

# Food Safety Prerequisite Programs

## Teaching Materials

### Food Safety Training Course



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## Compliance with the Prerequisite Programs: A Foundation for Food Safety Management Systems and Hazard Analysis Critical Control Point Principles

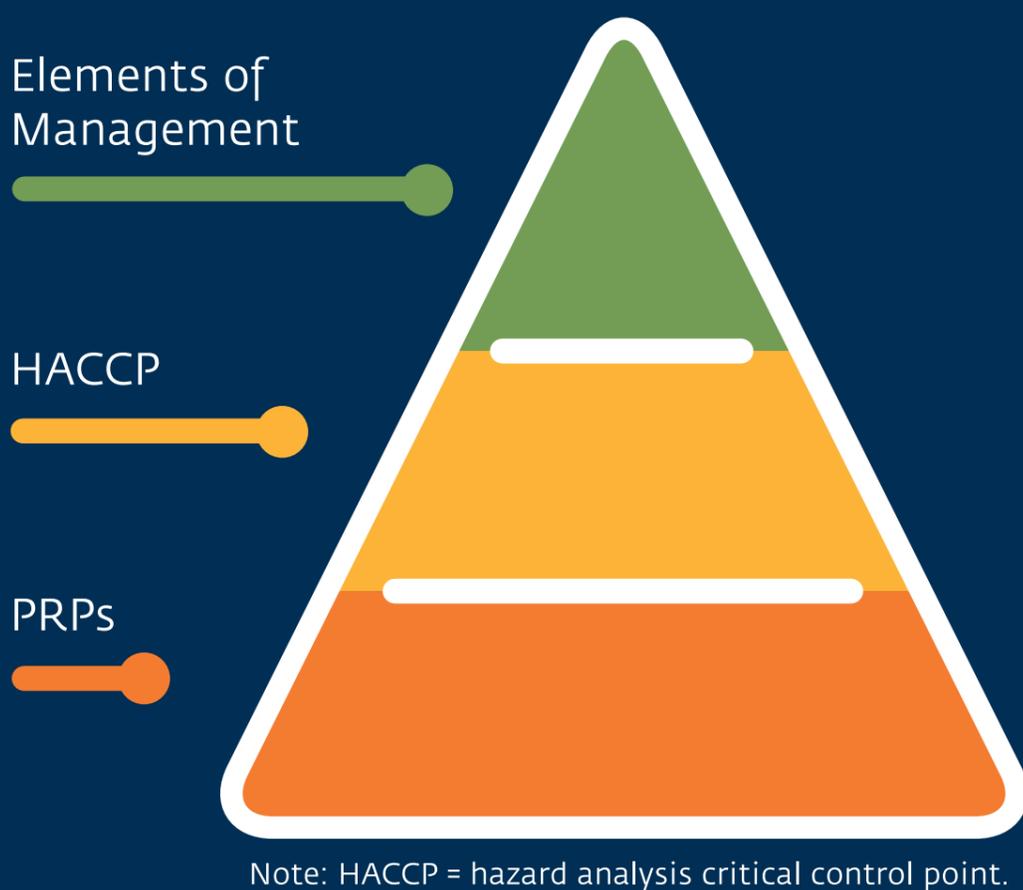
### The IFC Global Food Safety Program

For more than 15 years, the International Finance Corporation has offered high-quality professional services to help companies apply international food safety standards and adapt relevant, sustainable business models. IFC support includes food safety assessments, staff training, and guidance in obtaining international certification. Improved food safety is assisting IFC clients in meeting regional and export market requirements, attract investment, realize cost savings, and strengthen brands. The goal of the IFC Global Food Safety Program is healthier balance sheets and high-quality food on plates. For more information, visit <https://www.ifc.org/foodsafety>.

# Introduction

Prerequisite programs (PRPs) cover the conditions and activities necessary to maintain food product hygiene and clean working environments throughout the food chain. The prerequisites and procedures are required to ensure the safety of operations involving food. In developing PRPs, a company or other organization should take into account relevant information, including regulatory and legal requirements, official instructions, national and international standards and guidelines, and the codes of practice in the Codex Alimentarius<sup>1</sup>. The PRPs represent the foundation of the food safety management system (figure 1.1).

**Figure 1.1. Food Safety Management System: Model**



**As part of the compulsory preliminary activities in the establishment of food safety systems, industrialized countries frequently rely on the following:**

- The BRC Global Standards<sup>2</sup>
- Good agricultural practice
- Good distribution practice
- Good hygienic practice
- Good laboratory practice
- Good manufacturing practice
- Good manufacturing practice plus, which is a combination of good manufacturing practice and hazard analysis critical control point principles
- Good trading practice
- International Featured Standards
- International Food Standard (IFS)<sup>3</sup>

<sup>1</sup> See "Codex Alimentarius: International Food Standards," Joint Food and Agriculture Organization of the United Nations–World Health Organization Food Standards Programme, Rome, <http://www.fao.org/fao-who-codexalimentarius/en/>.

<sup>2</sup> See BRCGS (BRC Global Standards), 2018. Global Standard: Food Safety, BRC Global Standards, issue 8 (August), London: BRC Global Standards, <https://www.brcgsbookshop.com/bookshop/global-standard-food-safety-issue-8/c-24/p-414>.

