



**Grant Agreement: FP7-289536**

**Collaborative project**

**Novel Processing approaches for the development of food products Low in fat, Salt and sugar Reduced**

**THEME KBBE.2011.2.3-05**

**Project Coordinator: BIOZOON GMBH (BZN)**

**Deliverable D 1.2**

**Product Specification Sheets**

Due date of deliverable: Project month 3

Start date of project: 01.01.2012

Duration: 36 months

Responsible for this Deliverable: BIOZOON GMBH (BZN)

Project co-funded by the European Commission within the Seventh Framework Programme (2007-2013)		
Dissemination Level D 1.2		
PU	Public	X
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**Abstract:**

In this task product specification sheets were developed for the following food products categories: bakery products, meat products, dairy products, fruit preparations, sauce preparations and RTE meals. For each category, the representative PLEASURE reference food products were considered and described in accordance with the Product Specification Sheet (PSS) template. The PSS includes, beside others, aspects such as: product recipe, manufacturing data, information regarding product properties and data on descriptive sensorial properties. Additionally the PSS also includes the nutritional data of the food product, for several different European countries.

**Contact person(s):**

Deliverable Responsible: Matthias Kück, BZN, [mk@biozoon.de](mailto:mk@biozoon.de)  
Alexandru Rusu BZN [rusu@biozoon.de](mailto:rusu@biozoon.de)

Deliverable Contribution: Alain le Bail, ONI [alain.lebail@oniris-nantes.fr](mailto:alain.lebail@oniris-nantes.fr)  
Caroline Pilard, APM, [Caroline.Pilard@apm-france.com](mailto:Caroline.Pilard@apm-france.com)  
Juan Carlos Arboleia, AZTI, [jarboleia@azti.es](mailto:jarboleia@azti.es)  
Tomas Bolumar, DIL, [T.bolumar@dil-ev.de](mailto:T.bolumar@dil-ev.de)  
Phil Kelly, Teagasc, [Phil.Kelly@teagasc.ie](mailto:Phil.Kelly@teagasc.ie)  
Tim Guinee, Teagasc, [tim.guinee@teagasc.ie](mailto:tim.guinee@teagasc.ie)  
Thomas Loetzbeier HSWT, [thomas.loetzbeier@hswt.de](mailto:thomas.loetzbeier@hswt.de)  
Simone Bell, EuroFIR, [sb@eurofir.org](mailto:sb@eurofir.org)

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## **1. Introduction and general considerations**

A product specification sheet is a data sheet that summarizes the technical characteristics and other properties of a product, serving to technological and commercial purposes. The product specification sheet presents in a clear and simple way several aspects of interest regarding a product.

Due to the large variety of PSS available and the differences between them regarding the used nomenclature, a PSS template was developed in accordance with the existing technological and legal requirements. In order to establish technologies for reducing the salt, fat and sugar in food products, aspects such as product recipe, manufacturing data, information on product properties and data on sensorial properties have to be considered. Therefore the developed PSS template covers, beside others, aspect such as legal requirements, recipe and ingredients, applied process, process parameter, nutritional data, etc. Where / if necessarily and according to the work progress, some aspects (e.g applied process, microbiological requirements, sensorial properties legal aspects, etc) in the PSS may be defined in more detail (or more accurate), later on, in the project.

Based on the PSS template developed by BZN, product specification sheets for the PLEASURE representative products were created, covering food categories such as bakery, dairy, meat, sauces and fruit preparations and RTE products. The PLEASURE representative products from these categories are presented below:

- Pizza Dough
- Puffing pastry Dough
- Mozzarella-style Pizza Cheese
- Cooked Ham
- Cooked sausages (bologna- type)
- Dried cured fermented sausage (for pizza salami)
- Meat filled puffing pastry
- Fruit filled puffing pastry (apple, apricot, cherry and pear fillings)
- RTE Pizza
- Carbonara Sauce

- Mayonnaise
- Tomato sauce

Food composition and nutritional data (according to different countries) for each PLEASURE food reference products were included in the PSS (e.g. protein, fat carbohydrates, sodium etc). Therefore it was aimed to achieve a broader view on the nutritional data of the PLEASURE food products, ensuring also an appropriate identification of the differences between salt, fat and sugar content in different countries (for the same food product, or highly similar). Further, this type of information will ensure an appropriate development approach for the PLEASURE reduced-in food products, having a high impact especially in obtaining a realistic estimation of the reduction of fat, salt and sugar intake, achievable with the new developed PLEASURE products.

Due to the differences present at EU level regarding food legislation and national policies, empirical variations in food composition and nutritional data for the same food product (between different European countries) were identified, thus hindering the development of one general valid value, on EU level. Therefore nutritional reference values to be used in the project were chosen and included in the PSS (for each reference food product). The data presented in the ``Food composition and Nutritional data`` area of the PSS, was collected mostly from EuroFIR database and project partners. All other data presented in the PSS were filled-in by the corresponding partner(s), each completing the information for the product found in its area of expertise.

## 2. Bakery products

### 2.1. Pizza Dough

<b>Product name</b>	Pizza Dough		
<b>Description</b>	Laminated Pizza dough (non baked)		
<b>Legal Aspects</b>	<ul style="list-style-type: none"> <li>Product made with GMO-free ingredients, additives and flavouring or containing GMO or made from GMO products in accordance with CE 1829/2003 &amp; 1830/2003 regulations.</li> <li>Free of ionised ingredients additives and flavourings.</li> </ul>		
<b>Portion</b>	A portion makes 62.5g of product		
<b>Recipe and Ingredients</b>	Ingredient	%	g
	Flour	57.49	33.05
	Wheat starch	2.3	1.32
	Salt	1.38	0.79
	Chicory Fibers	1.03	0.59
	Wheat Gluten	0.6	0.34
	Pyrophosphate SAPP 40	0.46	0.26
	Sodium Bicarbonate	0.34	0.20
	Yeast	0.06	0.03
	Vegetable Fat	6.9	3.97
	Water	27.14	15.60
	Rapeseed oil	2.3	1.32
	TOTAL	100	62.50
<b>Manufacturing data</b>	Applied process	1. Mixing 2. Extruding and Laminating 3. Cutting 4. Rolling with baking paper sheet 5. Cooling down to 6°C 6. Packaging with nitrogen spray	
	Short description	Pizza dough recipe is essentially made of flour, water, fat, salt and yeast. All powders are mixed then all liquids are added and mixed. When the dough is smooth, extensible with a good gluten network, it's extruded, folded one time and laminated down to a thickness of 4mm. The band of dough is then cut in rectangles (for example 32x28cm) and rolled with its baking paper sheet. The roll enters a cooling funnel to decrease its temperature below 6°C. It is then packed under nitrogen atmosphere.	
	Process parameter	Mixing for 210 kg: 1min20 speed V1 (98rpm) + 6 min speed V2(195rpm). (the bowl speed is 12rpm) approx. T°C of the dough after mixing = 20 – 24 °C. Dimensions: 32 x 28cm.	

		Weight for 1 pizza: 500g. Absence of O2 in the flow pack.					
	Special requirements						
Physical and Chemicals Properties	Moisture (%)	32.5					
	pH	Decreasing during the self-life due to natural yeast activity					
	Aw	0.950 – 0.965					
	Melting point(°C)						
	Density(kg/m <sup>3</sup> )						
Food composition and Nutritional data ( /100 grams)		DE	FR	UK	NL	CH	References values to be used in PLEASURE
	Energy (kcal)	304	309	290	229	237	309
	Energy (kJ)	1274	1299	1229	965	994	1299
	Protein (g)	5,83	7.3	7,8	6,2	6,3	7.3
	Fats (g)	12,18	9.9	4,8	5,1	5,1	9.9
	from which saturated(g)		3.6		1,9	0,7	3.6
	Cholesterol (mg)	0			0,2	0	
	Carbohydrates (g)	42,61	48.2	57,5	39,5	43,7	48.2
	from which sugars(g)	0,2	1.7	3,3	0,7	0,2	1.7
	From which fibres (g)	1,59	1.2		1,2	2,1	1.2
	Sodium (mg)	272	728	272	465	468	728
Microbiological requirements	TVC	NC (because of yeast added for fermentation)					
	Coliforms	< 1000 cfu/g					
	E. coli	< 10 cfu/g					
	Salmonella spp.	Absence (in 25g)					
	S. aureus	Absence					
	B. cereus	< 100 cfu/g					
	Yeasts	NC (added in the recipe for fermentation)					
	Moulds	< 500 cfu/g					
Sensorial properties	Aroma/Flavour	Bread flavour					
	Texture	When cooked : soft inside, slightly crunchy on the borders					
	Appearance	White to slightly yellow					
Allergens	Cereal containing gluten					YES	
	Crustaceans					NO	
	Eggs					NO	
	Fish					NO	
	Peanuts					NO	
	Soybeans					NO	
	Milk or milk derivatives					NO	
	Nuts / Nut Oil or Nut Derivatives					NO	



	Celery	NO
	Mustard	NO
	Sesame Seeds	NO
	Molluscs	NO
	Lupin	NO
<b>Packaging</b>	PET-PE-EVOH-PE film (64µm) + valve. Packed under nitrogen atmosphere.	
<b>Storage conditions</b>	Refrigerated, <4°C	
<b>Shelf life</b>	4 weeks	

The reference values to be used in PLEASURE have been chosen, considering the fact that the industry delivering the dough was French. Therefore, the reference values have to match with values corresponding to realistic values.

