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IS 16020 (2012): Food Safety Management - Requirements for Good Hygiene Practices [FAD 15: Food Hygiene, Safety Management and Other Systems]



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“Knowledge is such a treasure which cannot be stolen”

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भारतीय मानक

खाद्य सुरक्षा प्रबन्ध — बेहतर स्वच्छता रीतियों की अपेक्षाएँ

Indian Standard

FOOD SAFETY MANAGEMENT—
REQUIREMENTS FOR GOOD HYGIENE PRACTICES

ICS 67.020

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BUREAU OF INDIAN STANDARDS
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NEW DELHI 110002

FOREWORD

This Indian Standard was adopted by the Bureau of Indian Standards, after the finalized by the Food Hygiene, Safety Management and Other Systems Sectional Committee had been approved by the Food and Agriculture Division Council.

People have the right to expect the food they eat to be safe and suitable for consumption. Food borne illness and food borne injury are at best unpleasant; at worst, they can be fatal. But there are also other consequences. Outbreaks of food borne illness can damage trade and tourism, and lead to loss of earnings, unemployment and litigation.

International food trade and foreign travel are increasing, bringing important social and economic benefits. But this also makes the spread of illness around the world easier. Eating habits too, have undergone major change in our country over the last two decades and new food production, preparation and distribution techniques have developed to reflect this. Effective hygiene control, therefore, is vital to avoid the adverse human health and economic consequences of food borne illness, food borne injury and food spoilage. Everyone, including farmers and growers, manufacturers and processors, food handlers and consumers, has a responsibility to assure that food is safe and suitable for consumption.

This standard is intended to lay a firm foundation for ensuring food hygiene and shall be used in conjunction with each specific code of hygienic practice, where appropriate, and the guidelines on microbiological criteria. A list of such standards is given in Annex A for guidance.

IS 2491 has been published for the guidance of the users, but this standard in the present form is a non-certifiable one and used in conjunction with IS 15000. A need was therefore felt to formulate a requirement based standard which can be implemented and if required certified as a stand alone standard lessening and hastening the process of implementation and certification of total food safety management based on HACCP. This standard is intended to fulfil this long felt need and follows the food chain from primary production through to final consumption, highlighting the key hygiene controls at each stage.

This standard may be treated as a generic pre-requisite to IS 15000 and IS/ISO 22000.

Nothing in this standard shall affect the operation of the *Food Safety and Standards Act, 2006* and regulations framed thereunder; *Standards of Weights and Measures Act, 1977* or any other law for the time being in force and shall be subject to the restrictions imposed thereunder, wherever applicable.

In the formulation of this standard, considerable assistance has been derived from the following:

- a) IS 2491 : 1998 Food hygiene — General principles — Code of practice
- b) CAC/RCP 1-1969, Rev. 4-2003 Recommended International code of practice — General principles of food hygiene
- c) IS 15000 : 1998 Food hygiene — Hazard analysis and critical control point (HACCP) and guidelines for its application
- d) ISO 9001 : 2008 Quality management systems — Requirements
- e) IS/ISO 22000 : 2005 Food safety management systems — Requirement for any organization in the food chain

Indian Standard

FOOD SAFETY MANAGEMENT— REQUIREMENTS FOR GOOD HYGIENE PRACTICES

1 SCOPE

This standard covers requirements for good hygiene practices applicable throughout the food chain (including primary production through to the final consumer), to achieve the goal of ensuring that food is safe and suitable for human consumption.

2 REFERENCES

The following standards contain provision which through reference in this text, constitute provision of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below:

<i>IS No.</i>	<i>Title</i>
3103 : 1975	Code of practice for industrial ventilation
3646 (Part 1) : 1992	Code of practice for interior illuminations: Part 1 General requirements and recommendations for working interiors (<i>first revision</i>)
7688	Code of practice for labelling of pre-packaged foods:
(Part 1) : 1975	General guidelines
(Part 2) : 1976	Guidelines on claims
(Part 3) : 1976	Nutritional labelling
10500 : 1991	Drinking water— Specification (<i>first revision</i>)

3 TERMINOLOGY

For the purpose of this standard, the following definitions shall apply.

3.1 Cleaning — The removal of soil, food residue, dirt, grease or other objectionable matter.

3.2 Contaminant — Any biological or chemical agent, foreign matter, or other substances not intentionally added to food which may compromise food safety or suitability.

3.3 Contamination — The introduction or occurrence of a contaminant in food or food environment.

3.4 Disinfection — The reduction, by means of chemical agents and/or physical methods, of the number of micro-organisms in the environment, to a

level that does not compromise food safety or suitability.

3.5 Establishment — Any building or area in which food is handled and the surroundings, under the control of the same food business operator.

3.6 Food Business Operator — The person or persons responsible for ensuring that the requirements of this standard are met within the food business under his/their control.

3.7 Food Handler — Any person who directly handles packaged or un-packaged food, food equipment and utensils, or food contact surfaces and is therefore expected to comply with food hygiene requirements.

3.8 Food Hygiene — All conditions and measures necessary to ensure the safety and suitability of food at all stages of the food chain.

3.9 Food Safety — Assurance that food will not cause harm to the consumer when it is prepared and/or eaten according to its intended use.

3.10 Food Suitability — Assurance that food is acceptable for human consumption according to its intended use.

3.11 Hazard — A biological, chemical or physical agent in, or condition of, food with the potential to cause an adverse health effect.

3.12 HACCP — A system which identifies, evaluates, and controls hazards which are significant for food safety.

3.13 Primary Production — Those steps in the food chain up to and including, for example, harvesting, slaughter, milking and fishing.

4 GENERAL REQUIREMENTS

4.1 Management Responsibility

The food business operator is responsible for the safety and suitability of the produced food. Therefore, the food business operator shall demonstrate his commitment and his responsibility with respect to the supply of safe products. For, the hygiene system ensures that all required activities are effectively defined, documented, implemented and maintained.

The food business operator shall identify all statutory and regulatory provisions applicable to various

requirements of this standard. Personnel responsible for implementation and compliance of applicable provisions shall also be identified.

4.1.1 Hygiene Policy

The food business operator shall define and document the hygiene policy of the organization with regard to food safety. It will demonstrate the commitment of the organization to safe food. The food business operator has ultimate responsibility for the policy of the organization and shall document, support and communicate this policy. Periodically, the food business operator shall verify the implementation of the policy and review the outcome.

The policy shall demonstrate that the organization is fully aware of its position in the food chain. It will reflect the 'farm-to-fork' approach, starting with the purchase and acceptance of raw materials.

The policy shall be focused on the safety of foodstuffs and shall respond to the expectations and needs of its customers and consumers.

The policy shall be supported by concrete objectives to ensure and improve food safety for the period under consideration. The objectives shall be SMART (specific, measurable, acceptable, realistic, time bound).

The food business operator shall ensure that the hygiene policy is understood, implemented and maintained at all levels in the organization.

4.1.2 Scope of the Hygiene System

The food business operator shall define the scope of the hygiene system. The scope shall comprise that part of the food chain and those activities of the food business for which the food operator is responsible and can be held liable.

NOTES

1 The part of the food chain for which the food business operator is responsible begins where the responsibility of the suppliers of raw materials and ingredients ends; the responsibility of the food business operator ends where another food business in the food chain takes over the responsibility. The scope shall, therefore, conform with purchase and sales contracts.