<sup>3</sup> See IFS Database (International Featured Standards), IFS Management GmbH, Berlin, <https://www.ifs-certification.com>.

<sup>4</sup> IFC support for relevant enterprises and organizations includes the provision of high-quality professional services in the application of international food safety standards, the adaptation of sustainable business models, food safety assessments, staff training, and guidance in obtaining international certification. See the IFC website, at <https://www.ifc.org/foodsafety>

**To develop PRPs, the following steps are necessary:**

- Compile a list of the types of PRPs to be developed.
- Formulate all requirements for each type of PRP as a package.
- Document the processes, methods, procedures, and measures.
- Define a record.
- Check and inspect the relevant implementation.

The stages in the implementation of PRP processes must be defined, and the launch of each stage, along with the completion of appropriate documented procedures, instructions, and records, must be checked.

Clearly defined and appropriately implemented PRPs may reduce the number of critical control points, that is, critical points in operations at which controls should be applied. This may help render food safety management systems more efficient. To guarantee that a PRP is properly developed and routinely implemented, all procedures in the design, launch, operation, and use of the PRPs must be documented.

Evaluations should be planned and inspections regularly conducted to determine which PRPs are necessary. Inspection records should be maintained, and changes should be carefully documented.

Teaching materials for the food safety training course—Compliance with the Prerequisite Programs: A Foundation for Food Safety Management Systems and Hazard Analysis Critical Control Point Principles—have been developed by the food safety team at the International Finance Corporation (IFC).<sup>4</sup>

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# The Construction and Layout of Buildings

## PRP 1



**For reasons of safety, food processing companies should be located away from the following potentially hazardous areas:**

- Polluted environments.
- Flood zones unless the facilities enjoy adequate flood protection.
- Areas prone to pest infestation.



The boundaries of production sites must be clearly marked.



Buildings should be of sound construction and pose no threat to food safety. Thus, buildings should be topped with properly drained roofs to avoid leaky structures.



Access to the site must be controlled. The site must be maintained in good condition.



Before construction is undertaken, planners should identify possible sources of environmental contamination.



Vegetation should be cut or eliminated.



Food should not be produced in areas housing potentially harmful contaminating substances.



Roads, yards, and parking lots must be kept clean and provided with drainage systems to prevent the accumulation of stagnant water.



The effectiveness of measures to protect against potential polluters should be reviewed regularly.



Personnel should receive appropriate training on good practices in the construction and layout of buildings to ensure that the company is adequately protected from contaminants.

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# Premises and Workspaces

## PRP 2



Walls and partitions should have smooth washable surfaces and be accessible for cleaning.

Floors should be constructed to ensure the adequate flow of water and cleaning fluids. Drains must have lids and be connected to septic or sewerage systems.

Baseboards should be caulked and rounded to allow runoff.



Pathways for the movement of raw materials should be designed to avoid exposure to extraneous matter and pests.



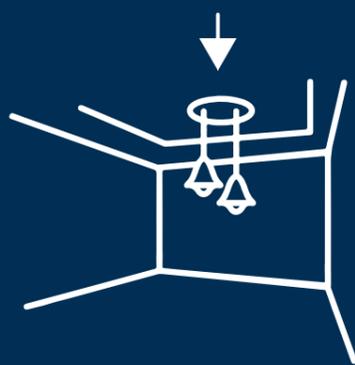
**Equipment should be located to achieve the following:**

- Proper maintenance, cleaning and disinfection.
- Operate in accordance with the purpose of the equipment.
- Compliance with hygienic rules including monitoring.
- Technical guidelines provided to avoid contamination from equipment lubricants.
- Use of suitable lubricants for any equipment in food production.
- An inventory of the available lubricants and a lubricant application plan.

A preventive maintenance and instrument calibration plan should be drawn up and implemented.

Inspections, including the use of lubricants, must be carried out prior to turning on production equipment.

Microbiological laboratories should be designed, located not to be directly accessible from production and operated to prevent the contamination of people, products and production process.



**Ceilings and suspended fittings should be designed to achieve the following:**

- Minimum accumulation of dirt and moisture.
- No particle shredding.
- If drop ceilings are used, ensure adequate access to the space above.
- If there is a risk to product, ensure lighting/ fixtures are protected.



Windows should be easy to clean and be designed to avoid the accumulation of dirt. Window frames and panes should be sealed against insects. Windows should be fitted with latches.

Doors should have smooth, non-absorbent surfaces and be easy to clean and disinfect.



**Storage facilities should achieve the following:**

- Free of dust, condensation and odors.
- Not exposed to open drains, waste materials, rainfall or other source of contamination.
- Clean, dry and well ventilated.
- Monitoring and control of microclimates is ensured.
- Designed and located to provide the protection of raw materials, any work under way, and finished products.
- Separate secured storage (locked or access controlled) for detergents, chemicals and other hazardous substances.



Work surfaces that come into direct contact with food must be in good condition, durable, and easy to clean, maintain, and disinfect. Equipment locations and the paths of raw materials, goods, and people must be protected from potential sources of contamination.



Pathogenic tests should be performed by outside laboratories under contract. If tests are carried out at laboratories on site, these must be separate from the production site.



Production facilities should include sufficient space for the flow of raw materials, products, and personnel. Raw materials should not be placed near processed products.