## 2.2. Puffing pastry dough

Product name	Puffing pastry Dough		
Description	Laminated puffing pastry dough (non cooked)		
Legal Aspects	<ul style="list-style-type: none"><li>Product made with GMO-free ingredients, additives and flavouring or containing GMO or made from GMO products in accordance with CE 1829/2003 &amp; 1830/2003 regulations.</li><li>Free of ionised ingredients additives and flavourings.</li></ul>		
Portion	A portion comprises 28.75g of product.		
Recipe and Ingredients	Ingrediens	%	g
	Flour	47.46	13.64
	Salt	1.03	0.30
	Cystein premix	0.11	0.03
	Bétacaroten powder	0.03	0.01
	Water	22.15	6.37
	Alcohol	1.81	0.52
	Concent lemon juice	0.26	0.07
	Vegetable fat	27.16	7.81
	TOTAL Batch	100	28.75
Manufacturing data	Applied process	1. Mixing 2. Extruding dough and extruding fat 3. (Laminating and folding) x 3 4. Cutting 5. Rolling with baking paper sheet 6. Wrapping	
	Short description	The flaky structure of the puffing pastry is made of dough and fat layers produced during lamination process which consists in assembling a sandwich of dough (2 layers) and a fat layer. This sandwich is laminated and folded several times. The final thickness of the dough is around 2mm. The band of dough is then cut in disks (32cm diameter) and rolled with its baking paper sheet. It is then packed and stored at 4°C.	
	Process parameter	Mixing for 280 kg: 210 sec 30rpm + 210 sec 50 rpm under vacuum T°C of the dough after mixing = around 20 °C. Dimensions: 32cm. Weight: 230g.	
	Special requirements		
Physical and Chemicals Properties	Moisture (%)	28.7	
	pH	4.8 to 5	
	Aw	< 0.97	
	Melting point(°C)		
	Density(kg/m³)		

Food composition and Nutritional data (/100 grams)		DE	FR	UK	ES	NL	CH	Reference values to be used in PLEASURE
	Energy (kcal)	420	412	373	408	275	384	412
	Energy (kJ)	1758	1717	1558	1706	1161	1606	1717
	Protein (g)	4,11	5,7	5,7	4,85	8,1	4,7	5.7
	Fats (g)	32,37	25,6	23,5	29,35	5,1	26,9	25.6
	from which saturated(g)	20,75	8,59	11,17	10,62	1,2	7,2	8.59
	Cholesterol (mg)	85	15	57	41	63,4	0	15
	Carbohydrates (g)	28,82	39,6	37	31,67	49,1	32,4	39.6
	from which sugars(g)	0,2	0,8	1,3	0,67	1,3	0,2	0.8
	from which fibers (g)	1,05	1,6		1,5	0,4	1,5	1.6
Sodium (mg)	451	460	310	340	193	506	460	
Microbiological requirements	TVC	< 100 000						
	Coliforms	< 1000						
	E. coli	< 10 cfu/g						
	Salmonella spp.	Absence (in 25g)						
	S. aureus	Absence						
	B. cereus	< 100 cfu/g						
	Yeasts	< 1000 cfu/g						
	Moulds	< 500 cfu/g						
Sensorial properties	Aroma/Flavour	No of flavour						
	Texture	Puffing. Melting in mouth.						
	Appearance	Many parallel layers						
Allergens	Cereal containing gluten						YES	
	Crustaceans						NO	
	Eggs						NO	
	Fish						NO	
	Peanuts						NO	
	Soybeans						NO	
	Milk or milk derivatives						NO	
	Nuts / Nut Oil or Nut Derivatives						NO	
	Celery						NO	
	Mustard						NO	
	Sesame Seeds						NO	
	Molluscs						NO	
	Lupin						NO	
Packaging	PET-PE-EVOH-PE film (54µm)							
Storage conditions	Refrigerated, <4°C							
Shelf life	5 weeks							

The reference values to be used in PLEASURE have been chosen considering the fact that the industry delivering the dough was French. Therefore, the reference values have to match with values corresponding to realistic values.

### 3. Meat products

#### 3.1. Cooked ham

<b>Product name</b>	<b>Cooked Ham</b>	
<b>Description</b>	Cooked ham is whole lean muscle meat, which is generally classified by the raw material used (mainly pork) and the injection level of brine.	
<b>Legal Aspects</b>	<ul style="list-style-type: none"> <li>German Food Code - Leitsätze für Fleisch- und Fleischerzeugnisse – Principles for Meat and meat products. Principles Number: 2.30 Cooked cured meat products</li> <li>EUROPEAN PARLIAMENT AND COUNCIL REGULATION (EC) No 178/2002 of 28 January 2002 on general principles and requirements of food law, establishing the European Food Safety Authority and laying down procedures in matters of food safety (EU Food)</li> <li>EUROPEAN PARLIAMENT AND COUNCIL REGULATION (EC) No 852/2004 of 29 April 2004 on the hygiene</li> <li>EUROPEAN PARLIAMENT AND COUNCIL REGULATION (EC) No 853/2004 of 29 April 2004 laying down specific hygiene rules for food of animal origin.</li> </ul>	
<b>Portion</b>		
<b>Recipe and Ingredients</b>	Lean muscle meat (100 %) (topside and/or silverside, GEHA –Standard PI) Brine injection (12 %) 19 g/kg curing salt (0,5 % sodium nitrite) 0,5 g/kg sodium ascorbate 2,5 g/kg Di/Triphosphate.	
<b>Manufacturing data</b>	Applied process	Lean meat, injection, tumbling, canning/filling, thermal treatment (cooking, cooling, slicing, packaging, freezing (optional))
	Short description	Cooked hams are generally produced from whole lean muscle meat and classified by their injection level. The ingredients are added by injection of brine (water, curing salt, sodium ascorbate, polyphosphates and other ingredients). After injection, the meat is massaged and tumbled (with or without vacuum). Treatment may be continuously, or it may alternate tumbling and resting. After tumbling the products are filled in forms or impermeable casings and heat treated (cooked to core minimum 68 °C). The aim of heat treatment is microbial destruction and enzyme inactivation. In order to combine the maximal inactivation of pathogen and spoilage microorganisms and a minimal effect on the sensory characteristics different cooking regimes are applied. In general delta T – cooking and step-by step cooking are applied for the production of cooked hams.
	Process parameter	<ul style="list-style-type: none"> <li>Injection level 12 %</li> <li>Tumbling distance minimum 3000 m</li> </ul>

		• Cooking to core temperature: 72 °C						
	Special requirements							
Physical and Chemicals Properties	Moisture (%)	78 %						
	pH	5,8 – 6,1						
	Freezing point (°C)	n.a.						
	Melting point(°C)	n.a.						
	Density(kg/m³)	n.a.						
Food composition and Nutritional data (/100 grams)		DE	FR	UK	ES	NL	CH	Reference values to be used in PLEASURE
	Energy (kcal)	121	105	107	113	138	122	116
	Energy (kJ)	508	444	451	474,8	580	510	485
	Protein (g)	19,47	17,1	18,4	21	17,3	18,5	17.9
	Fats (g)	4,2	3,35	3,3	3	6,9	5,1	4.5
	from which saturated(g)	1,50	0,32	0,60	1,1	2,3	1,4	1.4
	Cholesterol (mg)	53	33,5	58	50	52,5	71	54.9
	Carbohydrates (g)	1,07	1,72	1,0	0,4	1,9	0,4	1.1
	from which sugars(g)	0	1,72	1,0		1,7	0	0.9
	from which fibers (g)	0	0	0	0	0	0	0
	Sodium	1046	707	1200	970	831	1047	855
Microbiological requirements*	Total viable count (TVC)	5 x 10 <sup>4</sup>						
	Coliforms	1 x 10 <sup>2</sup>						
	E. coli	1 x 10 <sup>1</sup>						
	Salmonella spp.	Non detectable in 25g						
	S. aureus	1 x 10 <sup>1</sup>						
	B. cereus							
	Yeasts							
	Moulds							
*All values are based on the recommend level from the German Society for Microbiology and Hygiene (DGHM)								
Sensorial properties	Aroma/Flavour	Meaty flavour, typical for cooked ham						
	Texture	Firm, typical for cooked ham						
	Appearance	Cured; pinky meat colour						
Allergens	Cereal containing gluten					NO		
	Crustaceans					NO		
	Eggs					NO		

	Fish	NO
	Peanuts	NO
	Soybeans	NO
	Milk or milk derivatives	NO
	Nuts / Nut Oil or Nut Derivatives	NO
	Celery	NO
	Mustard	NO
	Sesame Seeds	NO
	Molluscs	NO
	Lupin	NO
<b>Packaging</b>	-	
<b>Storage conditions</b>	Chilled or frozen	
<b>Shelf life</b>	Minimum 28 days.	