2 All locations and process lines where food is processed and/or stored by the food business operator shall be properly indicated in an organization layout and be available for assessment.

3 All products which are supplied to the market by the food business, whether processed or handled, shall be properly specified.

4 Where an organization choose to outsource any process that affects product conformity to requirements, the organization shall ensure control over such processes. The type and extent of control to be applied to these outsourced processes shall be defined within the quality management system.

5 Key principle is that no part of the operation of the food

business can be excluded from the scope of the hygiene system; all activities must be available for assessment.

4.1.3 Tasks, Responsibilities and Authorities

The food retail operator shall provide documentation for the tasks, responsibilities and authorities of its employees with respect to sourcing, handling, transport, storage of the food products. The management shall ensure to communicate these responsibilities within the organization.

An organization chart and the organization's reporting structure shall be documented.

4.1.4 Hygiene Team Leader

Top management shall appoint a hygiene team leader who, irrespective of other responsibilities, shall have the responsibility and authority,

- a) to manage a hygiene team (*see* 4.1.5) and organize its work;
- b) to ensure relevant training and education of the hygiene team members; and
- c) to report to the top management on the effectiveness and suitability of the hygiene system.

4.1.5 Hygiene Team

The food business operator shall constitute a hygiene team (or various hygiene teams, if so required).

The hygiene team shall develop, implement and maintain the hygiene system.

The organization shall demonstrate that the members of the hygiene team have the knowledge, expertise and different disciplines available which are required to develop, implement and maintain a hygiene system covering the total scope of the hygiene system.

Minimum qualification criteria, including required expertise, shall be defined and documented for all members of the hygiene team. In addition, the assignment (including tasks, responsibilities and authorities) shall be documented for the team members.

Whenever more than one hygiene team has been constituted, a co-ordinator shall be appointed to co-ordinate the development, implementation and maintenance of the hygiene system.

4.1.6 Resources

The food business operator shall examine the requests and provide, in a timely manner, all the resources needed by the hygiene team(s) to develop, implement and maintain the hygiene system.

When corrective actions, verification procedures or customers indicate that operational improvements are necessary, the food business operator shall examine

the issues and provide appropriate resources to ensure food safety.

4.1.7 Management Review

The food business operator shall review the hygiene system at planned intervals, of no more than 12 months, to ensure continuing suitability, adequacy and effectiveness. A checklist is given in Annex B. The review shall evaluate the need for changes to the system, including product safety, policy and objectives.

The review shall provide evidence of the commitment to improve the hygiene system and its performance.

4.1.8 Auditing and Appraisal

The organization shall conduct internal audits at planned intervals to determine whether the hygiene system,

- a) conforms to the planned arrangement to the requirements of this standard and to the requirements established by the organization; and
- b) is effectively implemented and maintained.

An audit programme shall be planned, taking into consideration the status and importance of the processes and areas to be audited, as well as the results of previous audits. The audit criteria, scope, frequency and methods shall be defined. Selection of auditors and conduct of audits shall ensure objectivity and impartiality of the audit process. Auditors shall not audit their own work.

The responsibilities and requirements for planning and conducting audits, and for reporting results and maintaining records shall be defined in documented procedure.

The management responsible for the area being audited shall ensure that actions are taken without undue delay to eliminate detected non-conformities and their causes. Follow up activities shall include the verification of the actions taken and the reporting of verification results.

For convenience, a checklist based on this standard is given in Annex B.

4.2 Documentation Requirements

4.2.1 General

The documentation of hygiene for the organization includes,

- a) hygiene manual indicating intent of implementation of this standard;
- b) documented statements of a hygiene policy and hygiene objectives;

- c) documented procedures required by this standard; and
- d) documents needed by the organization to ensure the effective development, implementation and updating of the food hygiene system.

4.2.2 Control of Documents

Documents required for the hygiene management system are controlled. Records are a special type of document and are controlled according to the requirements given in 4.2.3.

A documented procedure shall be established to define the control needed to,

- a) approve documents for adequacy prior to issue;
- b) review and update as necessary and re-approve documents;
- c) ensure that the changes and the current revision status of documents are identified;
- d) ensure that relevant versions of applicable documents are available at point of use;
- e) ensure that documents remain legible and readily identifiable;
- f) ensure that documents of external origin are identified and their distribution controlled; and
- g) prevent the unintended use of obsolete documents and to apply suitable identification to them if they are retained for any purpose.

4.2.3 Control of Records

Records are established and maintained to provide evidence of conformity to requirements and of effective operation of the hygiene management system. Records shall remain legible, readily identifiable and retrievable. A documented procedure shall be established to define the controls needed for the identification, storage, protection, retrieval, retention and disposition of records.

5 HYGIENE SPECIFIC REQUIREMENTS

5.1 Requirements Relating to Primary Production

5.1.1 Environmental Hygiene

Potential source of contamination from the environment shall be considered by the food business operator. In particular, primary food production shall not be carried on in areas where the presence of potentially harmful substances would lead to an unacceptable level of such substances in food.

5.1.2 Hygienic Production of Food Sources

The potential effects of primary production activities

on the safety and suitability of food shall be considered at all times. In particular, this includes identifying any specific points in such activities where a high probability of contamination may exist and taking specific measures to minimize that probability. The HACCP-based approach may assist in the taking of such measures (*see* IS 15000).

Producers shall implement measures as applicable to,

- a) control contamination from air, soil, water, feed-stuffs, fertilizers (including natural fertilizers), pesticides, veterinary drugs or any other agent used in primary production;
- b) control plant and animal health so that it does not pose a threat to human health through food consumption, or adversely affect the suitability of the product; and
- c) protect food sources from faecal and other contamination.

In particular, care shall be taken to manage wastes, and store harmful substances appropriately.

NOTE — On-farm programmes which achieve specific food safety goals are becoming an important part of primary production and shall be encouraged.

5.1.3 Handling, Storage and Transport

Procedures shall be in place to,

- a) sort food and food ingredients to segregate the material which is evidently unfit for human consumption;
- b) dispose of any rejected material in a hygienic manner; and
- c) protect food and food ingredients from contamination by pests, or by chemical, physical or microbiological contaminants or other objectionable substances during handling, storage and transport.

Care shall be taken to prevent, so far as reasonably practicable, deterioration and spoilage through appropriate measures which may include controlling temperature, humidity, and/or other controls.

5.1.4 Cleaning, Maintenance and Personnel Hygiene at Primary Production

Appropriate facilities and procedures shall be in place to ensure that,

- a) any necessary cleaning and maintenance is carried out effectively; and
- b) an appropriate degree of personal hygiene is maintained.

5.2 Requirements Relating to Establishment: Design and Facilities

5.2.1 Location

5.2.1.1 Establishment

Potential sources of contamination need to be considered when deciding where to locate food establishments, as well as the effectiveness of any reasonable measures that might be taken to protect food.

Establishments shall not be located in areas where, after considering such protective measures, it is clear that there will remain a threat to food safety or suitability. In particular, establishments shall normally be located away from,

- a) environmentally polluted areas and industrial activities which pose a serious threat of contaminating food;
- b) areas subject to flooding unless sufficient safeguards are provided;
- c) areas prone to infestations of pests; and
- d) areas where wastes, either solid or liquid, cannot be removed effectively.

5.2.1.2 Equipment

Equipment shall be located so that it,

- a) permits adequate maintenance and cleaning;
- b) functions in accordance with its intended use; and
- c) facilitates good hygiene practices, including monitoring.