If the company or organization undertakes or subcontracts analytical testing that is critical to product safety or compliance with legal requirements, the laboratory must be accredited or operate according to the requirements and principles of International Organization for Standardization standard 17025, on the general requirements for the competence of testing and calibration laboratories.

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# Utilities: Water, Air, and Energy

## PRP 3



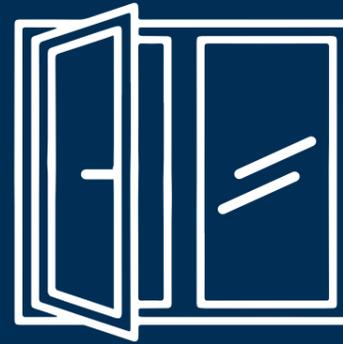
### The supply of water should fulfill the following requirements

- Adequate water supply that meets consumption needs and maintains water resources.
- Drinking water quality which meets or exceeds World Health Organization's standards. If necessary, water treatment using approved methods, with assigned person in charge for ensuring quality and testing plan that covers location, types of analysis, frequency and responsibilities should be provided.
- Unpotable water supply through a clearly defined and not connected to the drinking water supply.
- Water used for cleaning or in place, for example jacketed vessels and heat exchangers, must comply with established quality and microbial requirements.
- If tap water is chlorinated, ensure chlorine residuals are within established specifications.
- Water coming into contact with product flows through pipes should be treated.



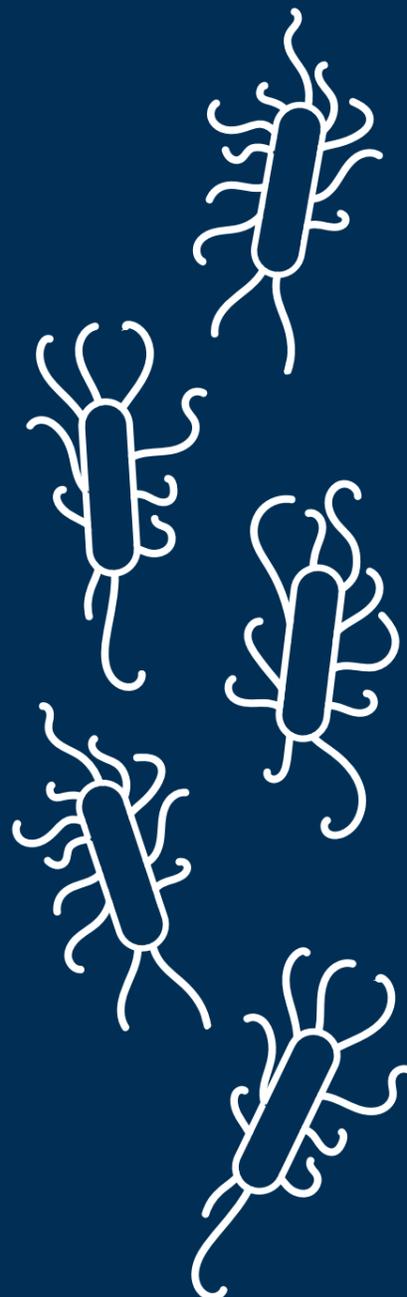
### Lighting and windows should meet the following requirements:

- The natural or artificial lighting in facilities should enable employees to work within established hygiene and health standards.
- Lighting should be adequately covered to prevent contamination of materials, products, and equipment in the event of failure.
- All glass windows in the immediate vicinity of the production or packaging of products should be protected from breakage.
- Ceiling windows should not be opened. The use of glass in side windows should be avoided.



### The prevention of contamination of foods by *Listeria monocytogenes* and other contaminants must be ensured through the following measures:

- Wastewater should be purified and treated with disinfectant weekly.
- Floors should be cleaned each day.
- Walls should be cleaned each week.
- External surfaces and auxiliary equipment, not covered by daily cleaning programs, should be cleaned regularly.
- Ventilation systems, cooling and heating equipment should be sanitized weekly.
- Chips and cracks on walls, ceilings, doors, doorways and windows should be regularly inspected and eliminated.
- Visitors and employees performing work in company facilities should wear cleaned protective clothing and footwear at all times.
- Movement of personnel should be restricted in areas where finished products are produced or packaged.
- *Listeria monocytogenes* testing and control programs should be evaluated regularly.
- All containers and equipment should be cleaned and disinfected prior to use in food handling areas.
- Sewage and drainage of laboratory waste should be designed, located and maintained to minimize the risk of contamination.



### Air quality should be ensured through the following:

- Established requirements on the filtration, humidity and microbiology of the air used as an ingredient or directly contact with products. If air temperature or humidity are critical, a monitoring system should be instituted.
- A ventilation system accessible for cleaning and maintenance, to remove excess or unwanted vapor, dust and odor.
- Air quality monitoring program to minimize the risk of microbial cross-contamination.
- Prevention of the air in contaminated areas, raw material storage areas from entering clean premises.
- Compressed air and gas systems used in production or processing, built and maintained to prevent pollution and product contamination.
- If any gases come into direct contact with products, they must be supplied through a certified source suitable for food and they must be purified and filtered to ensure the removal of dust, oil and water.
- If oil compressors are used and the compressed air comes into contact with products, the oil must be edible.
- Air filtration process carried out as close as possible to the application.
- Using only purified air at food processing and packaging of finished products.