The cooked ham is a relatively standard product among the different European countries. The cooked ham recipe used at PLEASURE trials is one standard recipe and thus it is a good reference for the European market.

### 3.2. Cooked sausages (Bologna type)

<b>Product name</b>	<b>Cooked sausages (bologna- type)</b>	
<b>Description</b>	Cooked sausages are made of beef and pork, but poultry and other meat sources are also used; they consist of an average of 30% – 50% lean meat and 15% – 30% fat, and 30 – 45 % water/ice. Cooked sausages are stabilized by thermal treatment (cooking, baking,) on raw materials which have been comminuted with salt and other technological necessary ingredients and water/ice. The meat proteins are extracted to the extent that after cooking they form a stable, cutable product, which will keep his form after repeated cooking.	
<b>Legal Aspects</b>	<ul style="list-style-type: none"> <li>German Food Code - Leitsätze für Fleisch- und Fleischerzeugnisse – Principles for Meat and meat products. Principles Number: 2.22 ff Cooked sausages</li> <li>EUROPEAN PARLIAMENT AND COUNCIL REGULATION (EC) No 178/2002 of 28 January 2002 on general principles and requirements of food law, establishing the European Food Safety Authority and laying down procedures in matters of food safety (EU Food)</li> <li>EUROPEAN PARLIAMENT AND COUNCIL REGULATION (EC) No 852/2004 of 29 April 2004 on the hygiene</li> <li>EUROPEAN PARLIAMENT AND COUNCIL REGULATION (EC) No 853/2004 of 29 April 2004 laying down specific hygiene rules for food of animal origin.</li> </ul>	
<b>Portion</b>		
<b>Recipe and Ingredients</b>	Meat trimmings (50 %, GEHA –Standard PIII) Fatty tissue (15 %, GEHA –Standard PIX) Cheeks (20 %, GEHA –Standard PVI) Ice (15 %) 18 g/kg curing salt (0,5 % sodium nitrite) 2,5 g/kg Tetrasodiumdiphosphate 0,5 g/kg Ascorbic acid	
<b>Manufacturing data</b>	Applied process	Grinding (2mm – 3mm plate), “All-in chopping” process, filling in casings, cooking till core temperature of 72 °C.
	Short description	The standardized raw materials are grinded and weight based on the final product requirements. The raw material is grinded and chilled and afterwards added to the bowl chopper, where the products are comminuted till the temperature of 12- 14 °C is reached. Products are filled in impermeable casings and cooked to core temperature of 72 °C.
	Process parameter	<ul style="list-style-type: none"> <li>Chopping till 10 – 14 °C</li> <li>Cooking to core temperature: 72 °C</li> </ul>
	Special requirements	
<b>Physical and</b>	Moisture (%)	50 – 55 %



Chemicals Properties	pH	5,8 – 6,1					
	Freezing point (°C)	n.a.					
	Melting point(°C)	n.a.					
	Density(kg/m³)	n.a.					
Food composition and Nutritional data (/100 grams)		DE	FR	UK	NL	CH	Reference values to be used in PLEASURE
	Energy (kcal)	391	302	281	392	259	268
	Energy (kJ)	1638	1246	1168	1622	1082	1121
	Protein (g)	20,3	11,3	9,4	19,1	13,1	13.04
	Fats (g)	34,8	28	21,1	34,7	22,7	23.9
	from which saturated(g)	14,6	10,8		13,8	8,8	9.8
	Cholesterol (mg)	82	60	40	32	37	45.5
	Carbohydrates (g)	0.3	1,07	14,2	0,8	0,4	0
	from which sugars(g)	0.3			0.8	0,4	0
	from which fibers (g)	0	0		0	0	0
	Sodium	1260	748	870	1580	829	807
Microbiological requirements*	Total viable count (TVC)	5 x 10 <sup>4</sup>					
	Coliforms	1 x 10 <sup>2</sup>					
	E. coli	1 x 10 <sup>1</sup>					
	Salmonella spp.	Non detectable in 25g					
	S. aureus	1 x 10 <sup>1</sup>					
	B. cereus	-					
	Yeasts	1 x 10 <sup>4</sup>					
	Moulds	-					
*All values are based on the recommend level from the German Society for Microbiology and Hygiene (DGHM)							
Sensorial properties	Aroma/Flavour	Meaty flavour					
	Texture	Firm, elastic					
	Appearance	Cured; pinky meat colour					
Allergens	Cereal containing gluten				NO		
	Crustaceans				NO		
	Eggs				NO		
	Fish				NO		
	Peanuts				NO		
	Soybeans				NO		
	Milk or milk derivatives				NO		
	Nuts / Nut Oil or Nut Derivatives				NO		
	Celery				NO		
	Mustard				NO		
	Sesame Seeds				NO		

	Molluscs	NO
	Lupin	NO
<b>Packaging</b>	-	
<b>Storage conditions</b>	Chilled or frozen	
<b>Shelf life</b>	Minimum 28 days.	

The nutritional composition of the cooked sausage used in PPLEASURE project represents an average nutritional composition compared to the reference values from the different countries and thus it is a good reference for the European market.

### 3.3. Dried cured fermented sausage (for pizza salami)

Product name	Dried cured fermented sausage (for pizza salami)	
Description	<p>Fermented sausages are meat products where the final product is stabilized by a combination of different hurdles (acidification, drying, lowering <math>a_w</math>, salting). Fermented sausages can be classified by the raw material, the moisture content, moisture: protein ratio, weight loss, final <math>a_w</math>- value, surface treatment fat commination degree and geographical region. In general fermented sausages are cured, not chilled storable raw meat products, spreadable or cutable meat products, which are produced by fermentation and/or drying.</p>	
Legal Aspects	<ul style="list-style-type: none"> <li>German Food Code - Leitsätze für Fleisch- und Fleischerzeugnisse – Principles for Meat and meat products. Principles Number: 2.21 ff raw cured sausages, fermented sausages</li> <li>EUROPEAN PARLIAMENT AND COUNCIL REGULATION (EC) No 178/2002 of 28 January 2002 on general principles and requirements of food law, establishing the European Food Safety Authority and laying down procedures in matters of food safety (EU Food)</li> <li>EUROPEAN PARLIAMENT AND COUNCIL REGULATION (EC) No 852/2004 of 29 April 2004 on the hygiene</li> <li>EUROPEAN PARLIAMENT AND COUNCIL REGULATION (EC) No 853/2004 of 29 April 2004 laying down specific hygiene rules for food of animal origin.</li> </ul>	
Portion		
Recipe and Ingredients	<p>Low fat meat frozen (55 %, GEHA – Standard meat PII) Low fat meat fresh (25 %, GEHA – Standard meat PII) Back fat frozen, (20 %, GEHA – Standard meat PVIII) 26 g/kg curing salt (0,5 % sodium nitrite) 0,5 g/kg ascorbic acid # Starter cultures, dextrose and other ingredients can vary.</p>	
Manufacturing data	Applied process	Standardization of raw material, chopping, filling, fermentation and drying, slicing, packaging, optional (freezing)
	Short description	Frozen meat and fat is chopped till final required commination is reached. Lean meat and other ingredients are added and mixed. Products are filled in permeable casings and dried till final loss of 25 %.
	Process parameter	<ul style="list-style-type: none"> <li>Chopping till required particle size is reached.</li> <li>Drying till 25 % weight loss is reached.</li> </ul>
	Special requirements	
Physical and Chemicals Properties	Moisture (%)	Ca. 40 %
	pH	4,8 – 5,1
	Freezing point (°C)	n.a.
	Melting point(°C)	n.a.

