PUBLICLY AVAILABLE SPECIFICATION
Prerequisite programmes on food safety for food manufacturing

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Foreword
This Publicly Available Specification (PAS) has been prepared by the British Standards Institution (BSI) to specify requirements for prerequisite programmes and operational prerequisite programmes to assist in controlling food safety hazards. This PAS is intended to be used to support management systems designed to meet the requirements specified in BS EN ISO 22000:2005.

The development of this PAS was sponsored by the Confederation of the Food and Drink Industries of the European Union (CIAA).

Acknowledgement is given to the following organizations and individuals who assisted with the development of this specification:

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Organizations
Danone
Kraft Foods
Nestlé
Unilever

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Publishing information
This standard comes into effect on 25 October 2008.

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This PAS is not to be regarded as a British Standard, European Standard or International Standard. In the event that this PAS is put forward to form the basis of a full British Standard, European Standard or International Standard, it will be withdrawn.

Use of this document
It has been assumed in the preparation of this PAS that the execution of its provisions will be entrusted to appropriately qualified and experienced people, for whose use it has been produced.
Presentational conventions

The provisions of this PAS are presented in roman (i.e. upright) type. Its requirements are expressed in sentences in which the principal auxiliary verb is “shall”. Its recommendations are expressed in sentences in which the principal auxiliary verb is “should”.

The word "may" is used in the text to express permissibility, e.g. as an alternative to the primary recommendation of the clause. The word "can" is used to express possibility, e.g. a consequence of an action or an event.

Commentary, explanation and general informative material is presented in smaller italic type, and does not constitute a normative element.

Contractual and legal considerations

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

Compliance with this PAS does not in itself confer immunity from legal obligations.

Summary of pages

This document comprises a front cover, an inside front cover, pages 1 to 17, and inside back cover and a back cover. The BSI copyright notice displayed in this document indicates when the document was last issued.
Introduction

BS EN ISO 22000:2005 sets out specific food safety requirements for organizations in the food chain. One such requirement is that organizations shall establish, implement and maintain prerequisite programmes (PRP) and operational prerequisite programmes (O-PRP) to assist in controlling food safety hazards (BS EN ISO 22000:2005, Clause 7).

This PAS sets out the detailed requirements for those programmes, and is intended to be used to support management systems designed to meet the requirements specified in BS EN ISO 22000:2005.

Food manufacturing operations are diverse in nature and not all of the requirements described in this PAS will apply to an individual facility or process. Where exclusions are made, claims of conformity to this PAS are not acceptable unless the exclusions are justified by documented risk assessment and do not affect the organization’s ability or responsibility to implement a food safety management system.

Comment [B1]:
Steering Group (SG) to consider the following recommendation:

Beef up Introduction. Introduction could provide background information and focus on the rationale and the purpose of the specification. More could be provided on the intention to use this PAS to support management systems designed to meet the requirements of BS EN ISO 22000:2005.

Comment [B2]:
There needs to be a limit on the scope of the exclusions and/or a process by which the results of the risk assessment are validated. The views of the Steering Group members are sought on this aspect of the PAS.
1 Scope

This publicly available specification (PAS) specifies requirements for establishing, implementing and maintaining prerequisite programmes (PRP) and operational prerequisite programmes (O-PRP) to assist in controlling food safety hazards.

This PAS is applicable to all organizations, regardless of size or complexities, which are involved in the “inside factory gate” manufacturing step of the food chain and wish to implement PRP and O-PRP in such a way as to address the requirements specified in BS EN ISO 22000:2005.

This PAS is neither designed nor intended for use in other parts of the food supply chain.

This PAS specifies detailed requirements to be considered in relation to 7.2.3 of BS EN ISO 22000:2005, specifically:

a) construction and layout of buildings and associated utilities;
b) layout of premises, including workspace and employee facilities;
c) supplies of air, water, energy and other utilities;
d) supporting services, including waste and sewage disposal;
e) suitability of equipment and its accessibility for cleaning, maintenance and preventive maintenance;
f) management of purchased materials;
g) measures for the prevention of cross contamination;
h) cleaning and sanitizing;
i) pest control;
j) personnel hygiene.