5.2.2 Premises and Rooms

5.2.2.1 Design and layout

Where appropriate, the internal design and layout of food establishment shall permit good food hygiene practices, including protection against cross-contamination between and during operations by foodstuffs.

5.2.2.2 Internal structures and fittings

Structures within food establishments shall be soundly built of durable materials and be easy to maintain, clean and where appropriate, able to be disinfected. In particular the following specific conditions shall be satisfied where necessary to prevent the safety and suitability of food:

- a) Surfaces of walls, partitions and floors shall be made of impervious materials with no toxic effect in intended use;
- b) Walls and partitions shall have a smooth

surface up to a height appropriate to the operation;

- c) Floors shall be constructed to allow adequate drainage and cleaning;
- d) Ceilings and overhead fixtures shall be constructed and finished to minimize the build up of dirt and condensation, and the shedding of particles;
- e) Windows shall be easy to clean, be constructed to minimize the build up of dirt and where necessary, be fitted with removable and cleanable insect-proof screens. Where necessary, windows shall be fixed;
- f) Doors shall have smooth, non-absorbent surfaces, and be easy to clean and, where necessary disinfect; and
- g) Working surfaces that come into direct contact with food shall be in sound condition, durable and easy to clean, maintain and disinfect. They shall be made of smooth, non-absorbent materials, and inert to the food, to detergents and disinfectants under normal operating conditions.

5.2.2.3 Temporary/Mobile premises and vending machines

Premises and structures covered here include market stalls, mobile sales and street vending vehicles, temporary premises in which food is handled such as tents and marquees.

Such premises and structures shall be sited, designed and constructed to avoid, as far as reasonably practicable, contaminating food and harbouring pests.

In applying these specific conditions and requirements, any food hygiene hazards associated with such facilities shall be adequately controlled to ensure the safety and suitability of food.

5.2.3 Equipment

5.2.3.1 General

Equipment and containers (other than one-time use containers and packaging) coming into contact with food, shall be designed and constructed to ensure that, where necessary, they can be adequately cleaned, disinfected and maintained to avoid the contamination of food.

Equipment and containers shall be made of materials with no toxic effect in intended use.

Where necessary, equipment shall be durable and movable or capable of being disassembled to allow for maintenance, cleaning, disinfection, monitoring and, for example, to facilitate inspection for pests.

5.2.3.2 Food control and monitoring equipment

In addition to the general requirements in 5.2.3.1, equipment used to cook, heat treat, cool, store or freeze food shall be designed to achieve the required food temperatures as rapidly as necessary in the interests of food safety and suitability and maintain them effectively. Such equipment shall also be designed to allow temperature to be monitored and controlled.

Where necessary, such equipment shall have effective means of controlling and monitoring humidity, air-flow and any other characteristic likely to have a detrimental effect on the safety or suitability of food. These requirements are intended to ensure that,

- a) harmful or undesirable micro-organisms or their toxins are eliminated or reduced to safe levels or their survival and growth are effectively controlled;
- b) where appropriate, critical limits established in HACCP-based plans can be monitored; and
- c) temperatures and other conditions necessary to food safety and suitability can be rapidly achieved and maintained.

5.2.3.3 Containers for waste and inedible substances

Containers for waste, by-products and inedible or dangerous substances, shall be specifically identifiable, suitably constructed and, where appropriate, made of impervious material.

Containers used to hold dangerous substances shall be identified and, where appropriate, be lockable to prevent malicious or accidental contamination of food.

5.2.4 Facilities

5.2.4.1 Water supply

An adequate supply of potable water with appropriate facilities for its storage, distribution and temperature control, shall be available whenever necessary to ensure the safety and suitability of food.

Potable water shall be as specified in IS 10500 or water of higher standard. Non-potable water (for use in, for example, fire control, steam production, refrigeration and other similar purposes where it would be not contaminate food), shall have a separate system.

Non-potable water systems shall be identified and shall not connect with, or allow reflux into, potable water system.

5.2.4.2 Drainage and waste disposal

Adequate drainage and waste disposal systems and facilities shall be provided. They shall be designed and constructed so that the risk of contaminating food or the potable water supply is avoided.

5.2.4.3 *Cleaning*

Adequate facilities, suitably designated, shall be provided for cleaning food utensils and equipment. Such facilities shall have an adequate supply of hot and cold potable water where appropriate.

5.2.4.4 *Personnel hygiene facilities and toilets*

Personnel hygiene facilities shall be available to ensure that an appropriate degree of personal hygiene can be maintained and to avoid contaminating food. Where appropriate, facilities shall include,

- a) adequate means of hygienically washing and drying hands, including wash basins and a supply of hot and cold (or suitably temperature controlled) water;
- b) lavatories of appropriate hygienic design;
- c) adequate changing facilities for personnel; and
- d) hygienic storage facilities for personnel clothes may be provided where necessary.

Such facilities shall be suitably located and designated.

5.2.4.5 *Temperature control*

Depending on the nature of the food operations undertaken, adequate facilities shall be available for heating, cooling, cooking, drying refrigerating and freezing food, for storing refrigerated or frozen foods, monitoring food temperatures, and when necessary, controlling ambient temperatures to ensure the safety and suitability of food.

5.2.4.6 *Air quality and ventilation*

Adequate means of natural or mechanical ventilation shall be provided, in particular to,

- a) minimize air-borne contamination of food, for example, from aerosols and condensation droplets;
- b) control ambient temperatures;
- c) control odours which might affect the suitability of food; and
- d) control humidity, where necessary, to ensure the safety and suitability of food.

Ventilation systems shall be designed and constructed so that air does not flow from contaminated areas to clean areas and, where necessary, they can be adequately maintained and cleaned.

5.2.4.7 *Lighting*

Adequate natural or artificial lighting shall be provided to enable the undertaking to operate in a hygienic manner. Where necessary, lighting shall not be such that the resulting colour is misleading. The intensity shall be adequate to the nature of the operation.

Lighting fixtures shall, where appropriate, be protected to ensure that food is not contaminated by breakage [see IS 3103 and IS 3646 (Part 1)].

5.2.4.8 *Storage*

Where necessary, adequate facilities for the storage of food, ingredients and non-food chemicals (for example, cleaning material, lubricants, fuels) shall be provided.

Where appropriate, food storage facilities shall be designed and constructed to,

- a) permit adequate maintenance and cleaning;
- b) avoid pest access and harbourage;
- c) enable food to be effectively protected from contamination during storage; and
- d) where necessary, provide an environment which minimizes the deterioration of food (for example, by temperature and humidity control).

NOTE — The type of storage facilities required will depend on the nature of the food. Where necessary, separate, secure storage facilities for cleaning materials and hazardous substances shall be provided. The laboratory facilities in the food unit, if exist shall be located in such a manner so as to avoid any cross-contamination of environment by pathogens through personnel, air or water.

5.3 **Requirements Relating to Control of Operation**

5.3.1 *Control of Food Hazards*

Food business operators shall,

- a) identify any steps in their operations which are critical to the safety of food;
- b) implement effective control procedures at those steps;
- c) monitor control procedures to ensure their continuing effectiveness; and
- d) review control procedures periodically, and whenever the operations change.

These systems shall be applied throughout the food chain to control food hygiene throughout the shelf-life of the product through proper product and process design.

