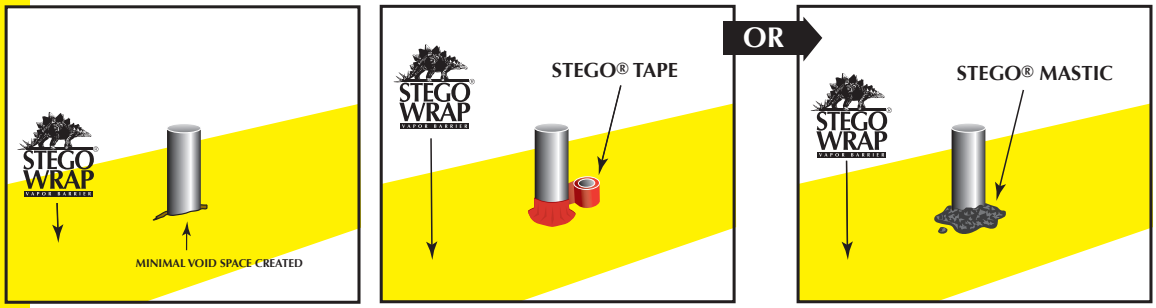
5. **IMPORTANT: ALL PENETRATIONS MUST BE SEALED.** All pipe, ducting, rebar, wire penetrations and block outs should be sealed using Stego Wrap, Stego Tape and/or Stego Mastic (see figure 3a, Pipe Penetration Sealing).

FIGURE 3a: PIPE PENETRATION SEALING



STEGO WRAP PIPE PENETRATION REPAIR DETAIL:

1: Install Stego Wrap around pipe penetration by slitting/cutting material as needed. Try to minimize the void space created.

2: If Stego Wrap is close to pipe and void space is minimized then seal around pipe penetration with Stego Tape and/or Stego Mastic.

(See Figure 3a)

3: If detail patch is needed to minimize void space around penetration, then cut a detail patch to a size and shape that creates a six inch overlap on all edges around the void space at the base of the pipe.

4: Cut an "X" the size of the pipe diameter in the center of the detail patch and slide tightly over pipe.

5: Tape down all sides of detail patch with Stego Tape.

6: Seal around the base of the pipe using Stego Tape and/or Stego Mastic.

(See Figure 3b)

FIGURE 3b: DETAIL PATCH FOR PIPE PENETRATION SEALING

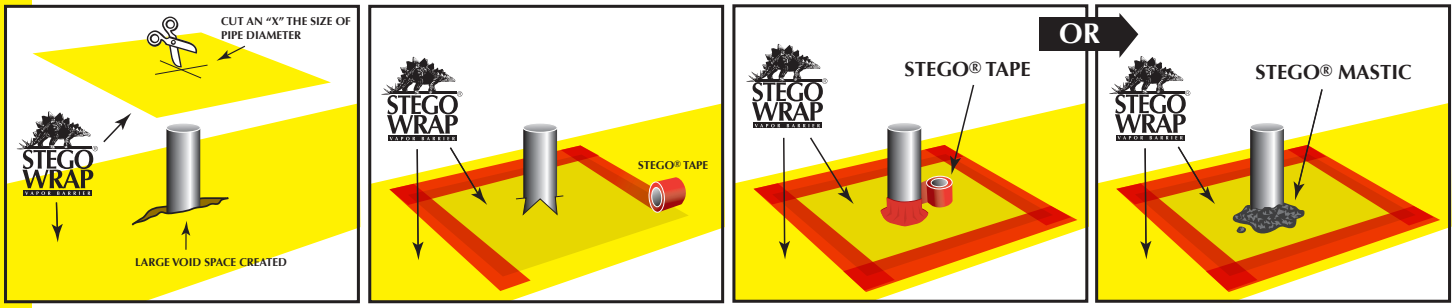
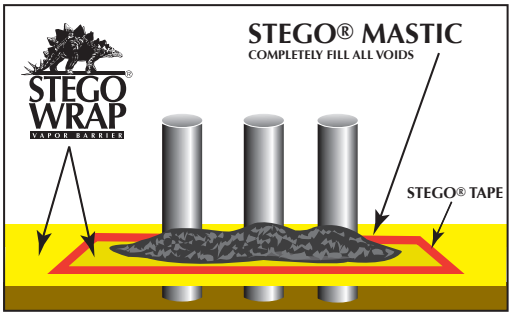


FIGURE 4: MULTIPLE PIPE PENETRATION SEALING



MULTIPLE PIPE PENETRATION SEALING:

Multiple pipe penetrations in close proximity and very small pipes may be sealed using Stego Wrap and Stego Mastic for ease of installation (see figure 4, Multiple Pipe Penetration Sealing).

6. Many vapor retarder manufacturers recommend a cushion layer (fine washed gravel or sand) on top of the retarder before the concrete placement to guard against the possibility of damage due to construction traffic. **This is permissible, but not a necessity with Stego Wrap.** Stego Wrap is strong enough to withstand normal construction traffic without a protective layer. In fact, ACI guidelines and many flooring companies recommend placement of the concrete slab directly on the vapor barrier/retarder. This eliminates the potential for water to be trapped in the blotter layer and ultimately resurfacing through the slab adversely effecting the flooring system.

NOTE: These instructions are meant to be used as a guide, and do not take into account specific job site situations. Consult local building codes and regulations along with the building owner or owner's representative before proceeding.

<u>REMEMBER:</u> If damaged, Stego Wrap must be repaired using the techniques outlined above.

Stego, the stegosaurus logo, and the yellow product color are registered trademarks of Stego Industries.

PART 2

STEGO WRAP VAPOR BARRIER/RETARDER INSTALLATION INSTRUCTIONS

CRAWL SPACE INSTALLATION INSTRUCTIONS:

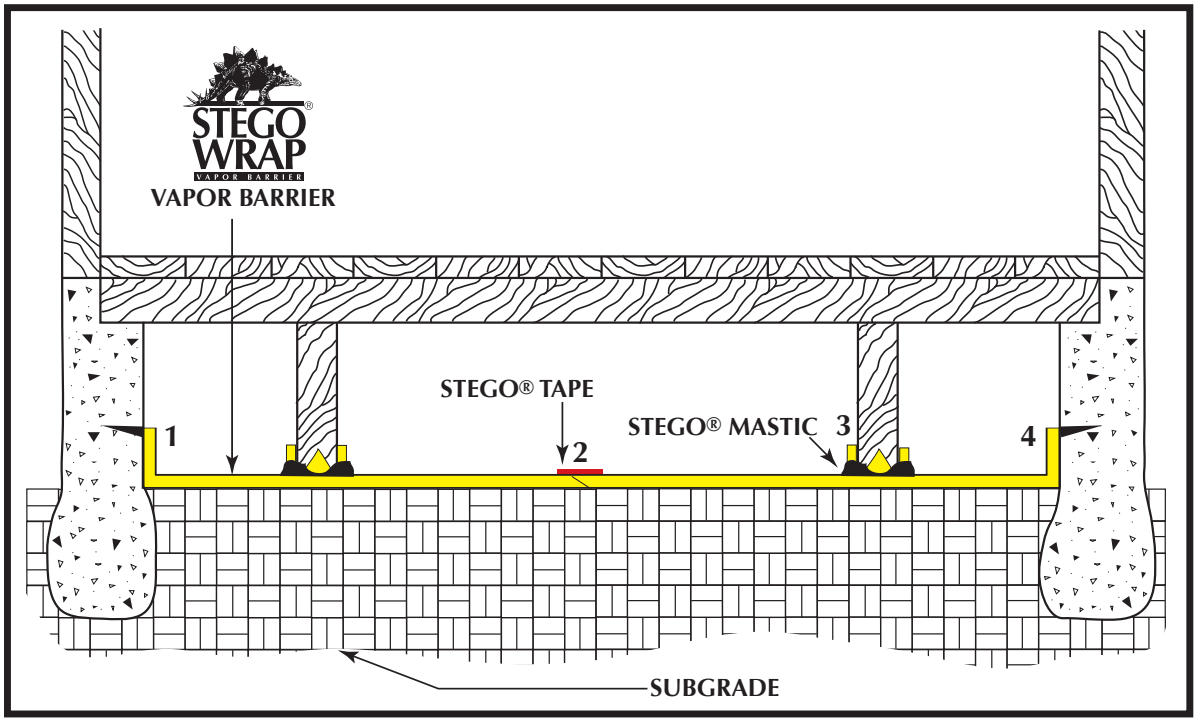
1. Place Stego Wrap directly over the crawl space floor. If rigid insulation is to be used, install Stego Wrap prior to insulation (under insulation and between the foundation wall and insulation).

2. Overlap seams a minimum of six inches and seal with Stego Tape.

3. Seal Stego Wrap around all penetrations and columns using Stego Tape and/or Stego Mastic.

4. Turn Stego Wrap up the foundation wall to a minimum height of six inches above the outside/exterior grade or in compliance with local building codes and terminate with pressure treated nail strip/termination bar or construction adhesive. If using a nail strip/termination bar, extend Stego Wrap above termination bar and fold back over nail strip/termination bar and tape with Stego Tape to seal nail holes.

FIGURE 5: CRAWL SPACE INSTALLATION



INSTALLATION TIPS:

1. For a cleaner look and to prevent against tenting of Stego Wrap at the foundation wall/foundation floor intersection, consider mechanically fastening Stego Wrap to base of foundation wall in addition to the above mentioned wall termination.

2. To provide additional protection against moisture migration through nail holes, consider applying a layer of Stego Mastic to the foundation wall prior to installing nail strip/termination bar. Allow one hour for Stego Mastic to cure prior to installing nail strip/termination bar.

NOTE: There are well-publicized pros and cons regarding different approaches to vapor barrier placement. Consult local building codes, regulations and ACI guidelines along with the design or architectural firm's recommendations before proceeding.

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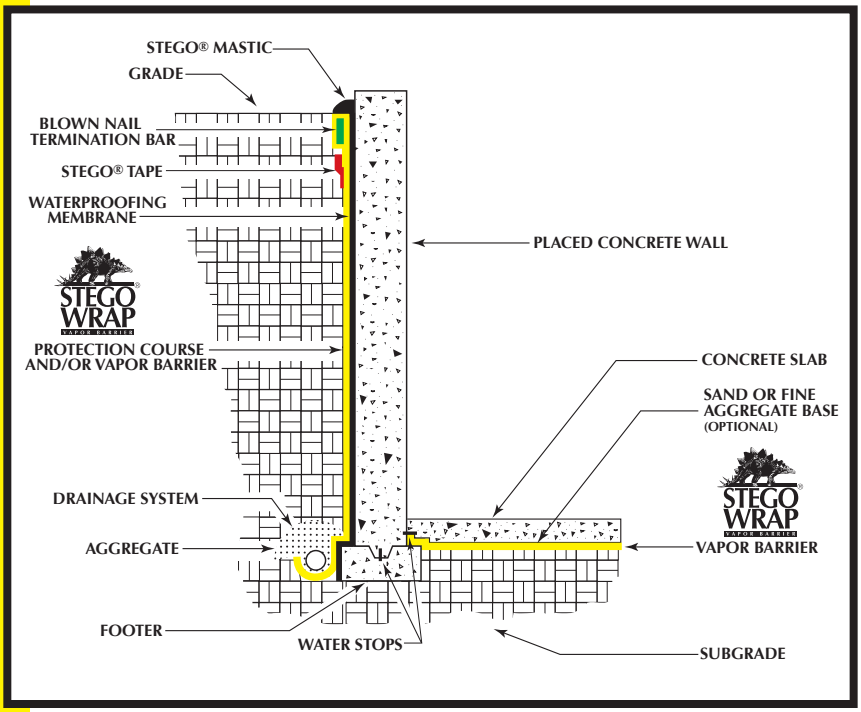
FIGURE 6a: BASEMENT/BELOW GRADE WALL INSTALLATION



BASEMENT/BELOW GRADE WALL INSTALLATION:

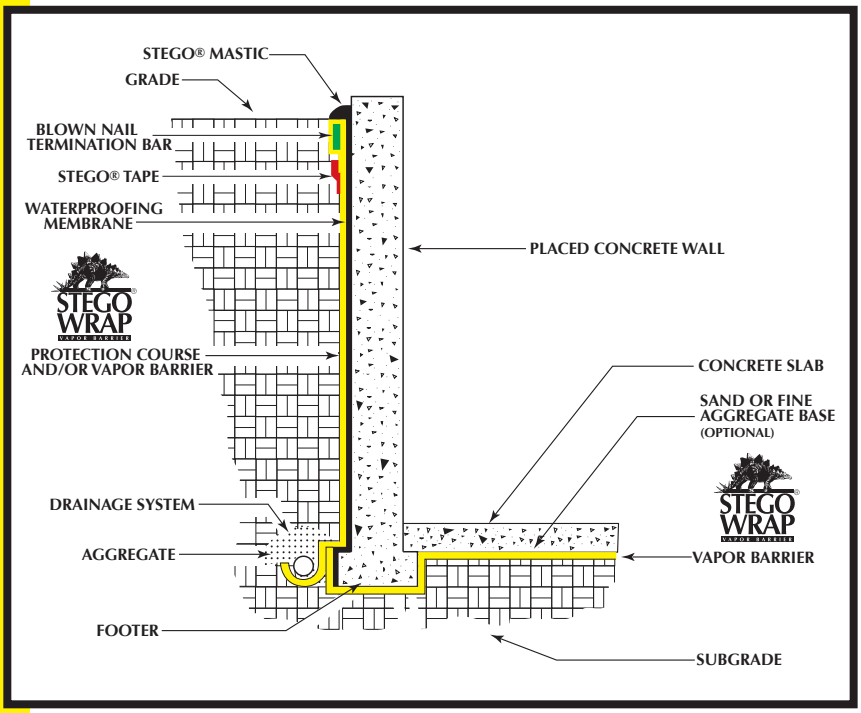
1. Install an approved waterproofing membrane according to the manufacturer's installation instructions. This may include sheet goods, or liquid applied membranes be they roll, brush or spray.

2. While the membrane is still tacky, install Stego Wrap as a protective course/vapor barrier over the applied waterproofing membrane. Using a termination bar with concrete nails at the termination of the waterproofing membrane is advisable in some applications (see figure 6a, Basement/ Below Grade Wall Installation).

3. Supervised care must be taken during back filling against the material so that it is not damaged or punctured. If damage occurs, patch using the techniques outlined in part 1.

WARNING: Any untreated punctures, tears or damage during back filling will greatly reduce the effectiveness of Stego Wrap as a protection course/vapor barrier.

FIGURE 6b: OPTIONAL INSTALLATION FOR FOOTING ENCAPSULATION AND WATERPROOFING TIE-IN



OPTIONAL INSTALLATION FOR FOOTING ENCAPSULATION AND WATER PROOFING TIE-IN:

1. Install Stego Wrap into footing depression prior to concrete placement.

2. Leave outside edge of footing exposed to allow for primary waterproofing application and tie-in (see figure 6b, Optional Installation For Footing Encapsulation and Waterproofing Tie-In).

NOTE: Consult Structural Engineer prior to footing encapsulation.

NOTE: These installation instructions are based on practices outlined in ASTM E 1643 - Standard Practice for Installation of Water Vapor Retarders Used in Contact with Earth or Granular Fill Under Concrete Slabs. These instructions are meant to be used as a guide, and do not take into account specific job site situations. Consult local building codes and regulations along with the building owner or owner's representative before proceeding. If you have any questions regarding the above mentioned installation instructions, Stego products, or a specific job site situation, please call us at 877-464-7834 for technical assistance.

STEGO® INDUSTRIES, LLC

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949-257-4100 • 877-464-7834 • www.stegoindustries.com

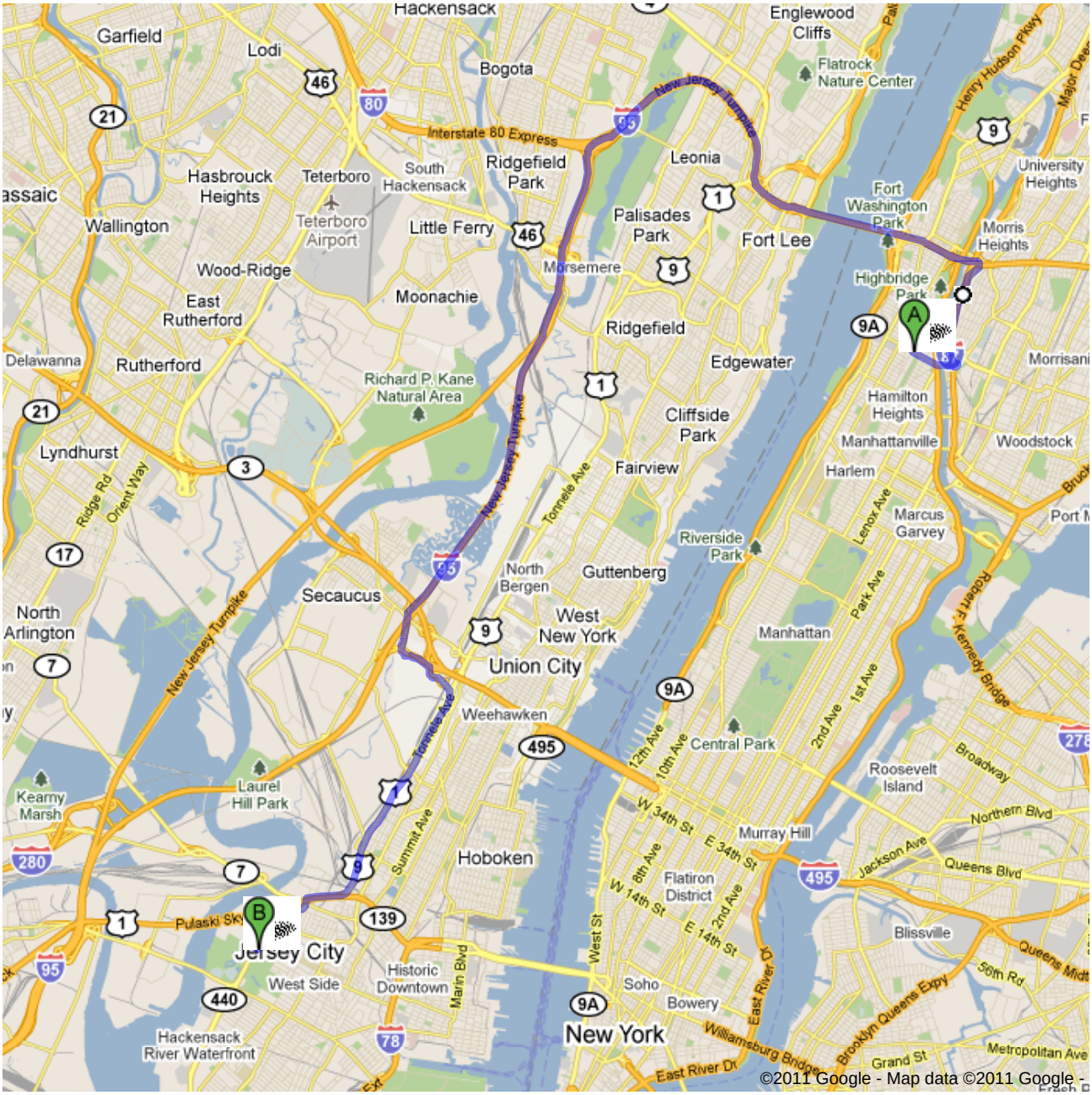
APPENDIX 10

DIRECTIONS TO DISPOSAL FACILITY

Directions to County Rd 605/Duncan Ave
18.9 mi – about **29 mins**

Lincoln Park Landfill
Soil Disposal Facility

Save trees. Go green!
Download Google Maps on your phone at **google.com/gmm**



W 155th St & St Nicholas Pl, New York, NY

	1. Head **southeast** on **W 155th St** toward **Edgecombe Ave**	go 0.3 mi total 0.3 mi
	2. **W 155th St** turns slightly left and becomes **Macombs Dam Bridge** About 1 min	go 0.2 mi total 0.5 mi
	3. Take the ramp to **I-87 N/Maj Deegan Expy/Albany**	go 0.1 mi total 0.6 mi
	4. Continue straight	go 0.2 mi total 0.9 mi
	5. Take the **I-87 N/Major Deegan Expressway** ramp on the left to **Albany**	go 397 ft total 0.9 mi
	6. Merge onto **I-87 N** About 1 min	go 0.5 mi total 1.5 mi
	7. Take exit **7S** to merge onto **I-95 S/US-1 S** toward **Trenton** About 1 min	go 0.7 mi total 2.2 mi
	8. Slight left onto **Interstate 95 Upper Level S/George Washington Bridge** (signs for **I-95 S/Trenton**) Entering New Jersey About 3 mins	go 2.5 mi total 4.7 mi
	9. Continue onto **Interstate 95 Express S** About 3 mins	go 2.9 mi total 7.6 mi
	10. Merge onto **I-95 S** About 7 mins	go 5.8 mi total 13.4 mi
	11. Take exit **17** toward **NJ-495 E** Toll road About 1 min	go 0.6 mi total 14.0 mi
	12. Keep left at the fork and merge onto **NJ-495 E** Partial toll road	go 0.5 mi total 14.5 mi
	13. Take the exit toward **NJ-3 E**	go 0.3 mi total 14.7 mi
	14. Turn right onto **NJ-3 E**	go 0.2 mi total 14.9 mi
	15. Continue onto **US-1 S/US-9 S/Tonnele Ave** Continue to follow US-1 S/US-9 S About 6 mins	go 2.6 mi total 17.5 mi
	16. Slight right onto **US-1 S**	go 121 ft total 17.6 mi
	17. Keep right at the fork	go 0.4 mi total 18.0 mi
	18. Turn left to stay on **US-1 Truck S** About 1 min	go 0.9 mi total 18.9 mi
	19. Turn left onto **County Rd 605/Duncan Ave** About 1 min	go 92 ft total 18.9 mi

County Rd 605/Duncan Ave

These directions are for planning purposes only. You may find that construction projects, traffic, weather, or other events may cause conditions to differ from the map results, and you should plan your route accordingly. You must obey all signs or notices regarding your route.

Map data ©2011 Google

Directions weren't right? Please find your route on maps.google.com and click "Report a problem" at the bottom left.

APPENDIX 11

LINCOLN PARK APPROVAL LETTER

Long Island | 170 Keyland Court | Bohemia, NY 11716 | Tel: 631.269.8800 Fax: 631.269.1599

Manhattan | 1560 Broadway, Suite1024 | New York, NY 10036 | Tel: 212.201.7905 Fax: 212.202.4079

www.impactenvironmental.com

June 8, 2011

Mr. Chris Zacharias
Grid Logistics, LLC
100 Manhattan Avenue
Union City, New Jersey 07087

RE: Project #3245: Sugar Hill

Dear Mr. Zacharias:

Impact Environmental is the review engineer for the Hudson County Improvement Authority's exclusive Landfill Closure contractor for the Lincoln Park Landfill, Persistent Construction. In this capacity, Impact Environmental has reviewed the data contained within the application provided by your firm that included the following:

- AmeriSci Lab reports from November 12, 2010.