In addition, this PAS adds other aspects considered relevant to manufacturing operations:

a) traceability and product recall procedures;
b) warehousing;
c) product information and consumer awareness;
d) food defence, biovigilance and bioterrorism.

2 Normative references

The following referenced documents are indispensable for the application 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.

BS EN ISO 22000:2005, Food safety management systems. Requirements for any organization in the food chain, Clause 7
3 Terms and definitions
For the purposes of this PAS, the following terms and definitions apply.
The terms and definitions given in BS EN ISO 22000:2005 also apply.

3.1 certificate of analysis (COA)
document provided by the supplier which indicates results of specific tests/analysis, including test methodology, performed on a defined lot of the supplier’s product

3.2 cleaning in place (CIP)
system that cleans solely by circulating and/or flowing chemical detergent solutions and water rinses by mechanical means onto and over surfaces to be cleaned

3.3 cleaning out of place (COP)
cleaning of disassembled equipment in a tank or in an automatic washer by circulating a cleaning solution and maintaining a minimum temperature throughout the cleaning cycle

3.4 First Expired First Out (FEFO)
stock rotation based on the principle of despatching earliest expiration dates first (First Expired First Out)

3.5 First In First Out (FIFO)
stock rotation based on the principle of despatching earliest received products first (First In First Out)

3.6 food grade
lubricants and heat transfer fluids formulated to be free from odour or taste and to be suitable for use in food processes where there may be incidental contact between the lubricant and the food

3.7 good manufacturing practice (GMP)
sum of basic conditions, activities and requirements specified by the organization in order to provide a hygienic product handling and processing environment

3.8 high care area
area subject to enhanced requirements for personnel and equipment hygiene intended to protect susceptible products from contamination by micro organisms

3.9 indirect product contact
surfaces from which liquids may drain, drop, diffuse, or be drawn into the product or into the container; surfaces that touch product contact surfaces or the container during normal equipment operation (see 3.12 for a definition of product contact)

NOTE Also includes surfaces such as product scrapers and utensils.

3.10 label
printed matter that is part of the finished product package conveying specific information about the contents of the package, the food ingredients and any storage and preparation requirements

NOTE This includes, but is not limited to:
a) the package itself, printed matter attached to the package, or a sticker used for over-labelling;  
b) multi packs which have an inner label on the individual product and an outer combined label for the whole contents.

3.11 manufacturing cross contact
allergens which are not part of the intended formulation, introduced into products during manufacturing

NOTE Manufacturing cross contact may arise from either:  
a) traces of product from the previous production run which cannot be adequately cleaned from the product line due to technical limitations;  
b) when contact is likely or probable to occur, in the normal manufacturing process, with products or ingredients that are produced on separate lines, or in the same or adjacent processing areas.

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

3.13 product recall
removal of a non-conforming product from the market, trade and warehouses, distribution centres and/or customer warehouses because it does not meet specified standards

3.14 sanitation
all actions dealing with cleaning or maintaining hygienic conditions of the facility, ranging from cleaning/sanitizing specific equipment to periodic cleaning activities throughout the facility (including building, structural, and grounds cleaning activities)

3.15 specification
detailed documented description or enumeration of parameters, including permissible variations and tolerances, which are required to achieve a defined level of acceptability or quality

3.16 traceability
ability to track a specific lot of ingredient/component to the product which contains it; and to track a finished product to the primary external customer(s) or destination(s)

3.17 zoning
demarcation of an area within a facility where specific operating, hygiene or other practices may be applied to minimize the potential for microbiological cross contamination

NOTE Examples include: clothing change on entry/exit, positive air pressure, modified traffic flow patterns.