	Density(kg/m <sup>3</sup> )	n.a.						
Food composition and Nutritional data (/100 grams)		DE	FR	UK	ES	NL	CH	Reference values to be used in PLEASURE
	Energy (kcal)	375	460	438	472	386	424	409
	Energy (kJ)	1568	1899	1814	1979	1596	1773	1701
	Protein (g)	19,3	16	20,9	19,5	17,5	25,2	22.3
	Fats (g)	32,6	43,2	39,2	42	35	35,2	34.9
	from which saturated(g)	12,9	16,1	14,6	15,5	13,9	13	13.2
	Cholesterol (mg)	79	80	83	87,5	32	61	64.8
	Carbohydrates (g)	1,8	1,7	0,5	5,5	0,2	0,3	1.0
	from which sugars(g)	1,8	1,7	0,5	0	0,2	0,3	0.3
	from which fibers (g)	0	0	0	0	0	0	0
	Sodium	1227	1800	1800	1180	1358	1132	1664
Microbiological requirements*	Total viable count (TVC)							
	Coliforms	1 x 10 <sup>2</sup>						
	E. coli	1 x 10 <sup>1</sup>						
	Salmonella spp.	Non detectable in 25g						
	S. aureus	1 x 10 <sup>1</sup>						
	B. cereus							
	Yeasts	1 x 10 <sup>4</sup>						
	Moulds							
*All values are based on the recommend level from the German Society for Microbiology and Hygiene (DGHM)								
Sensorial properties	Aroma/Flavour	Meaty flavour						
	Texture	Firm, elastic						
	Appearance	Cured; pinky meat colour						
Allergens	Cereal containing gluten					NO		
	Crustaceans					NO		
	Eggs					NO		
	Fish					NO		
	Peanuts					NO		
	Soybeans					NO		
	Milk or milk derivatives					NO		
	Nuts / Nut Oil or Nut Derivatives					NO		
	Celery					NO		
	Mustard					NO		
	Sesame Seeds					NO		
	Molluscs					NO		
	Lupin					NO		
Packaging	-							
Storage	Chilled or frozen							

<b>conditions</b>	
<b>Shelf life</b>	Minimum 28 days.

The nutritional composition of the dried cured fermented sausage (for pizza salami) used in PLEASURE project represents an average nutritional composition compared to the reference values from the different countries and thus it is a good reference for the European market.

## 4. Dairy products

A clear distinction exists between Mozzarella cheese (traditional Italian type mozzarella) and Mozzarella Style Pizza Cheese (it is of lower moisture in comparison to traditional Italian Mozzarella), the second one being used globally in pizza (~ 1.6 million tonnes annually), and therefore being also chosen to be used in PLEASURE.

### 4.1. Mozzarella style cheese for pizza

<b>Product name</b>	Mozzarella-style Pizza Cheese
<b>Description</b>	Mozzarella-style pizza cheese produced primarily for food service applications driven by competitive practices in commercial pizza preparation and 'fast-food' retailing
<b>Legal Aspects</b>	<p>The legal position is complex:</p> <p>1) <u>Mozzarella cheese</u> may be manufactured to a composition that conforms to the US Code of Federal Regulations (CFR) 2008, according to either of the following standard of identity:</p> <p><b>CFR standard of Identity for Mozzarella</b>  Moisture (% w/w) &gt; 52 but ≤ 60  Fat in dry matter (% w/w) &gt; 45</p> <p><b>CFR standard of Identity for low-moisture Mozzarella</b>  Moisture (% w/w) &gt; 45 but &lt; 52  Fat in dry matter (% w/w) &gt; 45</p> <p>2) <u>Mozzarella-style or 'pizza' cheese</u> represents cheeses that are functionally suitable for pizza preparation, but which may or may not conform to the compositional requirements of the US CFR standards of identity</p> <p><i>(CFR: US Code of Federal Regulations 2008, USA National Archives and Records Administration, The Office of the Federal Register National Archives and Records Administration, Washington D.C.)</i></p>
<b>Portion</b>	In a composite food such as a pizza, the amount of cheese added is largely subjective. Since the melt behaviour of the cheese during cooking plays an important role in the binding of other ingredient toppings, then a minimum amount of cheese is required to achieve coverage of the pizza base. Furthermore, it is likely that a higher proportion of cheese will be used in pizza recipes based on cheese only,

<b>Recipe and Ingredients</b>	See 'Portion' re comments on factors determining the amount of cheese to be added to 'pizza'						
<b>Manufacturing data</b>	Applied process	Cheesemaking					
	Short description	A conventional process involves the typical process steps for cheesemaking i.e. culturing, coagulation, cutting, cooking up to the point of whey drainage. The subsequent curd handling steps allow for acid development and milling before addition to a cooker where a plasticizing process takes place in the presence of hot water. The hot plastic curd is extruded into moulds of the desired shape and weight					
	Process parameter	Cooking process to achieve cheese microstructure that facilitates unique stretch characteristics; control of milk composition, whey protein denaturation, rate of acidification, Ca <sup>++</sup> content					
	Special requirements	Pasta filata cooker stretcher					
<b>Physical and Chemicals Properties</b>	Moisture (%)	> 45 but < 52 (according to CFR)					
	pH	5.2-5.5					
	Freezing point (°C)						
	Melting point(°C)						
	Density(kg/m <sup>3</sup> )						
<b>Food composition and Nutritional data ( /100 grams)</b>		DE	FR	UK	NL	CH	Reference values to be used in PLEASURE
	Energy (kcal)	263	241	257	262	251	283
	Energy (kJ)	1100	1003	1067	1089	1051	1177
	Protein (g)	17,12	18,4	18,6	20	18,7	23
	Fats (g)	20,99	17,5	20,3	18	19,5	21*
	from which saturated(g)	14,25	10,7	13,75	11,5	11,4	13
	Cholesterol (mg)	65	65,5	58	50	46	55
	Carbohydrates (g)	1,75	2,5	0	4,9	1,3	0.5***
	from which sugars(g)	0,7	1,03	0	4,9	0,7	0
	from which fibers (g)	0	0	0	0	0	0
	Sodium (mg)	187	200	395	137	140	610**
<b>Microbiological requirements</b>	TVC	NA					
	Coliforms	<10 <sup>2</sup> CFU/g					
	E. coli	<10 CFU/g					
	Salmonella spp.	Not detected (in 25 grams)					
	S. aureus	<20 CFU/g					

	B. cereus	<10 <sup>3</sup> CFU/g
	Yeasts	<20 CFU/g
	Moulds	<20 CFU/g
<b>Sensorial properties</b>	Aroma/Flavour	bland, lactic flavour
	Texture	semi-hardelastic, spring
	Appearance	typically white / creamy
<b>Allergens</b>	Cereal containing gluten	NO
	Crustaceans	NO
	Eggs	NO
	Fish	NO
	Peanuts	NO
	Soybeans	NO
	Milk or milk derivatives	YES
	Nuts / Nut Oil or Nut Derivatives	NO
	Celery	NO
	Mustard	NO
	Sesame Seeds	NO
	Molluscs	NO
	Lupin	NO
<b>Packaging</b>	Commercial brands (suppliers) of pizza Mozzarella-style cheese sourced at retail level were in vacuum-packed block or in shredded formats	
<b>Storage conditions</b>	Cold storage 4-6°C	
<b>Shelf life</b>	Not defined legally, but in business-to-business relationships, varies from 1 to 2 months depending on moisture content and conditions of manufacture (e.g., enzymatic activity), ripening conditions.	

PLEASURE: Fat Content target reduction = 30% (at the expense of increased moisture content)

Mozzarella-style Pizza cheeses in both full-fat and reduced fat forms will be accomplished by the novel ingredient-based model cheese making system as set out in Tasks 1-4 (WP4).

\* From TEAGASC own survey of Mozzarella cheese in 2000, the average fat content of Mozzarella-cheese used in pizza was 23.5% (w/w).

\*\* The data for Na are calculated based on published work which showed the average value for NaCl in retail Mozzarella cheeses was 1.55 (% w/w) (cf. Guinee et al., 2000: International Journal of Dairy Technology Vol 53, No 2, 51-56).

\*\*\* Cheese has essentially no carbohydrate – but has lactate, which varies in content from 1- 2%.