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# Waste Disposal

## PRP 4



**Waste accumulation should be prevented through the following:**

- Removing waste from production areas as soon as possible.
- Not allowing waste in product handling and storage.
- Waste removal at an optimal frequency.



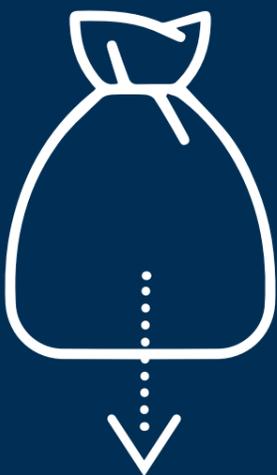
**Food waste should be placed in appropriately designed covered containers. The containers must be kept in good condition, fully emptied, cleaned, and disinfected. Containers assigned to various types of waste or hazardous material must be treated as follows:**

- Marked to indicate intended purpose.
- Placed in appropriate locations.
- Made of resistant material.
- Suitable for cleaning and sanitizing.
- Remain closed if not in use.
- Locked if needed (e. g. confiscated products).



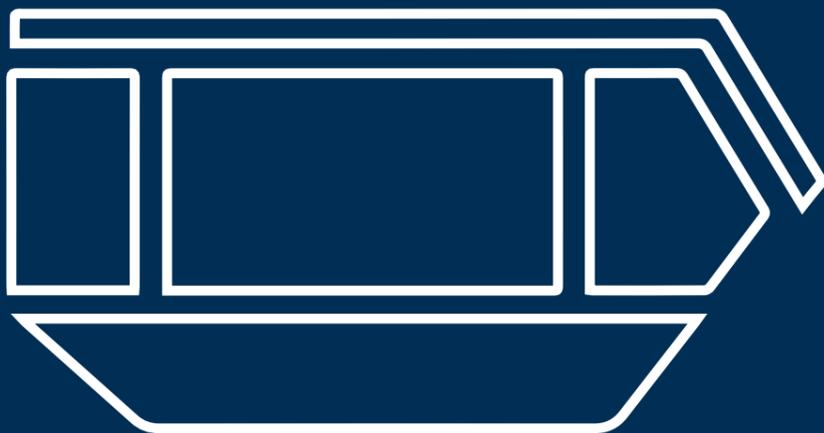
Trademarked brands or slogans, such as product labels or packaging, must be indicated with the text "send to waste" to prevent further use.

Only approved, specialized companies or other entities should carry out waste removal and disposal. They must maintain precise records on waste disposal.



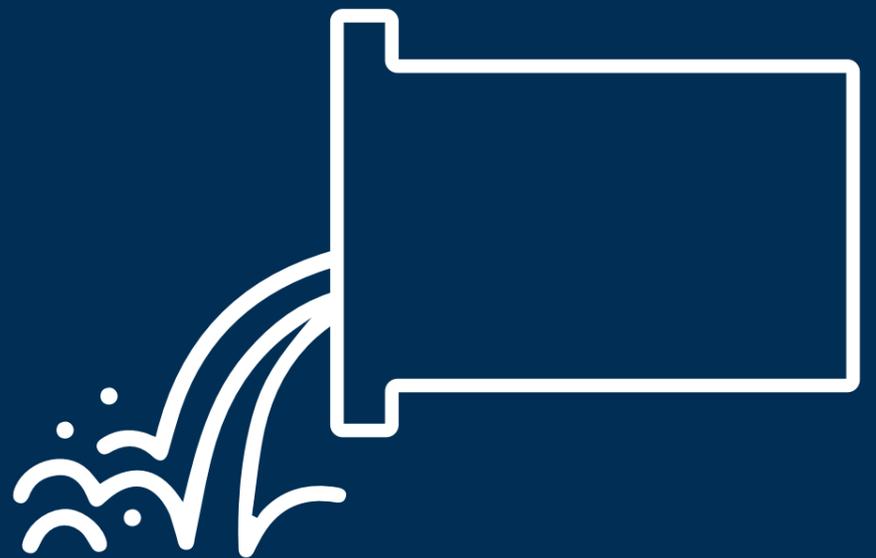
A separate location should be dedicated to waste storage to preserve the waste chemically or in cold storage to prevent pest penetration.

Waste should be destroyed or otherwise disposed of in compliance with the rules on hygiene and environmental safety and to avoid the risk of contaminating food and drinking water.



**Sewerage pipes must be designed, constructed, and located to avoid the risk of the contamination of products or other materials, as follows:**

- Reservoirs must have sufficient capacity to handle all discharge.
- Drainage systems should not be located above or among production lines.
- Effluents should not be discharged from contaminated areas into clean areas.



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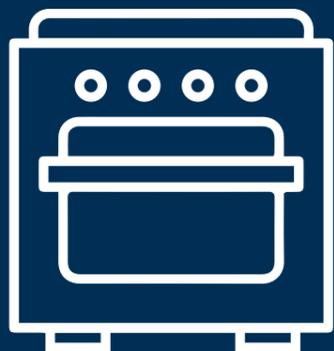
# Equipment Suitability, Cleaning, and Maintenance

## PRP 5



**Equipment that comes into contact with food must be designed and constructed to facilitate cleaning, disinfection, and maintenance and meet the established principles of hygiene, as follows:**

- Made of durable, cleanable materials.
- Made of materials intended for use with food, impermeable and resistant to corrosion.
- Not affect or be affected by the food or the purification system.
- Smooth, easily accessible and washable surfaces with proper drainage.
- Made of material suitable for the products, cleaners, disinfectants and detergents.
- Possess no holes or protruding items.
- Easily accessible from all sides for cleaning, inspection and maintenance.
- Fixed and securely attached to floors.
- Minimal direct contact between products and operators.
- Pipes and air ducts are cleanable and self-draining.