4 Construction and layout of buildings

4.1 General requirements
Buildings shall be designed, constructed and maintained in a manner appropriate to the nature of the processing operations to be carried out, the food safety risks associated with those operations, and potential sources of contamination from the plant environs.
4.2 Environment
Consideration shall be given to potential sources of contamination from the local environment.

NOTE Food production should not be carried out in areas where potentially harmful substances could enter the product.

The effectiveness of measures taken to protect against potential contaminants shall be periodically reviewed.

4.3 Locations of establishments
The site boundaries shall be clearly identified.
Access to the site shall be controlled.
The site shall be maintained in good order. Vegetation shall be tended or removed. Roads, yards and parking areas shall be drained to prevent standing water and shall be maintained.
Potential pest harbourage (e.g. burrows, undergrowth, stored items) shall be removed.
Where outside space is used for storage, stored items shall be protected from weather or pest damage.
The building shall be constructed of durable materials which present no risk to the product.
The roof shall be self-draining and not leak.

5 Layout of premises and workspace

5.1 General requirements
Internal layouts shall be designed, constructed and maintained to facilitate good hygiene and manufacturing practices. The movement patterns of materials, products and people and the layout of equipment shall protect against potential contamination sources.

5.2 Internal design, layout and traffic patterns
The building shall provide adequate space, with a logical flow of materials, products and personnel, and physical separation of raw from processed areas.

5.3 Internal structures and fittings
Process area walls and floors shall be washable or cleanable, as appropriate for the process or product risk. Materials shall be resistant to the cleaning system applied.
Wall floor junctions and corners shall be rounded in processing areas.
In wet process areas floors shall be sealed and drained. Drains shall be trapped and sealed.
Ceilings and overhead fixtures shall be designed to minimize build up of dirt and condensation.
External opening windows, roof vents or fan, where present, shall be insect screened.
Exterior doors shall be closed when not in use.

5.4 Location of equipment
Equipment shall be designed and located so as to facilitate good hygiene practices and monitoring.
Equipment shall be located to permit access for operation, cleaning and maintenance.
5.5 Laboratory facilities

In line and on line test facilities shall be controlled to minimize risk of product contamination.

Microbiology laboratories shall be designed, located and operated so as to prevent contamination of people, plant and products. They shall not open directly onto a production area.

5.6 Temporary/mobile premises and vending machines

Temporary structures shall be designed, located and constructed to avoid pest harbourage and potential contamination of products.

Additional hazards associated with temporary structures and vending machines shall be assessed and controlled.

5.7 Storage of food, ingredients and non food chemicals

Facilities used to store ingredients, packaging and products shall provide protection from dust, condensation, drains, waste and other sources of contamination.

Storage areas shall be dry and well ventilated. Control of temperature and humidity shall be applied where necessary.

All materials and products shall be stored off the floor, and with sufficient space between the material and the walls to allow inspection and pest control activities to be carried out.

Exceptions for bulk or agricultural crop materials shall be documented in the facility food safety management system.

The storage area shall be designed to allow maintenance and cleaning, prevent contamination and minimize deterioration.

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

6 Utilities – air, water, energy

6.1 General requirements

The provision and distribution routes for utilities to and around processing and storage areas shall be designed to minimize the risk of product contamination. Utilities’ quality shall be monitored to minimize product contamination risk.

6.2 Water supply

The supply of potable water shall be sufficient to meet the needs of the production process(es). Facilities for storage, distribution and, where needed, temperature control of the water shall be designed to meet specified water quality requirements.

*NOTE* Potable water should conform to the World Health Organization’s Guidelines for drinking-water quality.

Water used as a product ingredient, including as ice or steam, or in contact with products or product surfaces shall meet specified quality and microbiological requirements relevant to the product.
Water for applications where there is a risk of indirect product contact (e.g. jacketed vessels, heat exchangers) shall meet specified quality and microbiological requirements relevant to the application.

Non potable water shall have a separate system, labelled, not connected to, and prevented from, reflux into the potable system.

Where water supplies are chlorinated, checks shall ensure that the residual chlorine level at the point of use remains within limits given in relevant specifications.