## 5. Fruits and vegetables preparations, sauces

### 5.1 Fruit purees

<b>Product name</b>	Fruit puree				
<b>Description</b>	Homogeneous pureed mass without fruit pieces.				
<b>Legal Aspects</b>	<ul style="list-style-type: none"> <li>German Nährwert-Kennzeichnungsverordnung (directive EG 90/496/EWG)</li> <li>German Lebensmittel- und Futtermittelgesetzbuch (directive 2008/112/EG)</li> <li>German Lebensmittel-Kennzeichnungsverordnung (directive 79/112/EWG)</li> <li>Health Claim (EU Nr. 432/2012)</li> </ul>				
<b>Portion</b>	0,5; 3; 5 kg can				
<b>Recipe and Ingredients</b>	Fruits, citric acid, ascorbic acid				
<b>Manufacturing data</b>	Applied process	Washing, mixing, pasteurization			
	Short description	<ul style="list-style-type: none"> <li>Washing the fruits</li> <li>Mixing of the ingredients</li> <li>Pasteurization of the mass for preservation</li> </ul>			
	Process parameter	Pasteurization (85 °C; 15 min)			
	Special requirements				
<b>Physical and Chemicals Properties</b>	Moisture (%)				
	pH	3,5 ±0,5			
	Aw				
	Melting point(°C)				
	Density(kg/m <sup>3</sup> )				
<b>Food composition and Nutritional data ( /100 grams)</b>		Apple	Cherry	Pear	Apricot
	Energy (kcal)	44,6	66,5	45,8	45,9
	Energy (kJ)	189	282	194	195
	Protein (g)	0,26	1,2	0,38	1,4
	Fats (g)	0,24	0,27	0,21	0,39
	from which saturated(g)	0,04	0,05	0,02	0,02
	Cholesterol (mg)	0	0	0	0
	Carbohydrates(g)	10	14,1	10,6	9,2
	from which sugars(g)	10	14,1	10,6	9,2
	from which fibers (g)	2,4	1,7	3,1	2

	Sodium (mg)	1,6	2	1,23	0,98
Microbiological requirements	TVC	1x10 <sup>3</sup>			
	Coliforms	1x10 <sup>2</sup>			
	E. coli	1x10 <sup>1</sup>			
	Salmonella spp.				
	S. aureus				
	B. cereus				
	Yeasts				
	Moulds	1x10 <sup>3</sup>			
Sensorial properties	Aroma/Flavour	fruity, fresh, sweet, balanced sugar acid ratio			
	Texture	semi-liquid			
	Appearance	Color is in accordance with the color of the fruits			
Allergens	Cereal containing gluten		NO		
	Crustaceans		NO		
	Eggs		NO		
	Fish		NO		
	Peanuts		NO		
	Soybeans		NO		
	Milk or milk derivatives		NO		
	Nuts / Nut Oil or Nut Derivatives		NO		
	Celery		NO		
	Mustard		NO		
	Sesame Seeds		NO		
	Molluscs		NO		
	Lupin		NO		
Packaging	Can				
Storage conditions	Room temperature				
Shelf life	Preserved (1-2 years)				

References nutrition values to be used in PLEASURE represent the nutritional values pointed under each fruit category.

## 5.2 Sauces

### 5.2.1 Tomato sauce

<b>Product name</b>	Tomato sauce						
<b>Description</b>	Sauce with a pureed mass without tomato pieces.						
<b>Legal Aspects</b>	<ul style="list-style-type: none"> <li>German Nährwert-Kennzeichnungsverordnung (directive EG 90/496/EWG)</li> <li>German Lebensmittel- und Futtermittelgesetzbuch (directive 2008/112/EG)</li> <li>German Lebensmittel-Kennzeichnungsverordnung (directive 79/112/EWG)</li> <li>Health Claim (EU Nr. 432/2012)</li> </ul>						
<b>Portion</b>	0,5; 3; 5 kg can						
<b>Recipe and Ingredients</b>	Tomato Puree, Tomatoes, Garlic, Olive Oil, Salt, Basil, Oregano, Red Chili, Pepper, Citric Acid						
<b>Manufacturing data</b>	Applied process	Mixing, pasteurization					
	Short description	<ul style="list-style-type: none"> <li>Mixing of the ingredients with a blender</li> <li>Canning</li> <li>Sterilisation</li> </ul>					
	Process parameter	Sterilisation (96-98 °C; 40-60 min)					
	Special requirements						
<b>Physical and Chemicals Properties</b>	Moisture (%)						
	pH	3,8-4,6					
	Freezing point (°C)						
	Melting point (°C)						
	Density(kg/m <sup>3</sup> )						
<b>Food composition and Nutritional data ( /100 grams)</b>		DE	FR	UK	NL	CH	Reference values to be used in PLEASURE
	Energy (kcal)	84	52,6	68	49	65	68
	Energy (kJ)	351	221	283	205	271	283
	Protein (g)	1,24	1,43	1,5	1,1	1,8	1,5
	Fats (g)	6,36	2,1	4,5	3,4	2,1	4,5
	from which saturatedg(g)	4,03	0,38	0,63	0,4	0,5	0,63
	Cholesterol (mg)	16	0	0	0	0	0
	Carbohydrates (g)	5,45	7	5,8	3,6	11,6	5,8
	from which sugars(g)	4,1	2,46	5,1	3,5	4,1	5,1
	from which fibers	0,88	1,5			1,9	

	(g)						
	Sodium	147	516	48	97	540	48
Microbiological requirements	TVC	1x10 <sup>3</sup>					
	Coliforms	1x10 <sup>2</sup>					
	E. coli	1x10 <sup>1</sup>					
	Salmonella spp.						
	S. aureus						
	B. cereus						
	Yeasts						
	Moulds	1x10 <sup>3</sup>					
Sensorial properties	Aroma/Flavour	tomato flavour, without any off flavours					
	Texture	highly viscous					
	Appearance	red, homogeneous					
Allergens	Cereal containing gluten				NO		
	Crustaceans				NO		
	Eggs				NO		
	Fish				NO		
	Peanuts				NO		
	Soybeans				NO		
	Milk or milk derivatives				NO		
	Nuts / Nut Oil or Nut Derivatives				NO		
	Celery				NO		
	Mustard				NO		
	Sesame Seeds				NO		
	Molluscs				NO		
	Lupin				NO		
Packaging	can						
Storage conditions	Room temperature						
Shelf life	Preserved (1-2 years)						

The reference values to be used in PLEASURE have been chosen considering the highest tomato content (significant sugar content).

## 5.2.2 Carbonara sauce

<b>Product name</b>	Carbonara Sauce	
<b>Description</b>	Fluid emulsion prepared mainly from cream, cheese and bacon.	
<b>Legal Aspects</b>	<ul style="list-style-type: none"> <li>• <a href="#">CE 2073/05, DOUE L338/1 22.12.2005</a> Regulation (EC) no 2073/2005 of 15 November 2005 on microbiological criteria applied to Food products</li> <li>• <a href="#">Rgto. CE 1441/2007, DOUE L322/12 7.12.2007</a>, European Parliament and Council Regulation (EC) No 1441/2007 of 5 December 2007 that modifies Regulation (EC) no 2073/2005 relating to microbiological aspects applied to foodstuffs</li> <li>• <a href="#">Corrección de errores DOUE L115/48 29.4.2008</a>; Regulation correction no 2073/2005 relating to microbiological aspects applied to Food foodstuffs</li> <li>• <a href="#">CE 401/2006, DOUE L70/12 9.3.2006</a>; Regulation (EC) No 401/2006 of 23 February 2006 that establishes sampling methodology and official control analysis on micotoxines content of microbiological criteria applied to foodstuffs</li> </ul>	
<b>Portion</b>	A portion comprise 50 g of product.	
<b>Recipe and Ingredients</b>	Cream (25%) Salt (x%) Dairy Product(x%) Water (x%) Vegetable oil (0.5%) Modified Starch (x%) Bacon (x%)	
<b>Manufacturing data</b>	Applied process	1. Water addition 2. Addition of thickeners (powder) 3. Recirculation 4. Pasteurized egg yolk addition 5. Vinegar addition 6. Recirculation 7. Oil addition 8. Mixing 9. Cooling 10. Packaging
	Short description	Carbonara sauce is an oil in water emulsion, traditionally made by cream, minced bacon or ham, grated cheese, and seasonings.