The schedule of wet and dry cleaning must be documented to ensure that all facilities and equipment are sanitized regularly. The schedule must specify the purpose of the cleaning, including sewage; the individual in charge; the sanitization method, for instance, cleaning with disassembly, clean-in-place, and the use of special tools (inventory) for cleaning; waste disposal requirements; and methods for testing the effectiveness of cleaning.



Equipment used for heating processes must meet the requirements set out in the relevant specifications, be able to maintain constant temperatures, and ensure temperature monitoring and control. If there is a probability of direct or indirect contact between processing equipment and products, lubricants and heat transfer fluids must be suitable for use with food.



**Maintenance should involve the following:**

- Preventive maintenance program for all devices used to monitor and control risks to food safety.
- Unscheduled maintenance carried out to prevent the risk of contamination of adjacent areas and equipment.
- Temporary repairs should not compromise product safety.
- Replacement of permanent fixtures must always be scheduled.
- Technology subject to maintenance should be cleaned, sanitized and inspected prior to use.
- Technological processes must be subject to the specifically required maintenance.
- Maintenance personnel must be aware of the risks to product safety related to maintenance.
- All maintenance records must be kept, especially replacement of equipment, spare parts and their inventories.



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# The Management of Suppliers and Raw Materials

## PRP 6



Specifications that describe parameters, the necessary certifications, the results of analysis, and the quality control plan are compulsory.



The access to bulk material unloading bays and hoppers should be clearly marked and kept closed and locked.



The use of approved suppliers is required.

Origin of the raw materials must be known.

Documented procedures for selecting, approving and monitoring suppliers should be developed.

Evaluation of the supplier's ability to comply with the requirements and specifications in quality and food safety.



Materials should be accepted only after they have passed inspection and been certified according to the specifications, which may involve sorting and laboratory testing.

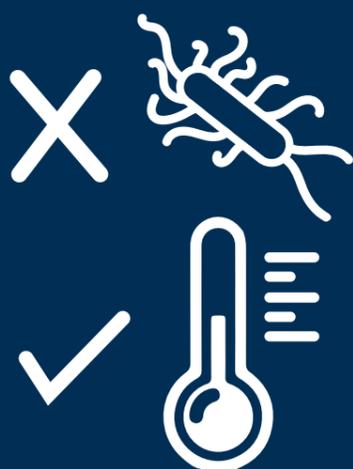


### The supplier evaluation includes the following:

- Audits of the supplier site prior to procuring materials or services.
- Certification conducted by an authorized third party.
- Supplier monitoring through a second-party audit.



Materials that do not meet specifications must be recorded and documented to ensure they are not used inadvertently in production.



Materials being delivered should be tested prior to and during unloading to ensure that the quality and safety of the materials have been ensured in transit. For example, the integrity of seals, the absence of parasites, and compliance with appropriate temperature regimes.



Efficient inventory management must be ensured. The first item in should be the first item out.

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# The Prevention of Cross-Contamination

## PRP 7



### **The prevention of microbiological cross-contamination**

**A hazard evaluation should be undertaken to identify areas susceptible to microbial cross-contamination by air or through flow routes, as well as appropriate management measures, as follows:**

- Segregate premises into zones with barriers, walls or use individual buildings isolated one from the other.
- Carry out efficient and effective intermediate cleaning and disinfection.
- Limit access to processing areas, require personnel to wear protective clothing in these areas.
- Establish rules on the routes used by personnel and for equipment including special materials.
- Schedule for regular cleaning and disinfection of containers, fixtures and fittings involved in the production or processing of raw foodstuffs and other materials.



### **The prevention of allergenic contamination**

- Allergens in products because of product characteristics or possible cross-contact during production must be disclosed.
- Listing allergens and the products that may contain them as components or as random impurities is compulsory.
- Information on allergens must be included on the labels of consumer products and on the labels and accompanying documentation of products included in the processing stream.
- The potential for allergenic contamination in raw materials and finished products must be assessed.
- Cross-contact with allergens must be prevented through rigorous sanitation, the integrity of production lines, and technologically controlled product routes during processing.
- All relevant personnel, including temporary employees, contractors, and dock and warehouse crews, should undergo training in the proper handling of allergenic materials and be adequately supervised at all times.



### **The prevention of physical and chemical contamination**

**The risk of contact with extraneous chemicals and physical contaminants should be assessed and appropriate preventive measures and remedial procedures should be identified and implemented, as follows:**

- Personnel should be appointed to manage relevant prevention activities.
- Measures should be introduced to prevent, control and detect potential physical or chemical contamination.
- Scheduled cleaning of the production zone should be instituted.
- If necessary, the products and the production zone should be segregated for cleaning.
- Provision and replacement of clothing and footwear should be established.
- Relevant incidents, including extraneous chemicals, damaged materials (e.g. broken glass, brittle or rigid plastic, metal fragments and pieces of equipment) and any other foreign bodies should be recorded.
- If risk assessment has identified possibility of contamination originated from wood, the use of wood should be avoided. If the use of wood cannot be avoided, but risk assessment is possible, timber products should be regularly checked to ensure they are clean and in good condition.