Water pipes shall be capable of being disinfected.

6.3 Boiler chemicals

Boiler chemicals, if used, shall be either:

a) approved food additives which meet relevant additive specifications; or
b) additives which have been approved by the relevant regulatory authority as safe for use in water intended for human consumption.

Boiler chemicals shall be stored in a separate, secure (locked or otherwise access controlled) area when not in immediate use.

6.4 Air quality and ventilation

The organization shall establish requirements for filtration, humidity (RH%) and microbiology of air used as an ingredient or for direct product contact. Where temperature and/or humidity are deemed critical by the organization, a control system shall be put in place and effectively monitored.

Ventilation (natural or mechanical) shall be provided to remove excess or unwanted steam, dust and odours, and to facilitate drying after wet cleaning.

Room air shall not provide a source of microbiological contamination. In areas where products which support growth or survival are exposed, protocols for air quality monitoring and control shall be established through risk assessment.

Ventilation systems shall be designed and constructed such that air does not flow from contaminated or raw areas to clean areas. Specified air pressure differentials shall be maintained. Systems shall be accessible for cleaning, filter changing and maintenance.

Exterior air intake ports shall be examined annually for physical integrity.

6.5 Compressed air

Compressed air intended for direct or incidental product contact (including air used for transporting, blowing or drying materials, products or equipment) shall be from an approved source, filtered to remove dust, oil and water.

Where oil is used for compressors it shall be food grade.

\textit{NOTE} Use of oil free compressors is recommended.

Requirements for filtration, humidity (RH%) and microbiology shall be specified.

\textit{NOTE} Filtration of the air should be as close to the point of use as is practicable.

6.6 Lighting

The lighting provided (natural or artificial) shall allow personnel to operate in a hygienic manner.
NOTE  The intensity of the lighting should be appropriate to the nature of the operation.
Light fixtures shall be protected to ensure that materials, product or equipment are not contaminated in the case of breakages.

7 Waste disposal

7.1 General requirements
Systems shall be in place to ensure that waste materials are identified, collected, removed and disposed of in a manner which prevents contamination of products or production areas.

7.2 Containers for waste and inedible substances
Containers for waste and inedible or hazardous substances shall be:
   a) clearly identified for their intended purpose;
   b) located in a designated area;
   c) closed when not in immediate use, locked if hazardous;
   d) constructed of impervious material which can be readily cleaned and sanitized;

7.3 Waste management and removal
Provision shall be made for the segregation, storage and removal of waste. Waste shall not be allowed to accumulate in food handling or storage areas. Removal frequencies shall be managed to avoid accumulations, with a minimum daily removal.
Labelled materials or products which are designated as waste shall be disfigured or destroyed to ensure that trademarks cannot be re-used. Removal and destruction shall be carried out by approved disposal contractors. The organization shall retain records of destruction. The retention period shall be specified in the food safety management system.

7.4 Drains and drainage
Drains shall be designed, constructed and located so that the risk of contamination of materials or products is avoided. Drains shall have sufficient capacity to remove expected flow loads. Drains shall not pass over processing lines.
Floors shall be sloped to allow effective drainage in wet areas. Standing water shall be avoided.
Drainage channels shall be covered with a grate. Drainage direction shall not flow from a contaminated area to a clean area.

8 Equipment suitability, cleaning and maintenance

8.1 General requirements
Food contact equipment shall be designed and constructed to facilitate cleaning, disinfection and maintenance. Contact surfaces shall not affect, or be affected by, the intended product or cleaning system.
Food contact equipment shall be designed to be removable or able to be disassembled to allow cleaning or maintenance. It shall be constructed of durable materials able to resist repeated cleaning.
8.2 Hygienic design

Equipment shall be able to meet established principles of hygienic design, including:

a) separation of raw/finished/ready to eat products;
b) smooth, accessible, cleanable surfaces, self draining in wet process areas;
c) use of materials compatible with intended products and cleaning or flushing agents;
d) framework not penetrated by holes or nuts and bolts.