		For industrial applications the process starts with the addition of the thickeners in powder. The mixture is recirculated until powder is dispersed and hydrated. Emulsifiers are then added to finish with the cream volume. When all the ingredients constituting the continuous phase are mixed, the vegetable oil is added. At this point all the mixture is stirred in order to decrease oil droplet's size and produce an actual emulsion. Finally, the emulsion is cooled and packaging is performed.				
	Process parameter	<ul style="list-style-type: none"> <li>Temperature: room temperature during stirring</li> <li>Stirring: 700 – 800 rpm</li> </ul>				
	Special requirements					
Physical and Chemicals Properties	Moisture (%)					
	pH					
	Freezing point (°C)					
	Melting point(°C)					
	Density(kg/m <sup>3</sup> )	0,910 – 1,03				
Food composition and Nutritional data ( /100 grams)		DE	UK	ES	CH	Reference values to be used in PLEASURE
	Energy (kcal)	355	167	303	115	216.4
	Energy (kJ)	1487	692	1269	480	895.2
	Protein (g)	15,66	4,5	7,48	4	5.7
	Fats (g)	32,60	14,8	29,93	7	19.6
	from which saturated(g)	18,14	6,8	17,57	3,5	12.8
	Cholesterol (mg)	222	39	96,8	20	40
	Carbohydrates (g)	0,83	4,2	2,01	9,2	4.4
	from which sugars(g)	5	1,2	2,01	5,0	3.4
	from which fibers (g)	0,2		0	0,2	0.2
	Sodium	295	300	185,1	470	634.7
Microbiological requirements	Aflatoxines B1+B2+G1+G2	10 µg/kg				
	Listeria monocytogenes	n=5, c=0, m=100 ufc/g, M=100 ufc/g				
	Salmonella spp.	Absent (in 25 grams)				
Sensorial properties	Aroma/Flavour	Milky and bacon flavour				
	Texture	Creamy, fatty				
	Appearance	Uniform creamy colour				
Allergens	Cereal containing gluten			NO		

	Crustaceans	NO
	Eggs	NO
	Fish	NO
	Peanuts	NO
	Soybeans	NO
	Milk or milk derivatives	YES
	Nuts / Nut Oil or Nut Derivatives	NO
	Celery	NO
	Mustard	NO
	Sesame Seeds	NO
	Molluscs	NO
	Lupin	NO
<b>Packaging</b>	Glass containers	
<b>Storage conditions</b>	Product stored in clean, refrigerated conditions approx. 4°C	
<b>Shelf life</b>	Up to one month	

The reference values to be used in PLEASURE have been chosen, considering the fact that the industry delivering this sauce is Spanish. Therefore, the reference values have to match with values corresponding to realistic values

### 5.2.3 Mayonnaise

<b>Product name</b>	Mayonnaise	
<b>Description</b>	Semi-solid emulsion prepared from vegetable oil, egg yolk and vinegar.	
<b>Legal Aspects</b>	<ul style="list-style-type: none"> <li>• <a href="#">CE 2073/05, DOUE L338/1 22.12.2005</a> Regulation (EC) no 2073/2005 of 15 November 2005 on microbiological criteria applied to Food products</li> <li>• <a href="#">CE 1441/2007, DOUE L322/12 7.12.2007</a>, European Parliament and Council Regulation (EC) No 1441/2007 of 5 December 2007 that modifies Regulation (EC) no 2073/2005 relating to microbiological aspects applied to foodstuffs</li> <li>• <a href="#">DOUE L115/48 29.4.2008</a>; Regulation correction no 2073/2005 relating to microbiological aspects applied to Food foodstuffs</li> <li>• <a href="#">CE 401/2006, DOUE L70/12 9.3.2006</a>; Regulation (EC) No 401/2006 of 23 February 2006 that establishes sampling methodology and official control analysis on micotoxines content of microbiological criteria applied to foodstuffs</li> </ul>	
<b>Portion</b>	A portion comprise 50-100 g of product depending on the application	
<b>Recipe and Ingredients</b>	Vegetable oil (80%) Egg yolk (x%) Vinegar (x%) Salt (x%) Sugar (x%) Thickeners (x%)	
<b>Manufacturing data</b>	Applied process	11. Water addition 12. Addition of thickeners (powder) 13. Recirculation 14. Pasteurized egg yolk addition 15. Vinegar addition 16. Recirculation 17. Oil addition 18. Mixing 19. Cooling 20. Packaging
	Short description	Mayonnaise is an oil-in-water emulsion traditionally produced by the mixture of vegetable oil, egg yolk, vinegar or lemon juice, water and sometimes mustard. For industrial applications the process starts with the addition of the thickeners in powder. The mixture is recirculated until powder is dispersed and hydrated. The pasteurized egg yolk, which acts as an emulsifying agent, is then added. Vinegar is also added to the mixture. When all the ingredients constituting the continuous



		phase are mixed, the vegetable oil is added. At this point all the mixture is stirred in order to decrease oil droplet's size and produce an actual emulsion. Finally, the emulsion is cooled and packaging is performed.				
	Process parameter	<ul style="list-style-type: none"> <li>Temperature: room temperature during stirring</li> <li>Stirring: 700 – 800 rpm</li> </ul>				
	Special requirements					
Physical and Chemicals Properties	Moisture (%)	14,6 %				
	pH	Under 3,6				
	Freezing point (°C)					
	Melting point(°C)					
	Density(kg/m <sup>3</sup> )	0,910 - 0,916				
Food composition and Nutritional data ( /100 grams)		DE	FR	UK	CH	Reference values to be used in PLEASURE
	Energy (kcal)	743	721	691	742	720.8
	Energy (kJ)	3112	2964	2844	3103	2964.9
	Protein (g)	1,49	1,36	1,1	1,1	1.7
	Fats (g)	82,50	78,8	75,6	81,7	79.0
	from which saturated(g)	36,67	17,9	11,42	12,1	17
	Cholesterol (mg)	237	116	75	150	115
	Carbohydrates (g)	2	1,5	1,7	0,5	1.7
	from which sugars(g)	0,5	0,1	1,3	0,5	1.3
	from which fibers (g)	0	0	0	0	0
	Sodium	410	478	450	410	450
Microbiological requirements	Aflatoxines B1+B2+G1+G2	10 µg/kg				
	Listeria monocytogenes	n=5, c=0, m=100 ufc/g, M=100 ufc/g				
	Salmonella spp.	Absent (in 25 grams)				
Sensorial properties	Aroma/Flavour	Oily, creamy and acidic flavour				
	Texture	Creamy, fatty and thick texture				
	Appearance	Uniform pale yellow/creamy colour				
Allergens	Cereal containing gluten				NO	
	Crustaceans				NO	
	Eggs				YES	
	Fish				NO	
	Peanuts				NO	
	Soybeans				NO	
	Milk or milk derivatives				NO	
	Nuts / Nut Oil or Nut Derivatives				NO	
	Celery				NO	

	Mustard	NO
	Sesame Seeds	NO
	Molluscs	NO
	Lupin	NO
<b>Packaging</b>	Glass containers	
<b>Storage conditions</b>	Product stored in clean, refrigerated conditions approx. 4°C	
<b>Shelf life</b>	Up to one month	

The reference values to be used in PLEASURE have been chosen, considering the fact that the industry delivering this sauce is Spanish. Therefore, the reference values have to match with values corresponding to realistic values.

## 6. RTE meals

### 6.1. Filled puffing pastry

#### 6.1.1. Meat (Bologna type sausage) filled puffing pastry

<b>Product name</b>	<b>Meat filled puffing pastry</b>							
<b>Description</b>	The meat filled puff pastry is made of slice of bologna sausage installed in a piece of puff pastry. The system is baked.							
<b>Legal Aspects</b>	Will be developed according with the existing EU legislation							
<b>Portion</b>	A 50 g portion is envisaged							
<b>Recipe and Ingredients</b>	50% puffing pastry dough (25 g) 50% meat (bologna sausage) portion (25 g)							
<b>Manufacturing data</b>	Applied process	The slice of bologna sausage is installed in a disk of dough. The dough is folded and is closed before baking. Contact between the two dough pieces is obtained by moisturizing the contact zone and by pressing with a fork.						
	Short description							
	Process parameter	The assembled food will be frozen in a blast air freezer for 30 min at -30°C. Storage will be done at -20°C The sample will be thawed for 20 minute in a fermentation cabinet at 25°C – 70% RH Baking will be done in a ventilated oven at 180°C for 15 minutes. Steam injection will occur at onset of baking.						
	Special requirements	Baking oven						
<b>Physical and Chemicals Properties</b>	Moisture (%)							
	pH							
	Freezing point (°C)	NA- will be different for filling and dough						
	Melting point(°C)							
	Density(kg/m <sup>3</sup> )							
<b>Food composition and Nutritional data ( /100 grams)</b>		DE	FR	UK	ES	NL	CH	Reference values to be used in

								PLEASURE
	Energy (kcal)	405,5	357,0	327	226,3	333,5	267	405.5
	Energy (kJ)	1698,8	1481,5	1363	947,5	1391,5	1121,5	1698.8
	Protein (g)	12,2	8,5	7,6	2,6	13,6	10,6	12.2
	Fats (g)	33,6	26,8	22,3	14,8	19,9	13,9	33.6
	from which saturated(g)	17,7	9,7	5,6	5,3	7,5	5	17.7
	Cholesterol (mg)	83,5	37,5	48,5	20,5	97,7	100,2	83.5
	Carbohydrates (g)	14,6	20,3	25,6	20,8	25	24,8	14.6
	from which sugars(g)	0,3	0,4	0,7	5,3	16,1	15,9	0.
	from which fibers (g)	0,5	0,8	0	2,0	0,2	0,2	0.5
	Sodium	855,5	604	590	170,8	886,5	511,0	855.5
Microbiological requirements	Will be developed according to existing EU requirements							
Sensorial properties	Will be defined later on in the project during the sensory panel analysis							
Allergens	Cereal containing gluten					YES		
	Crustaceans					NO		
	Eggs					NO		
	Fish					NO		
	Peanuts					NO		
	Soybeans					NO		
	Milk or milk derivatives					YES		
	Nuts / Nut Oil or Nut Derivatives					NO		
	Celery					NO		
	Mustard					NO		
	Sesame Seeds					NO		
	Molluscs					NO		
	Lupin					NO		
Packaging								
Storage conditions	The sample will be frozen before baking. After baking the product will be eaten within the same day.							
Shelf life	6 months frozen 6 hours after baking							

The reference values to be used in PLEASEARE have been chosen considering the fact that the industry delivering the meat was German and considering also the fact that the meat portion was contributing substantially to the overall nutritional load. Therefore, the reference values have to match with values corresponding to realistic values.