Control procedures may be simple, such as checking stock rotation, calibrating equipment, or correctly loading refrigerated display units. In some cases a system based on expert advice, and involving documentation, may be appropriate.

5.3.2 *Key Aspects of Hygiene Control System*

5.3.2.1 *Time and temperature control*

Inadequate food temperature control is one of the most common causes of food borne illness or food spoilage. Such controls include time and temperature of cooking,

cooling, processing and storage. Systems shall be in place to ensure that temperature is controlled effectively where it is critical to the safety and suitability of food.

Temperature control systems shall take into account,

- a) the nature of the food, for example, its water activity, pH, and likely initial level and types of micro-organisms;
- b) the intended shelf-life of the product;
- c) the method of packaging and processing; and
- d) how the product is intended to be used, for example, further cooking/processing or ready-to-eat.

Such systems shall also specify tolerable limits for time and temperature variations.

Temperature recording devices shall be checked at regular intervals and tested for accuracy.

5.3.2.2 Specific process steps

Other steps which contribute to food hygiene may include, for example,

- a) chilling;
- b) thermal processing;
- c) irradiation;
- d) drying;
- e) chemical preservation; and
- f) vacuum or modified atmospheric packaging.

5.3.2.3 Microbiological and other specifications

Control systems described in 5.3.1 offer an effective way of ensuring the safety and suitability of food. Where microbiological, chemical or physical specifications are used in any food control system, such specifications shall be based on sound scientific principles and state, where appropriate, monitoring procedures, analytical methods and action limits.

5.3.2.4 Microbiological cross-contamination

Pathogens can be transferred from one food to another, either by direct contact or by food handlers, contact surfaces or the air. Raw, unprocessed food shall be effectively separated from ready-to-eat foods, with effective intermediate cleaning and where appropriate disinfection.

Access to processing areas may need to be restricted or controlled. Where risks are particularly high, access to processing areas should be only *via* a changing facility. Personnel may need to be required to put on clean protective clothing including footwear and wash their hands before entering.

Surfaces, utensils, equipment, fixtures and fittings shall

be thoroughly cleaned and where necessary disinfected after raw food, particularly meat and poultry, has been handled or processed.

5.3.2.5 Physical and chemical contamination

Systems shall be in place to prevent contamination of foods by foreign bodies such as glass or metal shreds from machinery, dust, harmful fumes and unwanted chemicals. In manufacturing and processing, suitable detection or screening devices shall be used, where necessary.

5.3.3 Incoming Material Requirements

No raw material or ingredient shall be accepted by an establishment if it is known to contain parasites, undesirable micro-organisms, pesticides, veterinary drugs or toxic, decomposed or extraneous substances which would not be reduced to an acceptable level by normal sorting and/or processing. Where appropriate, specifications for raw materials shall be identified and applied.

Raw materials or ingredients shall, where appropriate, be inspected and sorted before processing. Where necessary, laboratory tests shall be made to establish fitness for use. Only sound, suitable raw materials or ingredients shall be used.

Stocks of raw material and ingredients shall be subject to effective stock rotation.

5.3.4 Packaging

Packaging design and materials shall provide adequate protection for products to minimize contamination, prevent damage, and accommodate proper labelling.

Packaging materials or gases where used must be non-toxic and not pose a threat to the safety and suitability of food under the specified conditions of storage and use.

Where appropriate, reusable packaging shall be suitably durable, easy to clean and, where necessary, disinfect.

5.3.5 Water

5.3.5.1 In contact with food

Only potable water (*see* IS 10500) shall be used in food handling and processing, with the following exceptions:

- a) For steam production, fire control and other similar purposes not connected with food; and
- b) In certain food processes, for example, chilling, and in food handling areas, provided this does not constitute a hazard to the safety and suitability of food (for example, the use of clean sea water).

Water re-circulated for reuse shall be treated and maintained in such a condition that no risk to the safety and suitability of food results from its use. The treatment process shall be effectively monitored. Re-circulated water which has received no further treatment and water recovered from processing of food by evaporation or drying may be used, provided its use does not constitute a risk to the safety and suitability of food.

5.3.5.2 *As an ingredient*

Potable water (*see* IS 10500) shall be used wherever necessary to avoid food contamination.

5.3.5.3 *Ice and steam*

Ice shall be made from water that complies with 5.2.4.1. Ice and steam shall be produced, handled and stored to protect them from contamination.

Steam used in direct contact with food or food contact surfaces shall not constitute a threat to the safety and suitability of food.

5.3.6 *Management and Supervision*

The type of control and supervision needed will depend on the size of the business, the nature of its activities and the types of food involved.

Managers and supervisors shall have enough knowledge of food hygiene principles and practices to be able to judge potential risks, take appropriate preventive and corrective action, and ensure that effective monitoring and supervision takes place.

5.3.7 *Documentation and Records*

Where necessary, appropriate records of processing, production and distribution shall be kept and retained for a period that exceeds the shelf-life of the product. Documentation can enhance the credibility and effectiveness of the food safety control system.

5.3.8 *Recall Procedures*

It shall be ensured that effective procedures are in place to deal with any food safety hazard and to enable the complete, rapid recall of any implicated lot of the finished food from the market.

Where a product has been withdrawn because of an immediate health hazard, other products which are produced under similar conditions, and which may present a similar hazard to public health, shall be evaluated for safety and may need to be withdrawn.

The need for public warnings should be considered.

Recalled products shall be held under supervision until they are destroyed, used for purposes other than human consumption, determined to be safe for human

consumption, or reprocessed in a manner to ensure their safety.

5.4 Requirement Relating to Establishment: Maintenance and Sanitation

5.4.1 *Maintenance and Cleaning*

5.4.1.1 *General*

Establishments and equipment shall be kept in an appropriate state of repair and condition to,

- a) facilitate all sanitation procedures;
- b) function as intended, particularly at critical steps (*see* 5.3.1); and
- c) prevent contamination of food, for example, from metal shreds, flaking plaster, debris and chemicals.

Cleaning shall remove food residues and dirt which may be a source of contamination.

NOTE — The necessary cleaning methods and material shall depend on the nature of the food business. Disinfection may be necessary after cleaning.

Cleaning chemicals shall be handled and used carefully and in accordance with manufacturers' instructions and stored, where necessary, separated from food, in clearly identified containers to avoid the risk of contaminating food.

5.4.1.2 *Cleaning procedures and methods*

Cleaning can be carried out by separate or the combined use of physical methods, such as heat, scrubbing, turbulent flow, vacuum cleaning or other methods that avoid the use of water, and chemical methods using detergents, alkalis or acids.

Cleaning procedures will involve, where appropriate,

- a) removing gross debris from surfaces;
- b) applying a detergent solution to loosen soil and bacterial film and hold them in solution or suspension;
- c) rinsing with water which complies with 5.2.4.1, to remove loosened soil and residues of detergent;
- d) dry cleaning or other appropriate methods for removing and collecting residues and debris;
- e) where necessary, disinfection with subsequent rinsing unless the manufacturers' instructions indicate on scientific basis that rinsing is not required; and
- f) hygienic storage and handling of cleaned portable equipments and utensils.

5.4.2 *Cleaning Programmes*

Cleaning and disinfection programmes shall ensure

that all parts of the establishment are appropriately clean and shall include the cleaning of cleaning equipment.