Piping and ductwork shall be cleanable, drainable, and with no dead ends.

Equipment shall be designed to minimize contact between the operator’s hands and the products.

8.3 Product contact surfaces

Product contact surfaces shall be constructed from materials designed for food use. They shall be impermeable and rust or corrosion free.

8.4 Temperature control and monitoring equipment

Equipment used for thermal processes shall be able to meet the temperature gradient and holding conditions given in relevant product specifications.

Equipment shall provide for the monitoring and control of the temperature.

8.5 Cleaning plant, utensils and equipment

Wet and dry cleaning programmes shall be documented to ensure that all plant, utensils and equipment are clean at defined frequencies.

The programs shall specify what is to be cleaned, the responsibility, the method of cleaning (e.g. CIP/COP), removal or disassembly requirements and methods for verifying the effectiveness of the cleaning.

8.6 Preventive and corrective maintenance

A preventive maintenance program shall be in place.

The preventive maintenance programme shall include inspection of screens, filters (including air filters) and magnets.

Corrective maintenance shall be carried out in such a way that production on adjoining lines or equipment is not at risk of contamination.

Maintenance requests which impact product safety shall be given priority.

Temporary fixes shall not put product safety at risk, and shall be replaced by permanent repair in a timely manner. String, tape, wire, rubber bands shall not be used as temporary fixes.

Lubricants and heat transfer fluids shall be food grade where there is potential for direct or indirect contact with the product.

The procedure for releasing maintained equipment back to production shall include clean up, sanitizing, where specified in process sanitation procedures, and pre-use inspection.
Local area good manufacturing practice requirements shall apply to maintenance areas and maintenance activities in process areas. Maintenance personnel shall be trained in the product hazards associated with their activities.

8.7 Calibration

Measuring and monitoring equipment that is used to maintain or verify product safety shall be identified.

Identified equipment shall be calibrated at specified intervals, against known, valid, traceable standards, and maintained in such a way that the calibration status is protected.

When equipment is found to be out of calibration, it shall be recalibrated or removed from use, and an assessment made of the potential impact on the product of the previous measurement inaccuracy.

Records of calibration shall be maintained.

9 Management of purchased materials

9.1 General requirements

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.

9.2 Selection and management of suppliers

There shall be a defined process for the selection, approval and monitoring of suppliers, including:

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

b) a description of how suppliers are assessed.

NOTE Examples of a description of how suppliers are assessed include:

a) audit of the supplying site prior to accepting materials for production;

b) appropriate third party certification.

The method used shall be justified by risk assessment, including the potential risk to the final product.

c) monitoring the performance of the supplier to assure continued approval status (conformance to specification, meeting certificate of analysis (COA) requirements, satisfactory audit outcomes).

9.3 Incoming material requirements (raw/ingredients/packaging)

Delivery vehicles shall be checked prior to, and during, unloading to verify that the quality and safety of the material has been maintained during transit (i.e. seals are intact, free from infestation, temperature records exist, etc.).

Materials shall be inspected, tested or covered by COA to verify conformance to specified requirements prior to acceptance or use. The method of verification shall be documented. Materials which do not conform to specifications shall be handled under a documented procedure, which ensures they are prevented from unintended use.

Access points to bulk material receiving lines shall be identified, capped and locked. Discharge into such systems shall take place only after approval and verification of the material to be received.
10 Measures for prevention of cross contamination

10.1 General requirements

Programmes shall be in place to prevent, control and detect contamination. Measures to prevent physical, chemical and microbiological contamination shall be included.

10.2 Microbiological cross contamination

Areas where potential for micro cross contamination exists (airborne or from traffic patterns) shall be identified and a segregation (zoning) plan implemented. A risk assessment shall be carried out to determine potential contamination sources, susceptibility of the product, and control measures suitable for these areas, as follows:

a) separation of raw from finished or ready to eat (RTE) products;
b) structural segregation - physical barriers/walls/separate buildings;
c) access controls with requirements to change into appropriate work wear;
d) traffic patterns – people, materials, equipment and tools (including use of dedicated tools);
e) air pressure differentials.

