

Checklist for Automotive and Equipment Repair Departments

Items/Processes of Concern	Toxic Metal	Dangerous Waste	Preferred Alternatives and Best Management Practices ¹
Floor cleaning		X	<ul style="list-style-type: none"> • Use biodegradable or water-based cleaning detergents with a pH of 6.0 to 10.5 at point of use. • Avoid the use of detergents with emulsifying agents that reduce the effectiveness of the oil/water separator. • Avoid the use of detergents that could cause waste cleaning water to designate as dangerous waste (e.g., detergents with halogenated or aromatic compounds). • Use absorbent pads/trays to catch leaks or clean up spills and prevent waste from going down the drain. • Use oil/water separators to prevent oily wastes from being discharged down the drain. • Request approval from the local waste water treatment facility <i>before</i> discharging waste water down the drain.
Vehicle maintenance: oil, oil filters, hydraulic fluid, transmission fluid, vehicle batteries, antifreeze	X	X	<ul style="list-style-type: none"> • Drain oil filters before recycling. • Segregate and store all wastes properly to promote the potential for recycling. • Recycle used oil. • Recycle used oil filters. • Recycle lead acid batteries. • Recycle transmission fluid. • Recycle hydraulic fluid. • Recycle antifreeze. • If not recycled, designate and manage these spent items as dangerous waste, as necessary.
Aqueous baths		X	<ul style="list-style-type: none"> • Use bake-off ovens. • Use detergent-based cleaning solutions instead of caustic ones. • Install or convert free-running rinses to still rinse. • Use a hot tank or jet spray washer lease service. • Use dry pre-cleaning methods such as wire-brushing. • Maintain solution quality by monitoring composition. • Maintain equipment in proper working order. • Filter solids before they reach the waste sump. • Employ two-stage parts cleaning sequence.
Parts washer	X	X	<ul style="list-style-type: none"> • Use an aqueous parts cleaner. • Use non-halogenated organic solvent. • Recycle spent solvent cleaner. • Operate solvent sinks properly, use drip trays, and allow more drainage time. • Contract with a service company to maintain solvent sink.

¹ Preferred alternatives are shown in **bold font**.

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Flammable aerosol products		X	<ul style="list-style-type: none"> • Use non-flammable aerosol products. • Replace single aerosol with a refillable spray bottle or plunger to deliver product. • Collect empty aerosol cans that contained flammable products and manage as dangerous waste.
Shop towels or wipes		X	<ul style="list-style-type: none"> • Use cloth towels that can be laundered and reused. • Keep used wipes and towels in closed containers and label appropriately. • Reduce the size of the shop towel or wipe to reduce the amount of solvent used at the same time. • Reuse shop towels or wipes for repetitive tasks. • Don't dip shop towels or wipes in open solvent containers. • Limit the amount of solvent available for use each day. • Towels that are not laundered should be managed as the material they were used to absorb.
Painting	X	X	<ul style="list-style-type: none"> • Use high solids/low volatile organic compound and hazardous air pollutants paint. • Use coatings that do not have meal-based pigments. • Use efficient spray equipment, such as HVLP, airless, or air-assisted to reduce coating usage. • Reuse paint mixing cups and use metal mixing sticks (be sure to clean them before the paint dries). • Label/store leftover basecoats. Seal container tightly; store upside-down to prevent air from entering.
Solvents. paint thinner	X	X	<ul style="list-style-type: none"> • Use non-chlorinated solvents. • Use less hazardous solvents. • Use aqueous cleaner. • Keep lids closed when not in use. • Reuse slightly dirty thinner as a pre-wash. • Use a solvent recycler or distillation unit to recover used solvent and save money. • Determine how clean parts need to be. • Use solvents properly, don't use them to clean floors. • Increase cleaning efficiency. • Monitor solvent composition.
Welding	X	X	<ul style="list-style-type: none"> • Use <u>SAC solder</u>² (contains 95% tin, 3.9% silver, and 0.6% copper). • Use <u>ECA polymers</u>³ (containing metal flakes, such as silver). • Use cadmium-free filler metals when fluxing. • Use alternative fluxes to reduce volatile organic compound emissions or avoid post cleaning. • Optimize flux delivery. • Optimize heating of filler metal. • Process redesign to incorporate mechanical fastening rather than soldered connections.