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# Cleaning and Sanitizing

## PRP 8



Programs for cleanliness and disinfection must be regularly updated to comply with company and national standards.

The company should assign a responsible official or group of individuals to be in charge of cleaning and conduct daily inspections of sanitary conditions in all areas. Analysis of the results should be produced quarterly.



Only professional cleaning equipment recommended for the food industry should be used for cleaning in food production areas.

The design of such equipment should prevent particles such as bristles, sponges or tissues from entering into food.

Equipment made of wood and animal bristles cannot withstand repeated disinfection, may accumulate microorganisms and cause cross-contamination.

The food industry should use high-quality, nonporous plastic or polyester inventory.



**Every company should develop a food sanitation program, along with relevant instruction in production, storage, nonproduction activities, and waste storage. The program should detail the procedures for cleaning and disinfecting premises, including the following:**

- A list of cleaning and disinfecting tools and procedures, permissible concentrations of compounds, time spent cleaning, and safety information on the use of cleaners and disinfectants.
- A visual and microbiological cleanliness control plan and a description of procedures for cleaning and disinfecting specific production units, including before, during, and after production operations.
- A list of the personnel responsible for these activities.



**Cleaning equipment should be replaced in a timely manner in the following cases:**

- If dirt particles become stuck in the bristles.
- If the color of the washed bristles is faded.
- If the brush is damaged and accumulation of bacteria is promoted.
- If handles are broken or damaged.



For each type of equipment, detailed instructions should be developed for disassembling and cleaning, indicating detergents, disinfectants, and methods.

The cleaning process should consist of four interrelated components: mechanical or manual cleaning, cleaning time, chemical cleaners, and heat treatment.

The cleaners selected depend on the type of contamination and the features of the surface to be cleaned; acidic cleaners are the most effective for removing inorganic contaminants, and alkaline cleaners are best for organic contaminants.

The effectiveness of cleaning and disinfection should be monitored and recorded, including inspection for signs of chemicals, surfactants, disinfectants, and so on.

Tools and chemicals for cleaning and disinfection should be clearly marked, identified, and suitable for use with food, stored separately, and used according to the manufacturer's instructions.

Cleaning equipment and approved cleaning, washing, and disinfecting agents should be used. The list must be approved by the company.



The clean-in-place system should be separated from production lines. The parameters for the system must be defined, and monitoring must be undertaken, including on the type, concentration, contact time, and temperature of any chemicals used.



Wastewater treatment must be provided for in the sanitation program. Appropriate measures must be taken to prevent *Listeria monocytogenes*. These organisms multiply rapidly in effluents. If the water is accidentally released, *Listeria monocytogenes* and other microorganisms may move into the production zone.



To clean drains, the protective covers are removed, and all visible dirt is eliminated. Drains and other surfaces are washed with alkaline detergent, which may also be left in sinks at the end of shifts to emulsify and neutralize fat contaminants. Special brushes are used to access the maximum possible depth inside the drain. Effluents are then washed with water under low pressure to avoid causing a reverse flow of contaminated water. Disinfectant is also added. Floors and drains, unlike other surfaces, should be treated with disinfectants at higher concentrations.

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# Pest Control

## PRP 9



Pests pose a substantial threat to food safety and food quality. Well-established sanitary and hygienic practices must be followed to avoid an environment in which pests may breed.



A company official should be assigned to the management of pest control and the relevant responsibility for hiring and supervising specialist contractors at production facilities.



A pest control program should be developed that specifies the target pests, along with plans, methods, schedules, control procedures and, if necessary, the assessment of training needs.

Programs must include a list of chemicals that are approved for use in specific production areas.



### Pest monitoring and detection

Buildings and other company property must be regularly inspected for signs of infestation. A pest control program must include the use of detectors and traps to determine the level of pest activity. The locations of all pest control devices should be indicated in the facility layout. Detectors and traps should be of solid construction, protected from unauthorized opening, and suitable for the target pests. Detectors and traps should be inspected as often as necessary to determine the potential activity of new pests. The results of inspections should be analyzed to identify trends.



### Preventing the access and accumulation of pests

To prevent the access of pests and to eliminate potential breeding sites, buildings must be maintained in good general condition. Holes, drains, and other places where pests may gather should be covered. Wire netting over open windows, doors, and ventilators reduces pest penetration. Animal penetration at factories and food processing plants should be prevented. The availability of food and water encourages pest infestation. Food must be kept out of reach of pests in packaging or be stacked above the ground and placed away from walls. Food storage areas should be kept clean. If products are stored outside, they must be protected from the weather and damage by pests, including bird droppings. Production waste should be stored in closed containers inaccessible to pests. Gully gratings must be equipped with traps and screens to avoid pest penetration. If products or other goods become contaminated by pests, treatment must include the prevention of the contamination of other materials or products.