10.3 Allergen management

All allergens present in the product, either by design or by potential manufacturing cross contact, shall be declared. The declaration shall be on the label for consumer products, and on the label or accompanying documentation for products intended for further processing.

Products shall be protected from unintended allergen cross contact by appropriate cleaning, line change-over practices and product sequencing.

Rework containing allergen(s) shall be used only in products which contain the same allergen(s) by design.

Food handling employees shall receive specific training in allergen awareness and associated manufacturing practices.

10.4 Physical and chemical contamination

Where glass and brittle material are used, periodic inspection requirements and defined procedures in case of breakage shall be put in place.

NOTE Glass and brittle material (such as hard plastic components in equipment) should be avoided where possible.

Glass breakage records shall be maintained.

Based on risk assessment, measures shall be put in place to prevent, control or detect potential contamination.

NOTE Examples of such measures include:

a) adequate covers over equipment or containers for exposed materials or products;
b) use of screens, magnets, sieves or filters;
c) use of detection/ rejection devices such as metal detectors or X-ray.
11 Cleaning and sanitizing

11.1 General requirements

Cleaning and sanitizing programmes shall be established to ensure that the food processing equipment and environment are maintained in a hygienic condition. Programmes shall be monitored for continuing suitability and effectiveness.

11.2 Cleaning agents and tools

Facilities and equipment shall be maintained in a condition which facilitates wet or dry cleaning and sanitation.

Cleaning agents and chemicals shall be clearly identified, food grade, stored separately and used only in accordance with the manufacturers instructions.

Cleaning tools and equipment shall be of hygienic design and maintained in a condition which does not present a potential source of extraneous matter.

11.3 Cleaning programmes

Cleaning programmes shall be established and validated to ensure that all parts of the facility and equipment are cleaned to a defined schedule, including the cleaning of cleaning equipment.

Cleaning programmes shall specify at a minimum:

a) areas, items of equipment and utensils to be cleaned;

b) responsibility for the tasks specified;

c) cleaning method and frequency;

d) verification and monitoring arrangements;

e) post-clean/pre-start up inspections.

11.4 Cleaning in place (CIP) systems

CIP systems shall be separated from active product lines.

Parameters for CIP systems shall be defined and monitored (including type, concentration, contact time and temperature of any chemicals used).

11.5 Monitoring sanitation effectiveness

Cleaning and sanitation programmes shall be monitored, at frequencies specified by the organization, to ensure their continuing suitability and effectiveness.

12 Pest control

12.1 General requirements

Facility hygiene, cleaning, incoming materials inspection and monitoring procedures shall be implemented to avoid creating an environment conducive to pest activity.

12.2 Pest control programmes

The facility shall have a nominated person to manage pest control activities and/or deal with appointed expert contractors.
Pest management programmes shall be documented and shall address plans, methods, schedules, control procedures and where necessary, training requirements.

Programmes shall include a list of chemicals which are approved for use in specified areas of the facility.

12.3 Preventing access

Buildings shall be maintained in good repair. Holes, drains and other potential pest access points shall be sealed.

External doors, windows or ventilation openings shall be designed to minimize the potential for entry of pests.

*NOTE* For example, windows or ventilation openings should be wire mesh screened and kept closed when not in use.

12.4 Harbourage and infestations

Storage practices shall be designed to prevent 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.

12.5 Monitoring and detection

Pest monitoring programmes shall include the placing of bait stations in key locations to identify pest activity. A map of bait stations shall be maintained. Bait stations shall be designed and located so as to prevent potential contamination of materials, products or facilities.

Bait stations shall be of robust, tamper resistant construction. The bait used shall be appropriate for the target pest.

The bait stations shall be inspected at a frequency intended to identify new pest activity. The results of inspections shall be analysed to identify trends.