Where written cleaning programmes are used, they shall specify,

- a) areas, items of equipment and utensils to be cleaned;
- b) responsibility for particular tasks;
- c) method and frequency of cleaning; and
- d) monitoring arrangements.

Where appropriate, programmes shall be drawn up in consultation with relevant specialist expert advisors.

5.4.3 Pest Control Systems

5.4.3.1 General

Pests pose a major threat to the safety and suitability of food. Pest infestations can occur where there are breeding sites and a supply of food. Good hygiene practices shall be employed to avoid creating an environment conducive to pests. Good sanitation, inspection of incoming materials and good monitoring can minimize the likelihood of infestation and thereby limit the need for pesticides.

5.4.3.2 Preventing access

Buildings shall be kept in good repair and condition to prevent pest access and to eliminate potential breeding sites. Holes, drains and other places where pests are likely to gain access shall be kept sealed. Wire mesh screens, for example on open windows, doors and ventilators, will reduce the problem of pest entry. Animals shall, wherever possible, be excluded from the grounds of factories and food processing plants.

5.4.3.3 Harbourage and infestation

The availability of food and water encourages pest harbourage and infestation. Potential food sources shall be stored in pest-proof containers and/or stacked above the ground and away from walls.

Areas both inside and outside food premises shall be kept clean. Where appropriate, refuse shall be stored in covered, pest-proof containers.

5.4.3.4 Monitoring and detection

Establishments and surrounding areas shall be regularly examined for evidence of infestation.

5.4.3.5 Eradication

Pest infestations shall be dealt with immediately and without adversely affecting food safety or suitability. Treatment with chemical, physical or biological agents shall be carried out without posing a threat to the safety or suitability of food.

5.4.4 Waste Management

Suitable provision must be made for the removal and storage of waste. Waste must not be allowed to accumulate in food handling, food storage, and other working areas and the adjoining environment except so far as is unavoidable for the proper functioning of the business.

Waste stores must be kept appropriately clean and regularly inspected.

5.4.5 Monitoring Effectiveness

Sanitation systems shall be monitored for effectiveness, periodically verified by means such as audit pre-operational inspections or, where appropriate, microbiological sampling of environment and food contact surfaces and regularly reviewed and adapted to reflect changed circumstances.

5.5 Requirements Relating to Establishment: Personal Hygiene

5.5.1 Health Status

People known, or suspected, to be suffering from, or to be a carrier of a disease or illness likely to be transmitted through food, shall not be allowed to enter any food handling area, if there is a likelihood of their contaminating food. Any person so affected shall immediately report illness or symptoms of illness to the management.

Medical examination of a food handler shall be carried out, if clinically or epidemiologically indicated.

5.5.2 Illness and Injuries

Conditions which shall be reported to management so that any need for medical examination and/or possible exclusion from food handling can be considered, include:

- a) jaundice;
- b) diarrhoea;
- c) vomiting;
- d) fever;
- e) sore throat with fever;
- f) visible infected skin lesions (boils, cuts, etc); and
- g) discharges from the ear, eye or nose.

5.5.3 Personal Cleanliness

Food handlers shall maintain a high degree of personal cleanliness and, where appropriate, wear suitable protective clothing, head covering, and footwear. Cuts and wounds, where personnel are permitted to continue working, shall be covered by suitable waterproof dressing.

IS 16020 : 2012

Personnel shall always wash their hands, when personal cleanliness may affect food safety, for example:

- a) At the start of food handling activities;
- b) Immediately after using the toilet; and
- c) After handling raw food or any contaminated material, where this could result in contamination of other food items; they shall avoid handling ready-to-eat food, where appropriate.

5.5.4 Personal Behaviour

People engaged in food handling activities shall refrain from behaviour which could result in contamination of food for example:

- a) Smoking;
- b) Spitting;
- c) Chewing or eating; and
- d) Sneezing or coughing over unprotected food.

Personal effects such as jewellery, watches, pins, strong smelling perfumes, after shave lotions or other items shall not be worn or brought into food handling areas, if they pose threat to the safety and suitability of food.

5.5.5 Visitors

Visitors to food manufacturing, processing or handling areas shall, where appropriate, wear protective clothing and adhere to the other personal hygiene provisions in this section.

5.6 Requirement Relating to Transportation

5.6.1 General

Food must be adequately protected during transport. The type of conveyances or containers required depends on the nature of the food and the conditions under which it has to be transported.

5.6.2 Requirements

Where necessary, conveyances and bulk containers shall be designed and constructed so that they,

- a) do not contaminate foods or packaging;
- b) can be effectively cleaned and, where necessary, disinfected;
- c) permit effective separation of different foods or foods from non-food items where necessary during transport;
- d) provide effective protection from contamination, including dust and fumes;
- e) can effectively maintain the temperature, humidity, atmosphere and other conditions necessary to protect food from harmful or undesirable microbial growth and

deterioration likely to render it unsuitable for consumption; and

- f) allow any necessary temperature, humidity and other conditions to be checked.

5.6.3 Use and Maintenance

Conveyances and containers for transporting food shall be kept in an appropriate state of cleanliness, repair and condition. Where the same conveyance or container is used for transporting different foods, or non-foods, effective cleaning and, where necessary, disinfection shall take place between loads.

Where appropriate, particularly in bulk transport, containers and conveyances shall be designated and marked for food use only and be used only for that purpose.

5.7 Requirement Relating to Product Information and Consumer Awareness

5.7.1 Lot Identification

Lot identification is essential in product recall and also helps effective stock rotation. Each container of food shall be permanently marked to identify the producer and the lot.

5.7.2 Product Information

All food products shall be accompanied by or bear adequate information to enable the next person in the food chain to handle, display, store and prepare and use the product safely and correctly.

5.7.3 Labelling

Prepackaged foods shall be labelled with clear instructions to enable the next person in the food chain to handle, display, store and use the product safely [see IS 7688 (Parts 1, 2 and 3)].

5.7.4 Consumer Education

Health education programmes shall cover general food hygiene. Such programmes shall enable consumers to understand the importance of any product information and to follow any instructions accompanying products, and make informed choices. In particular consumers shall be informed of the relationship between time/temperature control and food borne illness.

5.8 Requirement Relating to Training

5.8.1 Awareness and Responsibility

Food hygiene training is fundamentally important. All personnel shall be aware of their role and responsibility in protecting food from contamination or deterioration. Food handlers shall have the necessary knowledge and skills to enable them to handle food hygienically. Those who handle strong cleaning chemicals or other

potentially hazardous chemicals shall be instructed in safe handling techniques.

5.8.2 Training Programmes

Factors to take into account in assessing the level of training required include,

- a) nature of the food, in particular its ability to sustain growth of pathogenic or spoilage micro-organisms;
- b) manner in which the food is handled and packed, including the probability of contamination;
- c) extent and nature of processing or further preparation before final consumption;
- d) conditions under which the food will be stored; and
- e) expected length of time before consumption.

5.8.3 Instruction and Supervision

Periodic assessments of the effectiveness of training and instruction programmes shall be made, as well as routine supervision and checks to ensure that procedures are being carried out effectively.

Managers and supervisors of food processes shall have the necessary knowledge of food hygiene principles and practices to be able to judge potential risks and take the necessary action to remedy deficiencies.

5.8.4 Refresher Training

Training programmes shall be routinely reviewed and updated where necessary. Systems shall be in place to ensure that food handlers remain aware of all procedures necessary to maintain the safety and suitability of food.

