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Prerequisite programmes on food safety —

Part 100: Requirements for the food, feed and packaging supply chain

Programmes prérequis pour la sécurité des denrées alimentaires —

Partie 100: Exigences applicables à la chaîne d'approvisionnement des denrées alimentaires, des aliments pour animaux et des emballages

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2.

ISO draws attention to the possibility that the implementation of this document may involve the use of (a) patent(s). ISO takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, ISO had not received notice of (a) patent(s) which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information. ISO shall not be held responsible for identifying any or all such patent rights.

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT).

This document was prepared by Technical Committee ISO/TC 34, Subcommittee SC 17, *Management systems for food safety*.

A list of all parts in the ISO 22002 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body.

Introduction

ISO 22000 sets out specific food safety requirements for organizations in the food chain. One such requirement is that organizations establish, implement and maintain prerequisite programmes (PRPs) to assist in controlling food safety hazards.

This document does not duplicate the requirements given in ISO 22000 and is intended to be used when establishing, implementing and maintaining the PRPs specific to the organization(s) in conjunction with ISO 22000:2018, 8.2.

This document comprises the common PRPs from the prior sector-specific series ISO 22002-1, ISO 22002-2, ISO 22002-4, ISO 22002-5, ISO 22002-6 and the new ISO 22002-7, which have been extracted into this document in order to provide a unified understanding of PRPs across sectors and to simplify PRPs for organizations operating in multiple sectors. Where unique sector-specific PRPs remain, or a new sector is added with unique PRPs, these are provided in the other parts of the ISO 22002 series, which are designed to be used in conjunction with this document.

Common PRPs for supply chain sectors
ISO 22002-100:2025

Prerequisite programmes on food safety — Part 100: Requirements for the food, feed and packaging supply chain

Sector specific PRPs* to be used in conjunction with ISO 22002-100 based on the ISO 22003:2022 series

(*Primary production (2) categories A & B are not applicable to ISO 22002-100)

Sector-specific PRPs on food safety	Category	Category description
ISO 22002-1: Food manufacturing	BIII	Pre-process handling of plant products
	C	Food, ingredient and pet food processing
	K	Chemical and bio-chemical
ISO 22002-2: Catering	E	Catering/food service
ISO 22002-4: Food packaging manufacturing	I	Production of packaging material
ISO 22002-5: Transport and storage	G	Transport and storage services
ISO 22002-6: Feed and animal food production	D	Feed and animal food processing
ISO 22002-7: Retail/wholesale	FI	Retail/wholesale
No additional sector-specific requirements apply in this document.	FII	Brokering/trading
	H	Services
	J	Equipment

Figure 1 — Diagram of common PRPs in this document and supporting sector-specific PRPs

Prerequisite programmes on food safety —

Part 100:
Requirements for the food, feed and packaging supply chain

1 Scope

This document specifies the common requirements for establishing, implementing and maintaining prerequisite programmes (PRPs) throughout the food, feed and packaging supply chain to assist in controlling food safety hazards with a food safety management system (FSMS).

This document is applicable to all organizations, regardless of size or complexity, that are involved in activities across the food, feed and packaging supply chain and that wish to implement PRPs (see Figure 1).

Exclusions to requirements can be supported by a sufficient justification that ensures that the exclusion does not adversely impact food safety.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 22000, *Food safety management systems — Requirements for any organization in the food chain*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 22000 and the following apply.

ISO and IEC maintain terminology databases for use in standardization.

3.1
certificate of analysis
CoA
document that indicates results of specific tests or analysis, which may include test methodology, performed on a defined amount of material or product

3.2
cleaning
removal of soil, food residue, dirt, grease or other objectionable matter

[SOURCE: CXC 1:1969, Rev 2022[4], 6]

3.3
cross-contamination
contamination of cooked and pre-cooked foods by direct or indirect contact with contaminants from a food handler, and often directly or indirectly from raw food

3.4
declaration of conformance
DoC
certificate of conformance
CoC
document that confirms conformance to specifications or regulations

3.5
disinfection
reduction, by means of chemical agents and/or physical methods, in the number of viable microorganisms on surfaces, in water or in air to a level that does not compromise food safety and/or suitability

[SOURCE: CXC 1:1969, Rev 2022[4], 6, modified — "biological or" deleted, and "on surfaces, in water or air" replaced "in the environment".]