12.6 Eradication

Evidence of infestations shall be dealt with when reported.

Pesticide use and application shall be restricted to trained operatives and shall be controlled to avoid risk to product safety or quality.

Records of pesticide use shall be maintained to show the type, quantity and concentrations used; where, when and how applied, and the target pest.

13 Personal hygiene and employee facilities

13.1 General requirements

Standards for personal hygiene and behaviours proportional to the risk posed to the process area or product shall be determined and documented. All personnel, visitors and contractors shall be required to comply with the documented requirements.
13.2 Personnel hygiene facilities and toilets

Personnel hygiene facilities shall be available to ensure that the degree of personal hygiene required by the organization can be maintained. The facilities shall be located close to the points where hygiene requirements apply, and shall be clearly designated.

NOTE Where appropriate, facilities should provide:

a) adequate numbers, locations and means of hygienically washing and drying hands, and, where required, sanitizing (including wash basins, supply of hot and cold or temperature controlled water and soap and/or sanitizer);

b) sinks designated for hand washing should be separate from sinks for food use and equipment cleaning stations. Taps should not be hand operated;

c) an adequate number of toilets of appropriate hygienic design, each with hand washing, drying and, where required, sanitizing facilities;

d) toilets, shower rooms and other employee hygiene facilities should not open directly onto production, packing or storage areas;

e) adequate changing facilities for personnel. Food handling personnel should be able to move from changing facilities to production areas without going outside.

13.3 Staff canteens and designated eating areas

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

Staff canteens shall be managed to ensure hygienic storage of ingredients and preparation, storage and serving of prepared foods. Storage conditions and storage, cooking and holding temperatures and time limitations shall be specified.

Employees’ own food shall be stored and consumed in designated areas only.

13.4 Work wear and protective clothing

Personnel who work in, or enter into, areas where exposed products and/or materials are handled shall wear work clothing that is fit for purpose, clean and in good condition.

Clothing mandated for food protection or hygiene purposes shall not be used for any other purpose.

Work wear shall not have outside pockets or buttons.

NOTE Zips or press stud fastenings are acceptable.

Work wear shall be laundered at intervals and to defined standards suitable for the intended use of the garments.

Work wear shall provide adequate coverage to ensure that hair, perspiration, etc. cannot contaminate the product.

Hair, beards and moustaches shall be protected (i.e. completely enclosed) by appropriate restraints unless risk analysis indicates otherwise.

Where gloves are used for product contact, they shall be clean and in good condition.

NOTE Use of latex gloves should be avoided where possible.

Shoes for use in processing areas shall be fully enclosed, and made from non absorbent materials.

Personal protective equipment, where required, shall be designed to prevent product contamination and maintained in hygienic condition.
13.5 Health status

Employees shall undergo a medical examination prior to employment in food contact operations (including site catering), unless documented risk assessment indicates otherwise. Additional medicals shall be carried out at intervals defined by the company, subject to legal restrictions in the country of operation.

People known or suspected to be infected with, or carrying, a disease or illness transmissible through food shall be prevented from entering food handling areas.

13.6 Illness and injuries

Where permitted by law, employees shall be required to report the following conditions to management, for possible exclusion from food handling areas: jaundice, diarrhoea, vomiting, fever, sore throat with fever, visibly infected skin lesions (boils, cuts or sores) and discharges from the ear, eye or nose.

In food handling areas, personnel with wounds or burns shall be required to cover them with specified dressings. Any lost dressing shall be reported to supervision immediately.

NOTE Dressings should be brightly coloured and metal detectable where appropriate.

13.7 Personal cleanliness

Personnel shall be required to wash and, where required, sanitize hands:

a) before starting any food handling activities;
b) immediately after using the toilet or blowing the nose;
c) immediately after handling any potentially contaminated material.

Personnel shall be required to refrain from sneezing or coughing over materials or products. Spitting (expectorating) shall be prohibited.

Fingernails shall be kept clean and trimmed.