### Pest elimination

Pest control measures should be undertaken immediately, but adverse effects on food safety and quality should be avoided. If chemical, physical, or biological agents are used for pest control, food safety and suitability should not be jeopardized. Thus, the application of rodenticides must be supervised by appropriately trained personnel and should be managed to avoid potential food safety hazards. The use of rodenticides should be documented, indicating type, quantities, and concentrations, the time and place of use, and the target pests.



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# Personal Hygiene and Employee Facilities

## PRP 10



The company should establish and document requirements for personal hygiene and behavior that are proportional to the list of hazards displayed in the processing area for each product. The requirements are binding on all employees, visitors, and contractors.



### The requirements covering personnel conduct are as follows:

- Avoid smoking, spitting, chewing, eating, sneezing, or coughing near food.
- Wear no jewelry, watches, or other such objects in the workplace.
- Excessive use of perfume or aftershave lotions is not allowed.
- Visitors must wear sanitary clothing, comply with the other rules of personal hygiene, and follow the rules on behavior followed by personnel.

### The requirements covering lavatories are as follows:



- Availability of lavatories near locations covered by personal hygiene requirements.
- Adequate number of locations for washing, drying and disinfecting hands.
- Wash basins equipped with hands-free controllable cold and hot water supply, soap and disinfectants.
- Bathrooms located in areas close to production, packaging and storage rooms.



Dining rooms for personnel should ensure proper hygienic conditions for storing, preparing, and serving food. Storage conditions, time limits, and temperatures must be defined.

### The requirements covering clothing and changing rooms are as follows:



- Adequate number of changing rooms for personnel.
- Personnel must wear appropriate, cleaned clothing in good condition to access to product processing areas or raw materials.
- No buttons and outside pockets on clothes.
- Use overalls laundered according to regulations and at intervals appropriate for the intended use.
- Use work clothes and protective items to cover hair, beards and mustaches thus they won't come into contact with products.
- Use cleaned gloves in good condition in processing or handling products. The use of latex gloves should be avoided.
- Footwear worn in production areas must completely cover feet and be made of nonabsorbent materials.
- If needed, personnel protective equipment should be designed to prevent product contamination and maintained in good hygienic condition.



Utility rooms and storage areas for production equipment and inventory, such as knives, sharpeners, and gloves, should be checked regularly. Processing areas should be inspected for foodstuff residue, pharmaceuticals, perfumes, and evidence of rodents or insects.

### The requirements covering illness and injury among personnel are as follows:



- Personnel who have contracted or are suspected of having contracted a disease transmittable through food should be isolated from areas where food or food-contact materials are handled.
- In food processing areas, personnel with burns or other injuries must cover the affected areas with fixed bandages of bright color which is different from product color. The bandages must be evident to metal detectors. A sample from each batch of bandages should be checked to ensure detectability, and records should be kept. The loss of any used bandaging must be immediately reported.



Employees of other companies or organizations, such as visitors and subcontractors, must be accompanied by company staff members.

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# Rework

## PRP 11



Requirements on isolating products destined for secondary processing, for example, to prevent allergenic contamination, should be documented.



The list of products to be recycled and the reasons for recycling must be clearly defined to facilitate product tracing. Traceability protocols for products to be recycled—product name, date of manufacture, work shift, line number, expiration date—must be documented.



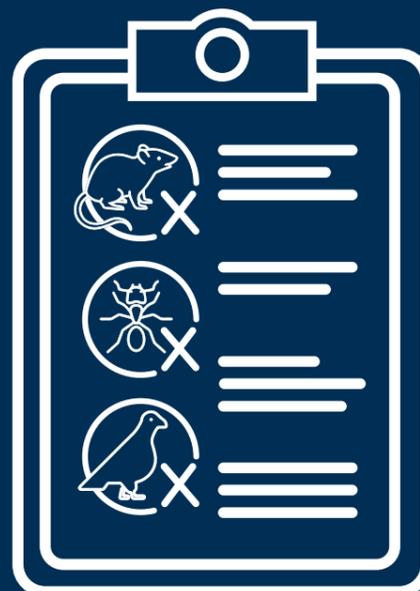
Products that are to be recycled should be stored, processed, and used in a manner to ensure product safety, quality, traceability, and regulatory compliance.



If recycling is part of the production process, the appropriate amounts, types, and terms of use of recycled products must be established. Adding products to be recycled to the production process, including any necessary preparatory operations, should be clearly controlled.



Recyclable products held in stock must be protected against microbiological, chemical, and physical contamination.



If product recycling involves removal of completed products from insulation or packaging, control measures should be undertaken to ensure that the removal process prevents physical contamination of the products.