3.6
facility
physical structure or installation, including related site works, serving one or more main purpose

3.7
food loss and waste
FLW
food and/or associated inedible parts removed from the food supply chain

3.8
food packaging
product to be used for containment, protection, handling, delivery, *storage* (3.16), *transport* (3.17) and presentation of food

Note 1 to entry: Food packaging may have direct or indirect contact with the food:

— direct food contact surfaces or materials are in contact (i.e. physically touching the food or in contact with the headspace) or will be in contact with the food during normal use of the food packaging;

— indirect food contact surfaces or materials are not in direct contact with the food during normal use of the food packaging, but there is the possibility for substances to be transferred into the food.

The classification of the food packaging as direct or indirect food contact should be part of the hazard analysis.

3.9
handwashing
removal of dirt from skin with the help of skin-compatible soap

3.10
intermediate product
product that will undergo further processing or transformation by an organization

3.11
logistic unit
unit used to *transport* (3.17) or store goods

Note 1 to entry: The term includes, but is not limited to, cases, pallets, containers, vessels, silos, etc.

3.12
product contact
surfaces that are in contact with the product or the primary package during normal operation

3.13
recycling
diversion of material from the waste stream during a manufacturing process, excluding re-utilization of materials, such as *reuse* (3.14), regrind or scrap generated in a process and capable of being reclaimed within the same process that generated it

3.14
reuse
rework
action on a nonconforming product or service to make it conform to the requirements

3.15
site
location where an organization carries out work or a service

Note 1 to entry: A site may include one or several *facilities* (3.6).

3.16
storage
safekeeping of goods in a depository

Note 1 to entry: A warehouse is an example of a depository.

3.17
transport
movement (including loading and unloading) of goods by road, rail, air, water or other shipping means

3.18
waste
any residue of a production operation or any substance, material or product that is intended by the organization for disposal, including destruction

3.19
zoning
demarcation of an area within an establishment where specific operating, hygiene or other practices may be applied to minimize the potential for microbiological *cross-contamination* (3.3)

Note 1 to entry: Examples of practices include clothing change on entry or exit, positive air pressure and modified traffic flow patterns.

4 Construction and layout of buildings

4.1 Boundaries of the site/facilities

The boundaries of the site/facilities shall be identified. All areas within the boundaries of the site/facilities shall be maintained appropriate to the operation to prevent contamination.

4.2 Environment

Consideration shall be given to potential sources of contamination and the nature of such contamination from the local environment. This includes sources of contamination both internal and external to the site/facilities.

The site/facilities should be located away from external sources of contamination, such as:

a) polluted areas and industrial activities which are reasonably likely to contaminate the products;

b) areas subject to flooding;

c) areas prone to infestations of pests;

d) areas where waste, either solid or liquid, cannot be removed effectively.

Effective measures shall be taken to protect the products and/or mitigate against contamination from the environment. The effectiveness shall be periodically reviewed.

4.3 Construction and layout

The site shall be designed or suitably adapted and maintained for the purpose of the operation.

The buildings and their facilities shall be designed with the functional characteristics, location and layout suitable for the needs of each working space and constructed of the appropriate materials to prevent/ minimize food safety hazards.

Drainage systems shall be designed, constructed, located and maintained so that the risk of contamination of materials or products is avoided. Drains shall have capacity sufficient to remove expected flow loads.

NOTE This includes drainage into the site/facilities and from the site/facilities to affected parties.

5 Design and layout of facilities and workspaces

5.1 General

Facilities and workspaces shall be designed, constructed and maintained or suitably adapted:

a) to minimize contamination and cross-contamination;

b) to provide adequate layout, space or separation by time, with a logical flow of materials (as well as recycled and re-used materials), utilities, waste, products and personnel, and physical separation of raw from processed areas proportionate to the risk of (cross) contamination;

NOTE Examples of physical separation include walls, barriers or partitions, or sufficient distance to minimize the occurrence of food safety hazards.

c) to facilitate appropriate hygienic conditions.

Zoning can contribute to achieving points a) to c).

5.2 Internal structures and fittings

The materials used to construct the facilities and workspaces shall be suitable for the type of production, level and type of cleaning required.

Structures and fittings (e.g. doors, windows, pipes), which can be identified as a source of contamination, shall be built of materials that can be cleaned and maintained.

The organization shall design and maintain:

a) floors, walls, doors, openings, ceilings and overhead fixtures to a degree of hygiene appropriate to the operation;

b) ceilings and overhead fixtures that are constructed and finished to minimize the build-up of products, foreign matter, dirt and condensation, and the shedding of particles that can cause a potential food safety hazard;

c) external openings (e.g. doors, windows) to prevent entry of foreign matter, including pests (see 7.3), appropriate to the operation;

d) floors and joints to avoid stagnant water that can impact food safety;

e) drains to prevent entry of foreign matter and pests (see 7.3), to be appropriate to the operation, and to be cleanable and repairable;

f) temporary structures that are located and constructed to prevent pest harbourage and contamination.