ANNEX A (Foreword)

LIST OF STANDARDS RELATING TO SECTOR SPECIFIC HYGIENE CODE

IS No.	Title	IS No.	Title
4303	Code for hygienic conditions in fish industry:	5837 : 1970	Code for hygienic conditions for soft drink manufacturing units
(Part 1) : 1975	Pre-processing stage (<i>first revision</i>)	5839 : 2000	Food hygiene — Code of practice for manufacture, storage and sale of ice-creams (<i>first revision</i>)
(Part 2) : 1975	Canning stage (<i>first revision</i>)	5887	Methods for detection of bacteria responsible for food poisoning:
5059 : 1969	Code for hygienic conditions for large scale biscuit manufacturing units and bakery units	(Part 1) : 1976	Isolation, identification and enumeration of <i>Escherichia coli</i> (<i>first revision</i>)
5401	Microbiology — General guidance for enumeration of coliforms:	(Part 2) : 1976	Isolation, identification and enumeration of <i>Staphylococcus aureus</i> and faecal streptococci (<i>first revision</i>)
(Part 1) :	Colony count technique (<i>first revision</i>)	(Part 3) : 1999/	General guidance on methods for detection of <i>Salmonella</i> (<i>second revision</i>)
2002/ISO		ISO 6579 :	
4832 : 1991	MPN technique (<i>first revision</i>)	1993	
(Part 2) :		(Part 4) : 1999	Isolation and identification of <i>Clostridium perfringens</i> , <i>C. botulinum</i> and enumeration of <i>Cl. perfringens</i> (<i>second revision</i>)
2002/ISO		(Part 5) : 1976	Isolation, identification and enumeration of <i>Vibrio cholerae</i> and <i>Vibrio parahaemolyticus</i> (<i>first revision</i>)
4831 : 1991			
5402 : 2002/	General guidance for the enumeration of micro-organisms — Colony count technique at 30°C (<i>first revision</i>)		
ISO 4833 :			
1991			
5403 : 1999/	Method for yeast and mould count of food stuffs and animal feeds (<i>first revision</i>)		
ISO 7954 :			
1987			
5404 : 1984	Methods for drawing and handling of food samples for microbiological analysis (<i>first revision</i>)		

IS 16020 : 2012

<i>IS No.</i>	<i>Title</i>	<i>IS No.</i>	<i>Title</i>
(Part 6) : 1999/ ISO 7932 : 1993	Identification, enumeration and confirmation of <i>B. cereus</i>	7203 : 1973	Specification for casein hydrolysate (acid digested), microbiological grade
(Part 7) : 1999	General guidance on methods for isolation and identification of <i>Shigella</i>	7247 (Part 2) : 1974	Code of practice for fumigation of agricultural produce: Part 2 Ethylene dibromide
(Part 8/Sec 1) : 2002/ISO 6888-1 : 1999	Horizontal method for enumeration of coagulase-positive staphylococci (<i>Staphylococcus aureus</i> and other species), Section 1 Technique using Baird-Parker Agar Medium	7402 : 1996/ ISO 7402 : 1993	Microbiology — General guidance for the enumeration of Enterobacteriaceae without resuscitation — MPN technique and colony-count technique (<i>first revision</i>)
(Part 8/Sec 2) : 2002/ISO 6888-2 : 1999	Horizontal method for enumeration of coagulase-positive staphylococci (<i>Staphylococcus aureus</i> and other species), Section 2 Technique using rabbit plasma fibrinogen agar medium	7535 : 1975	Specification for liver extract, microbiological grade
6074 : 1971	Code for functional requirements of hotels, restaurants and other food service establishments	7536 : 1975	Specification for soluble starch, microbiological grade
6540 : 1972	Code for hygienic conditions for manufacture and handling of ice for human consumption	7590 : 1975	Specification for gelatine, microbiological grade
6541 : 1972	Code for hygienic conditions for establishment and maintenance of mid-day school meal programmes	7591 : 1975	Specification for malt extract, microbiological grade
6542 : 1972	Code for hygienic conditions for fruit and vegetable canning units	7655 : 1975	Code of practice for food advertising
6850 : 1973	Specification for agar, microbiological grade	7688	Code of practice for labelling of pre-packaged foods:
6851 : 1973	Specification for meat extract, microbiological grade	(Part 1) : 1975	General guidelines
6852 : 1973	Specification for bile salts, microbiological grade	(Part 2) : 1976	Guidelines on claims
6853 : 1973	Specification for peptone, microbiological grade	(Part 3) : 1976	Nutritional labelling
6854 : 1973	Method of sampling and test for ingredients used in media for microbiological work	7799 : 1975	Code for preservation of vitamins in foodstuffs
6968 : 1973	Code for hygienic condition for PAN (Betel leaf) stalls and vendors	7801 : 1975	Specification for trypsin, microbiological grade
6969 : 1973	Code for hygienic conditions for handling and sale of refrigerated drinking water	7802 : 1975	Code of hygienic conditions for sweetmeat shop
7003 : 1973	Code for hygienic conditions for sago (<i>Saboodana</i>) manufacturing units	8123 : 1976	Code for hygienic conditions for sale of cut fruits, fruit juice and fruit salad
7004 : 1973	Specification for yeast extract, microbiological grade	8124 : 1976	Code for hygienic conditions for sale of sugar cane juice
7005 : 1973	Code for hygienic conditions for production, processing transportation and distribution of milk	8182 : 1976	Code for hygienic conditions for processed meat products
7127 : 1973	Specification for tryptone, microbiological grade	9071	Code of practice for control of aflatoxin in groundnut:
7128 : 1973	Specification for proteose peptone, microbiological grade	(Part 1) : 1979	Harvesting, transport and storage of groundnuts
		(Part 2) : 1979	Plant storage and processing flour and oil
		10232 : 2003/ ISO 6887 (Part 1) : 1999	General rules for the preparation of initial suspension and decimal dilutions for microbiological examination of foods (<i>first revision</i>)
		10972 : 1984	Code for preparation of <i>Escherichia Coli</i> diagnostic sera
		10973 : 1984	Code for hygienic conditions for food hawkers
		10974	Code for hygienic conditions for production, transport, storage and distribution of indigenous milk products:

<i>IS No.</i>	<i>Title</i>	<i>IS No.</i>	<i>Title</i>
(Part 1) : 1984	<i>Khoa</i> and <i>Khoa</i> based sweets	14350 : 1996	Code for hygienic conditions in sugar factories
(Part 2) : 1984	<i>Dahi</i>		
(Part 3) : 1984	Coagulated products, <i>Chhana</i> and <i>Chhana</i> based sweetmeats	14397 : 1996	Detection, isolation and identification of pathogenic <i>E. coli</i> in food
(Part 4) : 1984	Frozen products, <i>Kulfi</i>		
(Part 5) : 1984	Fermented products, <i>Shrikhand</i>	14595 : 1998	Food hygiene — Microbiological criteria — Principles for establishment and application
11061 : 1984	Code for preparation of <i>Vibrio Cholerae</i> diagnostic sera		Microbiology — General guidance for detection of <i>Vibrio parahaemolyticus</i>
14134 : 1994	Code for hygienic practices for processing and handling of quick frozen foods	14987 : 2001/ ISO 8914 : 1990	Microbiology of food and animal feeding stuffs — Horizontal method for detection and enumeration of <i>Listeria monocytogenes</i> :
14135 : 1994	Code for hygienic practices for dehydrated fruits and vegetables including edible fungi	14988	Detection method
14216 : 1994	Code for hygienic conditions for spices and condiments processing units	(Part 1) : 2001/ ISO 11290-1 : 1996	Enumeration method
14348 : 1996	Code for hygienic conditions for alcoholic beverage industry	(Part 2) : 2001/ ISO 11290-2 : 1996	
14349 : 1996	Code for hygienic conditions for edible oil and vanaspati manufacturing units		

