IFS Food

Guidance on the allocation of IFS Food processing steps

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Explanations about the different processing steps (P steps) in IFS Food version 7

A support for certification bodies to select the right technology scopes / processing steps for calculating assessment duration

This document provides examples of the different processing steps and explanations about the purpose regarding the treatment of products. These examples only provide a guide to understand proper allocation of processing steps and this list does not claim to be exhaustive.

Explanations about the different processing steps (P steps)

IFS tech scope	IFS processing step – including processing / treating / manipulation / storing		Technology oriented classification which also takes product risks into consideration
A	P1	Sterilisation (e.g. cans)	**Sterilisation (in final packaging) with the purpose to destroy pathogens** Sterilised (e.g. autoclaved) products in final packaging • *The sterilisation process of a product in the final packaging also includes the packaging process and the cooling process after the sterilisation. Therefore, for the assessment duration calculation, it is not necessary to additionally select P6 for cooling and P12 for the packaging process, as they are already integrated in P1.* • *The heating of e.g. milk above 130°C (266°F) in combination with aseptically fillings does not belong to P1, but P2, because the product is not sterilised in final packaging.* • *Depending on the heat treatment target and the type of product (e.g. low acid food), the F-value (together with D- and z-values) shall be used to validate the process.* • *Examples: canned tuna, canned stew.*
B	P2	Thermal pasteurisation, UHT / aseptic filling, hot filling Other pasteurisation techniques e.g. high pressure pasteurisation, microwave	**Any heat treatment (or high pressure) with the purpose to reduce a microbiological food safety hazard based on company's HACCP plan.** • *Applies to all processes which are considered, controlled and monitored e. g. as a CCP or other control measure.* • *The heat treatment in general includes the cooling process after the heat treatment. Therefore, for the assessment time calculation, it is not necessary to additionally select P6 for this cooling process. When there is an open product handling or a risk of recontamination or when the product requires a refrigerated storage after the heat treatment, P6 needs to be applied additionally.* • *For aseptic filling, it is not necessary to additionally select P11 for packaging.* • *Examples: dairy products (UHT / aseptic filling), jam (hot filling), microwave pasteurisation of sliced bread, HPP (High Pressure Process) pasteurisation of meat pâté, meat cooking (when the main objective is to reduce the microbiological food safety hazards in the meat, as ingredient in a ready-to-eat product with short shelf life).*

IFS tech scope	IFS processing step – including processing / treating / manipulation / storing		Technology oriented classification which also takes product risks into consideration
C	P3	Irradiation of food	**Processed products: treatment with purpose to modify products and / or extend the shelf life and / or reduce food safety hazards by preservation techniques and other processing techniques** Note — exception: irradiation is attributed to this category although aimed for the destruction of microorganisms. **P4: preserving techniques** • ***Sugaring / salting:*** *sugar / salt may be added for preservation, which can be determined by checking the HACCP plan (all these preserving methods as salting, sugaring, etc. are not meant to add salt / sugar to a meal to improve organoleptic parameters but to modify or extend the shelf life and / or reduce food safety hazards).* *Examples: addition of sugar in jam.* • ***Marinating:*** *if marinating leads to an extension of shelf life, P4 needs to be selected.* • ***Smoking:*** *smoking as a process shall always lead to the selection of P4.* • ***Fermentation:*** *Examples: yoghurt, salami.* • ***Acidification:*** *if the pH value is adjusted for microbial reduction or as part of the hurdle concept, P5 needs to be selected. This P step is not used in cases where the pH value is adjusted as a flavour or for technological reasons. In order to get clarity, the HACCP plan shall always be reviewed during the assessment.* **P5: filtration** • *It applies to microfiltration when equal or less than 10 µ mesh size.* • *Examples: wine, e.g. with membrane filtration, cross flow filtration, to remove yeasts.* **P5: evaporation / dehydration** • *Water is removed with the aim to modify product and / or extend the shelf life and / or reduce food safety hazards. In this case, specific process equipment is needed and respective control measures are applied to achieve a defined moisture content (e.g. heat tunnel, drying by induction, warm air tower, drying by microwave, etc.)* • *Examples: pasta, milk (drum drying).*
	P4	Preserving: salting, marinating, sugaring, acidifying / pickling, curing, smoking, etc., fermentation, acidification	
	P5	Evaporation/ dehydration, vacuum filtration, freeze drying, microfiltration (less than 10 µ mesh size)	
D	P6	Freezing (at least – 18 °C / 0 °F) including storage, quick freezing, cooling, chilling processes and respective cool storing	**Systems, treatments to <u>maintain</u> product integrity and / or safety** Treatment with purpose to maintain the quality and / or integrity of the products including treatments to remove contamination and / or prevent contamination. **P6: freezing, cooling, etc.** • *P6 shall be selected each time there are cooling processes or cool storage for raw materials, semi-finished and finished products where effective control on cooling is essential to prevent spoilage and / or growth of pathogenic microorganisms, e.g. Cl. perfringens.* **P7: dipping, spraying, fumigation and other antimicrobial measures** • *Examples: grain fumigation (to control insects), spices fumigation, antimicrobial and for integrity maintenance dipping / spraying of fruits, coating of cheese with antimicrobial substances like natamycin.* • *UV treatment of fresh eggs for microbial reduction, of fresh mushrooms (to increase vitamin D), of cooked sausage in a sterile skin before the slicer.*
	P7	Antimicrobial dipping / spraying, fumigation	