Where such measures are not possible or feasible, measures shall be taken to protect the products from contamination.

Equipment shall be covered in areas where routine cleaning of overhead fixtures and structures is not feasible or practical and where there is a potential for introducing contaminants or a food safety hazard.

5.3 Location of equipment

Equipment shall be located to facilitate good hygiene practices and monitoring and to permit access for operation, cleaning and maintenance.

5.4 Storage of food, packaging materials, ingredients and chemicals

Where specified, requirements for storage areas shall be defined, controlled and monitored.

Facilities used to store raw materials, ingredients, food packaging materials, intermediate and final products, and chemicals shall provide protection from dust, condensation, fumes, drains, waste, pests and other sources of contamination.

Storage areas shall be:

a) designed or arranged to allow sufficient segregation of raw materials, ingredients, food packaging materials, intermediate products and finished products;

b) designed or arranged to allow maintenance and cleaning, prevent contamination and minimize deterioration.

A separate, and where required, secure (locked or otherwise access controlled) storage area shall be provided for cleaning materials, chemicals and other hazardous substances.

6 Utilities

6.1 General

The provision and distribution layout for utilities to and around processing and storage areas shall be designed or arranged to minimize the risk of product contamination.

The quality of the utilities and any required control and monitoring measures shall be established at a level appropriate to the operation to minimize product contamination.

Maintenance and service activities associated with the utility shall be established and monitored to ensure that food safety is not compromised.

6.2 Water, ice and steam

The supply of water, including ice and steam, shall be of a suitable quality and quantity to meet the needs of the operation and not cause a food safety hazard.

The organization shall establish criteria (microbiological, chemical and physical) for water (including ice and steam) used directly in food or on food-contact surfaces or used for cleaning and shall monitor accordingly.

Water not fit for use in food or food contact shall have a separate supply system. It shall be clearly identified and prevented from entering into the water system used for food or food contact.

6.3 Air and ventilation

Ventilation systems shall be designed and constructed such that air does not flow from contaminated areas to clean areas. Ventilation systems shall be accessible for cleaning, filter changing and maintenance.

Suitable and sufficient ventilation (natural or mechanical) shall be provided to remove excess or unwanted steam, dust and odours. Where appropriate, room air supply quality shall be controlled to prevent airborne microbiological contamination.

The organization shall establish requirements for air used in direct food contact or food-contact surfaces and shall monitor accordingly.

6.4 Compressed air and other gases

Compressed air and other gas systems that are used where there is contact (direct or indirect) with food, food-contact surfaces or packaging shall be appropriate for the operation, and maintained to prevent contamination of the products.

Specifications for microbiological, chemical and physical (solid particulate, water and oil) quality of compressed air and other gases shall be established, where necessary, and should be monitored accordingly.

Oil used for compressors shall be food grade wherever there is a potential for oil contamination of the products.

6.5 Light

All the areas shall be provided with adequate lighting suitable to the nature of the operation. The lighting provided (natural or artificial) shall allow personnel to operate in a hygienic manner.

Lighting shall support the ability to detect defects or contamination of products and the examination of facilities and equipment for cleanliness.

Where there is a food safety hazard, lighting fixtures shall be protected to ensure that materials, products or equipment are not contaminated in case of breakage.

7 Pest control

7.1 General

An effective pest control programme shall be established, implemented, maintained and documented. The programme shall include actions to control pests, to prevent their attraction, access, shelter and/or proliferation.

7.2 Pest control programmes

7.2.1 Pest control programmes shall:

a) be appropriate to the organization;

b) have a designated and competent person(s) to manage pest control activities;

c) identify target pests;

d) have documented plans, methods, schedules and control procedures;

e) be appropriately maintained to remain effective for their intended application.

7.2.2 Where chemicals are used, the organization shall document that the chemicals used;

a) have been approved by regulatory authorities;

b) have been applied according to the product instructions by competent personnel;

c) do not pose a contamination risk to the products.

7.3 Preventing access

Effective measures shall be in place to prevent pests from entering the facility.

The facilities shall be maintained to:

a) identify and manage pest entry points (e.g. holes, drains, external windows) to prevent infestation.;

b) minimize potential breeding sites.

Where outside space is used for storage, stored items shall be protected from pest damage/contamination (e.g. bird droppings) at a level appropriate to the stored materials and products.

7.4 Harbourage and infestations

Pest control measures and practices shall be designed, managed and implemented to minimize the availability of food and water to pests.