Based upon the analytical results contained within the reports, the following eight (8) sample IDs meet the acceptance criteria of the Lincoln Park Landfill project:

SB01 (0-1), SB02 (0-2), SB02 (4.5-5.5), SB03 (0-2),
SB03 (8-9), SB04 (0-2), SB05 (0-1) and SB06 (0-2)

This pre-approval is conditional upon our receipt and review of the additional analytical data requested (i.e. TCLP RCRA Metals and TPH). Additionally, this analytical data must be forwarded to the Hudson County Approval Authority for final remittance to be utilized as landfill capping media. Upon concurrence of our determination, the HCIA will issue tickets to be utilized to gain access into the facility.

The Lincoln Park Landfill project is open Monday through Friday from 7:00 AM to 4:00 PM.

Please contact me if you have any questions or comments concerning this approval.

Sincerely,

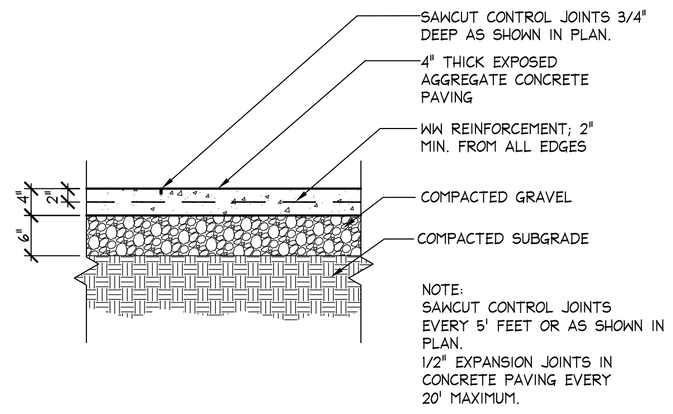
IMPACT ENVIRONMENTAL

Richard Parrish, P.G.
President

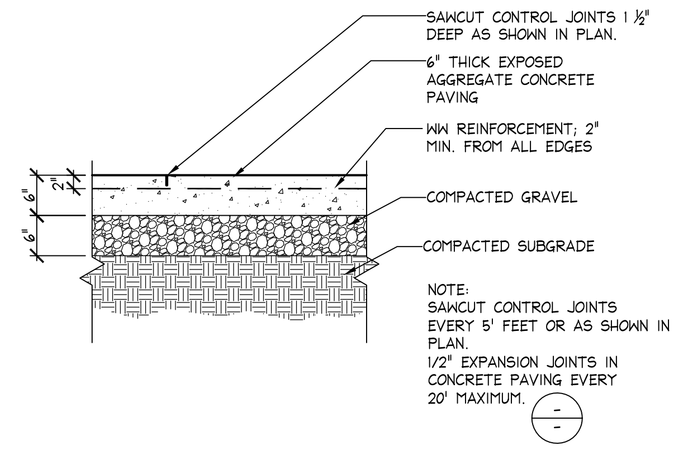
Copy:
A. Grano, Persistent Construction

APPENDIX 12

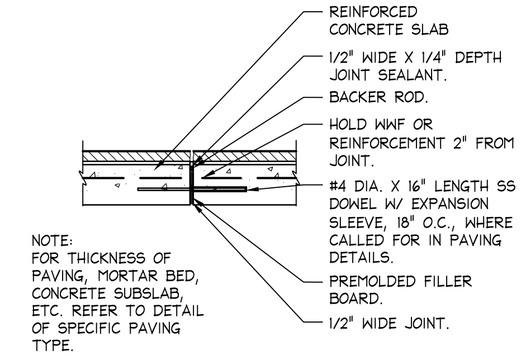
PLAZA DETAILS PREPARED BY TODD RADAR + AMY CREWS ARCHITECTURE AND LANDSCAPE ARCHITECTURE LLC



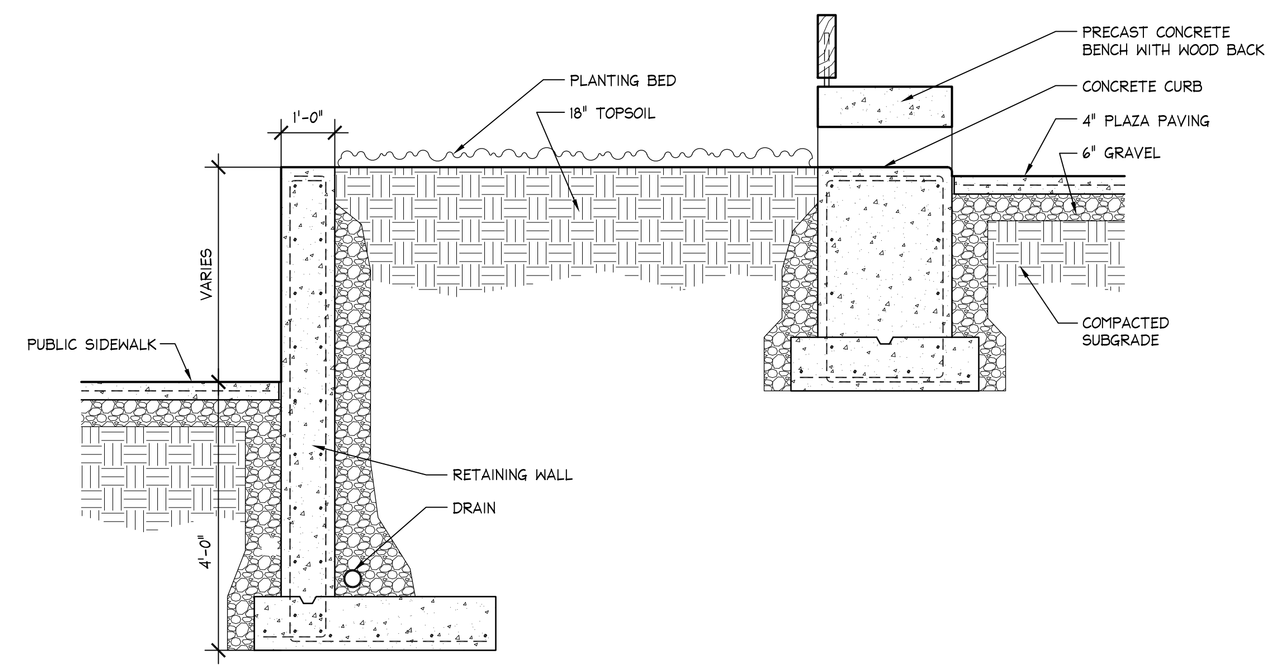
1 4" CONCRETE PAVING
3/4"=1'-0"



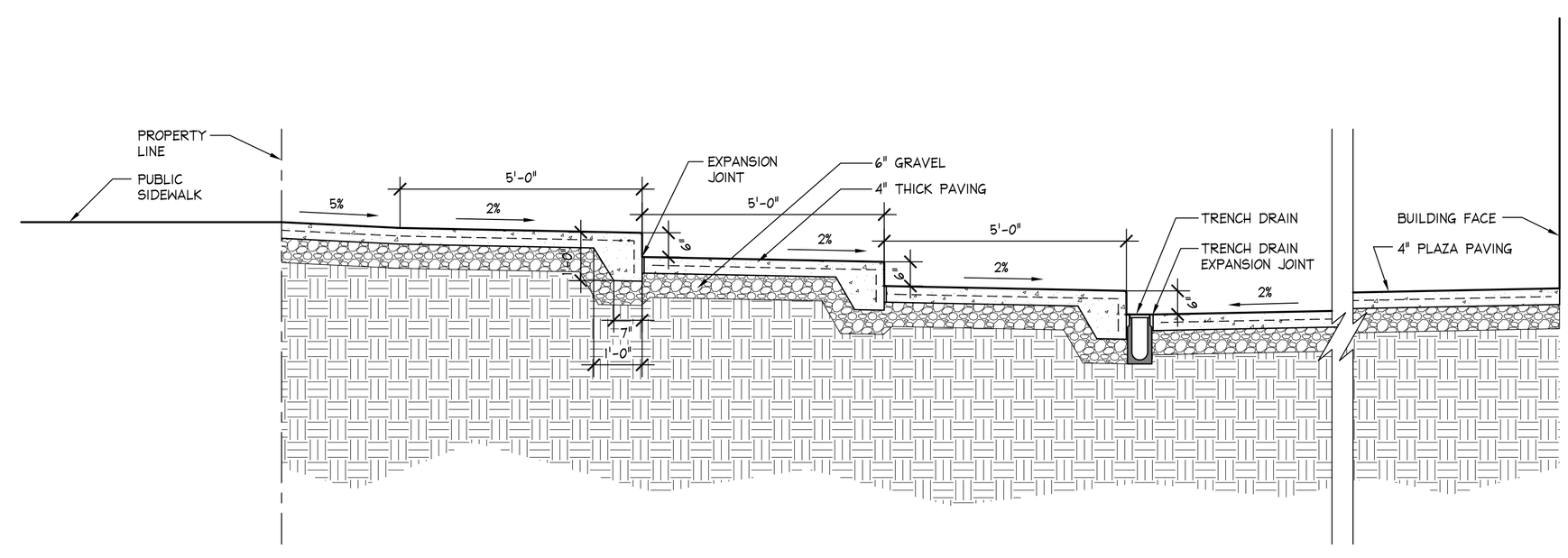
2 6" CONCRETE PAVING
3/4"=1'-0"



3 EXPANSION JOINT
3/4"=1'-0"



4 RETAINING WALL, CURB, AND BENCH
1/2"=1'-0"



5 TERRACE STEPS
1/2"=1'-0"

Todd Rader + Amy Crews
Architecture
Landscape Architecture LLC
653 Carroll Street
Brooklyn, New York 11215
Tel 718 636 5185
Fax 718 398 6553
studio@radercrews.com

SUGAR HILL PROJECT
NEW YORK, NEW YORK

PLAZA DETAILS

SCALE: 1/8"=1'-0"
25 JULY 2011

NOT FOR CONSTRUCTION

D1

APPENDIX 13

SLCE ARCHITECTS, LLP VAPOR BARRIER CERTIFICATE LETTER

SLCE Architects, LLP

841 Broadway
New York, NY 10003
212 979 8400 telephone
212 979 8387 telefax
www.slcearch.com
info@slcearch.com

Saky Yakas, AIA
James S. Davidson, AIA
Luigi Russo, AIA
Robert Laudenschlager, AIA
Gloria B. Clas, AIA
Mario Yao, AIA

Consultants
Peter Claman, AIA
Enzo DePol, AIA

ARCHITECT'S CERTIFICATE

400 WEST 155TH STREET
NEW YORK, NEW YORK

A.K.A.THE SUGAR HILL PROJECT

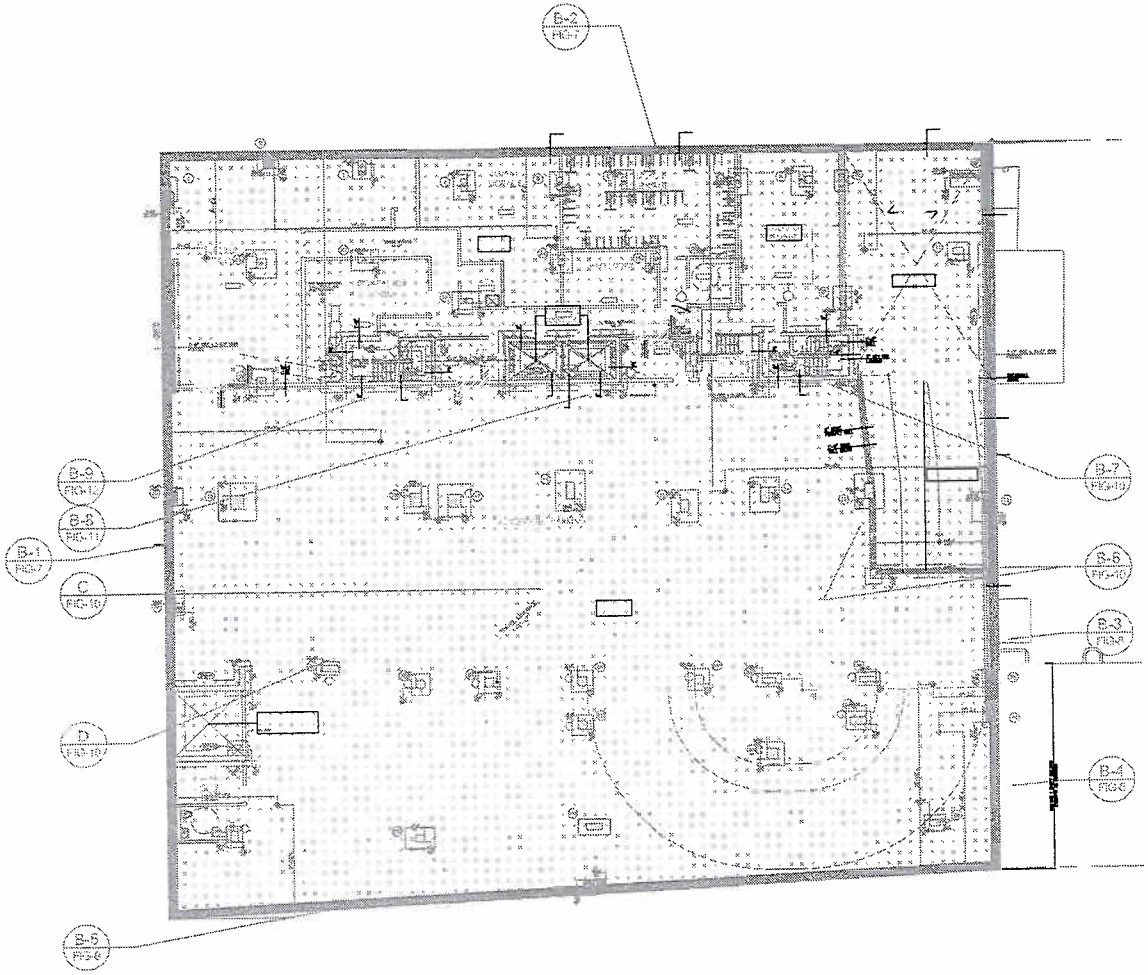
JUNE 16, 2011

Saky Yakas AIA, an architect licensed in the state of New York, and Partner of the firm SLCE Architects LLP, hereby states to the best of my knowledge, information and belief that the Vapor Barrier (Figures 6 thru 12) will be installed as per the attached details designed for the Remedial Action Plan (RAP).

Name: SAKY YAKAS AIA
Title: Partner

REGISTERED ARCHITECT
SAKY YAKAS
No. 018047
STATE OF NEW YORK

Figure 6 – Vapor Barrier System General Layout Foundation Plan



LEGEND

VAPOR BARRIER BENEATH CONCRETE SLAB

B-# DETAIL B - #
FIG-# FIGURE #
SYMBOL FOR DETAIL CALL-OUT

FOUNDATION PLAN

CLIENT: Broadway Housing Development Fund, 583 RIVERSIDE DRIVE, 7TH FLOOR, NEW YORK, NY 10031	SITE ADDRESS: SUGER HILL PROJECT, 400-414 WEST 155TH STREET, NEW YORK, NY 10032	ATC ASSOCIATES INC. ENVIRONMENTAL, GEOTECHNICAL AND MATERIALS PROFESSIONALS, 104 E. 25th Street, 10th Floor • New York, NY 10010-2917, (212) 353-8280 • FAX: (212) 353-8306	DRAWING BY: M. SVERDEL; INSPECTED BY: J. MYERS; DESIGNED BY: J. MYERS; CHECKED BY:	DRAWING TITLE: VAPOR BARRIER SYSTEM GENERAL LAYOUT FOUNDATION PLAN	DRAWING NO. FIG-6; SHT. OF; DATE: 05.XX.11; REVISION No 0
				SCALE N.T.S.	ATC PROJECT: # 15.26789.0007

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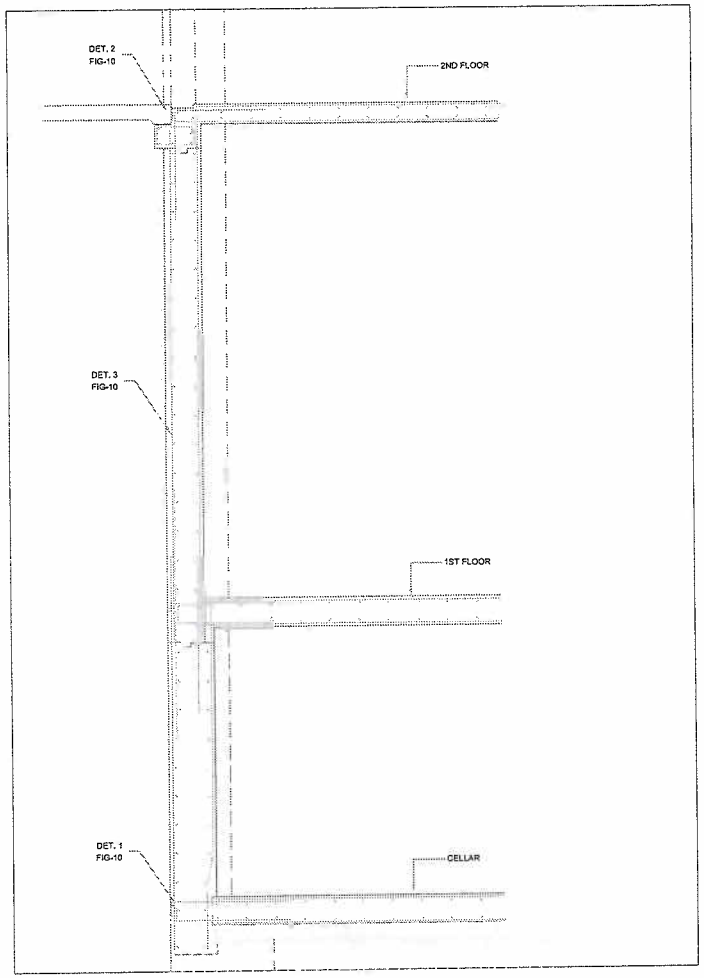
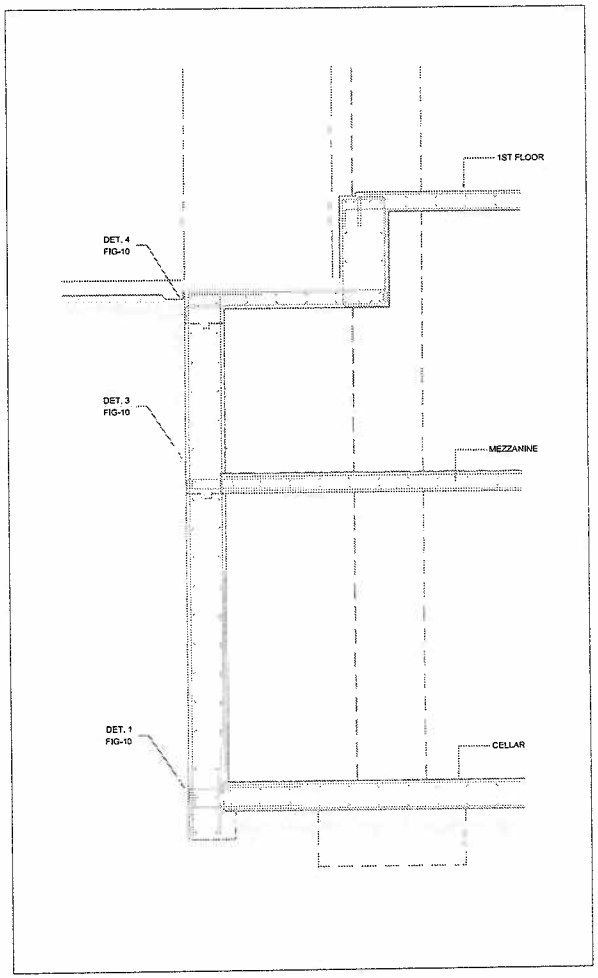
Figure 7 – Vapor Barrier System Details



DETAIL B-1
EXTERIOR FOOTING STEGO WRAP
BELOW GRADE INSTALLATION



DETAIL B-2
EXTERIOR FOOTING STEGO WRAP
BELOW GRADE INSTALLATION

SYMBOLS

DET. 2 FIG-10 — -DETAIL # / -FIGURE #

CLIENT: Broadway Housing Development Fund, 583 RIVERSIDE DRIVE, 7TH FLOOR, NEW YORK, NY 10031	SITE ADDRESS: SUGER HILL PROJECT, 400-414 WEST 155TH STREET, NEW YORK, NY 10032	ATC ASSOCIATES INC. ENVIRONMENTAL, GEOTECHNICAL AND MATERIALS PROFESSIONALS, 104 E. 25th Street, 10th Floor • New York, NY 10010-2917, (212) 353-8280 • FAX: (212) 353-8306	DRAWING BY: M. SVERDEL; INSPECTED BY: J. MYERS; DESIGNED BY: J. MYERS; CHECKED BY:
DRAWING TITLE: VAPOR BARRIER SYSTEM DETAILS	SCALE: SEE SCALE BAR	ATC PROJECT: # 15.26789.0007	DRAWING NO. FIG-7; SHT. OF; DATE: 05.XX.11; REVISION No. 0