<table>
<tr><th>IFS tech scope</th><th colspan="2">IFS processing step – including processing / treating / manipulation / storing</th><th>Technology oriented classification which also takes product risks into consideration</th></tr>
<tr><td rowspan="3">E</td><td>P8</td><td>Packing MAP,
packing under vacuum</td><td rowspan="3">Systems, treatments to <u>prevent</u> product contamination

P9 is applicable in any case when there are at least 2 procedures / methods implemented in a company to guarantee product safety / product hygiene, e.g.:
• disinfection of equipment + chilled room temperature (e.g. dissection of meat)
• disinfection + special hygiene equipment for employees (e.g. hygiene sluice)
• room with over-pressure + special hygiene equipment for employees (e.g. hygiene sluice)
• air filtration + room with over-pressure

• Note: the following processes shall not trigger the selection of P9:
  • Aseptic filling (as P2 should be selected)
  • Positive air pressure system, if applied in the equipment (e.g. filling system)
  • CIP (cleaning in place)

• P9 applies to the work environment in general and not to the product directly.

P10: filtration
• Applies to mechanical filtration and filtration with activated charcoal or when more than 10 µ mesh size.
• Examples: wine filtration (for removal of off-flavours with activated charcoal), oil filtration.

Clarification / guidance for water treatment (water used as ingredient or in direct contact with the product)
• All treatments applied to potable water used as an ingredient or in direct contact with the product shall be classified under P 10 for calculation and auditor qualification.
• It shall be avoided that for the whole process of water treatment more than one P step is applied.
• The above simplification does not apply to all products classified under Product Scope 8.

Clarification / guidance for air / gas treatment (air / gas used as ingredient or in direct contact with the product)
• All treatments applied to air / gas used as an ingredient or in direct contact with the product shall be classified under P 10 for calculation and auditor qualification.
• It shall be avoided that for the whole process of air / gas treatment more than one P step is applied.
• The above simplification does not apply to all products which only contain air / gas.</td></tr>
<tr><td>P9</td><td>Processes to prevent product contamination esp. microbiological contamination, by means of high hygiene control and specific infrastructure during handling, treatment and / or processing e.g. clean room technology, "white room", (controlled working room temperature for food safety purpose, disinfection after cleaning, positive air pressure systems (e.g. filtration below 10µ)</td></tr>
<tr><td>P10</td><td>Specific separation techniques: e.g. filtration like reverse osmoses, use of active charcoal</td></tr>
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IFS tech scope	IFS processing step – including processing / treating / manipulation / storing		Technology oriented classification which also takes product risks into consideration
F	P11	Cooking, baking, bottling, brewing, fermentation (e.g. wine), drying, frying, roasting, extrusion, churning	**Any other manipulation, treatment, processing not being listed in A,B,C,D,E ~~and not controlled as a CCP or as a control measure.~~** **P11: cooking** • *This P step shall be selected for cooking when the purpose of the process (based on HACCP plan) is a technical reason and not an action for food safety hazards reduction (e.g. to change the consistency of a raw material or product).* • *Examples: cooking of rice or potatoes to get it soft, cooking of pizza sauce for deep frozen pizza.* **P11: drying** • *This P step shall be selected only when drying is done without synthetically generated heat, e.g. by sunlight.* • *Examples: fruits dried under the sun.* **P11: bottling** • *In addition of typical bottling, P11 shall be selected for all filling activities of liquids and / or viscous products.* • *Examples: piston filler.* **P12:** • *Stuffing does not mean bottling, but the later filling of baked goods, e.g. donuts* • *Examples: colouring of boiled eggs, banana ripening, storing of fruit / vegetables under controlled conditions (temperature and humidity).* • *Note: for a company packing fruit and storing them under controlled conditions, both P6 and P12 shall be selected.* **P13:** • *Examples: wetting of grain before milling, polishing of rice, glazing of frozen products, spraying of bakery products to give them a shine, wetting / glazing of meat / fish to prevent water loss during the freezing process.* **P13: milling** • *Examples: milling oil seeds, flour and grains.* **P13: purification:** • *Examples: raw juice extracted from sugar beets prior to crystallisation of the sucrose contained in the juice, edible salt (by mechanical washing or vacuum re-crystallisation).* **P13: distillation** • *Examples: distillation of liquors, spirits.* **P13: steaming** • *This P step shall be selected each time the food product comes into direct contact with steam.* • *Examples: steaming of vegetables (for peeling process, blanching, etc.)* **P13: hydrogenating** • *Examples: hydrogenation of unsaturated fats to saturated fats in oil production to lead to more stable fats.*
	P12	Coating, breading, battering, cutting slicing, dicing, dismembering, mixing / blending, stuffing, slaughtering, sorting, manipulation, packing, storing under controlled conditions (atmosphere) except temperature, labelling	
	P13	Distillation, purification, steaming, damping, hydrogenating, milling	

Note: Technology scopes (from A to F) are used for IFS auditor competencies and IFS Food Assessment scope, whereas processing steps (from P1 to P13) are used to calculate Assessment duration.

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