### 6.1.2. Apple filled puffing pastry

<b>Product name</b>	<b>Sweet (Apple) filled puffing pastry</b>						
<b>Description</b>	The sweet filled puff pastry is made of fruit puree filling installed in a piece of puff pastry. The system is baked.						
<b>Legal Aspects</b>	Will be developed according with the existing EU legislation						
<b>Portion</b>	A 50 g portion is envisaged						
<b>Recipe and Ingredients</b>	50% puffing pastry dough (25 g) 50% fruit puree (25 g)						
<b>Manufacturing data</b>	Applied process	The fruit puree is installed in a disk of dough. The dough is folded and is closed before baking. Contact between the two dough pieces is obtained by moisturizing the contact zone and by pressing with a fork.					
	Short description						
	Process parameter	The assembled food will be frozen in a blast air freezer for 30 min at -30°C. Storage will be done at -20°C The sample will be thawed for 20 minute in a fermentation cabinet at 25°C – 70% RH Baking will be done in a ventilated oven at 180°C for 15 minutes. Steam injection will occur at onset of baking.					
	Special requirements	Baking oven					
<b>Physical and Chemicals Properties</b>	Moisture (%)						
	pH						
	Freezing point (°C)	NA- will be different for filling and dough					
	Melting point(°C)						
	Density(kg/m <sup>3</sup> )						
<b>Food composition and Nutritional data (/100 grams)</b>		DE	FR	UK	ES	NL	Reference values to be used in PLEASURE
	Energy (kcal)	232,3	228,3	208,8	226,3	159,8	228.3
	Energy (kJ)	973,5	953	873,5	947,5	675	953
	Protein (g)	2,2	3	3	2,6	4,2	3
	Fats (g)	16,3	12,9	11,9	14,8	2,7	12.9
	from which saturated(g)	10,4	4,3	5,6	5,3	0,6	4.3
	Cholesterol (mg)	42,5	7,5	28,5	20,5	81,7	7.5
	Carbohydrates (g)	19,4	24,8	23,5	20,8	29,6	24.8
	from which sugars(g)	5,1	5,4	5,7	5,3	20,7	5.4
	from which	1,7	2	1,2	2	1,4	2

	<i>fibers (g)</i>						
	Sodium	226,3	230,8	155,8	170,8	97,3	230.8
Microbiological requirements	Will be developed according to existing EU requirements						
Sensorial properties	Will be defined later on in the project during the sensory panel analysis						
Allergens	Cereal containing gluten				YES		
	Crustaceans				NO		
	Eggs				NO		
	Fish				NO		
	Peanuts				NO		
	Soybeans				NO		
	Milk or milk derivatives				YES		
	Nuts / Nut Oil or Nut Derivatives				NO		
	Celery				NO		
	Mustard				NO		
	Sesame Seeds				NO		
	Molluscs				NO		
	Lupin				NO		
Packaging							
Storage conditions	The sample will be frozen before baking. After baking the product will be eaten within the same day.						
Shelf life	6 months frozen 6 hours after baking						

The reference values to be used in PLEASURE have been chosen considering the fact that the industry delivering the dough was French and considering the fact that the dough was contributing substantially to the overall nutritional load. Therefore, the reference values have to match with values corresponding to realistic values.

### 6.1.3. Apricot filled puffing pastry

<b>Product name</b>	<b>Sweet (Apricot) filled puffing pastry</b>						
<b>Description</b>	The sweet filled puff pastry is made of fruit puree filling installed in a piece of puff pastry. The system is baked.						
<b>Legal Aspects</b>	Will be developed according with the existing EU legislation						
<b>Portion</b>	A 50 g portion is envisaged						
<b>Recipe and Ingredients</b>	50% puffing pastry dough (25 g) 50% fruit puree (25 g)						
<b>Manufacturing data</b>	Applied process	The fruit puree is installed in a disk of dough. The dough is folded and is closed before baking. Contact between the two dough pieces is obtained by moisturizing the contact zone and by pressing with a fork.					
	Short description						
	Process parameter	The assembled food will be frozen in a blast air freezer for 30 min at -30°C. Storage will be done at -20°C The sample will be thawed for 20 minute in a fermentation cabinet at 25°C – 70% RH Baking will be done in a ventilated oven at 180°C for 15 minutes. Steam injection will occur at onset of baking.					
	Special requirements	Baking oven					
<b>Physical and Chemicals Properties</b>	Moisture (%)						
	pH						
	Freezing point (°C)	NA- will be different for filling and dough					
	Melting point(°C)						
	Density(kg/m <sup>3</sup> )						
<b>Food composition and Nutritional data (/100 grams)</b>		DE	FR	UK	ES	NL	Reference values to be used in PLEASURE
	Energy (kcal)	233	229	209,5	227	160,5	229
	Energy (kJ)	976,5	956	876,5	950,5	678	956
	Protein (g)	2,8	3,6	3,6	3,1	4,8	3.6
	Fats (g)	16,4	13	11,9	14,9	2,7	13
	from which saturated(g)	10,4	4,3	5,6	5,3	0,6	4.3
	Cholesterol (mg)	42,5	7,5	28,5	20,5	81,7	7.5
	Carbohydrates (g)	19	24,4	23,1	20,4	29,2	24.4
	from which sugars(g)	4,7	5	5,3	4,9	20,3	5
	from which	1,5	1,8	1,0	1,8	1,2	1.8

	<i>fibers (g)</i>						
	Sodium	226	230,5	155,5	170,5	97	230.5
Microbiological requirements	Will be developed according to existing EU requirements						
Sensorial properties	Will be defined later on in the project during the sensory panel analysis						
Allergens	Cereal containing gluten				YES		
	Crustaceans				NO		
	Eggs				NO		
	Fish				NO		
	Peanuts				NO		
	Soybeans				NO		
	Milk or milk derivatives				YES		
	Nuts / Nut Oil or Nut Derivatives				NO		
	Celery				NO		
	Mustard				NO		
	Sesame Seeds				NO		
	Molluscs				NO		
	Lupin				NO		
Packaging							
Storage conditions	The sample will be frozen before baking. After baking the product will be eaten within the same day.						
Shelf life	6 months frozen 6 hours after baking						

The reference values to be used in PLEASURE have been chosen considering the fact that the industry delivering the dough was French and considering the fact that the dough was contributing substantially to the overall nutritional load. Therefore, the reference values have to match with values corresponding to realistic values.



#### 6.1.4. Cherry filled puffing pastry

<b>Product name</b>	<b>Sweet (Cherry) filled puffing pastry</b>						
<b>Description</b>	The sweet filled puff pastry is made of fruit puree filling installed in a piece of puff pastry. The system is baked.						
<b>Legal Aspects</b>	Will be developed according with the existing EU legislation						
<b>Portion</b>	A 50 g portion is envisaged						
<b>Recipe and Ingredients</b>	50% puffing pastry dough (25 g) 50% fruit puree (25 g)						
<b>Manufacturing data</b>	Applied process	The fruit puree is installed in a disk of dough. The dough is folded and is closed before baking. Contact between the two dough pieces is obtained by moisturizing the contact zone and by pressing with a fork.					
	Short description						
	Process parameter	The assembled food will be frozen in a blast air freezer for 30 min at -30°C. Storage will be done at -20°C The sample will be thawed for 20 minute in a fermentation cabinet at 25°C – 70% RH Baking will be done in a ventilated oven at 180°C for 15 minutes. Steam injection will occur at onset of baking.					
	Special requirements	Baking oven					
<b>Physical and Chemicals Properties</b>	Moisture (%)						
	pH						
	Freezing point (°C)	NA- will be different for filling and dough					
	Melting point(°C)						
	Density(kg/m <sup>3</sup> )						
<b>Food composition and Nutritional data (/100 grams)</b>		DE	FR	UK	ES	NL	Reference values to be used in PLEASURE
	Energy (kcal)	243,3	239,3	219,8	237,3	170,8	239.3
	Energy (kJ)	1020	999,5	920	994	721,5	999.5
	Protein (g)	2,7	3,5	3,5	3	4,7	3.5
	Fats (g)	16,3	12,9	11,9	14,8	2,7	12.9
	from which saturated(g)	10,4	4,3	5,6	5,3	0,6	4.3
	Cholesterol (mg)	42,5	7,5	28,5	20,5	81,7	7.5
	Carbohydrates (g)	21,5	26,9	25,6	22,9	31,6	26.9
	from which sugars(g)	7,2	7,5	7,7	7,4	22,7	7.5
	from which	1,4	1,7	0,9	1,6	1,1	1.7