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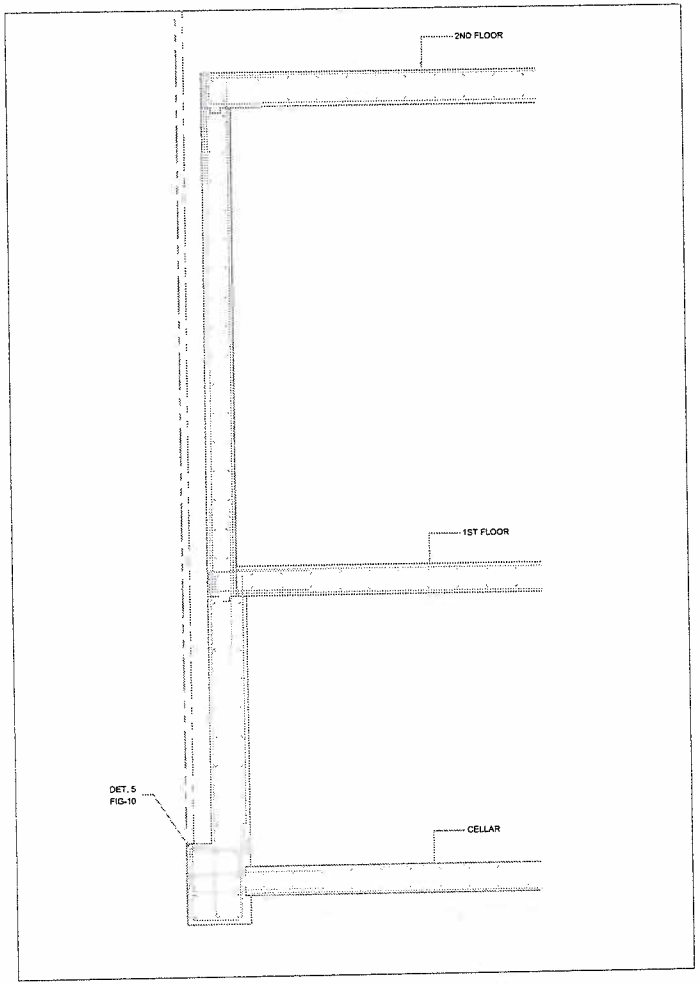
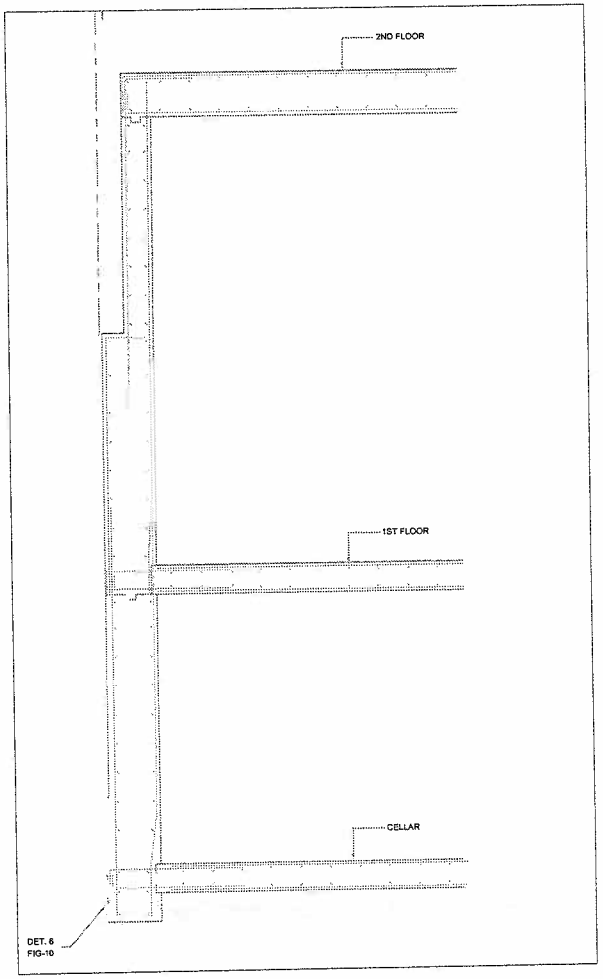
Figure 8 – Vapor Barrier System Details



DETAIL B-3
EXTERIOR FOOTING STEGO WRAP
BELOW GRADE INSTALLATION



DETAIL B-4
EXTERIOR FOOTING STEGO WRAP
BELOW GRADE INSTALLATION

SYMBOLS

DET. 2 — DETAIL #
FIG-10 — FIGURE #

CLIENT: Broadway Housing Development Fund, 583 RIVERSIDE DRIVE, 7TH FLOOR, NEW YORK, NY 10031	SITE ADDRESS: SUGER HILL PROJECT, 400-414 WEST 155TH STREET, NEW YORK, NY 10032	ATC ASSOCIATES INC. ENVIRONMENTAL, GEOTECHNICAL AND MATERIALS PROFESSIONALS, 104 E. 25th Street, 10th Floor • New York, NY 10010-2917, (212) 353-8280 • FAX: (212) 353-8306	DRAWING BY: M. SVERDEL; INSPECTED BY: J. MYERS; DESIGNED BY: J. MYERS; CHECKED BY:
DRAWING TITLE: VAPOR BARRIER SYSTEM DETAILS	SCALE: SEE SCALE BAR	ATC PROJECT: # 15.26789.0007	DRAWING NO. FIG-8; SHT. OF; DATE: 05.XX.11; REVISION No. 0

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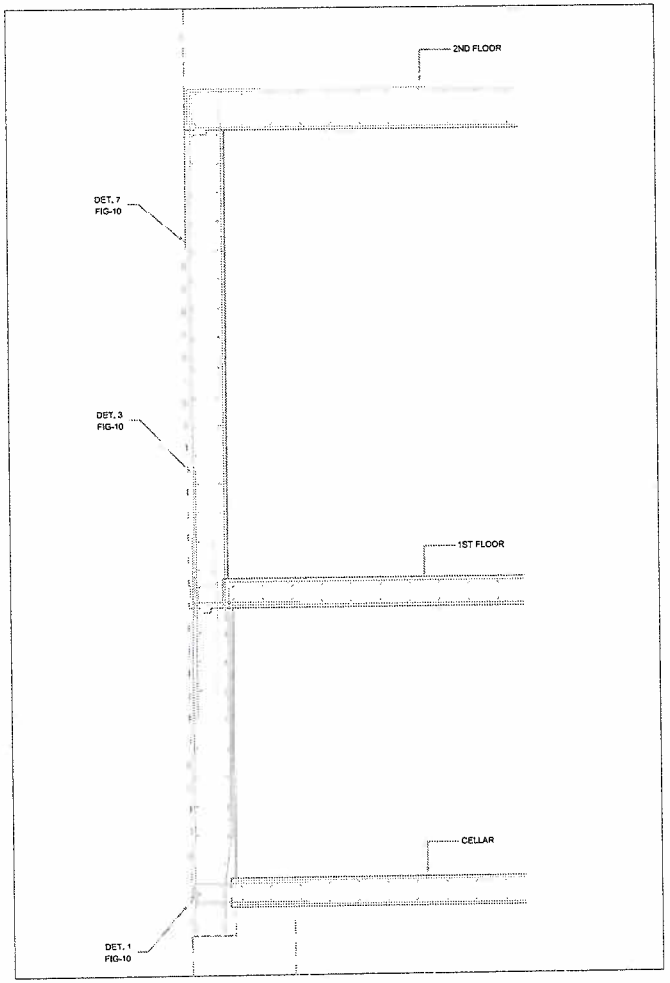
Figure 9 – Vapor Barrier System Details



DETAIL B-5
EXTERIOR FOOTING STEGO WRAP
BELOW GRADE INSTALLATION

SYMBOLS

DET. 2 -DETAIL #
FIG-10 -FIGURE #

CLIENT: Broadway Housing Development Fund, 583 RIVERSIDE DRIVE, 7TH FLOOR, NEW YORK, NY 10031	SITE ADDRESS: SUGER HILL PROJECT, 400-414 WEST 155TH STREET, NEW YORK, NY 10032	ATC ASSOCIATES INC. ENVIRONMENTAL, GEOTECHNICAL AND MATERIALS PROFESSIONALS, 104 E. 25th Street, 10th Floor • New York, NY 10010-2917, (212) 353-8280 • FAX: (212) 353-8306	DRAWING BY: M. SVERDEL; INSPECTED BY: J. MYERS; DESIGNED BY: J. MYERS; CHECKED BY:	DRAWING TITLE: VAPOR BARRIER SYSTEM DETAILS; SCALE: SEE SCALE BAR; ATC PROJECT: # 15.26789.0007

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DATE: 05.XX.11
REVISION No. 0

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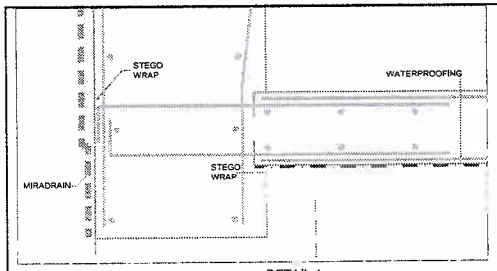
Figure 10 – Vapor Barrier System Details



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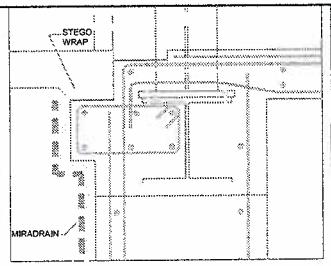
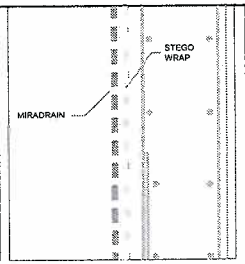


DETAIL 2
B1



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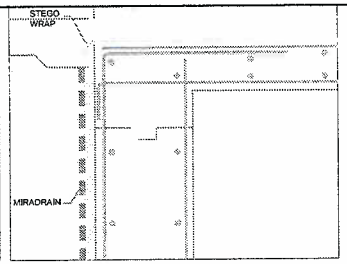
(TYP)



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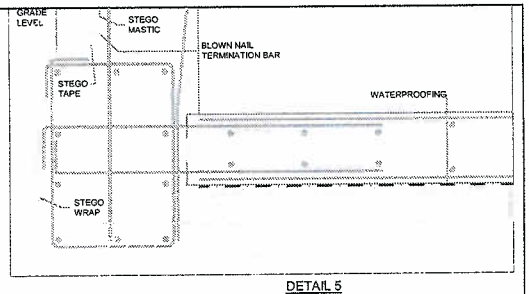
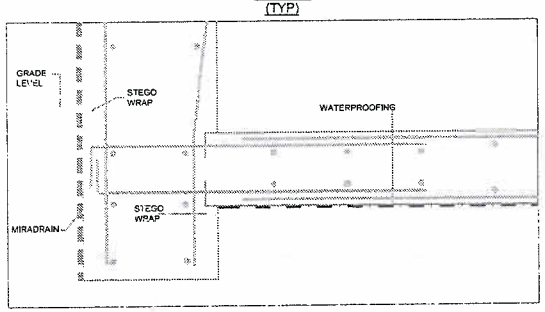
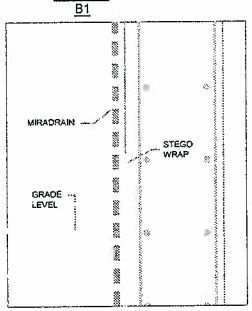


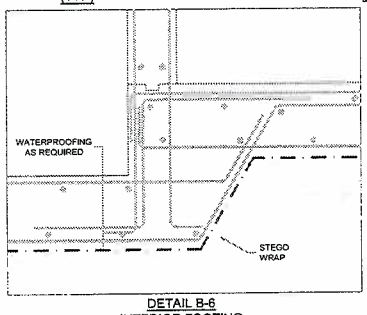
DETAIL 5
(B3)



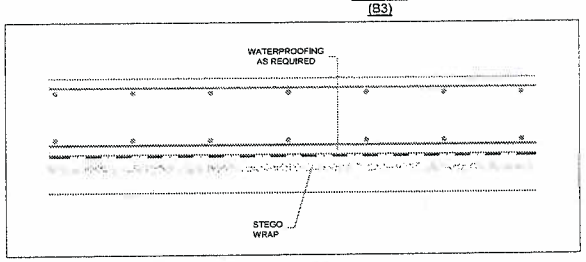
DETAIL 6
(TYP)



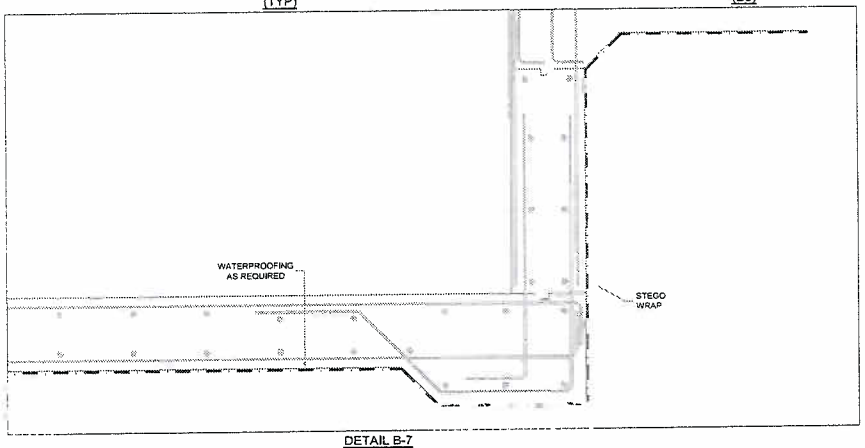
DETAIL 7
(B5)



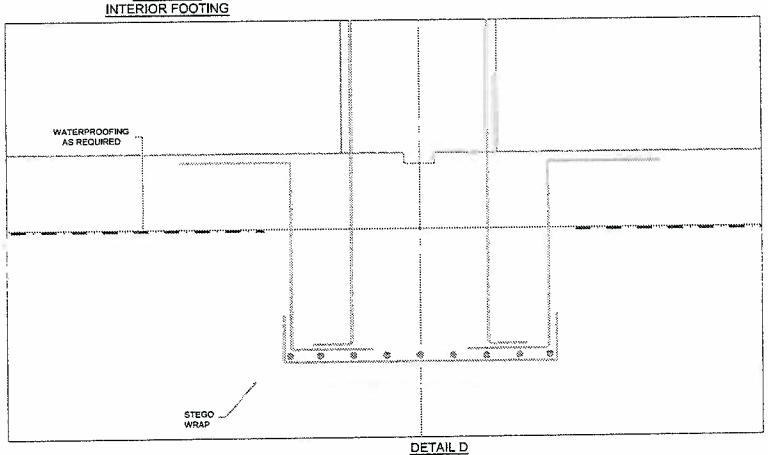
DETAIL B-6
INTERIOR FOOTING



DETAIL C
TYPICAL SLAB ON GROUND



DETAIL B-7
INTERIOR FOOTING



DETAIL D
TYPICAL INTERIOR FOOTING

CLIENT: Broadway Housing Development Fund, 583 RIVERSIDE DRIVE, 7TH FLOOR, NEW YORK, NY 10031	SITE ADDRESS: SUGER HILL PROJECT, 400-414 WEST 155TH STREET, NEW YORK, NY 10032	ATC ASSOCIATES INC. ENVIRONMENTAL, GEOTECHNICAL AND MATERIALS PROFESSIONALS, 104 E. 25th Street, 10th Floor • New York, NY 10010-2917, (212) 353-8280 • FAX: (212) 353-8306	DRAWING BY: M. SVERDEL; INSPECTED BY: J. MYERS; DESIGNED BY: J. MYERS; CHECKED BY:	DRAWING TITLE: VAPOR BARRIER SYSTEM DETAILS; SCALE: SEE SCALE BAR; ATC PROJECT: # 15.26789.0007

DRAWING NO. FIG-10
SHT. OF
DATE: 05.XX.11
REVISION No. 0

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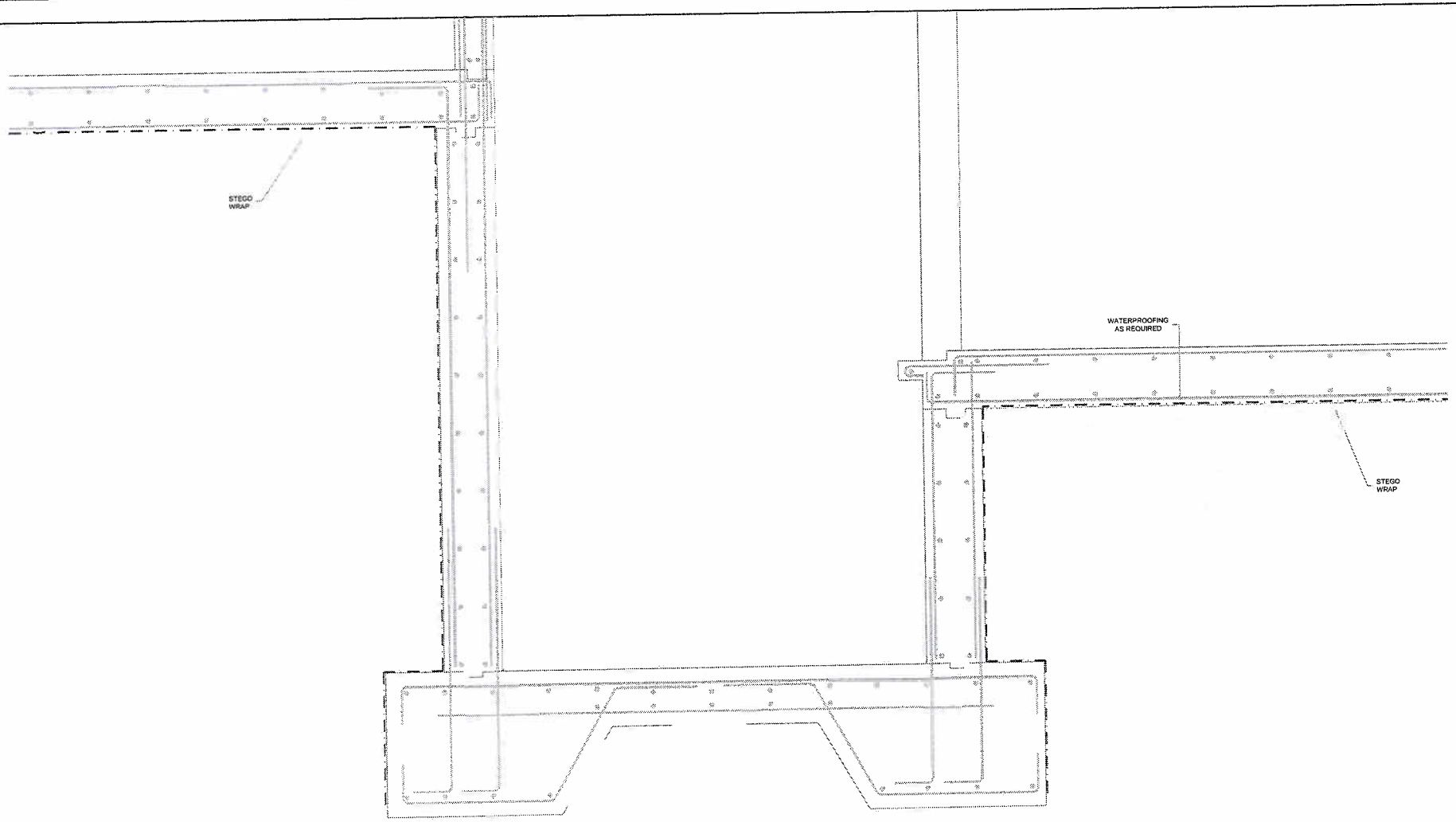
Figure 11 – Vapor Barrier System Details



DETAIL B-8
ELEVATOR SHAFT

CLIENT: Broadway Housing Development Fund, 583 RIVERSIDE DRIVE, 7TH FLOOR, NEW YORK, NY 10031	SITE ADDRESS: SUGER HILL PROJECT, 400-414 WEST 155TH STREET, NEW YORK, NY 10032	ATC ASSOCIATES INC. ENVIRONMENTAL, GEOTECHNICAL AND MATERIALS PROFESSIONALS, 104 E. 25th Street, 10th Floor • New York, NY 10010-2917, (212) 353-8280 • FAX: (212) 353-8306	DRAWING BY: M. SVERDEL; INSPECTED BY: J. MYERS; DESIGNED BY: J. MYERS; CHECKED BY:	DRAWING TITLE: VAPOR BARRIER SYSTEM DETAILS; SCALE: SEE SCALE BAR; ATC PROJECT: # 15.26789.0007

DRAWING NO. FIG-11
SHT. OF
DATE: 05.XX.11
REVISION No. 0

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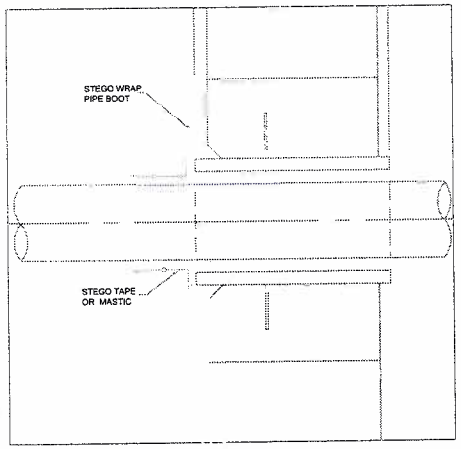
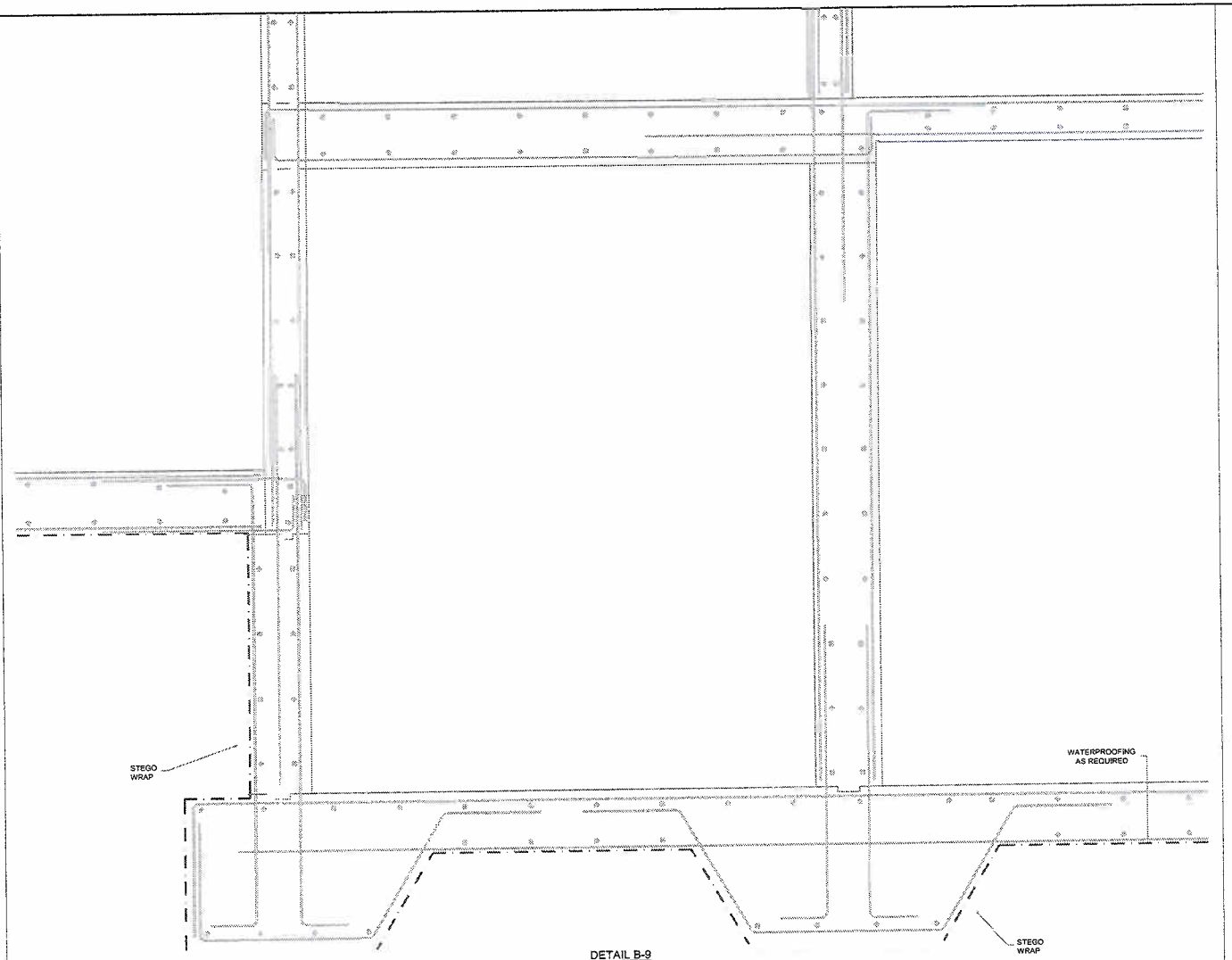
Figure 12 – Vapor Barrier System Details