Material found to be infested shall be handled in such a way as to prevent contamination of other materials, products or the facility.

Potential pest harbourage (e.g. burrows, vegetation, stored materials) shall be controlled or removed.

7.5 Monitoring and detection

7.5.1 The site, facility and surrounding areas shall be inspected at an appropriate frequency for evidence of infestation.

Pest monitoring programmes shall include:

a) the placement of detectors, bait stations and/or traps in key locations to identify pest activity;

b) the maintenance of a map of detectors and/or traps;

c) the location of detectors and/or traps to prevent potential contamination of materials, products or equipment.

7.5.2 Detectors and/or traps shall be:

a) designed to prevent potential contamination of materials, products or facility;

b) of robust, tamper-resistant construction;

c) appropriate for the target pest;

d) inspected at a frequency intended to identify the evidence of new pest activity.

Where monitoring and detection are outsourced, the organization shall be responsible for reviewing monitoring reports and, if necessary, ensure corrective action has been taken.

Documented information of inspections shall be retained and analysed to identify any trends and effectiveness of pest control programmes.

7.6 Control and eradication

7.6.1 If the organization observes pests on site/facilities where the products are stored or observes pests in any other locations at a level that can increase the likelihood of product contamination, it shall take the appropriate actions to:

a) remove pests;

b) prevent the reoccurrence;

c) reduce its occurrence to a level which does not compromise the safety of the products.

Pest control measures comprising treatment with mechanical, biological or chemical agents that have been approved for use by the competent authorities shall be put into practice at the site/facilities by a suitably qualified or trained person.

Care shall be taken when applying pest control measures to protect the products from contamination and applied without compromising food safety or suitability of the products.

Isolation of potentially affected products and areas shall take place, followed immediately by measures to effect eradication. Contaminated products through pest infestation and eradication activities shall be handled as potentially unsafe. Eradication measures shall be adopted and verified for effectiveness, and the results shall be recorded immediately after evidence of infestation is reported or pests invaded the building.

The cause of infestation shall be identified, and corrective action taken to prevent a problem from recurring.

7.6.2 Documented information of pesticide use shall be retained and shall identify:

a) the type, quantity and concentrations used;

b) by whom, where, when and how applied;

c) the target pest;

d) the result of the pesticide used;

e) handling of affected products, if applicable.

8 Waste, FLW management and recycling

8.1 General

The organization shall have in place, in a manner that prevents product contamination, a waste management programme to:

a) identify waste including, where appropriate, food waste;

b) collect, contain, remove and dispose of waste (including waste water).

A separate, designated storage area shall be provided for waste and, where appropriate, FLW.

Waste storage areas shall be kept appropriately clean and tidy.

FLW storage areas shall be designed and maintained to prevent contamination.

Removal systems shall be capable of handling the volume of waste and/or FLW and shall be adequately maintained.

Labelled materials, products or printed packaging designated as waste shall be disfigured or destroyed to ensure that trademarks cannot be reused. Removal and destruction shall be carried out by approved disposal contractors.

Documented information of the identification and disposal or destruction of waste and/or food waste shall be retained.

8.2 Recycling and/or reuse of materials

Systems for recycling and/or reuse of materials shall be designed to prevent contamination of the end products.

The use of materials for recycling or reuse shall only be performed where:

a) materials intended for recycling or reuse shall be identified and stored separately from other products, materials and waste;

b) the storage areas shall be identified and maintained to an appropriate level of cleanliness.

An appropriate level of inspection and cleaning shall take place prior to reuse. If the reused materials cannot be cleaned or repaired (example a wooden pallet) to a documented standard, the materials shall be categorized as waste.

If a material is reused, it shall be for an appropriate specified purpose.

An appropriate level of traceability shall be maintained.

8.3 Waste containers

The organization shall have waste containers in adequate numbers and capacity to contain waste.

Containers for waste shall be emptied at appropriate frequencies and kept in an adequate condition of cleanliness.

Containers or areas for waste, by-products and inedible or hazardous substances/waste shall:

a) be designed and constructed from materials appropriate for the type of waste for which they are intended;

b) allow cleaning;

c) be designed to prevent infestation by pests;

d) be clearly identified and used for their intended purpose;

e) be located in designated areas appropriate to their need.

When there is a risk of contamination to the product(s), waste containers shall be appropriately secured and kept closed when not in immediate use.

9 Equipment suitability and maintenance

9.1 General

9.1.1 Equipment and utensils shall be:

a) hygienically designed;

b) constructed and installed to facilitate cleaning, disinfection where required, and maintenance;

c) constructed of material which does not pose a risk of contamination according to its intended use and normal operating conditions.