ANNEX B

(Clauses 4.1.7 and 4.1.8)

CHECKLIST FOR FOOD HYGIENE PRACTICES

<i>The Requirements to be Complied with</i>	<i>Compliance</i>	
	<i>Yes</i>	<i>No</i>
B-1 PRIMARY PRODUCTION		
B-1.1 Environmental Hygiene		
Are potential sources of contamination from the environment considered at the primary food production stage?		
B-1.2 Hygienic Production of Food Sources		
Are potential effects of primary production activities on the safety and suitability of food identified and measures taken to minimize the probability?		
Are measures implemented to control contamination from air, soil, water, feed-stuff, fertilizers, pesticides, etc, that may be used in primary production?		
Are measures implemented to control plant and animal health?		
Are measures implemented to protect food sources from faecal and other contamination?		
Is there a procedure to manage waste?		
Are any on-farm programmes encouraged to achieve food safety goals?		
B-1.3 Handling, Storage and Transport		
Are food and food ingredients sorted to segregate material unfit for human consumption?		
Is there a procedure in place to dispose rejected material hygienically ?		
Is there a procedure in place to protect food and food ingredients from contamination by pests?		
Is there a procedure in place to protect food and food ingredients from contamination by chemical, physical or microbiological contaminants during handling, storage and transportation?		
Are temperature, humidity and other control measures in place to prevent deterioration and spoilage of food and food ingredients?		

<i>The Requirements to be Complied with</i>	<i>Compliance</i>	
	<i>Yes</i>	<i>No</i>
B-1.4 Cleaning, Maintenance and Personal Hygiene		
Are facilities and procedures in place to ensure effective cleaning and maintenance?		
Are facilities and procedures in place to ensure appropriate degree of personal hygiene?		
B-2 ESTABLISHMENT — DESIGN AND FACILITIES		
B-2.1 Location		
Location		
B-2.1.1 Establishments		
Is the establishment located away from environmentally polluted areas?		
Is the establishment located away from areas subject to flooding?		
Is the establishment located away from areas prone to pest infestations?		
Is the establishment located away from areas from which wastes cannot be removed effectively?		
B-2.1.2 Equipment		
Are the equipment located to permit easy cleaning and maintenance?		
Do the equipment function in accordance to intended use?		
B-2.2 Premises and Rooms		
B-2.2.1 Design and Layout		
Do equipment facilitate good hygiene practices?		
Do the internal design and layout of establishment permit good food hygiene practices including protection from cross-contamination?		
B-2.2.2 Internal Structures and Fittings		
Is the structure of establishment built of durable materials and easy to clean, maintain and where appropriate, disinfect?		
Are surfaces of walls, partitions and floors made impervious materials?		
Do walls and partitions have smooth surface?		
Are floors constructed to allow adequate cleaning and drainage?		
Are ceilings and overhead fixtures constructed and finished to minimize build-up of dirt, condensation and shedding of particles?		
Are windows easy to clean and constructed to minimize build-up of dirt?		
Where necessary, are windows fitted with removable and cleanable insect-proof screens?		
Are doors smooth, non-absorbent and easy to clean and disinfect?		
Are working surfaces that come into direct contact with food of sound condition, durable and easy to clean, maintain and disinfect?		
B-2.2.3 Temporary/Mobile Premises; Vending Machines		
Are temporary/mobile premises located, designed and constructed to avoid contaminating food and harbouring pests?		
Are food hygiene hazards in such temporary premises adequately identified and controlled?		
B-2.3 Equipment		
B-2.3.1 General		
Is the factory approved under <i>Factory Act</i> ?		
Any open drain blocked sewer or public lavatory nearby?		
Is there adequate space for equipment, material and movement of personnel and materials?		
Is there any evidence of entry of insects, rodents and birds?		
Are lighting and ventilation adequate?		
Are facilities for changing street clothes, footwear, washing and toilets adequately and satisfactorily maintained?		
Are sewage, trash and other effluent disposal adequate?		

<i>The Requirements to be Complied with</i>	<i>Compliance</i>	
	<i>Yes</i>	<i>No</i>
Are equipment and containers coming into contact with food designed such that they can be adequately cleaned, disinfected and maintained?		
Are equipments made of non-toxic materials?		
B-2.3.2 Food Control and Monitoring Equipment		
Are equipment used to cook, heat treat, cool, store designed to achieve the required temperature as rapidly as necessary?		
Are equipment used to cook, heat treat, cool, store designed to monitor and controlled the required temperature?		
B-2.3.3 Containers for Waste and Inedible Substances		
Are containers for waste suitably identified?		
Are containers for waste closable to prevent malicious or accidental contamination of food?		
B-2.4 Facilities		
B-2.4.1 Water Supply		
Is there adequate supply of potable water (<i>see</i> IS 10500)?		
Is non-potable water system (for example fire control, steam production, etc) properly identified and segregated so as not to allow re-flux into potable water system?		
B-2.4.2 Drainage and Waste Disposal		
Are drainage and waste disposal systems designed, constructed and maintained in such a way as to avoid contamination of food products and potable water supply?		
B-2.4.3 Cleaning		
Are adequate facilities, suitably designated, provided for cleaning food utensils and equipment?		
Do these facilities have an adequate supply of hot and cold potable water?		
B-2.4.4 Personnel Hygiene Facilities and Toilets		
Are adequate means of hygienically washing and drying hands, including wash basins and a supply of cold and hot (suitable temperature) water provided?		
Are lavatories of appropriate hygienic design?		
Are adequate changing facilities provided for personnel?		
Are these facilities suitably located and designated?		
B-2.4.5 Temperature Control		
Are facilities for storing refrigerated or frozen foods suitable to meet the specified conditions for ensuring food safety?		
B-2.4.6 Air Quality and Ventilation		
Do mechanical or natural ventilation ensure minimization of air-borne contamination of food?		
Do mechanical or natural ventilation ensure control of ambient temperature?		
Do mechanical or natural ventilation ensure control of humidity?		
Are ventilation systems designed and constructed so that air does not flow from contaminated areas to clean areas and they can be adequately maintained and cleaned?		
B-2.4.7 Lighting		
Is the intensity and colour of light sufficient to ensure the production and handling of safe food products?		
Are lighting fixtures protected to ensure that food products are not contaminated by breakage?		
B-2.4.8 Storage		
Are adequate facilities for storage of food ingredients and non-food materials (for example cleaning materials, lubricants, fuels) provided?		
Are food storage facilities designed and constructed to:		
a) Permit adequate maintenance and cleaning ?		