TYPICAL PIPE /UTILITY PENETRATION SEALING



DETAIL B-9
INTERIOR FOOTING

CLIENT: Broadway Housing Development Fund, 583 RIVERSIDE DRIVE, 7TH FLOOR, NEW YORK, NY 10031	SITE ADDRESS: SUGER HILL PROJECT, 400-414 WEST 155TH STREET, NEW YORK, NY 10032	ATC ASSOCIATES INC. ENVIRONMENTAL, GEOTECHNICAL AND MATERIALS PROFESSIONALS, 104 E. 25th Street, 10th Floor • New York, NY 10010-2917, (212) 353-8280 • FAX: (212) 353-8306	DRAWING BY: M. SVERDEL; INSPECTED BY: J. MYERS; DESIGNED BY: J. MYERS; CHECKED BY:	DRAWING TITLE: VAPOR BARRIER SYSTEM DETAILS; SCALE: SEE SCALE BAR; ATC PROJECT: # 15.26789.0007	DRAWING NO. FIG-12; SHT. OF; DATE: 05.XX.11; REVISION No. 0

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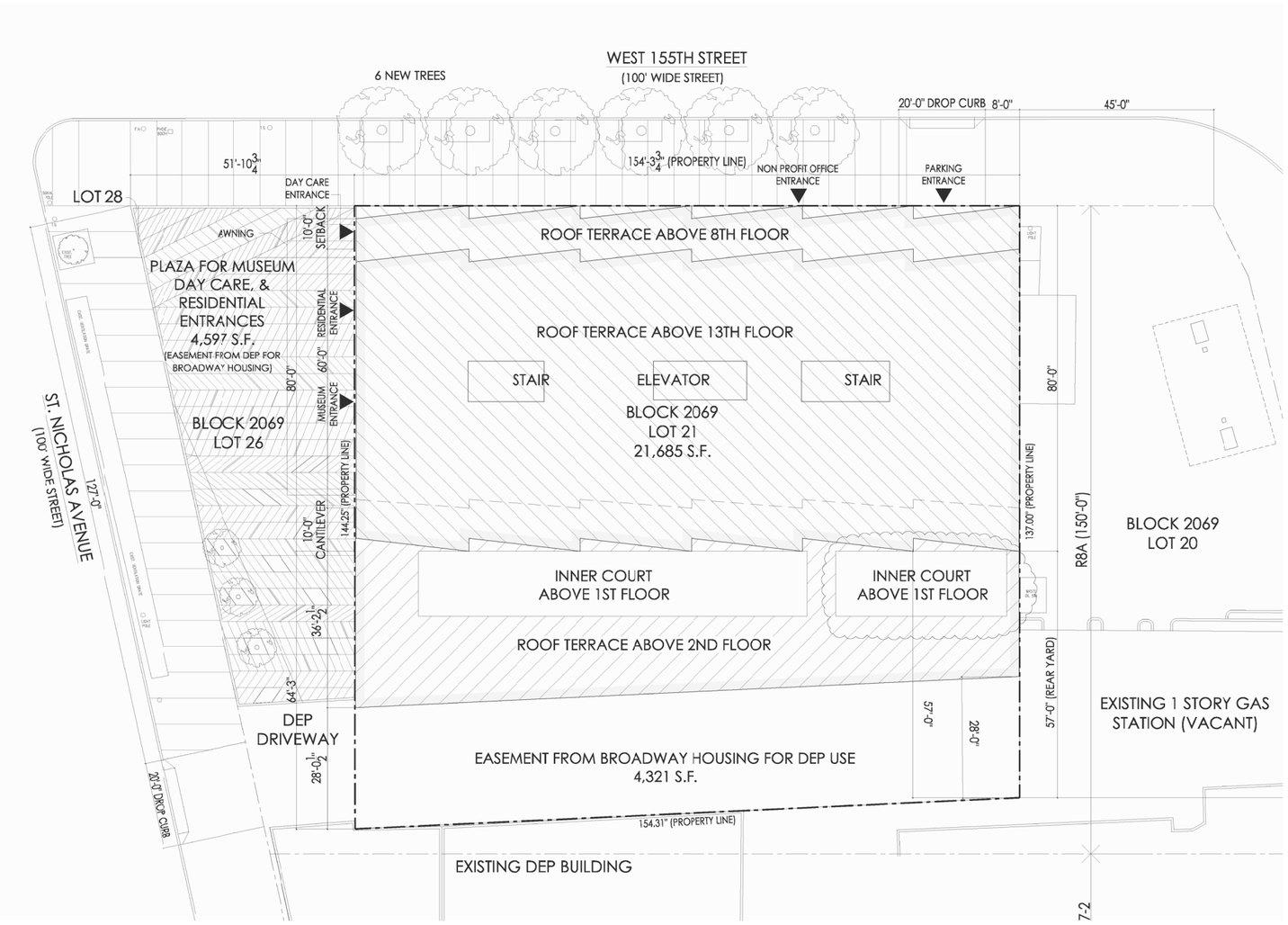
FIGURES



SITE PLAN

0 16 32
SCALE IN FEET

CLIENT:	SITE ADDRESS:			DRAWING TITLE:	
Broadway Housing Development Fund 583 RIVERSIDE DRIVE, 7TH FLOOR NEW YORK, NY 10031	SUGER HILL PROJECT 400-414 WEST 155TH STREET NEW YORK, NY 10032	ATC ASSOCIATES INC. ENVIRONMENTAL, GEOTECHNICAL AND MATERIALS PROFESSIONALS 104 E. 25th Street, 10th Floor • New York, NY 10010-2917 (212) 353-8280 • FAX: (212) 353-8306	DRAWING BY: M. SVERDEL INSPECTED BY: M. MANKOVICH DESIGNED BY: M. MANKOVICH CHECKED BY:	SITE PLAN SCALE: SEE SCALE BAR ATC PROJECT: # 15.26789.0007	DRAWING NO. FIG-1 SHT. OF DATE: 05.XX.11 REVISION No. 0

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SITE LOCATION PLAN

CLIENT:	SITE ADDRESS:			DRAWING TITLE:	
Broadway Housing Development Fund 583 RIVERSIDE DRIVE, 7TH FLOOR NEW YORK, NY 10031	SUGER HILL PROJECT 400-414 WEST 155TH STREET NEW YORK, NY 10032	ATC ASSOCIATES INC. ENVIRONMENTAL, GEOTECHNICAL AND MATERIALS PROFESSIONALS 104 E. 25th Street, 10th Floor • New York, NY 10010-2917 (212) 353-8280 • FAX: (212) 353-8306	DRAWING BY: M. SVERDEL INSPECTED BY: M. MANKOVICH DESIGNED BY: M. MANKOVICH CHECKED BY:	SITE LOCATION MAP SCALE SEE SCALE BAR ATC PROJECT: # 15.26789.0007	DRAWING NO. FIG-2 SHT. OF DATE: 05.XX.11 REVISION No. 0

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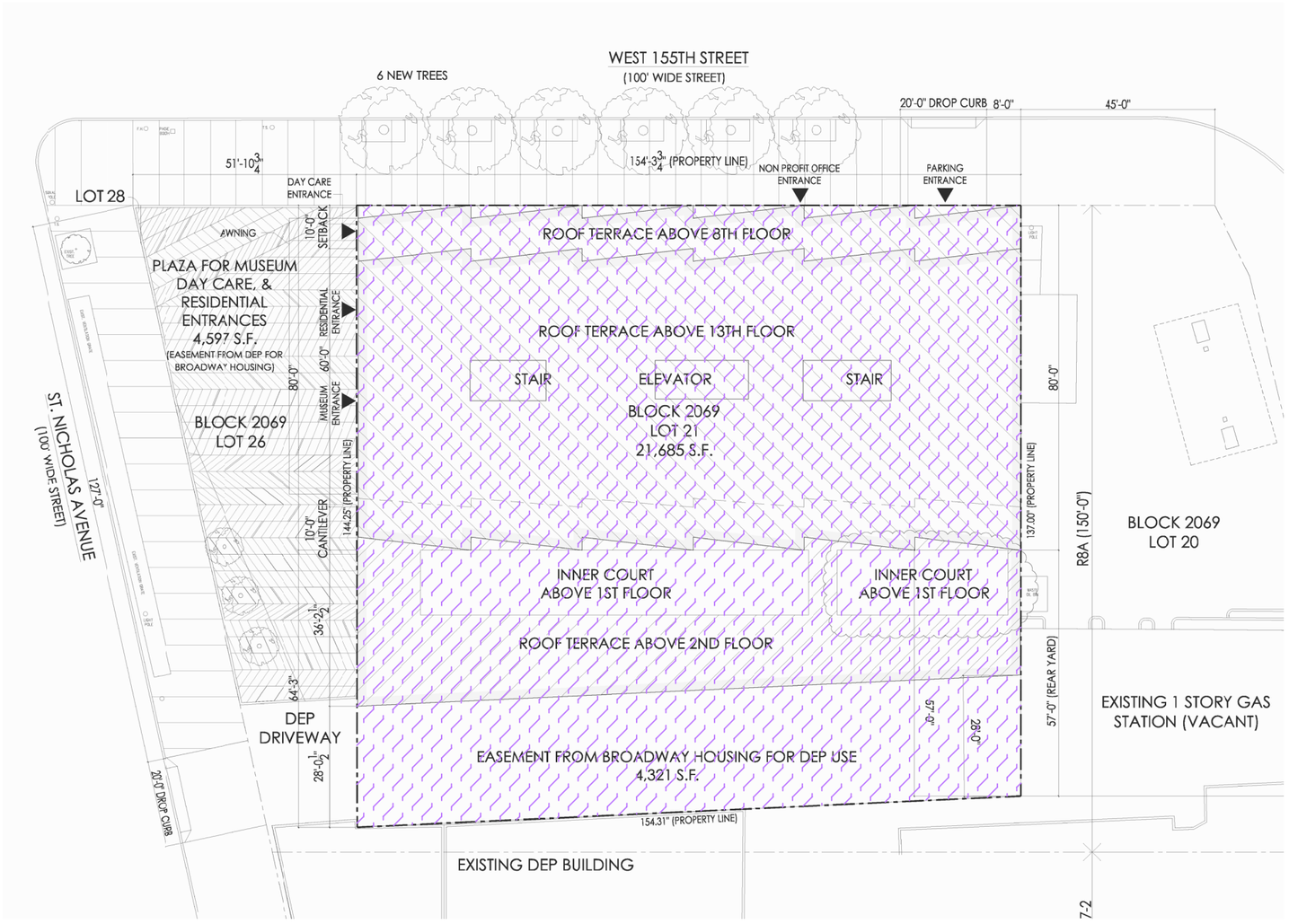

LEGEND

PLANNED EXCAVATION AREA

PLANNED EXCAVATION AREA

0 16 32
SCALE IN FEET

CLIENT:	SITE ADDRESS:			DRAWING TITLE:	
Broadway Housing Development Fund 583 RIVERSIDE DRIVE, 7TH FLOOR NEW YORK, NY 10031	SUGER HILL PROJECT 400-414 WEST 155TH STREET NEW YORK, NY 10032	ATC ASSOCIATES INC. ENVIRONMENTAL, GEOTECHNICAL AND MATERIALS PROFESSIONALS 104 E. 25th Street, 10th Floor • New York, NY 10010-2917 (212) 353-8280 • FAX: (212) 353-8306	DRAWING BY: M. SVERDEL INSPECTED BY: M. MANKOVICH DESIGNED BY: M. MANKOVICH CHECKED BY:	PLANNED EXCAVATION AREA	DRAWING NO. FIG-3 SHT. OF DATE: 05.XX.11
				SCALE SEE SCALE BAR ATC PROJECT: # 15.26789.0007	REVISION No. 0

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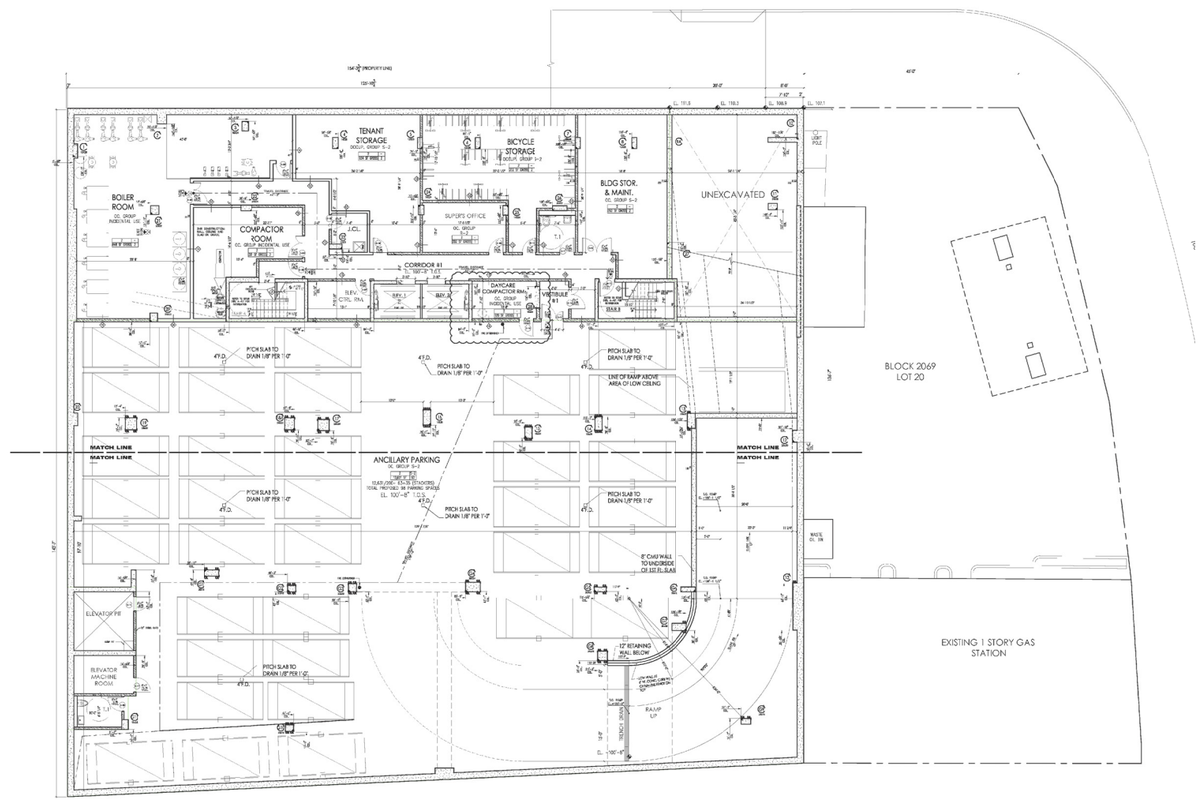

CELLAR PLAN

0 16 32
SCALE IN FEET

CLIENT:	SITE ADDRESS:			DRAWING TITLE:	
Broadway Housing Development Fund 583 RIVERSIDE DRIVE, 7TH FLOOR NEW YORK, NY 10031	SUGER HILL PROJECT 400-414 WEST 155TH STREET NEW YORK, NY 10032	ATC ASSOCIATES INC. ENVIRONMENTAL, GEOTECHNICAL AND MATERIALS PROFESSIONALS 104 E. 25th Street, 10th Floor • New York, NY 10010-2917 (212) 353-8280 • FAX: (212) 353-8306	DRAWING BY: M. SVERDEL INSPECTED BY: M. MANKOVICH DESIGNED BY: M. MANKOVICH CHECKED BY:	CELLAR PLAN SCALE SEE SCALE BAR ATC PROJECT: # 15.26789.0007	DRAWING NO. FIG-4 SHT. OF DATE: 05.XX.11 REVISION No. 0

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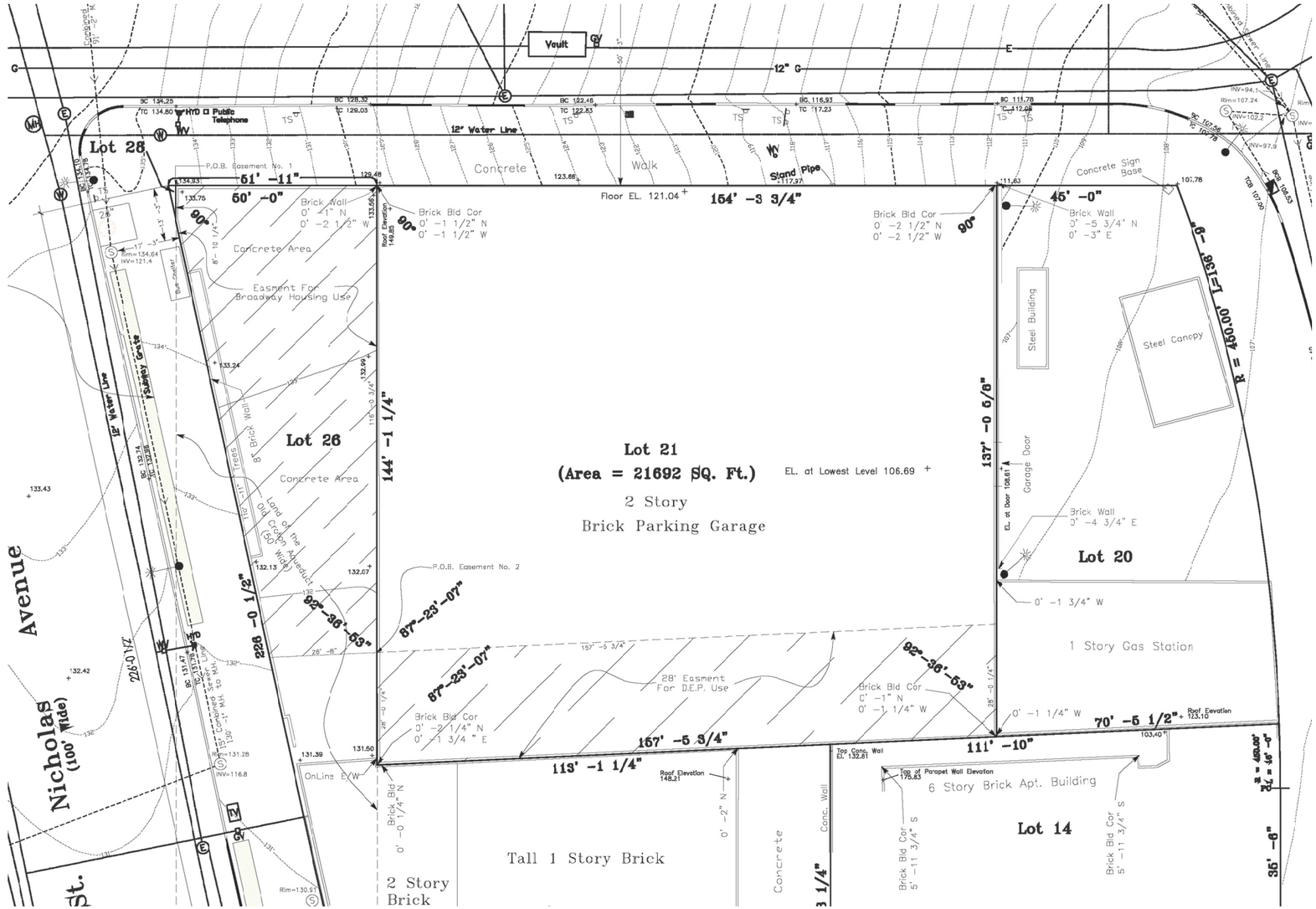

SITE LAYOUT PLAN

0 16 32
SCALE IN FEET

CLIENT:	SITE ADDRESS:			DRAWING TITLE:	
Broadway Housing Development Fund 583 RIVERSIDE DRIVE, 7TH FLOOR NEW YORK, NY 10031	SUGER HILL PROJECT 400-414 WEST 155TH STREET NEW YORK, NY 10032	ATC ASSOCIATES INC. ENVIRONMENTAL, GEOTECHNICAL AND MATERIALS PROFESSIONALS 104 E. 25th Street, 10th Floor • New York, NY 10010-2917 (212) 353-8280 • FAX: (212) 353-8306	DRAWING BY: M. SVERDEL INSPECTED BY: M. MANKOVICH DESIGNED BY: M. MANKOVICH CHECKED BY:	SITE LAYOUT PLAN	DRAWING NO. FIG-5 SHT. OF DATE: 05.XX.11
				SCALE SEE SCALE BAR ATC PROJECT: # 15.26789.0007	REVISION No. 0