Surfaces for equipment shall not affect, nor be affected by, the intended products or cleaning system.

Surfaces for product contact shall be constructed from materials intended to prevent contamination or cross-contamination of the products.

9.1.2 The organization shall:

a) install and use equipment in accordance with the conditions of use provided by the manufacturer, or if not available, appropriate technical and/or hygiene practices;

b) use equipment in such a way as to maintain an appropriate degree of hygiene, prevent cross-contamination and minimize the likelihood of product contamination from equipment (e.g. oil leak, gas emission);

c) inspect equipment at an appropriate frequency and implement appropriate actions in case of failure.

9.2 Equipment capability

Where required for food safety, equipment shall:

a) be designed for and capable of controlling identified food safety hazards and, where possible, monitoring the selected parameters and conditions (e.g. temperature, filtration, humidity);

b) allow for verification of these parameters and/or conditions.

9.3 Maintenance

9.3.1 Maintenance programmes shall:

a) specify the maintenance of all the equipment relevant to food safety;

b) include, where relevant, the request(s) for the replacement of temporary repairs by a permanent repair.

Maintenance requests which impact product safety and/or are seen to be a food safety risk shall be given priority. Temporary repairs shall not affect food safety.

Where there is a potential for direct or indirect contact with the products, lubricants and heat transfer fluids shall be food grade.

Preventive and corrective maintenance programmes shall be documented.

9.3.2 The procedure for releasing maintained equipment for return to production shall:

a) include requirements for appropriate cleaning, and disinfection when needed;

b) when required, a pre-use inspection;

c) provide for the removal of any potential contaminants from machinery, equipment and direct environment after maintenance work.

9.3.3 Maintenance activities shall be carried out in such a way that food safety is not affected.

10 Management of purchased materials

10.1 General

Purchasing of materials which impact food safety shall be controlled to ensure that the suppliers used have the capability to meet the specified requirements. The conformance of incoming materials to specified purchase requirements shall be verified.

10.2 Selection and management of suppliers

There shall be a defined process for the selection, approval and monitoring of suppliers. The process used shall be justified by hazard assessment, including the potential risk to the final product. The process shall include:

a) an assessment of the supplier's ability to meet quality and food safety expectations, requirements and specifications;

b) a description of how suppliers are assessed.

EXAMPLE An audit of the supplying site prior to accepting materials for production, appropriate third-party certification, monitoring the performance of the supplier to ensure continued approval status.

NOTE Monitoring includes conformity with material or product specifications, fulfilment of CoA requirements and satisfactory audit outcomes.

10.3 Incoming materials

Delivery vehicles shall be checked prior to, and during unloading to verify that the safety of the materials has been maintained during the transit (e.g. integrity of seals, freedom from infestation). The existence of temperature records shall be kept as documented information.

Materials shall be inspected, tested or covered by relevant documentation (e.g. CoA/DoC), to verify conformity with specified requirements prior to acceptance or use. The method of verification shall be documented.

NOTE The inspection frequency and scope can be based on the hazard presented by the material and the risk assessment of the specific supplier.

11 Storage, including warehousing, and transport

11.1 Storage and warehousing

All materials and products shall be stored as follows:

a) Off the floor and with sufficient space between the material and the walls to allow inspection and pest control activities to be carried out. Any exceptions, for example bulk or agricultural crop materials, shall be documented.

b) In clean, dry, well-ventilated spaces protected from dust, condensation, fumes, odours or other sources of contamination.

Effective control of storage and warehousing temperature, humidity and other environmental conditions shall be provided where required by material and product or storage specifications.

Where materials and products are stacked, this shall be carried out in such a way that there is no risk of contamination and/or damage from compressive forces to the lower layer(s).

Stock rotation programmes shall be implemented where appropriate, e.g. first in first out (FIFO) and first expired first out (FEFO).

Materials and chemicals (cleaning products, lubricants and pesticides) shall be stored separately.

A separate area or other means (e.g. using an electronic system) of segregating materials and products identified as nonconforming shall be provided. Materials and products which have been identified as nonconforming shall be segregated in a manner to prevent unintended use.

11.2 Dispatch

Prior to dispatch, logistic units used shall be inspected to ensure they are clean, in good repair, suitable for the purpose, and free from odours, pests or other conditions that can impact negatively on the products/materials.

The loading practices shall be designed to maintain the integrity of products/materials.

11.3 Transport

Vehicles, conveyances and containers shall:

a) provide protection against damage or contamination of the products;

b) be maintained in a state of repair, cleanliness and condition to prevent contamination of the materials/products.