	<i>fibers (g)</i>						
	Sodium	227,5	231	156	171	97,5	231
Microbiological requirements	Will be developed according to existing EU requirements						
Sensorial properties	Will be defined later on in the project during the sensory panel analysis						
Allergens	Cereal containing gluten				YES		
	Crustaceans				NO		
	Eggs				NO		
	Fish				NO		
	Peanuts				NO		
	Soybeans				NO		
	Milk or milk derivatives				YES		
	Nuts / Nut Oil or Nut Derivatives				NO		
	Celery				NO		
	Mustard				NO		
	Sesame Seeds				NO		
	Molluscs				NO		
	Lupin				NO		
Packaging	-						
Storage conditions	The sample will be frozen before baking. After baking the product will be eaten within the same day.						
Shelf life	6 months frozen 6 hours after baking						

The reference values to be used in PLEASURE have been chosen considering the fact that the industry delivering the dough was French and considering the fact that the dough was contributing substantially to the overall nutritional load. Therefore, the reference values have to match with values corresponding to realistic values.

### 6.1.5 Pear filling puffing pastry

<b>Product name</b>	<b>Sweet (Pear) filled puffing pastry</b>						
<b>Description</b>	The sweet filled puff pastry is made of fruit puree filling installed in a piece of puff pastry. The system is baked.						
<b>Legal Aspects</b>	Will be developed according with the existing EU legislation						
<b>Portion</b>	A 50 g portion is envisaged						
<b>Recipe and Ingredients</b>	50% puffing pastry dough (25 g) 50% fruit puree (25 g)						
<b>Manufacturing data</b>	Applied process	The fruit puree is installed in a disk of dough. The dough is folded and is closed before baking. Contact between the two dough pieces is obtained by moisturizing the contact zone and by pressing with a fork.					
	Short description						
	Process parameter	The assembled food will be frozen in a blast air freezer for 30 min at -30°C. Storage will be done at -20°C The sample will be thawed for 20 minute in a fermentation cabinet at 25°C – 70% RH Baking will be done in a ventilated oven at 180°C for 15 minutes. Steam injection will occur at onset of baking.					
	Special requirements	Baking oven					
<b>Physical and Chemicals Properties</b>	Moisture (%)						
	pH						
	Freezing point (°C)	NA- will be different for filling and dough					
	Melting point(°C)						
	Density(kg/m <sup>3</sup> )						
<b>Food composition and Nutritional data ( /100 grams)</b>		DE	FR	UK	ES	NL	Reference values to be used in PLEASURE
	Energy (kcal)	232,9	228,9	209,4	226,9	160,4	228,9
	Energy (kJ)	976	955,5	876	950	677,5	955,5
	Protein (g)	2,2	3	3	2,6	4,2	3
	Fats (g)	16,3	12,9	11,9	14,8	2,7	12,9
	from which saturated(g)	10,4	4,3	5,6	5,3	0,6	4,3
	Cholesterol (mg)	42,5	7,5	28,5	20,5	81,7	7,5
	Carbohydrates (g)	19,7	25,1	23,8	21,1	29,9	25,1
	from which sugars(g)	5,4	5,7	6	5,6	21	5,7
	from which	2,1	2,4	1,6	2,3	1,8	2,4

	<i>fibers (g)</i>						
	Sodium	226,7	230,6	155,6	170,6	97,1	230,6
Microbiological requirements	Will be developed according to existing EU requirements						
Sensorial properties	Will be defined later on in the project during the sensory panel analysis						
Allergens	Cereal containing gluten				YES		
	Crustaceans				NO		
	Eggs				NO		
	Fish				NO		
	Peanuts				NO		
	Soybeans				NO		
	Milk or milk derivatives				YES		
	Nuts / Nut Oil or Nut Derivatives				NO		
	Celery				NO		
	Mustard				NO		
	Sesame Seeds				NO		
	Molluscs				NO		
	Lupin				NO		
Packaging							
Storage conditions	The sample will be frozen before baking. After baking the product will be eaten within the same day.						
Shelf life	6 months frozen 6 hours after baking						

The reference values to be used in PLEASURE have been chosen considering the fact that the industry delivering the dough was French and considering the fact that the dough was contributing substantially to the overall nutritional load. Therefore, the reference values have to match with values corresponding to realistic values.

## 6.2. Pizza

<b>Product name</b>	Ready to eat pizza	
<b>Description</b>	Ready for cooking, slicing, serving, and eating pizza with salami, mozzarella and tomato paste as ingredients.	
<b>Legal Aspects</b>	<ul style="list-style-type: none"> <li>• <a href="#">CE 2073/05, DOUE L338/1 22.12.2005</a> Regulation (EC) no 2073/2005 of 15 November 2005 on microbiological criteria applied to Food products</li> <li>• <a href="#">CE 1441/2007, DOUE L322/12 7.12.2007</a>, European Parliament and Council Regulation (EC) No 1441/2007 of 5 December 2007 that modifies Regulation (EC) no 2073/2005 relating to microbiological aspects applied to foodstuffs</li> <li>• <a href="#">DOUE L115/48 29.4.2008</a>; Regulation correction no 2073/2005 relating to microbiological aspects applied to Food foodstuffs</li> <li>• <a href="#">CE 401/2006, DOUE L70/12 9.3.2006</a>; Regulation (EC) No 401/2006 of 23 February 2006 that establishes sampling methodology and official control analysis on micotoxines content of microbiological criteria applied to foodstuffs</li> </ul>	
<b>Portion</b>	A portion comprises 250 g of product.	
<b>Recipe and Ingredients</b>	Pizza dough (x%) Salami (x%) Mozzarella (x%) Tomato paste (x%)	
<b>Manufacturing data</b>	Applied process	21. Pizza dough is divided into rounded shape of a predetermined weight 22. Tomato paste is disposed over the entire extension 23. Mozzarella cheese slices are randomly disposed 24. Salami slices are randomly disposed
	Short description	The ready-to-eat pizza is a food product where ingredients are previously assembled resulting in a ready to cook, slice, serve and eat pizza. First, the previously produced pizza dough is divided into rounded shape of a predetermined weight. Afterwards, the tomato paste is extended over the entire pizza dough forming a layer. Then some mozzarella cheese and salami slices are randomly disposed over the pizza.
	Process parameter	<ul style="list-style-type: none"> <li>• Temperature: the process is run at 4°C</li> </ul>
	Special requirements	
<b>Physical and Chemicals Properties</b>	Moisture (%)	
	pH	
	Freezing point (°C)	
	Melting point(°C)	
	Density(kg/m <sup>3</sup> )	

Food composition and Nutritional Data ( /100 grams)		DE	FR	IT	Reference values to be used in PLEASURE
	Energy (kcal)	236	229	271	281
	Energy (kJ)	989	959	1149	1176
	Protein (g)	8,03	11,3	5,6	11
	Fats (g)	9,04	9,98	5,6	13
	from which saturated(g)	3,12	4,3	1,99	5.38
	Cholesterol (mg)	14	31	11	15
	Carbohydrates (g)	30,34	23,4	52,9	29
	from which sugars(g)	1,6	1,6	1,6	1.95
	from which fibers (g)	1,56	1,5	3,8	1.82
	Sodium	356	597	986	162
Microbiological requirements	Aflatoxines B1+B2+G1+G2	10 µg/kg			
	Listeria monocytogenes	n=5, c=0, m=100 ufc/g, M=100 ufc/g			
	Salmonella spp.	Absent (in 25 grams)			
Sensorial properties	Aroma/Flavour	Toasted bread, milky			
	Texture	Crunchy and creamy			
	Appearance	Similar to a traditional rounded pizza			
Allergens	Cereal containing gluten			YES	
	Crustaceans			NO	
	Eggs			YES	
	Fish			NO	
	Peanuts			NO	
	Soybeans			NO	
	Milk or milk derivatives			YES	
	Nuts / Nut Oil or Nut Derivatives			NO	
	Celery			NO	
	Mustard			NO	
	Sesame Seeds			NO	
	Molluscs			NO	
	Lupin			NO	
Packaging					
Storage conditions	Product stored in clean, refrigerated conditions approx. 4°C				
Shelf life	Up to one week				

This specific type of pizza is a relatively standard product among the different European countries. It is a good reference for the European market.