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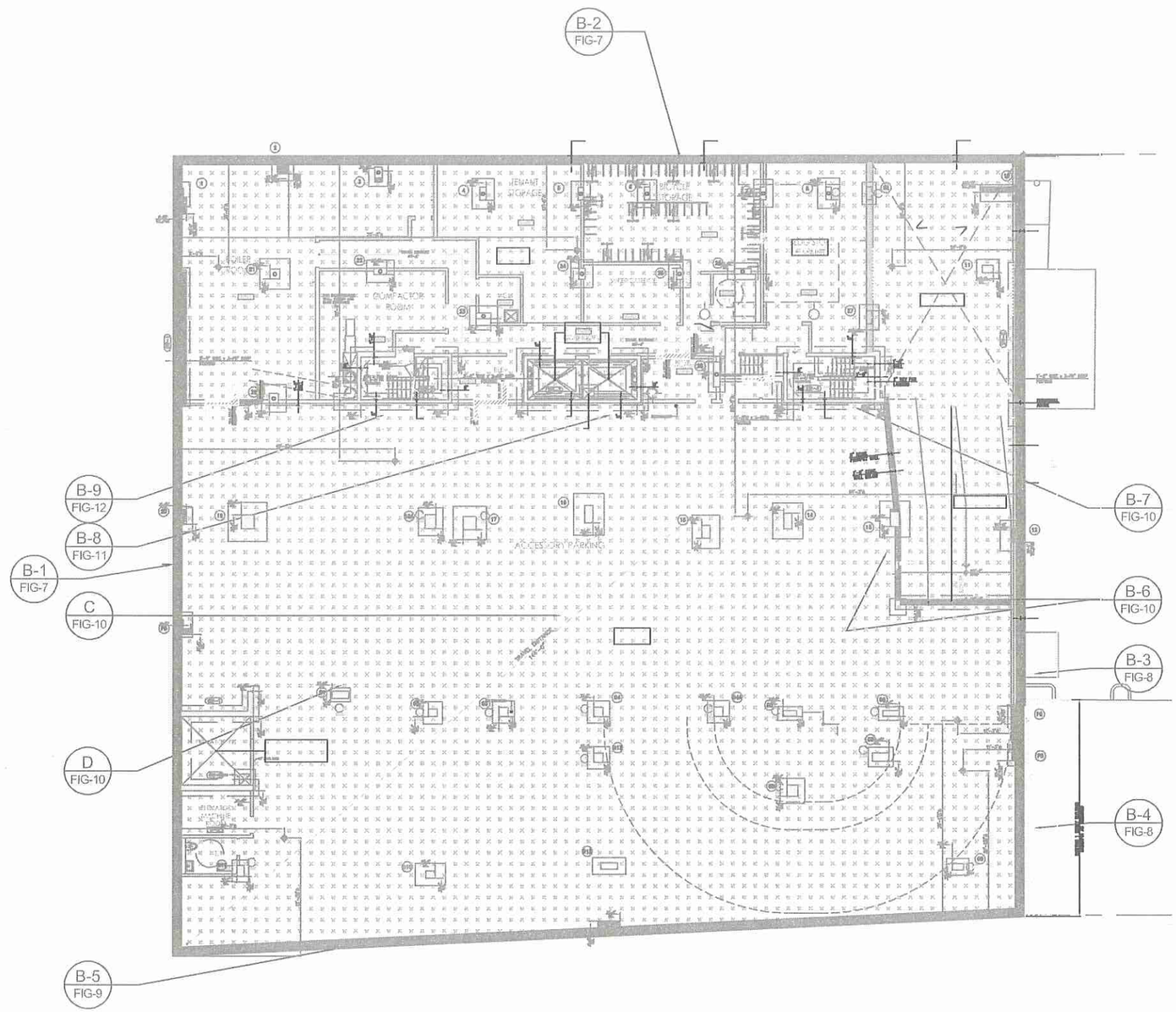

LEGEND

× × ×	VAPOR BARRIER BENEATH CONCRETE SLAB
B - # / FIG - # (DETAIL B - #, FIGURE #)	SYMBOL FOR DETAIL CALL-OUT

FOUNDATION PLAN

STATE OF NEW YORK
GILBERT GEDEON
075399
LICENSED PROFESSIONAL ENGINEER

CLIENT:	SITE ADDRESS:			DRAWING TITLE:	
Broadway Housing Development Fund 583 RIVERSIDE DRIVE, 7TH FLOOR NEW YORK, NY 10031	SUGER HILL PROJECT 400-414 WEST 155TH STREET NEW YORK, NY 10032	ATC ASSOCIATES INC. ENVIRONMENTAL, GEOTECHNICAL AND MATERIALS PROFESSIONALS 104 E. 25th Street, 10th Floor • New York, NY 10010-2917 (212) 353-8280 • FAX: (212) 353-8306	DRAWING BY: M. SVERDEL INSPECTED BY: J. MYERS DESIGNED BY: J. MYERS CHECKED BY:	VAPOR BARRIER SYSTEM GENERAL LAYOUT FOUNDATION PLAN	DRAWING NO. FIG-6 SHT. OF DATE: 05.XX.11 REVISION No. 0
				SCALE N.T.S. / ATC PROJECT: # 15.26789.0007	

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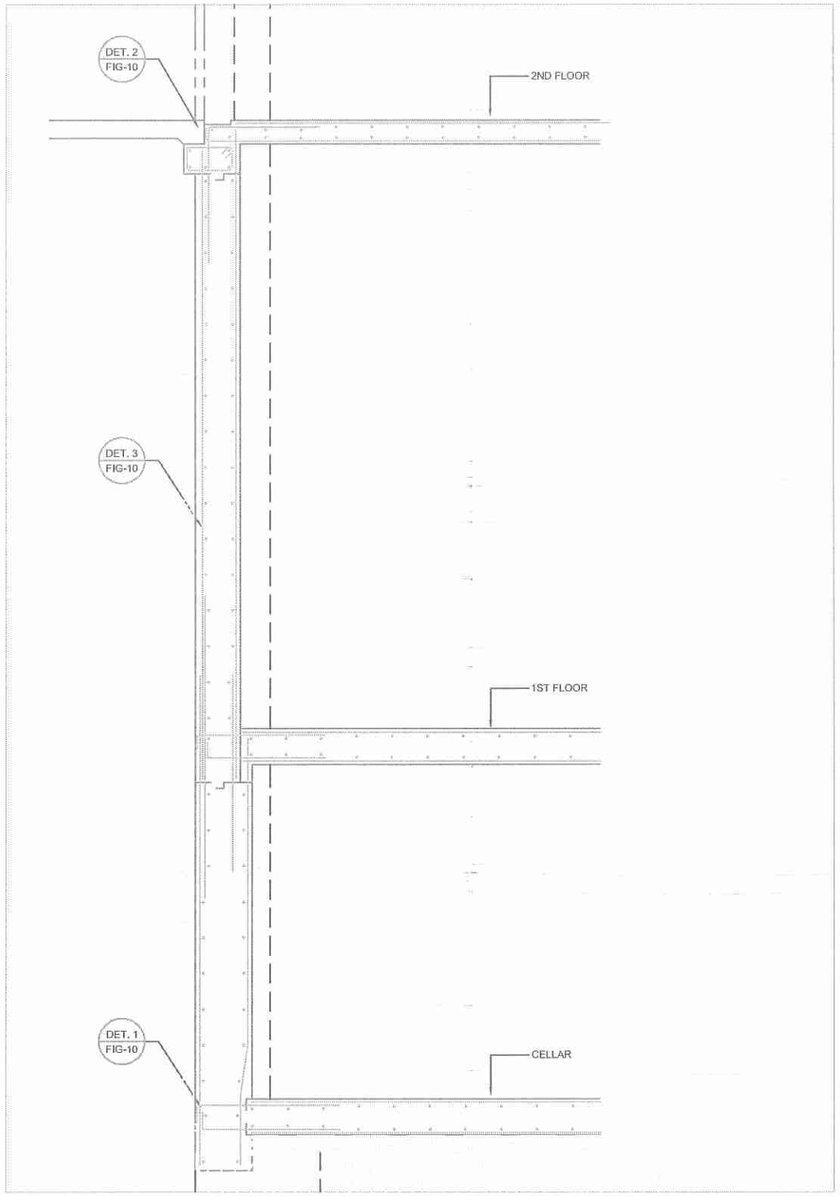
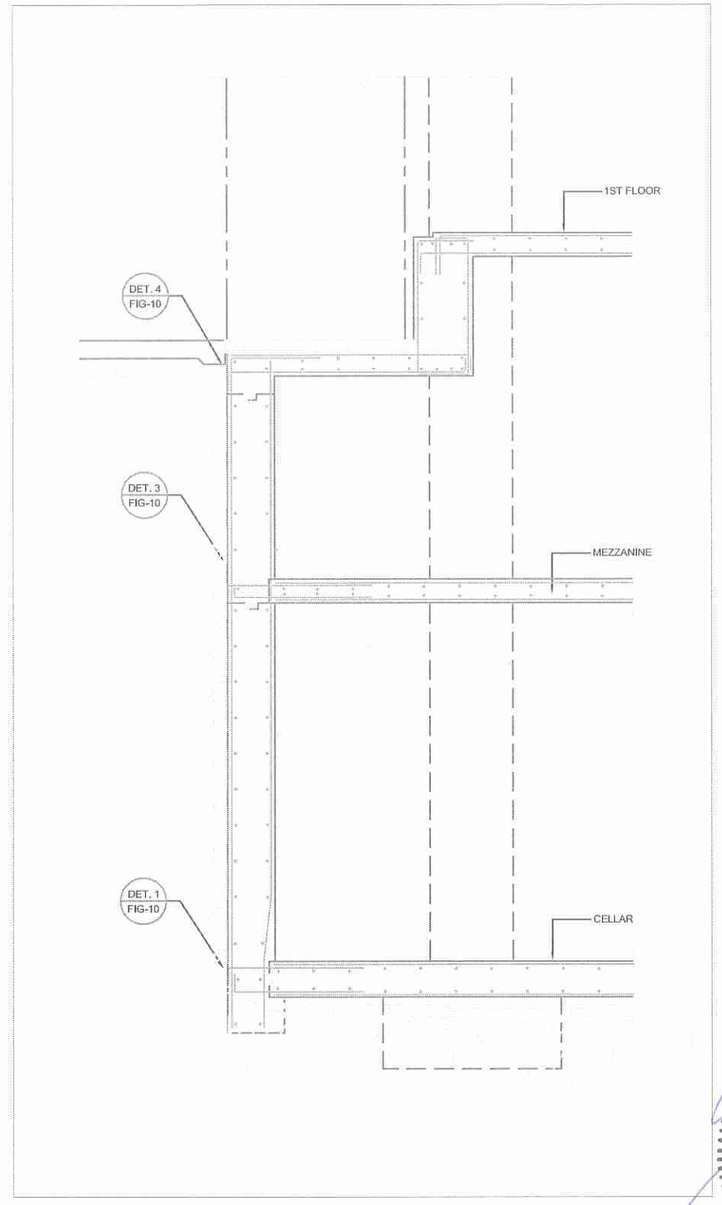


DETAIL B-1
EXTERIOR FOOTING STEGO WRAP
BELOW GRADE INSTALLATION



DETAIL B-2
EXTERIOR FOOTING STEGO WRAP
BELOW GRADE INSTALLATION

SYMBOLS

DET. 2 / FIG-10 — -DETAIL # / -FIGURE #

STATE OF NEW YORK · GILBERT GEDEON · 075399 · LICENSED PROFESSIONAL ENGINEER

CLIENT: Broadway Housing Development Fund, 583 RIVERSIDE DRIVE, 7TH FLOOR, NEW YORK, NY 10031	SITE ADDRESS: SUGER HILL PROJECT, 400-414 WEST 155TH STREET, NEW YORK, NY 10032	ATC ASSOCIATES INC. ENVIRONMENTAL, GEOTECHNICAL AND MATERIALS PROFESSIONALS, 104 E. 25th Street, 10th Floor • New York, NY 10010-2917, (212) 353-8280 • FAX: (212) 353-8306	DRAWING BY: M. SVERDEL; INSPECTED BY: J. MYERS; DESIGNED BY: J. MYERS; CHECKED BY:	DRAWING TITLE: VAPOR BARRIER SYSTEM DETAILS	DRAWING NO. FIG-7; SHT. OF; DATE: 05.XX.11; REVISION No. 0
				SCALE: SEE SCALE BAR; ATC PROJECT: # 15.26789.0007	

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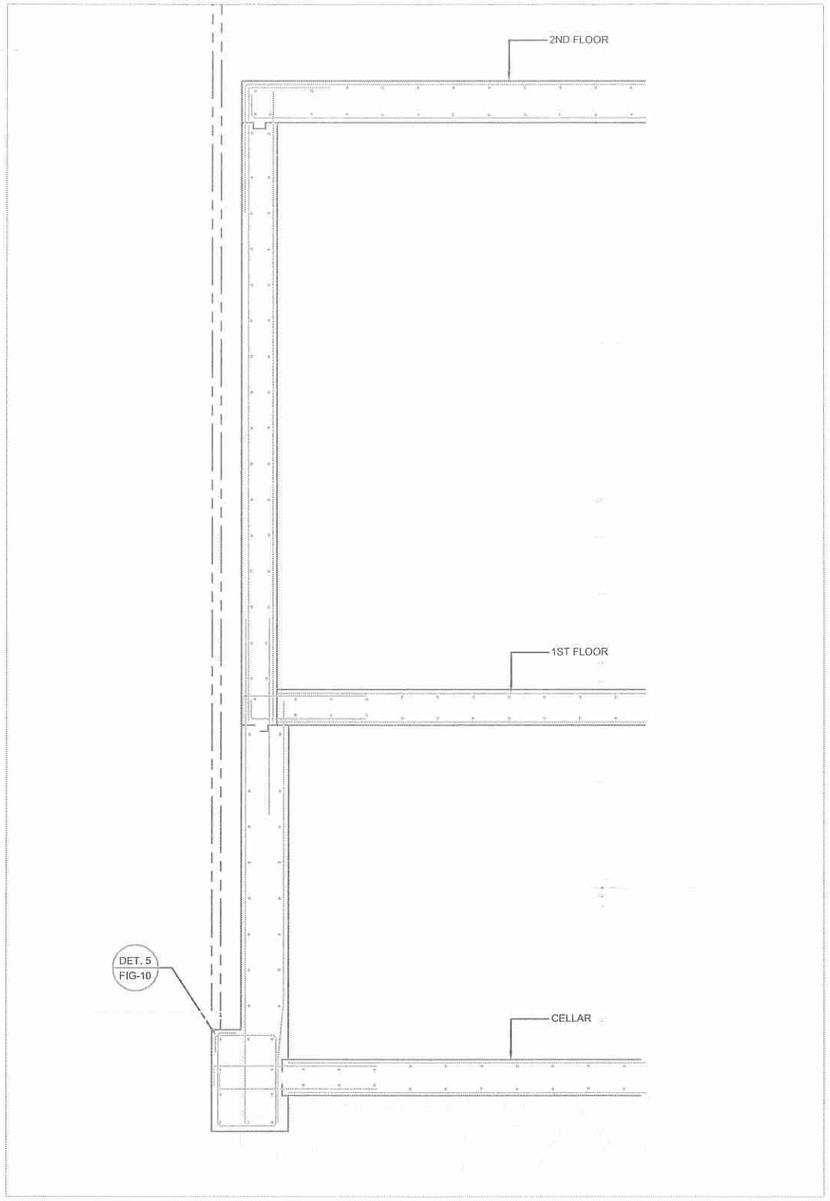
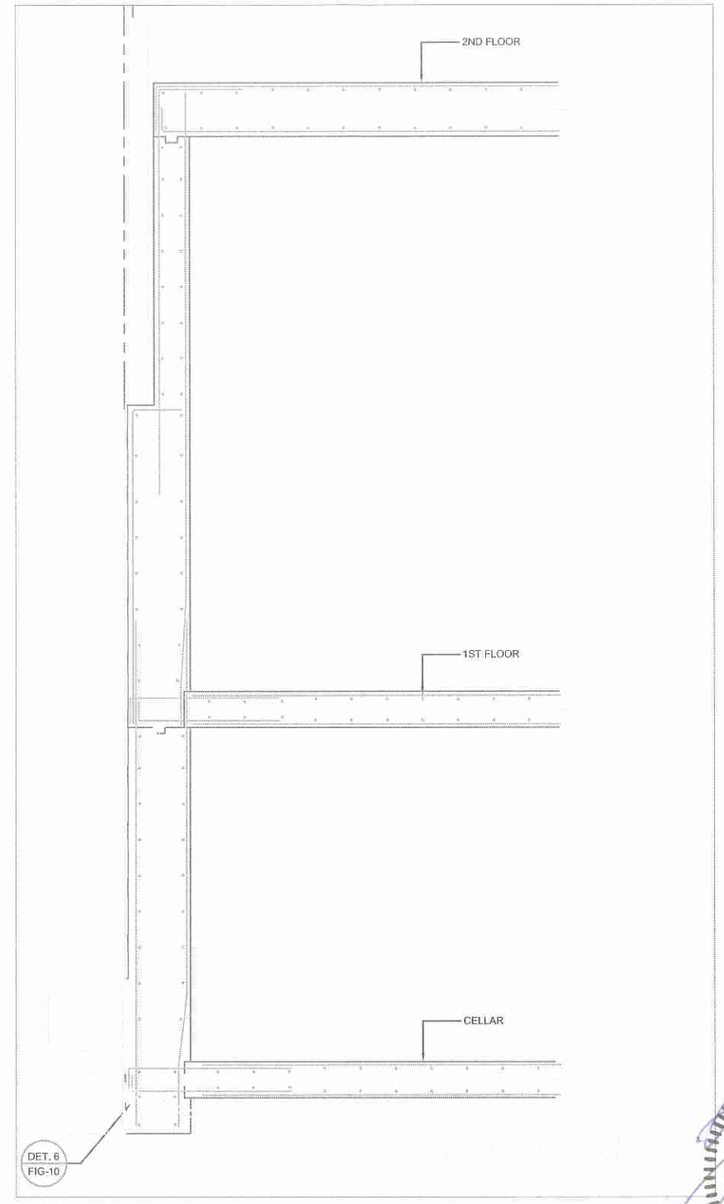


DETAIL B-3
EXTERIOR FOOTING STEGO WRAP
BELOW GRADE INSTALLATION



DETAIL B-4
EXTERIOR FOOTING STEGO WRAP
BELOW GRADE INSTALLATION

SYMBOLS

DET. 2 / FIG-10 — -DETAIL # / -FIGURE #

STATE OF NEW YORK
GILBERT GEDEON
075399
LICENSED PROFESSIONAL ENGINEER

CLIENT: Broadway Housing Development Fund, 583 RIVERSIDE DRIVE, 7TH FLOOR, NEW YORK, NY 10031	SITE ADDRESS: SUGER HILL PROJECT, 400-414 WEST 155TH STREET, NEW YORK, NY 10032	ATC ASSOCIATES INC. ENVIRONMENTAL, GEOTECHNICAL AND MATERIALS PROFESSIONALS, 104 E. 25th Street, 10th Floor • New York, NY 10010-2917, (212) 353-8280 • FAX: (212) 353-8306	DRAWING BY: M. SVERDEL; INSPECTED BY: J. MYERS; DESIGNED BY: J. MYERS; CHECKED BY:	DRAWING TITLE: VAPOR BARRIER SYSTEM DETAILS; SCALE: SEE SCALE BAR; ATC PROJECT: # 15.26789.0007

DRAWING NO. FIG-8
SHT. OF
DATE: 05.XX.11
REVISION No. 0

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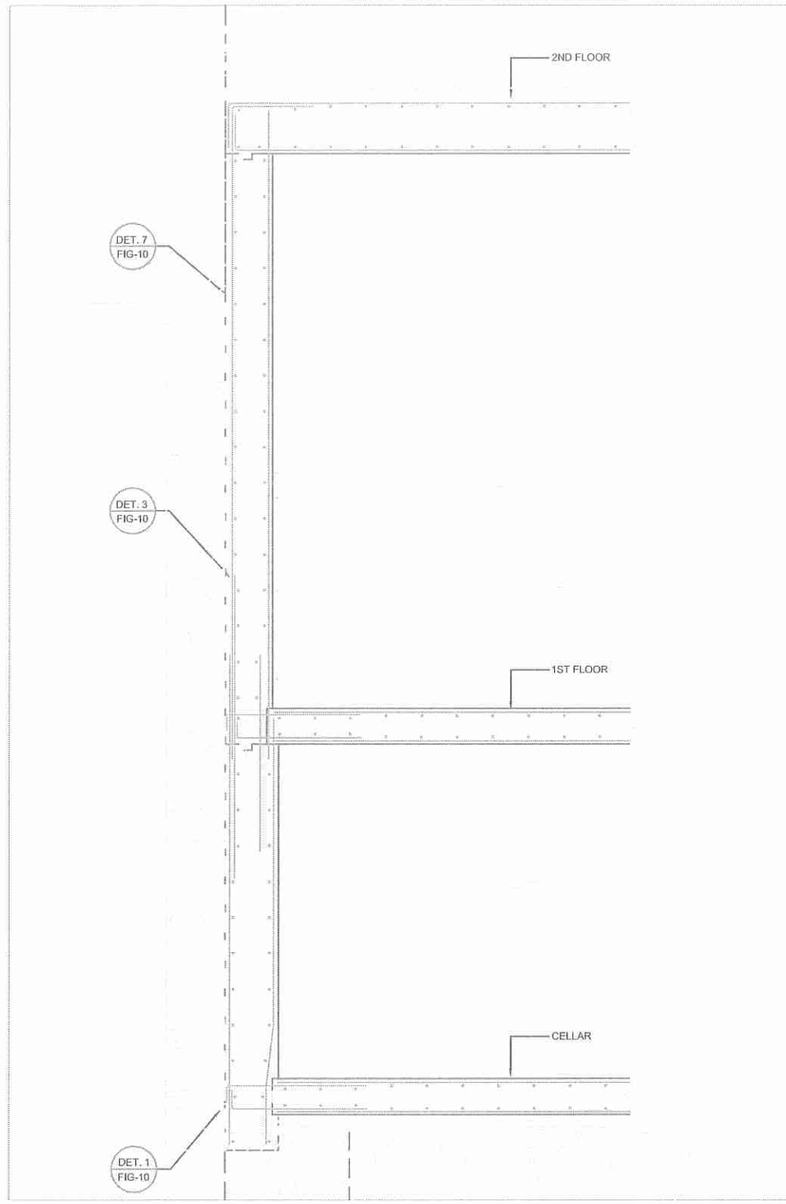

DETAIL B-5
EXTERIOR FOOTING STEGO WRAP
BELOW GRADE INSTALLATION

SYMBOLS

DET. 2 / FIG-10 — -DETAIL # / -FIGURE #

STATE OF NEW YORK · GILBERT GEDEON · 075399 · LICENSED PROFESSIONAL ENGINEER

CLIENT: Broadway Housing Development Fund, 583 RIVERSIDE DRIVE, 7TH FLOOR, NEW YORK, NY 10031	SITE ADDRESS: SUGER HILL PROJECT, 400-414 WEST 155TH STREET, NEW YORK, NY 10032	ATC ASSOCIATES INC. ENVIRONMENTAL, GEOTECHNICAL AND MATERIALS PROFESSIONALS, 104 E. 25th Street, 10th Floor • New York, NY 10010-2917, (212) 353-8280 • FAX: (212) 353-8306	DRAWING BY: M. SVERDEL; INSPECTED BY: J. MYERS; DESIGNED BY: J. MYERS; CHECKED BY:	DRAWING TITLE: VAPOR BARRIER SYSTEM DETAILS; SCALE: SEE SCALE BAR; ATC PROJECT: # 15.26789.0007	DRAWING NO. FIG-9; SHT. OF; DATE: 05.XX.11; REVISION No. 0