Documented information to demonstrate that the correct transportation conditions have been maintained shall be available, where appropriate.

Where the same vehicles, conveyances and containers are used for different products, these shall be inspected and cleaned where required between loads. Documented information of inspection and cleaning shall be kept.

Where bulk containers are used for transporting the materials/products, documented information of the vehicle load history and cleaning interventions shall be maintained where there is a food safety hazard.

12 Measures for prevention of contamination

Systems shall be in place to detect, prevent, control or minimize contamination and cross-contamination, to an acceptable level relevant to food safety hazard assessment. Contaminants can include allergens, physical, chemical or biological agents.

NOTE Contamination prevention activities can be highly sector specific. In recognition of this, the different sectors have identified key aspects which are applicable to their specific activities. These can be found in the sector-specific parts of the ISO 22002 series.

13 Cleaning and disinfection

13.1 General

The organization shall maintain the degree of hygiene necessary to minimize the likelihood of product contamination. Cleaning and/or disinfection programmes shall be established, and documented to ensure that the cleanliness of the following are maintained at a level in accordance with the food safety assessment to the products:

a) specified areas of the site/facilities;

b) equipment, including transport containers;

c) the working environment.

13.2 Cleaning agents and tools

The organization shall select and/or authorize the cleaning agents and tools that are fit for purpose. It shall follow any of the manufacturer's instructions for their use and storage.

Cleaning and disinfection agents and tools shall be:

a) clearly identified;

b) maintained in a condition which does not present a source of product contamination.

13.3 Cleaning and disinfection programmes

13.3.1 Programmes shall specify:

a) what is to be cleaned;

b) the frequency of cleaning;

c) the responsibility for cleaning;

d) the method of cleaning;

e) monitoring and verifying arrangements for the effectiveness of the cleaning.

13.3.2 The cleaning and/or disinfection programme shall be:

a) appropriate to the food safety hazard associated with the product(s);

b) confirmed to be capable of delivering the intended results;

c) carried out such that food safety is not compromised.

14 Personal hygiene and employee facilities

14.1 General

The organization shall establish, document and communicate practices for personal hygiene, cleanliness and behaviour that is appropriate to the activities being carried out.

All personnel shall be aware of the food safety hazards associated with their activities.

All personnel, including visitors, external providers and contractors, shall be required to comply with the relevant documented requirements.

All personnel shall maintain an appropriate degree of personal cleanliness and behave and operate in a manner that is appropriate to the required degree of hygiene.

14.2 Hygiene facilities

Appropriate hygiene facilities shall be available and maintained.

The organization shall provide:

a) facilities located close to the points where hygiene requirements apply, that are clearly designated and kept clean;

b) an adequate number and location for washing, drying and, where required, followed by disinfecting hands (including wash basins, supply of water at a suitable temperature, and soap or sanitizer);

c) an adequate number of toilet facilities of appropriate hygienic design sufficiently separated from the production area, each with handwashing, drying and, where required, disinfecting facilities;

d) adequate changing and storage facilities for all personnel who work in production and storage areas.

14.3 Designated eating areas

Staff canteens and designated areas for food storage and consumption shall be situated so that the potential for cross-contamination is minimized.

Personnel's own food shall be stored in an appropriate condition, and shall be consumed in designated areas and discarded appropriately.

Food storage areas for personnel shall be cleaned at a defined frequency to maintain hygienic conditions.

14.4 Workwear and protective clothing

14.4.1 Personnel who work in, or enter into, areas where products and/or materials are handled, transported or stored shall wear clothing that is:

a) fit for purpose;

b) clean;

c) in good condition;

d) not presenting any potential for contamination.

14.4.2 Personal lockers for work clothing shall be:

a) kept clean;

b) free from rubbish and soiled clothing.

14.4.3 Clothing specified for product protection or hygiene purposes shall be worn correctly. It shall not be used for any other purpose.

Where appropriate:

a) workwear shall be laundered to suitable methods and intervals for the intended use of the garments;

b) workwear shall provide adequate coverage to ensure that hair, perspiration, etc. cannot contaminate the products;

c) hair, beards and moustaches shall be protected (i.e. completely enclosed) by restraints;

d) gloves, which are worn for product contact, shall be fit for purpose, at a level of cleanliness commensurate with their use, in good condition, and appropriate measures shall be applied to ensure the gloves do not become a source of contamination;

e) footwear shall be suitably designed for the activity in the area;

f) personal protective equipment, where required, shall be designed to prevent product contamination;

g) be maintained in a hygienic condition.