² SAC solder is a lead free metal alloy that consists of tin-silver-copper (Sn-Ag-Cu). All alternatives to lead-based solder require investigation to determine their suitability for use in certain applications. Other considerations for the substitution of the lead solder alternatives are temperature ranges, the amount of energy input required to apply the alternatives, changes in production time for higher temperature applications and conditions for consumer use of finished products. Research has to be done for operating temperature range, shock resistance, and moisture exposure.

³ ECA polymers are electrically conductive adhesives (ECA) that "stick" components onto a substrate, in effect, replacing the solder.

Items/Processes of Concern	Toxic Metal	Dangerous Waste	Preferred Alternatives and Best Management Practices ⁴
General			
General inventory			<ul style="list-style-type: none"> • Use Environmentally Preferable Purchasing. • Maintain a current Material Safety Data Sheets (MSDSs) log for hazardous substance information. • Properly store hazardous substances. • Review curriculum for potential hazardous substance reductions.
All generated waste streams Spilled products Unused and expired products	X	X	<ul style="list-style-type: none"> • Use chemical inventory and tracking software to centralize product ordering, improve product tracking, storage requirement, waste management, reduce disposal of expired product, and minimize duplicate orders to prevent unnecessary disposal. • Identify all potential waste streams and establish designation procedures to determine if a hazardous waste or non-hazardous waste. • Implement dangerous waste designation, collection, accumulation, and disposal procedures for all waste streams. See Common Dangerous Waste Compliance Issues.
Computer and electronic equipment, and appliances	X	X	<ul style="list-style-type: none"> • Use energy-efficient computer and electronic equipment, and appliances. • Replace mercury-containing equipment with non-mercury equipment. • Use vendor take-back programs. • Surplus old equipment. • Recycle as Universal Waste. • If not recycled as Universal Waste: collect, manage and dispose as dangerous waste.
Batteries Fluorescent lamps Mercury-containing equipment	X	X	<ul style="list-style-type: none"> • Use rechargeable batteries. • Use LED lamps when appropriate. • Use low-mercury fluorescent lamps. • Remove and/or replace mercury-containing equipment. • Implement a battery recycling program and recycle as Universal Waste. • Implement a whole-lamp recycling program and recycle as Universal Waste. • If not recycled as Universal Waste: collect, manage, and dispose as dangerous waste.
Other:			

Notes, Comments, Follow-up

¹ Preferred alternatives are shown in **bold font**.

Resources

Common Dangerous Waste Compliance Issues: http://www.ecy.wa.gov/programs/hwtr/P2/schoolsAndLabs/tool/dw_issues.html

Dangerous Waste Basics: http://www.ecy.wa.gov/programs/hwtr/manage_waste/DangerousWasteBasics.html

EPA Guide to Pollution Prevention: The Automotive Repair Industry: http://www.istc.illinois.edu/info/library_docs/other_pubs/p2_guide_automotive_repair.pdf

Find a Hazardous Waste Service Provider: <http://www.ecy.wa.gov/programs/hwtr/hwsd/index.html>

Local Source Control Technical Assistance Manual - Auto Body Pilot, <https://fortress.wa.gov/ecy/publications/summarypages/0804017.html>

Pollution Prevention for Auto Body/Collision Repair Shops: <http://www.ecy.wa.gov/programs/hwtr/p2/sectors/autocollision1.html>

Pollution Prevention for Automotive Repair Shops: <http://www.ecy.wa.gov/programs/hwtr/p2/sectors/auto1.html>

Shop Guide for Dangerous Waste Management: <https://fortress.wa.gov/ecy/publications/SummaryPages/0904015.html>

Treatment by Generator: <http://www.ecy.wa.gov/programs/hwtr/P2/schoolsAndLabs/tool/TBG.html>

Universal Waste Rule for Batteries, WAC 173-303-573(2): <https://fortress.wa.gov/ecy/publications/SummaryPages/98407a.html>

Universal Waste Rule for Lamps, WAC 173-303-573(5): <https://fortress.wa.gov/ecy/publications/SummaryPages/98407c.html>

Universal Waste Rule for Mercury-containing Equipment, WAC 173-303-573(3,4): <https://fortress.wa.gov/ecy/publications/SummaryPages/98407b.html>

Waste Designation: <http://www.ecy.wa.gov/programs/hwtr/designation/>