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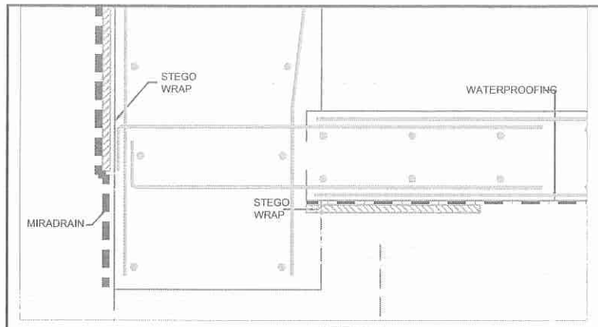
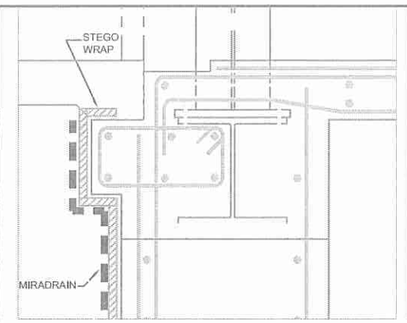
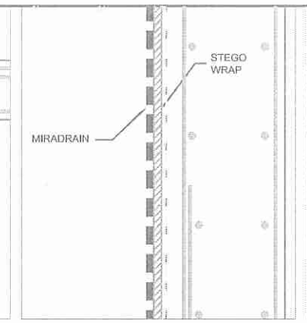


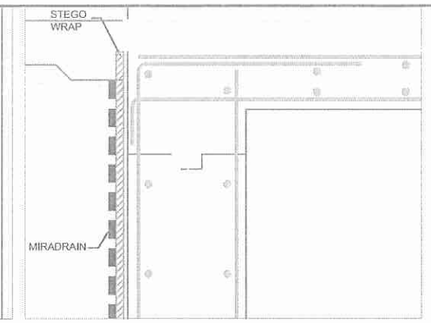
DETAIL 1
(TYP)



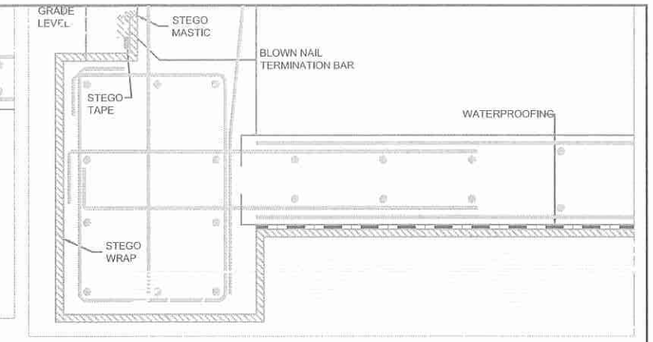
DETAIL 2
B1



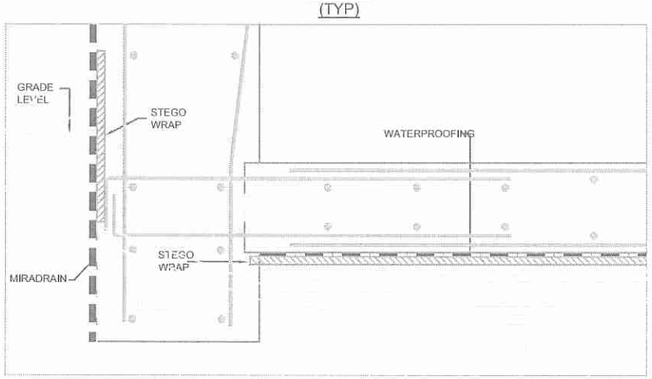
DETAIL 3
(TYP)



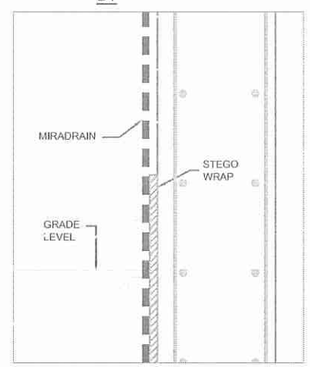
DETAIL 4
(B2)



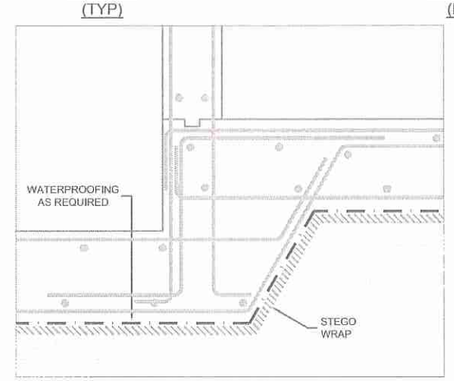
DETAIL 5
(B3)



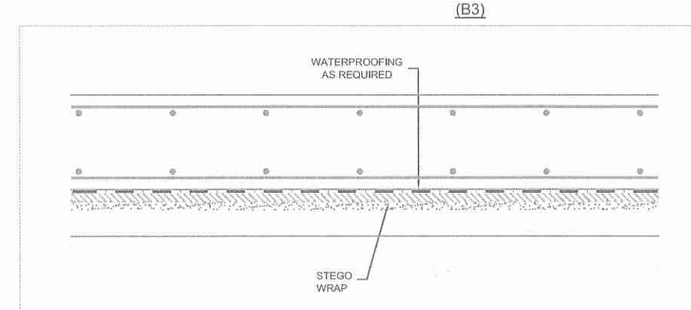
DETAIL 6
(TYP)



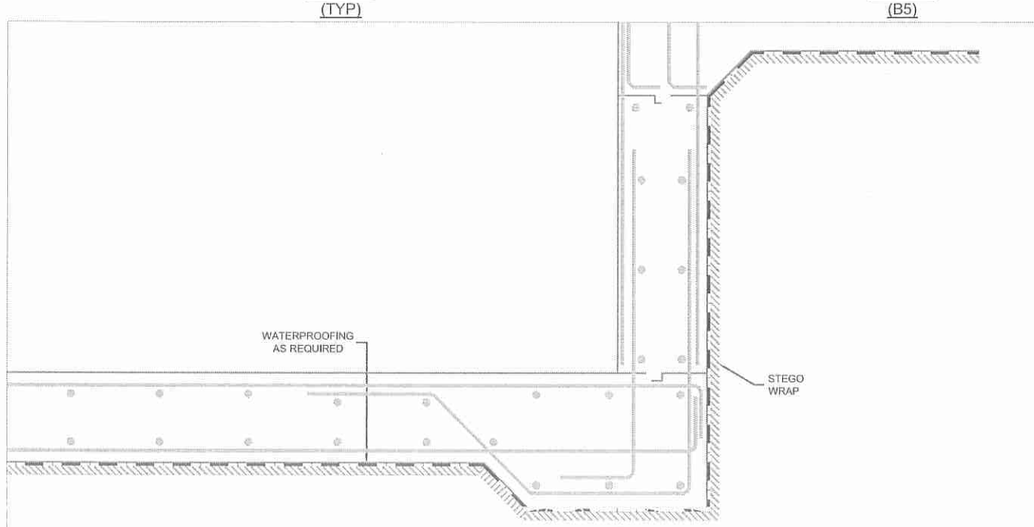
DETAIL 7
(B5)



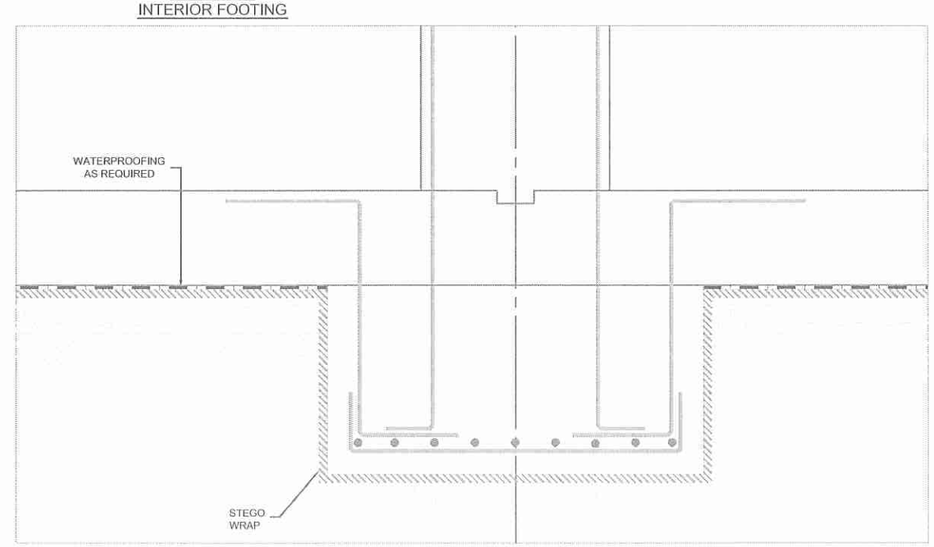
DETAIL B-6
INTERIOR FOOTING



DETAIL C
TYPICAL SLAB ON GROUND



DETAIL B-7
INTERIOR FOOTING



DETAIL D
TYPICAL INTERIOR FOOTING

STATE OF NEW YORK
GILBERT GEDEON
075399
LICENSED PROFESSIONAL ENGINEER

CLIENT: Broadway Housing Development Fund 583 RIVERSIDE DRIVE, 7TH FLOOR NEW YORK, NY 10031	SITE ADDRESS: SUGER HILL PROJECT 400-414 WEST 155TH STREET NEW YORK, NY 10032	ATC ASSOCIATES INC. ENVIRONMENTAL, GEOTECHNICAL AND MATERIALS PROFESSIONALS 104 E. 25th Street, 10th Floor • New York, NY 10010-2917 (212) 353-8280 • FAX: (212) 353-8306	DRAWING BY: M. SVERDEL INSPECTED BY: J. MYERS DESIGNED BY: J. MYERS CHECKED BY:	DRAWING TITLE: VAPOR BARRIER SYSTEM DETAILS SCALE SEE SCALE BAR ATC PROJECT: # 15.26789.0007
				DRAWING NO. FIG-10 SHT. OF DATE: 05.XX.11 REVISION No. 0

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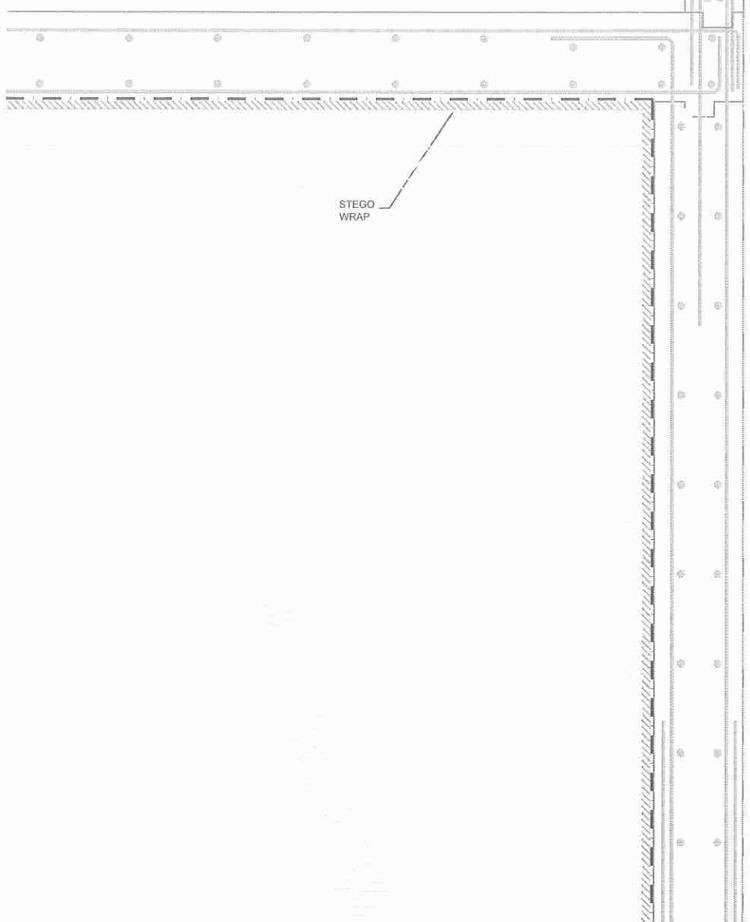

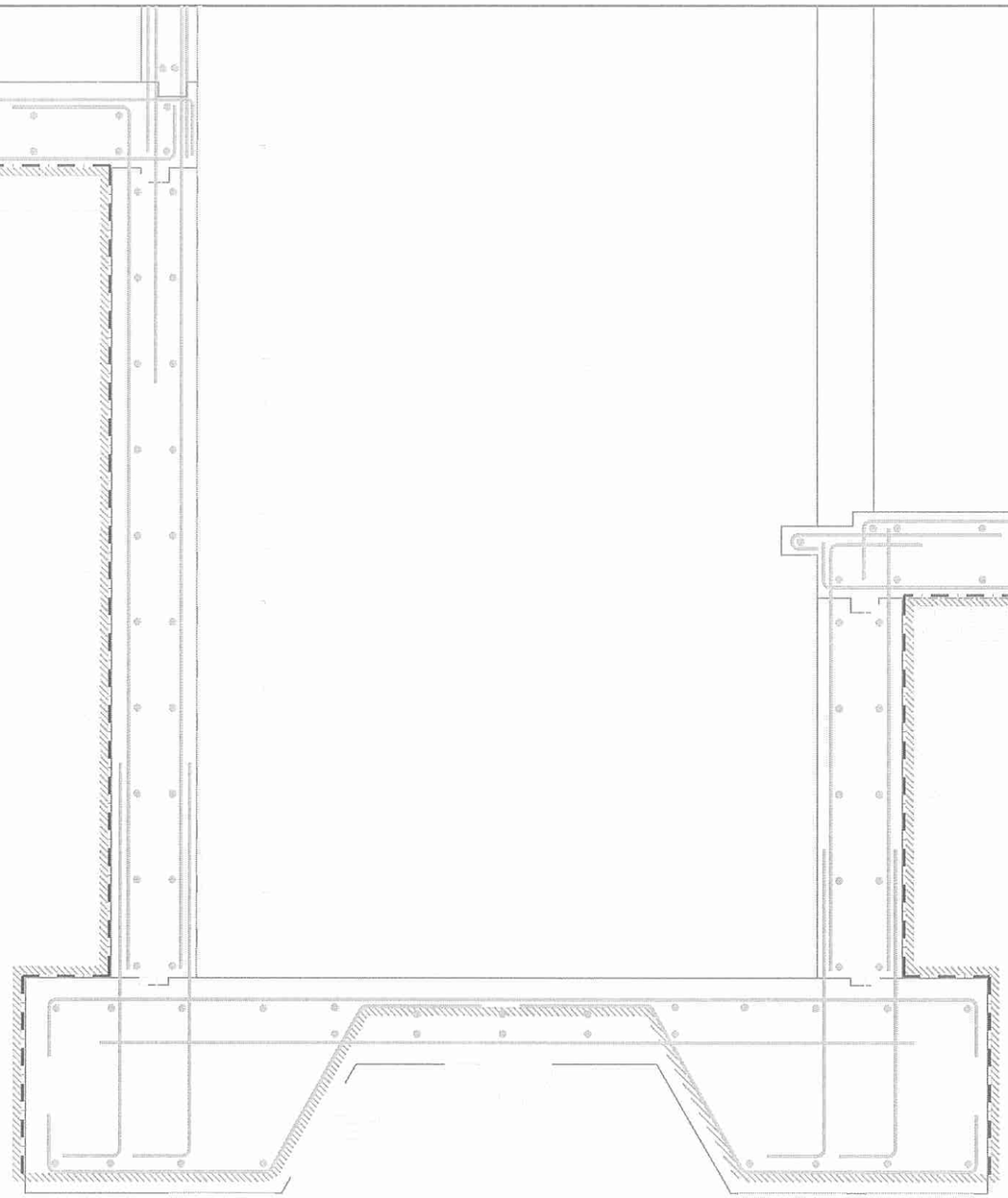

STATE OF NEW YORK
GILBERT GEDEON
075399
LICENSED PROFESSIONAL ENGINEER

DETAIL B-8
ELEVATOR SHAFT

CLIENT: Broadway Housing Development Fund 583 RIVERSIDE DRIVE, 7TH FLOOR NEW YORK, NY 10031	SITE ADDRESS: SUGER HILL PROJECT 400-414 WEST 155TH STREET NEW YORK, NY 10032	ATC ASSOCIATES INC. ENVIRONMENTAL, GEOTECHNICAL AND MATERIALS PROFESSIONALS 104 E. 25th Street, 10th Floor • New York, NY 10010-2917 (212) 353-8280 • FAX: (212) 353-8306	DRAWING BY: M. SVERDEL INSPECTED BY: J. MYERS DESIGNED BY: J. MYERS CHECKED BY:	DRAWING TITLE: VAPOR BARRIER SYSTEM DETAILS SCALE SEE SCALE BAR ATC PROJECT: # 15.26789.0007	DRAWING NO. FIG-11 SHT. OF DATE: 05.XX.11 REVISION No. 0

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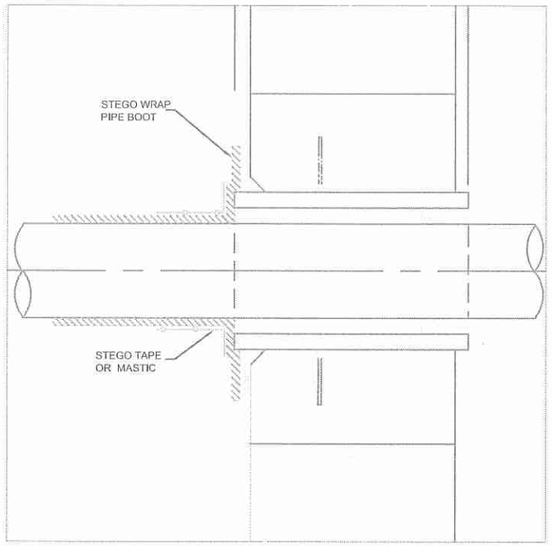
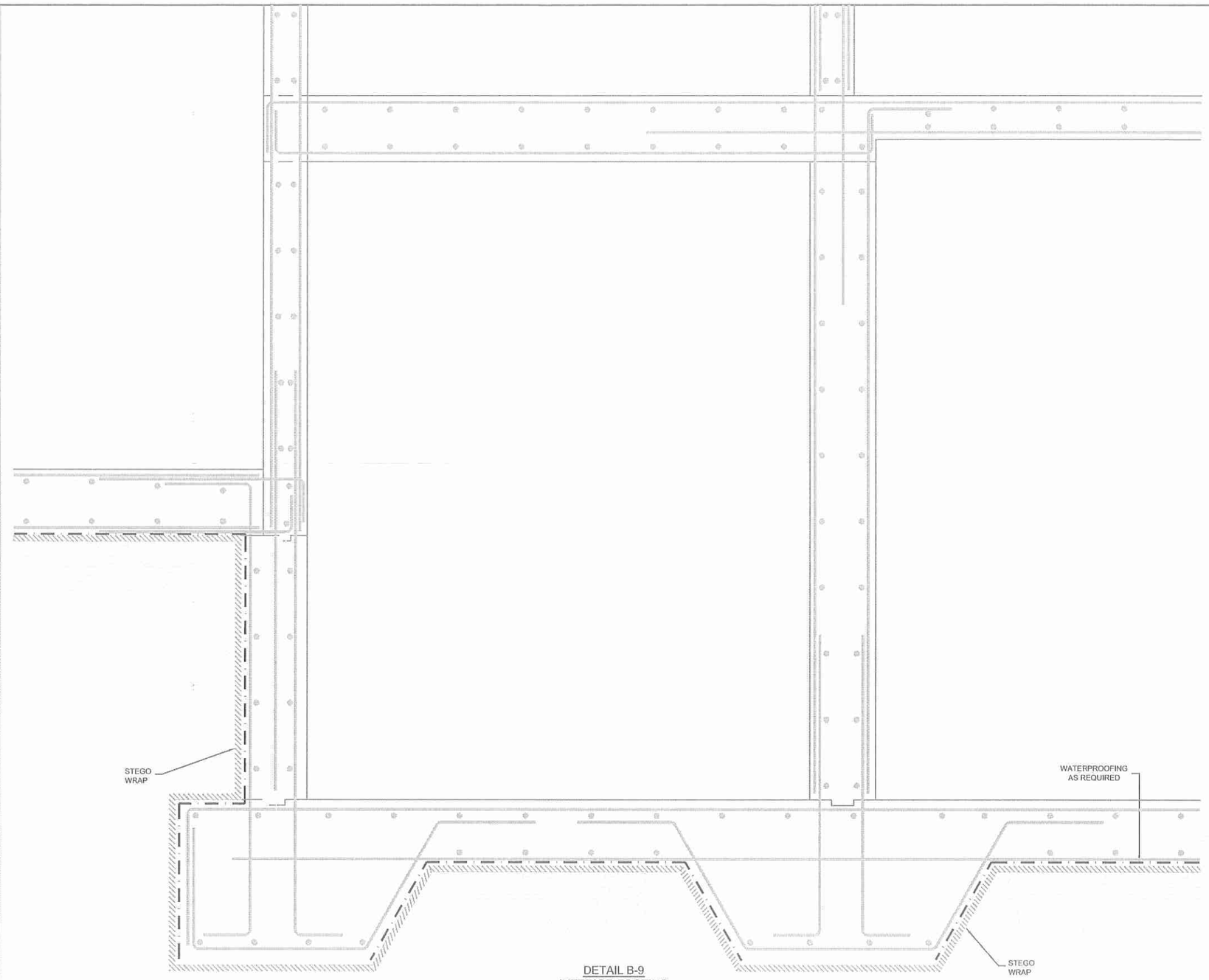


TYPICAL PIPE /UTILITY PENETRATION SEALING



DETAIL B-9
INTERIOR FOOTING

CLIENT: Broadway Housing Development Fund, 583 RIVERSIDE DRIVE, 7TH FLOOR, NEW YORK, NY 10031	SITE ADDRESS: SUGER HILL PROJECT, 400-414 WEST 155TH STREET, NEW YORK, NY 10032	ATC ASSOCIATES INC. ENVIRONMENTAL, GEOTECHNICAL AND MATERIALS PROFESSIONALS, 104 E. 25th Street, 10th Floor • New York, NY 10010-2917, (212) 353-8280 • FAX: (212) 353-8306	DRAWING BY: M. SVERDEL; INSPECTED BY: J. MYERS; DESIGNED BY: J. MYERS; CHECKED BY:	DRAWING TITLE: VAPOR BARRIER SYSTEM DETAILS; SCALE: SEE SCALE BAR; ATC PROJECT: # 15.26789.0007