13.8 Personal behaviour

A documented policy shall describe the behaviours required of personnel in processing, packing and storage areas. The policy shall at a minimum cover:

a) permissibility of smoking, eating, chewing in designated areas only;
b) control measures to minimize risks presented by permitted jewellery;

NOTE Permitted jewellery includes specific types of jewellery which may be worn by the personnel in processing and storage areas, taking into account religious, ethnic, medical and cultural imperatives.

c) permissibility of personal items, including medicines, in designated areas only;
d) prohibition of the use of nail polish, false nails and false eyelashes;
e) prohibition of carrying of pens and pencils behind the ears;
f) maintenance of personal lockers so that they are kept free from rubbish and soiled clothing;
g) prohibition of storage of product contact tools and equipment in personal lockers.

Comment [B3]: SG to consider the acceptability of this requirement.
14 Product recall procedures

14.1 General requirements

Systems shall be in place to ensure that products identified as failing to meet required food safety standards can be identified, located and removed from all necessary points of the supply chain.

14.2 Product recall requirements

A list of key contacts in the event of a recall shall be maintained.

Where products are withdrawn due to immediate health hazards, the safety of other products produced under the same conditions shall be evaluated. The need for public warnings shall be considered.

Recalled products shall be held under supervision until the method of final disposal is determined. Recalled products shall not be used as rework.

The effectiveness of the traceability and recall system shall be tested by a mock recall conducted annually.

15 Warehousing

15.1 General requirements

Materials and products shall be stored in clean, dry, well ventilated spaces protected from dust, condensation, fumes, odours or other sources of contamination. Materials shall be removed from storage for use in the correct stock rotation sequence.

15.2 Warehousing requirements

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

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

**NOTE**: Where possible, storage spaces should permit segregation of raw materials, work in progress and finished products.

A separate area or other means of segregating materials identified as non-conforming shall be provided.

Specified stock rotation systems (FIFO/FEFO) shall be observed.

Gasoline or diesel powered fork lift trucks shall not be used in food ingredient or product storage areas.

15.3 Vehicles, conveyances and containers

Vehicles, conveyances and containers shall be maintained in a state of repair, cleanliness and condition consistent with requirements given in relevant specifications.

The vehicles, conveyances and containers shall provide protection against damage or contamination of the product. Control of temperature and humidity shall be applied and recorded where required by the organization.

Where the same vehicles, conveyances and containers are used for food and non food products, cleaning shall be carried out between loads.
Bulk containers shall be dedicated to food use only. Where required by the organization, bulk containers shall be dedicated to a specified material.

16 Product information/consumer awareness

16.1 General requirements

Products shall bear information sufficient to ensure that the next person in the food chain can handle, store, display, prepare and use them safely and correctly.

16.2 Product information

Information shall be presented to consumers in such a way as to enable them to understand the importance of the information provided and make informed choices.

**NOTE**  Information may be provided by labelling or other means and may include storage, preparation and serving instructions applicable to the product.

16.3 Labelling of pre-packaged foods

The label shall give clear instructions for storage, preparation and use of the product where necessary.

Procedures shall be in place to ensure the application of correct labels to products.

17 Food defence

17.1 General requirements

Each facility shall assess the risk to products posed by potential acts of sabotage, vandalism or terrorism and shall put in place proportional protective measures.

**NOTE**  For further information and guidance on approaches to the protection of food businesses from all forms of malicious attack, see PAS 96:2008.

17.2 Access controls

Potentially sensitive areas within the facility shall be identified, mapped and subjected to access control.

**NOTE**  Where feasible, access should be physically restricted by use of locks, electronic card key or alternative systems.
Bibliography

For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

Standards publications

PAS 96:2008, Defending food and drink. Guidance for the deterrence, detection and defeat of ideologically motivated and other forms of malicious attack on food and drink and their supply arrangements

Other publications

WHO, World Health Organization - Guidelines for drinking-water quality

Further reading

Codex Alimentarius. Recommended international code of practice - General Principles of Food Hygiene
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