14.5 Health status

The organization shall ensure that the health of the personnel does not have an adverse effect on the products. Documented procedures for handling illness and injuries shall be established and shall incorporate any statutory and regulatory requirements for the health status of personnel.

Personnel shall be required to report illness and injuries that can have an impact on food safety to management or the relevant authority, as applicable. Management shall take the appropriate action to protect food safety.

NOTE Symptoms to consider include jaundice, diarrhoea, vomiting, fever, sore throat with fever, visibly infected skin lesions (boils, cuts, etc.), and discharges from the ear, eye or nose.

14.6 Personnel cleanliness

Personnel shall maintain an appropriate degree of personal cleanliness for the area they are working in.

Personnel, including those wearing gloves for hygiene purposes, working in areas where there is a food safety risk, shall be required to wash and, where appropriate, disinfect hands:

a) before starting any product or food packaging handling activities (e.g. after a break);

b) immediately after using the toilet;

c) immediately after handling any potentially contaminated material;

d) after smoking;

e) after eating or drinking;

f) before putting on or changing gloves, for example, for food handling or highly sensitive products.

14.7 Personnel behaviour

The organization shall document and implement the required personnel behaviour.

The documentation shall cover restrictions on:

a) smoking or vaping, eating and chewing;

b) spitting;

c) personal items, such as medicine, jewellery, watches, piercings, pins, etc.;

d) nail polish, false nails and false eyelashes;

e) touching the mouth, nose or other places of possible contamination;

f) sneezing or coughing over unprotected products;

g) storage of personal items.

If for some reason it is not feasible to remove any personal item, measures shall be taken to ensure protection to avoid contamination.

14.8 Visitors and external providers

Visitors and external providers, including contractors, in particular to defined areas where there is a risk of product contamination, shall follow the documented requirements of the organization for personal hygiene.

Where necessary, they shall:

a) be instructed and supervised;

b) wear protective clothing.

Prior to getting access to product processing or handling areas, they shall be guided through the hygiene requirements of the organization and encouraged to report any type of illness/injury that can pose cross-contamination issues.

15 Product and consumer information

End products shall be accompanied by, or bear adequate information to, enable the next organization in the food chain or the consumer to:

a) handle;

b) prepare;

c) display;

d) store; and/or

e) use the products safely and correctly.

16 Food defence and food fraud

16.1 General

The organization shall implement and maintain measures to protect products from intentional acts, that may include, but are not limited to:

a) sabotage and terrorism;

b) mislabelling, counterfeiting and tampering;

c) vandalism and theft.

16.2 Food defence

The organization shall:

a) determine or select the methodology to evaluate the significance of threats;

b) conduct a threat assessment to identify and evaluate potential threats, and identify and select proportionate mitigation measures covering its processes and products;

c) document the threat assessment, mitigation measures and verification procedures in a food defence plan;

d) implement the food defence plan, including effective training, communication and periodic review.

NOTE Mitigation measures to consider include building and infrastructure design to prevent unauthorized entry; reference checks for personnel; control of confidential information; security of storage and production areas; transport and distribution; supplier and external provider assurance inclusive of requirements for food defence.

Annex A contains examples of food defence measures.

16.3 Food fraud prevention

The organization shall:

a) determine or select the methodology to evaluate the significance of vulnerabilities;

b) conduct a food fraud vulnerability assessment identifying potential vulnerabilities, and identify and select proportionate mitigation measures covering its processes and products;

c) document the vulnerability assessment, mitigation measures and verification procedures in a food fraud prevention plan;

d) implement the food fraud prevention plan, including effective training, communication and periodic review.

NOTE Factors to consider when conducting a food fraud vulnerability assessment include economic vulnerability, historical data, ease of detectability, access to raw materials, packaging materials and finished products in the supply chain; relationship with the supplier; supplier and external provider assurance inclusive of requirements for food fraud and complexity of the supply chain.

Annex B contains examples of food fraud mitigation measures.

Annex A
(informative)

Examples of food defence measures

A.1 General

Food defence measures are required in 16.2. This annex provides examples of areas that may be considered.

A.2 Site, including ground and facility layout

Examples of food defence measures are as follows:

— Prepare fences and/or “keep out” warning signs.

— Install closed-circuit television (CCTV) or other monitoring apparatus (e.g. perimeter alarm system).

— Hire guards to patrol the sites.

— Lock external doors and guard the other openings as appropriate (e.g. back doorways, vents).

— Implement an access control programme.

— Cut trees or bushes which allow hiding or trespassing.

— Maintain good relations with local communities.

— Minimize the number of entrances and exits.

A.3 Defence on infrastructure

Examples of food defence measures are as follows:

— Secure the power supply to guard temperature control and security systems, etc.