DRAWING NO. FIG-12
SHT. OF
DATE: 05.XX.11
REVISION No. 0

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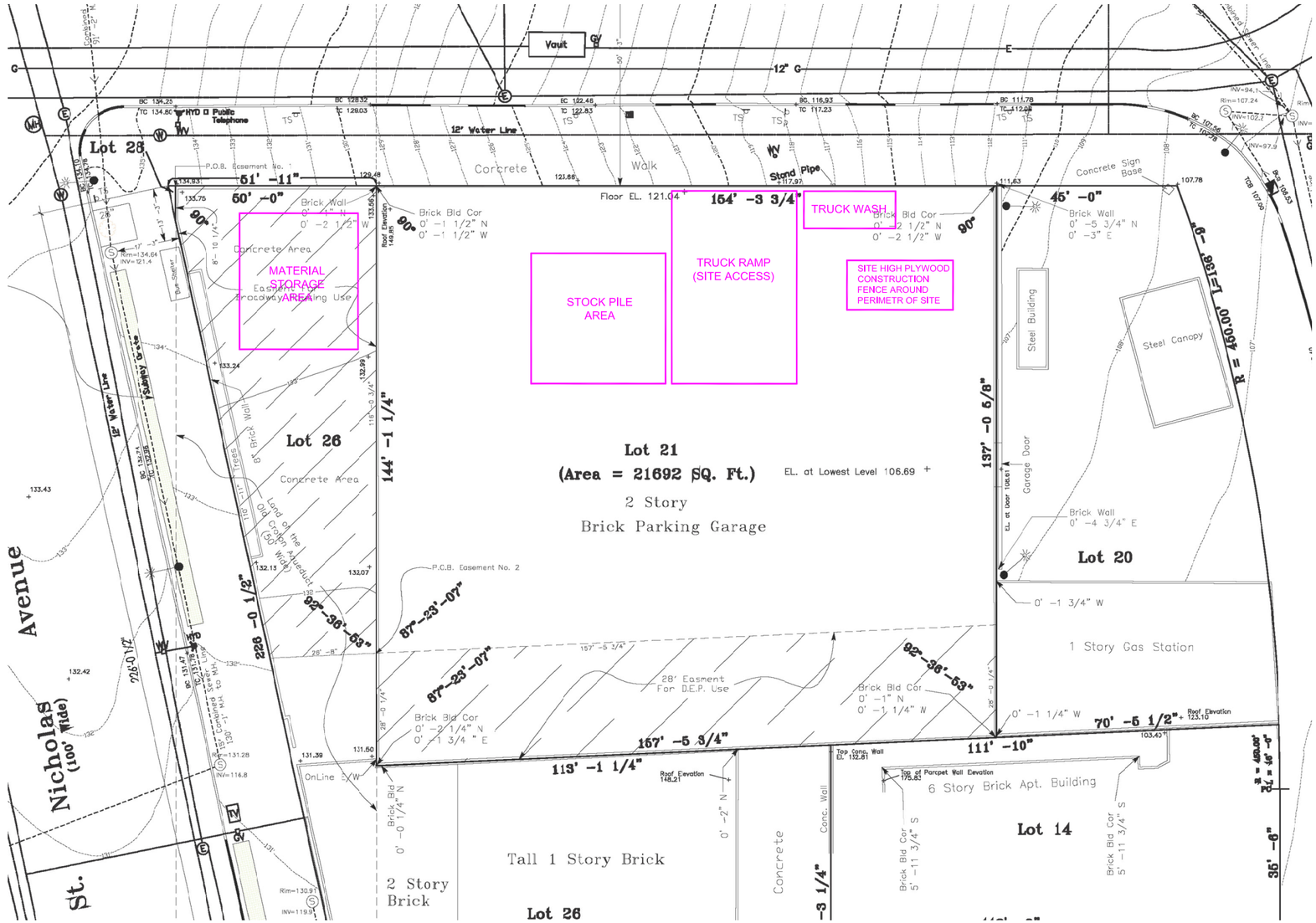

SITE LOGISTICS PLAN

0 16 32
SCALE IN FEET

CLIENT:	SITE ADDRESS:			DRAWING TITLE:	
Broadway Housing Development Fund 583 RIVERSIDE DRIVE, 7TH FLOOR NEW YORK, NY 10031	SUGER HILL PROJECT 400-414 WEST 155TH STREET NEW YORK, NY 10032	ATC ASSOCIATES INC. ENVIRONMENTAL, GEOTECHNICAL AND MATERIALS PROFESSIONALS 104 E. 25th Street, 10th Floor • New York, NY 10010-2917 (212) 353-8280 • FAX: (212) 353-8306	DRAWING BY: M. SVERDEL INSPECTED BY: M. MANKOVICH DESIGNED BY: M. MANKOVICH CHECKED BY:	SITE LOGISTICS PLAN SCALE: SEE SCALE BAR ATC PROJECT: # 15.26789.0007	DRAWING NO. FIG-13 SHT. OF DATE: 05.XX.11 REVISION No. 0

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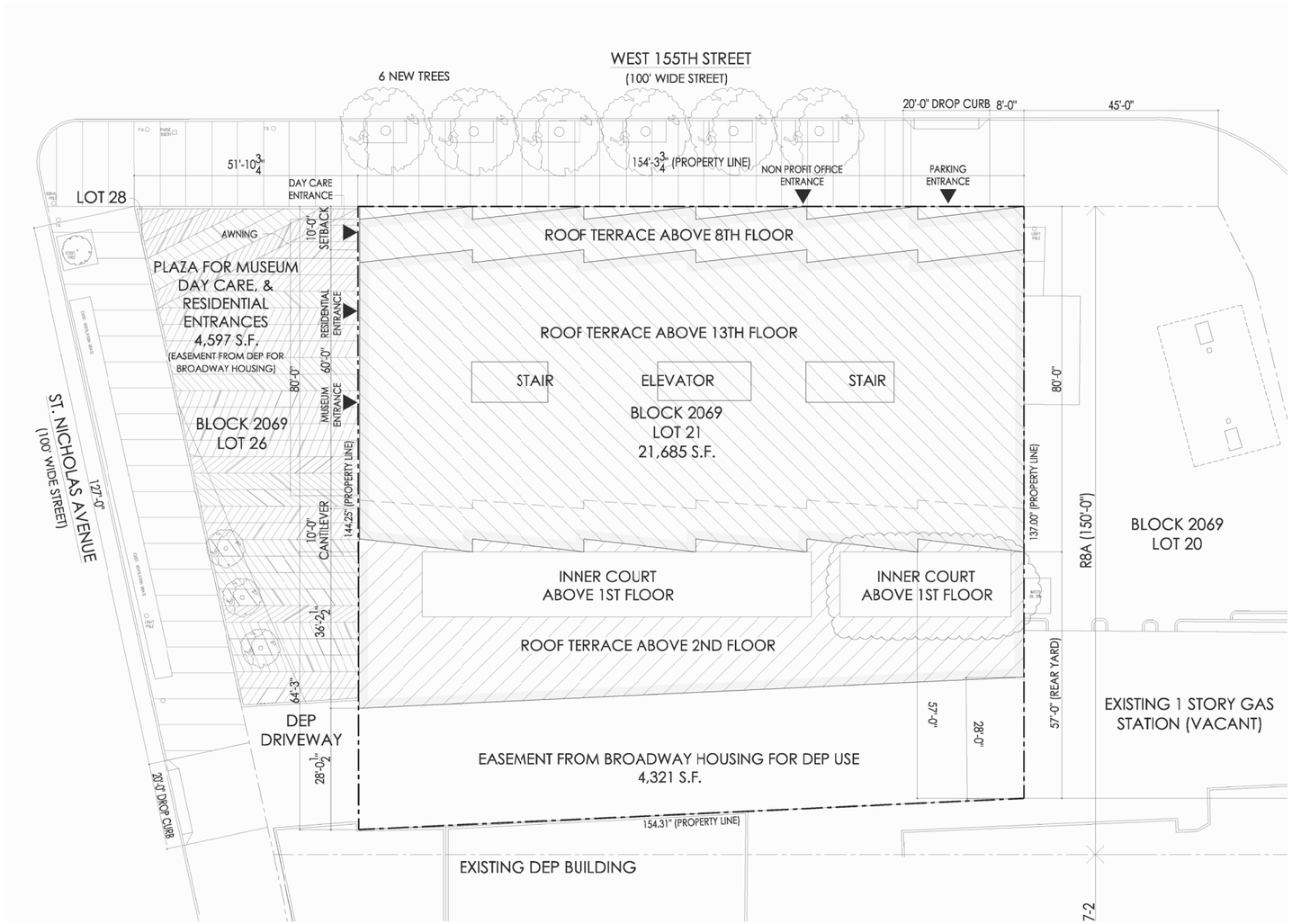

ALPHA NUMERIC PLAN

0 16 32
SCALE IN FEET

CLIENT:	SITE ADDRESS:			
Broadway Housing Development Fund 583 RIVERSIDE DRIVE, 7TH FLOOR NEW YORK, NY 10031	SUGER HILL PROJECT 400-414 WEST 155TH STREET NEW YORK, NY 10032	ATC ASSOCIATES INC. ENVIRONMENTAL, GEOTECHNICAL AND MATERIALS PROFESSIONALS 104 E. 25th Street, 10th Floor • New York, NY 10010-2917 (212) 353-8280 • FAX: (212) 353-8306	DRAWING BY: M. SVERDEL INSPECTED BY: M. MANKOVICH DESIGNED BY: M. MANKOVICH CHECKED BY:	DRAWING TITLE: ALPHA NUMERIC PLAN SCALE SEE SCALE BAR ATC PROJECT: # 15.26789.0007

DRAWING NO. FIG-14
SHT. OF
DATE: 05.XX.11
REVISION No. 0

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TABLES

TABLE 1 - Imported Backfill and Clean Soil Limits

All values are listed in parts per million (ppm)

Contaminant	Unrestricted	Residential	Restricted - Residential	Restricted - Commercial or Industrial
Metals				
Arsenic	13	16	16	16
Barium	350	350	400	400
Beryllium	7.2	14	47	47
Cadmium	2.5	2.5	4.3	7.5
Chromium, Hexavalent	1	19	19	19
Chromium, Trivalent	30	36	180	1500
Copper	50	270	270	270
Cyanide	27	27	27	27
Lead	63	400	400	450
Manganese	1600	2000	2000	2000
Mercury (total)	0.18	0.73	0.73	0.73
Nickel	30	130	130	130
Selenium	3.9	4	4	4
Silver	2	8.3	8.3	8.3
Zinc	109	2200	2480	2480
PCBs/Pesticides				
2,4,5-TP Acid (Silvex)	3.8	3.8	3.8	3.8
4,4'-DDE	0.0033	1.8	8.9	17
4,4'-DDT	0.0033	1.7	7.9	47
4,4'-DDD	0.0033	2.6	13	14
Aldrin	0.005	0.019	0.097	0.19
Alpha-BHC	0.02	0.02	0.02	0.02
Beta-BHC	0.036	0.072	0.09	0.09
Chlordane (alpha)	0.094	0.91	2.9	2.9
Delta-BHC	0.04	0.25	0.25	0.25
Dibenzofuran	7	14	59	210
Dieldrin	0.005	0.039	0.1	0.1
Endosulfan I	2.4	4.8	24	102
Endosulfan II	2.4	4.8	24	102
Endosulfan sulfate	2.4	4.8	24	200
Endrin	0.014	0.06	0.06	0.06
Heptachlor	0.042	0.38	0.38	0.38
Lindane	0.1	0.1	0.1	0.1
Polychlorinated biphenyls	0.1	1	1	1

TABLE 2
UNRESTRICTED USE SOIL CLEANUP OBJECTIVES (SCOs) TABLE
SUGAR HILL PROJECT
400-414 WEST 155TH STREET
NEW YORK, NEW YORK 10032

Contaminant	CAS Number	Unrestricted Use
Metals		
Arsenic	7440-38-2	13 [c]
Barium	7440-39-3	350 [c]
Beryllium	7440-41-7	7.2
Cadmium	7440-43-9	2.5 [c]
Chromium, hexavalent [e]	18540-29-9	1[b]
Chromium, trivalent [e]	16065-83-1	30 [c]
Copper	7440-50-8	50
Total Cyanide [e, f]		27
Lead	7439-92-1	63 [c]
Manganese	7439-96-5	1600 [c]
Total Mercury		0.18 [c]
Nickel	7440-02-0	30
Selenium	7782-49-2	3.9[c]
Silver	7440-22-4	2
Zinc	7440-66-6	109 [c]
PCBs/Pesticides		
2,4,5-TP Acid (Silvex)[f]	93-72-1	3.8
4,4'-DDE	72-55-9	0.0033 [b]
4,4'-DDT	50-29-3	0.0033 [b]
4,4'-DDD	72-54-8	0.0033 [b]
Aldrin	309-00-2	0.005 [c]
alpha-BHC	319-84-6	0.02
beta-BHC	319-85-7	0.036
Chlordane (alpha)	5103-71-9	0.094
delta-BHC [g]	319-86-8	0.04
Dibenzofuran [f]	132-64-9	7
Dieldrin	60-57-1	0.005[c]
Endosulfan I[d, f]	959-98-8	2.4
Endosulfan II[d, f]	33213-65-9	2.4
Endosulfan sulfate[d, f]	1031-07-8	2.4
Endrin	72-20-8	0.014
Heptachlor	76-44-8	0.042
Lindane	58-89-9	0.1
Polychlorinated biphenyls	1336-36-3	0.1
Semivolatile organic compounds		
Acenaphthene	83-32-9	20
Acenapthylene [f]	208-96-8	100 [a]
Anthracene [f]	120-12-7	100 [a]
Benz(a)anthracene [f]	56-55-3	1[c]
Benzo(a)pyrene	50-32-8	1[c]
Benzo(b)fluoranthene[f]	205-99-2	1[c]
Benzo(g,h,i)perylene [f]	191-24-2	100

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400-414 WEST 155TH STREET
NEW YORK, NEW YORK 10032

Benzo(k)fluoranthene[f]	207-08-9	0.8 [c]
Chrysene [f]	218-01-9	1[c]
Dibenz(a,h)anthracene[f]	53-70-3	0.33 [b]
Fluoranthene [f]	206-44-0	100 [a]
Fluorene	86-73-7	30
Indeno(1,2,3-cd)pyrene [f]	193-39-5	0.5 [c]
m-Cresol [f]	108-39-4	0.33 [b]
Naphthalene [f]	91-20-3	12
o-Cresol [f]	95-48-7	0.33 [b]
p-Cresol [f]	106-44-5	0.33 [b]
Pentachlorophenol	87-86-5	0.8[b]
Phenanthrene [f]	85-01-8	100
Phenol	108-95-2	0.33[b]
Pyrene[f]	129-00-0	100
Volatile organic compounds		
1,1,1-Trichloroethane [f]	71-55-6	0.68
1,1-Dichloroethane [f]	75-34-3	0.27
1,1-Dichloroethene[f]	75-35-4	0.33
1,2-Dichlorobenzene[f]	95-50-1	1.1
1,2-Dichloroethane	107-06-2	0.02[c]
cis -1,2-Dichloroethene [f]	156-59-2	0.25
trans-1,2-Dichloroethene [f]	156-60-5	0.19
1,3-Dichlorobenzene[f]	541-73-1	2.4
1,4-Dichlorobenzene	106-46-7	1.8
1,4-Dioxane	123-91-1	0.1 [b]
Acetone	67-64-1	0.05
Benzene	71-43-2	0.06
n-Butylbenzene [f]	104-51-8	12
Carbon tetrachloride [f]	56-23-5	0.76
Chlorobenzene	108-90-7	1.1
Chloroform	67-66-3	0.37
Ethylbenzene[f]	100-41-4	1
Hexachlorobenzene [f]	118-74-1	0.33[b]
Methyl ethyl ketone	78-93-3	0.12
Methyl tert-butyl ether [f]	1634-04-4	0.93
Methylene chloride	75-09-2	0.05
n - Propylbenzene [f]	103-65-1	3.9
sec-Butylbenzene [f]	135-98-8	11
tert-Butylbenzene[f]	98-06-6	5.9
Tetrachloroethene	127-18-4	1.3
Toluene	108-88-3	0.7
Trichloroethene	79-01-6	0.47

TABLE 2
UNRESTRICTED USE SOIL CLEANUP OBJECTIVES (SCOs) TABLE
SUGAR HILL PROJECT
400-414 WEST 155TH STREET
NEW YORK, NEW YORK 10032

1,2,4-Trimethylbenzene [f]	95-63-6	3.6

TABLE 3
SUMMARY OF VOCS IN SOIL
SUGAR HILL PROJECT
400-414 WEST 155TH STREET
NEW YORK, NEW YORK 10032

Location ID	**Unrestricted Use Soil Cleanup Objectives (SCOs)**	**Restricted-Residential Use Soil Cleanup Objectives (SCOs)**	**TAGM #4046 Recommended Soil Cleanup Objectives (RSCOs)**	414 W. 155th St.	414 W. 155th St.	414 W. 155th St.	414 W. 155th St.	414 W. 155th St.	414 W. 155th St.	414 W. 155th St.	414 W. 155th St.
Sample ID				SB-01 (0-1)	SB-02 (0-2)	SB-02 (4.5-5.5)	SB-03 (0-2)	SB-03 (8-9)	SB-04 (0-2)	SB-05 (0-1)	SB-06 (0-2)
Lab Sample ID				001	002	003	004	005	006	007	008
Sample Date				11/4/2010	11/4/2010	11/4/2010	11/4/2010	11/4/2010	11/4/2010	11/4/2010	11/4/2010
Sample Interval (ft)				0.5-1.0'	1.5-2.0'	5.0-5.5'	1.5-2.0'	8.5-9.0'	1.5-2.0'	0.5-1.0'	0.5-1.0'
Matrix				soil	soil	soil	soil	soil	soil	soil	soil
VOCs											
1,1,1,2-Tetrachloroethane	NS	NS	NS	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	0.68	100	0.8	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	NS	NS	0.6	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	NS	NS	10	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	0.27	26	0.2	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	0.33	100	0.4	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloropropene	NS	NS	NS	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichlorobenzene	NS	NS	NS	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichloropropane	NS	NS	0.4	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	NS	NS	3.4	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trimethylbenzene	3.6	52	NS	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromo-3-Chloropropane	NS	NS	NS	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane	NS	NS	NS	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	1.1	100	7.9	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	0.02	3.1	0.1	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	NS	NS	NS	ND	ND	ND	ND	ND	ND	ND	ND
1,3,5-Trimethylbenzene	8.4	52		ND	ND	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	2.4	49	1.6	ND	ND	ND	ND	ND	ND	ND	ND
1,3-Dichloropropane	NS	NS	0.3	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	1.8	13	8.5	ND	ND	ND	ND	ND	ND	ND	ND
2,2-Dichloropropane	NS	NS	NS	ND	ND	ND	ND	ND	ND	ND	ND
2-Butanone-(MEK)	0.12	100	0.3	ND	ND	ND	ND	ND	ND	ND	ND
2-Chloroethyl vinyl ether	NS	NS	NS	ND	ND	ND	ND	ND	ND	ND	ND
2-Chlorotoluene	NS	NS	NS	ND	ND	ND	ND	ND	ND	ND	ND
2-Hexanone	NS	NS	NS	ND	ND	ND	ND	ND	ND	ND	ND
4-Chlorotoluene	NS	NS	NS	ND	ND	ND	ND	ND	ND	ND	ND
4-Isopropyltoluene	NS	NS	NS	ND	ND	ND	ND	ND	ND	ND	ND
4-Methyl-2-Pentanone (MIBK)	NS	NS	1	ND	ND	ND	ND	ND	ND	ND	ND
Acetone	0.05	100	0.2	ND	ND	ND	ND	ND	ND	ND	ND
Acrolein	NS	NS	NS	ND	ND	ND	ND	ND	ND	ND	ND
Acrylonitrile	NS	NS	NS	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	0.06	4.8	0.06	ND	ND	ND	ND	ND	ND	ND	ND
Bromobenzene	NS	NS	NS	ND	ND	ND	ND	ND	ND	ND	ND

TABLE 3
SUMMARY OF VOCS IN SOIL
SUGAR HILL PROJECT
400-414 WEST 155TH STREET
NEW YORK, NEW YORK 10032

Location ID	**Unrestricted Use Soil Cleanup Objectives (SCOs)**	**Restricted-Residential Use Soil Cleanup Objectives (SCOs)**	**TAGM #4046 Recommended Soil Cleanup Objectives (RSCOs)**	414 W. 155th St.	414 W. 155th St.	414 W. 155th St.	414 W. 155th St.	414 W. 155th St.	414 W. 155th St.	414 W. 155th St.	414 W. 155th St.
Sample ID				SB-01 (0-1)	SB-02 (0-2)	SB-02 (4.5-5.5)	SB-03 (0-2)	SB-03 (8-9)	SB-04 (0-2)	SB-05 (0-1)	SB-06 (0-2)
Lab Sample ID				001	002	003	004	005	006	007	008
Sample Date				11/4/2010	11/4/2010	11/4/2010	11/4/2010	11/4/2010	11/4/2010	11/4/2010	11/4/2010
Sample Interval (ft)				0.5-1.0'	1.5-2.0'	5.0-5.5'	1.5-2.0'	8.5-9.0'	1.5-2.0'	0.5-1.0'	0.5-1.0'
Matrix				soil	soil	soil	soil	soil	soil	soil	soil
Bromochloromethane	NS	NS	NS	ND	ND	ND	ND	ND	ND	ND	ND
Bromodichloromethane	NS	NS	NS	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	NS	NS	NS	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	NS	NS	NS	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Disulfide	NS	NS	2.7	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	0.76	2.4	0.6	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	1.1	100	1.7	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	NS	NS	1.9	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	0.37	49	0.3	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	NS	NS	NS	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	0.25	100	NS	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	NS	NS	NS	ND	ND	ND	ND	ND	ND	ND	ND
Dibromochloromethane	NS	NS	NS	ND	ND	ND	ND	ND	ND	ND	ND
Dibromomethane	NS	NS	NS	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	NS	NS	NS	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	1	41	5.5	ND	ND	ND	ND	ND	ND	ND	ND
Hexachlorobutadiene	NS	NS	NS	ND	ND	ND	ND	ND	ND	ND	ND
Iodomethane	NS	NS	NS	ND	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	NS	NS	NS	ND	ND	ND	ND	ND	ND	ND	ND
M/P-Xylene	0.26	100	1.2	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	0.05	100	0.1	ND	ND	ND	ND	ND	ND	ND	ND
Methyl-Tert-Butyl-Ether	0.93	100	NS	ND	ND	ND	ND	ND	ND	ND	ND
n-Butylbenzene	12	NS	NS	ND	ND	ND	ND	ND	ND	ND	ND
n-Propylbenzene	3.9	100	NS	ND	ND	ND	ND	ND	ND	ND	ND
O-Xylene	0.26	100	1.2	ND	ND	ND	ND	ND	ND	ND	ND
sec-Butylbenzene	11	100	NS	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	NS	NS	NS	ND	ND	ND	ND	ND	ND	ND	ND
tert-Butylbenzene	5.9	100	NS	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene	1.3	19	1.4	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	0.7	100	1.5	ND	ND	ND	ND	ND	ND	0.015	ND
trans-1,2-Dichloroethylene	0.19	100	NS	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	NS	NS	NS	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,4-Dichloro-2-butene	NS	NS	NS	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene	0.47	21	0.7	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	NS	NS	NS	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Acetate	NS	NS	NS	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	0.02	NS	0.2	ND	ND	ND	ND	ND	ND	ND	ND