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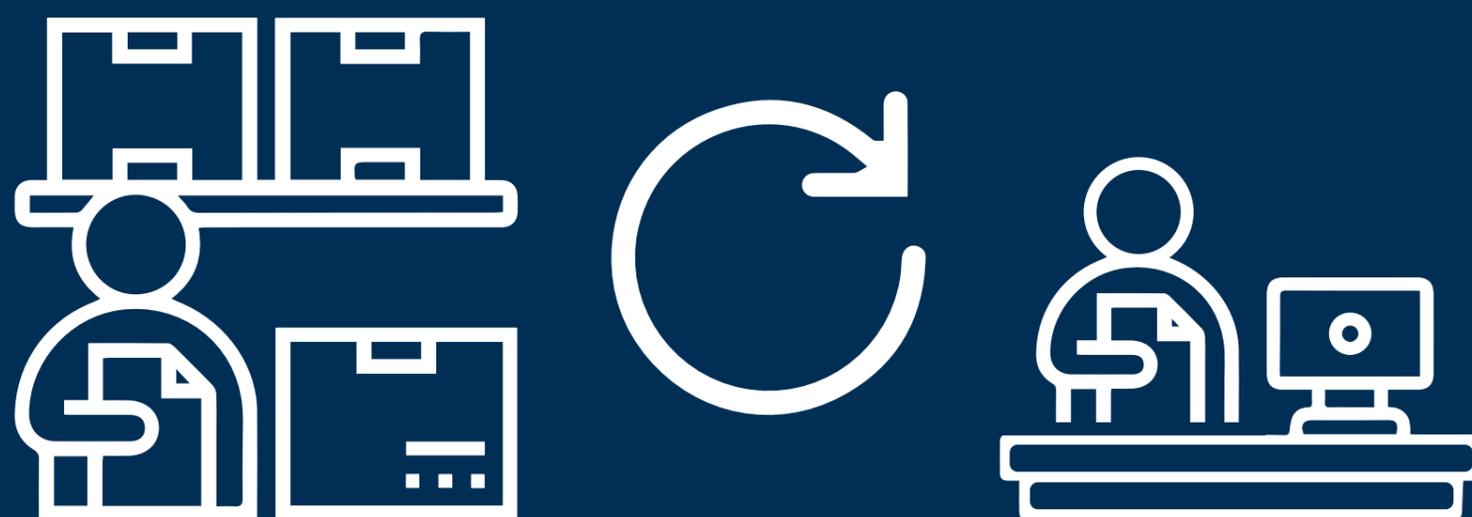
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# Product Withdrawal and Recall

## PRP 12



The company or other organization should implement a system to identify products that do not meet the requirements of food safety and to remove them from the supply chain.



The company should maintain a list of key persons authorized to reach decisions and undertake actions in the event of a product recall.



If a product is recalled because of an immediate risk to health, the safety of other products manufactured under the same conditions must be assessed.

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# Warehousing

## PRP 13



Materials and products should be stored in clean, dry, well-ventilated areas and protected from dust, condensation, vapors, odors, and other sources of contamination.



The efficient, effective monitoring of temperature, humidity, and other environmental conditions must be ensured in storage areas in accordance with product specifications and product storage requirements.



Waste and chemicals, such as detergents, lubricants, and rodenticides, should be stored separately.



Materials that do not meet requirements should be stored separately or otherwise isolated.



The requirements of the inventory system—for example, first in, first out or first expired, first out—must be respected.



Gasoline- or diesel-powered forklift trucks cannot be used in production and storage areas for food raw materials or finished products.



Vehicles and containers should protect products from damage and contamination. Documented temperature and humidity requirements should be followed.

If the same transportation vehicles and containers are used for both food and nonfood products, these vehicles and containers must be cleaned in the intervals between loadings.



Requirements on technical sanitation service procedures should be followed in the case of all vehicles and equipment used in loading and unloading, for example, unloading and loading hoses and storage bins. Detailed records must be maintained.



Procedures must be defined in the case of faults or breakdowns of transportation and refrigeration equipment. Records on the breakdowns and on corrective measures must be maintained.



Packaging that has been opened and that still contains goods should be resealed before being returned to storage. The seal should permit the detection of unauthorized reopening.



The use of external storage should be restricted.



If foods are stored in refrigeration vehicles, the product temperature must be maintained in accordance with the maximum load standards.

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# Product Information

## PRP 14



Sufficient product information should be provided to allow consumers to understand product characteristics and make informed choices.



Information on product storage, preparation, and instructions for use should be provided on labels or by other means, such as the company's website.



Procedures for the selection and approval of labeling must be defined and introduced.

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# Food Defense, Biovigilance, and Bioterrorism

## PRP 15



### Threats to food safety may arise from the following:

- Individuals or groups motivated by ideology.
- Insiders including employees with grievances.

Any information about a threat should be immediately transmitted to senior management who may undertake steps to counter the threat.



A system of information security should be implemented in accordance with International Organization for Standardization standard 27001 (information security management systems).



Access to company facilities and other property should be limited through the use of electronic keys, passwords, and alarms.



Open technical processes should be minimized.



Deliveries of raw materials should follow agreed schedules.

Unscheduled deliveries should not be permitted.



Transportation vehicles should be inspected prior to loading.



Visitors must only be allowed to enter facilities by appointment. Regulations should require visitors to wear distinctive protective clothing. The use by visitors of cameras and mobile phones should not be permitted. Personnel must be trained in security procedures and encouraged to report unidentified visitors.



A manager must be assigned responsibility for control measures to prevent bioterrorism and sabotage.



Transportation vehicles should be parked only in secured areas. The vehicles should always be locked. Fuel tanks should also be kept locked. The company or organization with a large fleet of vehicles should develop a scheme for vehicle storage.



The food packaging system should be capable of detecting unauthorized opening and closing of packaging.



Access to production laboratories must be restricted.

The access of temporary or seasonal workers to critical control points should be restricted.



A system to identify employees or insiders with grievances should be developed and tested.

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