— Secure the water supply.

— Guard conveyers for raw materials.

— Secure external tanks and piping systems.

A.4 Employee control

Examples of food defence measures are as follows:

— Check the identity of employees.

— Use of team(s).

— Limit items which may be brought into facilities or working areas and control them (not only personal belongings).

— Use personnel identification (e.g. colour-coded uniforms) in restricted locations to clearly identify authorized personnel.

— Maximize visibility of operations and locations (e.g. mirrors, lighting, no visual obstructions).

— Support and enhance positive food safety culture including open communication, good employment practices, good employee engagement, etc.

A.5 Guest control

Examples of food defence measures are as follows:

— Clarify acceptance requirements.

— Utilize guest questionnaires, including items that may be brought in.

— Have staff accompany guests.

— Define restricted areas.

— Define rules for cameras or other recording devices.

A.6 Security for storage and processing area(s)

Examples of food defence measures are as follows:

— Secure internal storage area and tanks with locks.

— Install CCTV or other monitoring apparatus.

— Define contact person(s) in case of doubtful situations.

A.7 Control of hazardous materials

Examples of food defence measures are as follows:

— Control access to hazardous materials such as chemicals, needles, blades, etc.

— Define qualifications for personnel who may use chemicals (i.e. competence management).

— Control the inventory of hazardous materials.

A.8 Defence on logistics

Examples of food defence measures are as follows:

— Lock the truck cargo space.

— Use anti-tampering practices (e.g. numbered seals on bulk storage and numbered recorded seals on vehicles).

— Use tamper-evident packaging.

— Use global positioning system (GPS) devices to record the route of transportation vehicles.

— Have employee(s) present during unloading and loading (which is preferable to using subcontractors).

— Schedule deliveries (e.g. schedule departure/arrival time).

— Check and document driver identity.

— Strengthen good relationships with logistic subcontractors.

A.9 Supplier and external provider assessment and qualification

Examples of food defence measures are as follows:

— Assess supplier(s) and external provider(s) in respect of food defence.

— Define rules for service provider(s) such as pest-control subcontractors, etc.

— Strengthen good relationships with suppliers and external providers.

A.10 Control of confidential information

Examples of food defence measures are as follows:

— Keep the layout map, organization's food defence procedure and other security-related documents safe.

— Prepare disclosure rules.

— Secure the computer system.

— Provide training on cyber security principles.

— Close obsolete computer accounts.

Annex B
(informative)

Examples of food fraud mitigation measures

B.1 General

Food fraud mitigation measures are required in 16.3. This annex provides examples of areas to that may be considered.

B.2 Assurance programme

Examples of food fraud mitigation measures are as follows:

— Utilize valid methods of analyses for known adulterants; define suitable frequency of analysis.

— Use analytical methods that can detect unknown substances (e.g. spectral features, non-targeted analysis).

— Review analysis results and identify trends.

B.3 Access to raw materials, packaging materials, and finished products in the supply chain

Examples of food fraud mitigation measures are as follows:

— Consider shortening the supply chain.

— Use anti-tampering packages.

B.4 Relationship with the supplier and external providers

Examples of food fraud mitigation measures are as follows:

— Trusted or reliable suppliers and external providers are preferable.

— Maintain supplier and external provider trust (e.g. fair payment).

— Utilize suppliers and external providers with longer relations.

B.5 Supplier and external provider assessment for food fraud prevention

Examples of food fraud mitigation measures are as follows:

— Audit supplier(s) and external providers to check if proper anti-fraud measures are in place.

— Request supplier(s) to periodically complete a relevant food fraud questionnaire.

— Monitor minor but frequent quality issues (indicator of poor control over process).

— Evaluate geopolitical considerations (e.g. origin, legislation, effectiveness enforcement and history of food fraud).

— Utilize a traceability check and mass balance assessment.

B.6 Complexity of the supply chain

An example of food fraud mitigation measures is as follows:

— Limit suppliers and external providers rather than procuring from the open market as fixing suppliers reduces vulnerability.

B.7 Prevention of food fraud within organization or after distribution

Examples of food fraud mitigation measures are as follows:

— Conduct internal audits to ensure proper anti-fraud measures are in place to prevent excess financial burden.

— Use anti-tampering packages.

— Manage any excess products to prevent their sale in unauthorized markets.

— Beware of extremely sizable shipments that can produce unsold goods (expiry dates can be overwritten).

B.8 Connect food information and labelling

Examples of food fraud mitigation measures are as follows:

— Verify the recipe and the information on the labelling or invoice.

— Maintain detailed and precise product specification/management of specifications.

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