Notes:
All concentrations are reported in milligram per kilogram (mg/kg)
ND = Compound not detected above method detection limit (see attached lab report for mdl's)
NS = No Standard
TAGM RSCOs = NYSDEC Technical and Administrative Guidance Memorandum (TAGM #4046) Recommended Soil Cleanup Objectives (RSCOs) (January 24, 1994), amended December 20, 2000
SCOs = Soil Cleanup Objectives as per the NYSDEC Regulations 6 NYCRR Subpart 375-6 Remedial Program Soil Cleanup Objectives (December 14, 2006)

TABLE 4
SUMMARY OF SVOCS IN SOIL
SUGAR HILL PROJECT
400-414 WEST 155TH STREET
NEW YORK, NEW YORK 10032

Location ID	Unrestricted Use Soil Cleanup Objectives (SCOs)	Restricted-Residential Use Soil Cleanup Objectives (SCOs)	TAGM #4046 Recommended Soil Cleanup Objectives (RSCOs)	414 W. 155th St.	414 W. 155th St.	414 W. 155th St.	414 W. 155th St.	414 W. 155th St.	414 W. 155th St.	414 W. 155th St.	414 W. 155th St.
Sample ID				SB-01 (0-1)	SB-02 (0-2)	SB-02 (4.5-5.5)	SB-03 (0-2)	SB-03 (8-9)	SB-04 (0-2)	SB-05 (0-1)	SB-06 (0-2)
Lab Sample ID				001	002	003	004	005	006	007	008
Sample Date				11/4/2010	11/4/2010	11/4/2010	11/4/2010	11/4/2010	11/4/2010	11/4/2010	11/4/2010
Sample Interval (ft)				0-1.0'	0-2.0'	4.5-5.5'	0-2.0'	8-9.0'	0-2.0'	0-1.0'	0-1.0'
Matrix				soil	soil	soil	soil	soil	soil	soil	soil
SVOCs											
1,2,4-Trichlorobenzene	NS	NS	NS	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	NS	NS	NS	ND	ND	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	NS	NS	NS	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	NS	NS	NS	ND	ND	ND	ND	ND	ND	ND	ND
2,2'-oxybis(1-Chloropropane	NS	NS	NS	ND	ND	ND	ND	ND	ND	ND	ND
2,4,5-Trichlorophenol	NS	NS	0.1	ND	ND	ND	ND	ND	ND	ND	ND
2,4,6-Trichlorophenol	NS	NS	NS	ND	ND	ND	ND	ND	ND	ND	ND
2,4-Dichlorophenol	NS	NS	0.4	ND	ND	ND	ND	ND	ND	ND	ND
2,4-Dimethylphenol	NS	NS	NS	ND	ND	ND	ND	ND	ND	ND	ND
2,4-Dinitrophenol	NS	NS	0.2	ND	ND	ND	ND	ND	ND	ND	ND
2,4-Dinitrotoluene	NS	NS	NS	ND	ND	ND	ND	ND	ND	ND	ND
2,6-Dinitrotoluene	NS	NS	1	ND	ND	ND	ND	ND	ND	ND	ND
2-Chloronaphthalene	NS	NS	NS	ND	ND	ND	ND	ND	ND	ND	ND
2-Chlorophenol	NS	NS	0.8	ND	ND	ND	ND	ND	ND	ND	ND
2-Methyl Naphthalene	NS	NS	36.4	ND	ND	ND	ND	ND	ND	ND	ND
2-Methyl Phenol	NS	NS	0.1	ND	ND	ND	ND	ND	ND	ND	ND
2-Methyl-4,6-dinitrophenol	NS	NS	NS	ND	ND	ND	ND	ND	ND	ND	ND
2-Nitroaniline	NS	NS	0.43	ND	ND	ND	ND	ND	ND	ND	ND
2-Nitrophenol	NS	NS	0.33	ND	ND	ND	ND	ND	ND	ND	ND
3&4-Methyl Phenol	NS	NS	NS	ND	ND	ND	ND	ND	ND	ND	ND
3,3'-Dichlorobenzidine	NS	NS	NS	ND	ND	ND	ND	ND	ND	ND	ND
3-Nitroaniline	NS	NS	0.5	ND	ND	ND	ND	ND	ND	ND	ND
4-Bromophenyl Phenyl Ether	NS	NS	NS	ND	ND	ND	ND	ND	ND	ND	ND
4-Chloro-3-methylphenol	NS	NS	0.24	ND	ND	ND	ND	ND	ND	ND	ND
4-Chloroaniline	NS	NS	0.22	ND	ND	ND	ND	ND	ND	ND	ND
4-Chlorophenyl Phenyl Ether	NS	NS	NS	ND	ND	ND	ND	ND	ND	ND	ND
4-Nitroaniline	NS	NS	NS	ND	ND	ND	ND	ND	ND	ND	ND
4-Nitrophenol	NS	NS	0.1	ND	ND	ND	ND	ND	ND	ND	ND
Acenaphthene	20	100	50	ND	ND	ND	ND	ND	ND	ND	0.32
Acenaphthylene	100	100	41	ND	ND	ND	ND	ND	ND	ND	0.68
Anthracene	100	100	NS	ND	ND	ND	ND	ND	ND	ND	ND
Benzo (g,h,i) perylene	100	100	50	ND	ND	ND	ND	ND	ND	ND	0.91
Benzo(a)anthracene	1	1	0.224	ND	ND	ND	**0.24**	ND	ND	ND	**1.6**
Benzo(a)pyrene	1	1	0.061	ND	ND	ND	**0.24**	ND	ND	ND	**1.5**
Benzo(b)fluoranthene	1	1	1.1	ND	ND	ND	0.21	ND	ND	ND	**1.4**
Benzo(k)fluoranthene	0.8	3.9	1.1	ND	ND	ND	0.19	ND	ND	ND	**1.2**
bis(2-Chloroethoxy)methane	NS	NS	NS	ND	ND	ND	ND	ND	ND	ND	ND
bis(2-Chloroethyl)ether	NS	NS	NS	ND	ND	ND	ND	ND	ND	ND	ND
bis(2-Ethylhexyl)phthalate	NS	NS	50	ND	ND	ND	ND	ND	ND	ND	ND
Butyl Benzyl Phthalate	NS	NS	50	ND	ND	ND	ND	ND	ND	ND	ND
Chrysene	1	3.9	0.4	ND	ND	ND	0.28	ND	ND	ND	**1.6**
Dibenzo(a,h)Anthracene	0.33	0.33	0.014	ND	ND	ND	ND	ND	ND	ND	**0.27**
Dibenzofuran	NS	NS	6.2	ND	ND	ND	ND	ND	ND	ND	0.19
Diethyl Phthalate	NS	NS	7.1	ND	ND	ND	ND	ND	ND	ND	ND
Dimethyl Phthalate	NS	NS	2	ND	ND	ND	ND	ND	ND	ND	ND
Di-n-butylphthalate	NS	NS	8.1	ND	ND	ND	ND	ND	ND	ND	ND
Di-n-octyl phthalate	NS	NS	50	ND	ND	ND	ND	ND	ND	ND	ND
Fluoranthene	100	100	50	ND	ND	ND	0.47	ND	ND	ND	4.8
Fluorene	30	100	50	ND	ND	ND	ND	ND	ND	ND	0.3
Hexachlorobenzene	NS	NS	0.41	ND	ND	ND	ND	ND	ND	ND	ND
Hexachlorobutadiene	NS	NS	NS	ND	ND	ND	ND	ND	ND	ND	ND
Hexachlorocyclopentadiene	NS	NS	NS	ND	ND	ND	ND	ND	ND	ND	ND
Hexachloroethane	NS	NS	NS	ND	ND	ND	ND	ND	ND	ND	ND
Indeno (1,2,3-cd)Pyrene	0.5	0.5	3.2	ND	ND	ND	ND	ND	ND	ND	0.8
Isophorone	NS	NS	4.4	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene	12	100	13	ND	ND	ND	ND	ND	ND	ND	0.22
Nitrobenzene	NS	NS	0.2	ND	ND	ND	ND	ND	ND	ND	ND
N-Nitroso-di-n-propylamine	NS	NS	NS	ND	ND	ND	ND	ND	ND	ND	ND
N-Nitrosodiphenylamine	NS	NS	NS	ND	ND	ND	ND	ND	ND	ND	ND
Pentachlorophenol	0.8	6.7	1	ND	ND	ND	ND	ND	ND	ND	ND
Phenanthrene	100	100	50	ND	ND	ND	0.28	ND	ND	ND	2.8
Phenol	0.33	100	0.03	ND	ND	ND	ND	ND	ND	ND	ND
Pyrene	100	100	50	ND	ND	ND	0.44	ND	ND	ND	3

Notes:
All concentrations are reported in milligram per kilogram (mg/kg)
ND = Compound not detected above method detection limit (see attached lab report for mdl's)
NS = No Standard
TAGM RSCOs = NYSDEC Technical and Administrative Guidance Memorandum (TAGM #4046) Recommended Soil Cleanup Objectives (RSCOs) (January 24, 1994), amended December 20, 2000
SCOs = Soil Cleanup Objectives as per the NYSDEC Regulations 6 NYCRR Subpart 375-6 Remedial Program Soil Cleanup Objectives (December 14, 2006)
BOLD = Concentration exceeds NYSDEC TAGM RSCOs
Underline = Concentration exceeds Unrestricted Use Soil Cleanup Objectives
Shading = Concentration exceeds Restricted-Residenital Use Soil Cleanup Objectives

TABLE 5
SUMMARY OF TAL METALS IN SOIL
SUGAR HILL PROJECT
400-414 WEST 155TH STREET
NEW YORK, NEW YORK 10032

Location ID	**Eastern USA Soil Background**	**Unrestricted Use Soil Cleanup Objectives (SCOs)**	**Restricted-Residential Use Soil Cleanup Objectives (SCOs)**	**TAGM #4046 Recommended Soil Cleanup Objectives (RSCOs)**	414 W. 155th St.	414 W. 155th St.	414 W. 155th St.	414 W. 155th St.	414 W. 155th St.	414 W. 155th St.	414 W. 155th St.	414 W. 155th St.
Sample ID					SB-01 (0-1)	SB-02 (0-2)	SB-02 (4.5-5.5)	SB-03 (0-2)	SB-03 (8-9)	SB-04 (0-2)	SB-05 (0-1)	SB-06 (0-2)
Lab Sample ID					001	002	003	004	005	006	007	008
Sample Date					11/4/2010	11/4/2010	11/4/2010	11/4/2010	11/4/2010	11/4/2010	11/4/2010	11/4/2010
Sample Interval (ft)					0.5-1.0'	1.5-2.0'	5.0-5.5'	1.5-2.0'	8.5-9.0'	1.5-2.0'	0.5-1.0'	0.5-1.0'
Matrix					soil	soil	soil	soil	soil	soil	soil	soil
Metals												
Antimony	NS	NS	NS	SB	ND	ND	4.2	ND	5.6	ND	ND	ND
Aluminum	33,000	NS	NS	SB	10200	18900	9340	9690	26400	15700	10800	9830
Arsenic	3 - 12	13	16	7.5 or SB	1.3	1.8	ND	2.6	ND	ND	1.7	3.2
Barium	15 - 600	350	400	300 or SB	49.4	73.8	168	90.5	161	121	90.2	119
Beryllium	0-1.75	7.2	72	0.16 or SB	**0.37**	**0.37**	**0.33**	**0.35**	**0.41**	**0.47**	**0.53**	**0.35**
Cadmium	0.1 -1	2.5	4.3	1 or SB	ND	ND	ND	ND	ND	ND	ND	ND
Chromium	1.5 - 40	NS	NS	10 or SB	**12.9**	**14.2**	**26.2**	**15.7**	**36.7**	**21.8**	**21.5**	**16.7**
Calcium	130 - 35,000	NS	NS	SB	29100	2650	2340	3550	2720	5650	17200	9170
Iron	2,000 - 550,000	NS	NS	2,000 or SB	**17600**	**34400**	**17700**	**18200**	**47500**	**27800**	**17600**	**20800**
Cobalt	1 - 50	50	270	25 or SB	5.71	6.86	22.7	7.45	23.8	17.0	8.57	7.89
Copper	2.5 - 60	NS	NS	30 or SB	24.2	18.8	16.8	**36.4**	**123**	**30.9**	19.6	**76.0**
Lead	500*	63	400	SB	43.1	55.7	8.25	159	7.55	38.3	14.0	243
Magnesium	100 - 5,000	NS	NS	SB	15700	10700	3300	3090	15900	8030	4550	5250
Manganese	50 - 5,000	1,600	2,000	SB	274	343	368	343	481	355	635	403
Mercury	0.001 - 0.2	0.18	0.81	0.1	ND	ND	ND	**0.17**	ND	**0.12**	ND	**0.24**
Nickel	0.5-25	30	310	13 or SB	11.7	**13.8**	**38.2**	**16.6**	**40.1**	**29.5**	**21.7**	**16.6**
Vanadium	1 - 300	NS	NS	150 or SB	19.4	19.3	37.3	23.8	45.6	33.1	34.6	20.4
Selenium	0.1-3.9	3.9	180	2 or SB	ND	ND	ND	ND	ND	ND	ND	ND
Potassium	8,500 - 4,300	NS	NS	SB	1530	2070	1410	1590	7620	7020	2530	1920
Silver	NS	2	180	SB	ND	ND	ND	ND	ND	ND	ND	ND
Sodium	6,000 - 8,000	NS	NS	SB	836	398	682	338	176	704	619	878
Thallium	NS	NS	NS	SB	ND	ND	ND	ND	ND	ND	ND	ND
Zinc	9 - 50	109	10,000	20 or SB	**41.1**	**53.0**	**102**	**154**	**103**	**93.9**	**37.3**	**132**

Notes:
All concentrations are in milligram per kilogram (mg/kg)
ND = Compound not detected above method detection limit (see attached lab report for mdl's)
NS = No Standard
SB = Site Background Concentration
TAGM RSCOs = NYSDEC Technical and Administrative Guidance Memorandum (TAGM #4046) Recommended Soil Cleanup Objectives (RSCOs) (January 24, 1994)
BOLD = Concentration exceeds NYSDEC TAGM RSCOs
Box = Detected concentration exceeds Eastern Soil Background Concentrations as per TAGM RSCOs
Shading = Concentration exceeds Restricted-Residenital Use Soil Cleanup Objectives
Underline = Concentration exceeds Unrestricted Use Soil Cleanup Objectives
*Background levels for lead vary widely. Average levels in undeveloped, rural areas may range from 4 - 61 ppm. Average background levels in metropolitan or suburban areas or near highways are much higher and typically range from 200 - 500 ppm

TABLE 6
SUMMARY OF PCBs IN SOIL
SUGAR HILL PROJECT
400-414 WEST 155TH STREET
NEW YORK, NEW YORK 10032

Location ID	**Unrestricted Use Soil Cleanup Objectives (SCOs)**	**Restricted-Residential Use Soil Cleanup Objectives (SCOs)**	**TAGM #4046 Recommended Soil Cleanup Objectives (RSCOs)**	414 W. 155th St.	414 W. 155th St.	414 W. 155th St.	414 W. 155th St.	414 W. 155th St.	414 W. 155th St.	414 W. 155th St.	414 W. 155th St.
Sample ID				SB-01 (0-1)	SB-02 (0-2)	SB-02 (4.5-5.5)	SB-03 (0-2)	SB-03 (8-9)	SB-04 (0-2)	SB-05 (0-1)	SB-06 (0-2)
Lab Sample ID				001	002	003	004	005	006	007	008
Sample Date				11/4/2010	11/4/2010	11/4/2010	11/4/2010	11/4/2010	11/4/2010	11/4/2010	11/4/2010
Sample Interval (ft)				0.5-1.0'	1.5-2.0'	5.0-5.5'	1.5-2.0'	8.5-9.0'	1.5-2.0'	0.5-1.0'	0.5-1.0'
Matrix				soil	soil	soil	soil	soil	soil	soil	soil
PCBs											
PCB-1016	NS	1	10*	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1221	NS	1	10*	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1232	NS	1	10*	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1242	NS	1	10*	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1248	NS	1	10*	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1254	NS	1	10*	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1260	NS	1	10*	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1262	NS	1	10*	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1268	NS	1	10*	ND	ND	ND	ND	ND	ND	ND	ND

Notes:
All concentrations are in milligram per kilogram (mg/kg)
ND = Compound not detected above method detection limit (see attached lab report for mdl's)
NS = No Standard
SB = Site Background Concentration
TAGM RSCOs = NYSDEC Technical and Administrative Guidance Memorandum (TAGM #4046) Recommended Soil Cleanup Objectives (RSCOs) (January 24, 1994)
BOLD = Concentration exceeds NYSDEC TAGM RSCOs
Shading = Concentration exceeds Restricted-Residenital Use Soil Cleanup Objectives
Underline = Concentration exceeds Unrestricted Use Soil Cleanup Objectives

TABLE 7
SUMMARY OF PESTICIDES IN SOIL
SUGAR HILL PROJECT
400-414 WEST 155TH STREET
NEW YORK, NEW YORK 10032

Location ID	**Unrestricted Use Soil Cleanup Objectives (SCOs)**	**Restricted-Residential Use Soil Cleanup Objectives (SCOs)**	**TAGM #4046 Recommended Soil Cleanup Objectives (RSCOs)**	414 W. 155th St.	414 W. 155th St.	414 W. 155th St.	414 W. 155th St.	414 W. 155th St.	414 W. 155th St.	414 W. 155th St.	414 W. 155th St.
Sample ID				SB-01 (0-1)	SB-02 (0-2)	SB-02 (4.5-5.5)	SB-03 (0-2)	SB-03 (8-9)	SB-04 (0-2)	SB-05 (0-1)	SB-06 (0-2)
Lab Sample ID				001	002	003	004	005	006	007	008
Sample Date				11/4/2010	11/4/2010	11/4/2010	11/4/2010	11/4/2010	11/4/2010	11/4/2010	11/4/2010
Sample Interval (ft)				0.5-1.0'	1.5-2.0'	5.0-5.5'	1.5-2.0'	8.5-9.0'	1.5-2.0'	0.5-1.0'	0.5-1.0'
Matrix				soil	soil	soil	soil	soil	soil	soil	soil
Pesticides											
4,4'-DDD	0.0033	13	2.9	ND	ND	ND	ND	ND	ND	ND	ND
4,4'-DDE	0.0033	8.9	2.1	ND	ND	ND	ND	ND	ND	ND	ND
4,4'-DDT	0.0033	7.9	2.1	ND	ND	ND	ND	ND	ND	ND	ND
Aldrin	0.005	0.097	0.041	ND	ND	ND	ND	ND	ND	ND	ND
alpha-BHC	0.02	0.48	0.11	ND	ND	ND	ND	ND	ND	ND	ND
beta-BHC	0.036	0.36	0.2	ND	ND	ND	ND	ND	ND	ND	ND
Chlordane	0.094	4.2	NS	ND	ND	ND	ND	ND	ND	ND	ND
delta-BHC	0.04	100	0.3	ND	ND	ND	ND	ND	ND	ND	ND
Dieldrin	0.005	0.2	0.044	ND	ND	ND	ND	ND	ND	ND	ND
Endosulfan I	2.4	24	1	ND	ND	ND	ND	ND	ND	ND	ND
Endosulfan II	2.4	24	0.9	ND	ND	ND	ND	ND	ND	ND	ND
Endosulfan Sulfate	2.4	24	0.9	ND	ND	ND	ND	ND	ND	ND	ND
Endrin	0.014	11	0.1	ND	ND	ND	ND	ND	ND	ND	ND
Endrin Aldehyde	NS	NS	NS	ND	ND	ND	ND	ND	ND	ND	ND
Endrin Ketone	NS	NS	NS	ND	ND	ND	ND	ND	ND	ND	ND
gamma-BHC (Lindane)	NS	NS	0.06	ND	ND	ND	ND	ND	ND	ND	ND
Heptachlor	0.042	2.1	0.1	ND	ND	ND	ND	ND	ND	ND	ND
Heptachlor Epoxide	NS	NS	0.02	ND	ND	ND	ND	ND	ND	ND	ND
Methoxychlor	NS	NS	NS	ND	ND	ND	ND	ND	ND	ND	ND
Toxaphene	NS	NS	NS	ND	ND	ND	ND	ND	ND	ND	ND

Notes:
All concentrations are in milligram per kilogram (mg/kg)
ND = Compound not detected above method detection limit (see attached lab report for mdl's)
NS = No Standard
SB = Site Background Concentration
TAGM RSCOs = NYSDEC Technical and Administrative Guidance Memorandum (TAGM #4046) Recommended Soil Cleanup Objectives (RSCOs) (January 24, 1994)
BOLD = Concentration exceeds NYSDEC TAGM RSCOs
Shading = Concentration exceeds Restricted-Residenital Use Soil Cleanup Objectives
Underline = Concentration exceeds Unrestricted Use Soil Cleanup Objectives

TABLE 8
QUANTITY AND DISPOSAL FACILITY FOR MATERIAL REMOVED FROM THE SITE
SUGAR HILL PROJECT
400-414 WEST 155TH STREET
NEW YORK, NEW YORK 10032

Material	Disposal Facility	Quantity (tons)
Soil	Hudson County Lincoln Park Landfill, Jersey City, NJ	5,037.50