<i>The Requirements to be Complied with</i>	<i>Compliance</i>	
	<i>Yes</i>	<i>No</i>
b) Avoid pest access and harbourage?		
c) Enable food to be effectively protected from contamination?		
Are storage facilities designed, constructed and maintained to ensure that malicious or accidental contamination of food products with harmful materials is prevented?		
B-3 CONTROL OF OPERATION		
B-3.1 Control of Food Hazards		
Are food hazards controlled through the used of systems such as HACCP?		
B-3.2 Key Aspects of Hygiene Control Systems		
B-3.2.1 Time and Temperature Control		
Are control systems for temperature and time during heating, cooling and storage in place?		
Are critical limits defined and registered?		
Are measuring equipment tested for accuracy?		
B-3.2.2 Specific Process Steps		
Are any specific process steps like chilling, irradiation, drying, chemical preservation, vacuum packaging considered and controlled?		
Are these based on sound scientific principles?		
Are monitoring procedures, action limits and analytical methods in place for these?		
B-3.2.3 Microbiological Cross-contamination		
Are raw materials, semi-finished and finished products stored separately?		
Is access to processing areas restricted or controlled?		
Is the access and control procedure defined and documented?		
Are surfaces, utensils, equipment, fixtures and fittings cleaned and where necessary, disinfected after contact with raw food, to prevent contamination?		
B-3.2.4 Physical and Chemical Contamination		
Is there a system in place to prevent contamination of food products by foreign bodies (for example glass, metal, dust, harmful fumes) and hazardous chemicals?		
Are suitable and effective detection or screening devices used where necessary?		
B-3.3 Incoming Materials Requirements		
Are raw materials or ingredients checked for parasites, undesirable micro-organisms, pesticides or decomposed or extraneous substances?		
Are raw materials or ingredients inspected and tested before processing?		
Are raw materials and ingredients subjected to effective stock rotation?		
B-3.4 Packaging		
Do packaging design and materials provide adequate protection for products to minimize contamination, prevent damage and accommodate proper labeling ?		
Are packaging materials non-toxic?		
Do they pose a threat to the safety and suitability of food under specific conditions, storage and use?		
Are re-usable packaging easy to clean and disinfect?		
B-3.5 Water		
Is only potable water used in food handling and processing?		
In case re-circulated water is re-used, is it properly treated and maintained? Is the treatment process effectively monitored?		
Is water recovered from processing of food by evaporation or drying used in the processing?		
B-3.5.1 As an Ingredient		
Is water used as an ingredient of potable quality?		

<i>The Requirements to be Complied with</i>	<i>Compliance</i>	
	<i>Yes</i>	<i>No</i>
B-3.5.2 Ice and Steam		
Is ice made from potable water?		
Is steam used in direct contact with food or food contact surfaces checked to ensure that it does not contain any agent which is hazardous for food safety?		
B-3.6 Management and Supervision		
Do managers and supervisors have enough knowledge of food hygiene principles and practices to be able to judge potential risks, take appropriate preventive and corrective action, and ensure that effective monitoring and supervision takes place?		
B-3.7 Documentation and Records		
Are appropriate records of processing, production and distribution kept and retained for a period that exceeds the shelf life of the product?		
Are QSP's available for the following:		
a) Receipt of raw materials and other components?		
b) Quarantine and storage?		
c) Quality control system and approval/rejection?		
d) Release to production?		
e) Weighing and dispensing?		
f) Processing and production operations?		
g) Packaging and labelling?		
h) Quality control?		
k) In-process testing and control?		
m) Finished product?		
n) Storage of finished products?		
o) Distribution?		
B-3.8 Recall Procedures		
Is there written procedure for product recall in case of products known or suspected to be defective?		
Is there a designated person responsible for execution and coordination of product recalls?		
Are written procedures available for receipt and control of return products?		
If reasons for returning the product implicate other batches, has an investigation been made and report prepared?		
Are returned or salvaged products destroyed unless QC determines their reprocessing?		
B-4 ESTABLISHMENT: MAINTENANCE AND SANITATION		
B-4.1 Maintenance and Cleaning		
B-4.1.1 General		
Are establishment and equipment kept in an appropriate state of repair?		
Are there necessary cleaning methods and materials?		
Are cleaning chemicals handled and used carefully and in accordance with manufacturers' instructions?		
Are cleaning chemicals stored separately from food, in clearly identified containers to avoid the risk of (malicious or accidental) contamination of food?		
B-4.1.2 Cleaning Procedures and Methods		
Are cleaning schedule available for		
a) Floors		
b) Walls		
c) Ceiling		
d) Doors and windows		
e) Electrical fitting?		

<i>The Requirements to be Complied with</i>	<i>Compliance</i>	
	<i>Yes</i>	<i>No</i>
Are QSP's available for cleaning and sanitization?		
Are disinfectants used rotated?		
Are log books maintained for cleaning and sanitation?		
Is microbial load monitored in different sections?		
Are personnel instructed to observe personal hygiene?		
Are hygiene instructions displayed in change rooms and strategic locations?		
Are clean protective clothing provided to personnel?		
B-4.2 Cleaning Programmes		
Do cleaning procedures specify:		
a) Areas, items of equipment and utensils to be cleaned?		
b) Responsibility for particular tasks?		
c) Method and frequency of cleaning?		
d) Monitoring arrangements?		
Are cleaning and disinfection programmes continually and effectively monitored for their suitability and effectiveness and where necessary, documented?		
B-4.3 Pest Control Systems		
B-4.3.1 General		
Does the company have a pest control programme?		
B-4.3.2 Preventing Access		
Are buildings kept in good repair and condition to prevent pest access and to eliminate potential breeding sites?		
Are holes, drains and other places where pests are likely to gain access kept sealed? Where sealing is not possible (for example open windows, doors and ventilators) are measures like wire mesh screens in place to reduce the problem of pest entry?		
Are animals excluded from the grounds of factories and food processing plants?		
B-4.3.3 Harbourage and Infestation		
Are potential food sources stored in pest-proof containers and/or stacked above the ground and away from walls?		
Are areas both inside and outside food premises kept clean?		
Is refuse stored in covered, pest-proof containers?		
B-4.3.4 Monitoring and Detection		
Are records of regular examination of establishments and surroundings available?		
B-4.3.5 Eradication		
Is pest infestation dealt with immediately and carried out without posing a threat to the safety or suitability of food?		
B-4.4 Waste Management		
Is suitable provision made for the removal and storage of waste?		
Is waste stores kept appropriately clean?		
B-4.5 Monitoring Effectiveness		
Is the sanitation system monitored for effectiveness?		
Is the sanitation system periodically verified by inspections?		
Is microbiological sampling of environment and food contact surfaces carried out and regularly reviewed and adapted to reflect changed circumstances?		
Is the sanitation system regularly reviewed and adapted to reflect changed circumstances?		
B-5 ESTABLISHMENT — PERSONAL HYGIENE		
B-5.1 Health Status		
Is recruitment of an employee preceded by medical examinations?		

<i>The Requirements to be Complied with</i>	<i>Compliance</i>	
	<i>Yes</i>	<i>No</i>
What is the periodicity of subsequent medical examinations?		
Is an employee whose state of health is doubtful immediately removed from work site until he is fully recovered?		
Are following conditions reported to management in order to assess the need for medical examination and/or possible exclusion from food handling, include:		
a) Jaundice		
b) Diarrhoea		
c) Vomiting		
d) Fever		
e) Sore throat with fever		
f) Visibly infected skin lesions (boils, cuts, etc)		
g) Discharges from the ear, eye or nose		
B-5.2 Personal Cleanliness		
Do food handlers maintain a high degree of personal cleanliness and, where appropriate, wear suitable protective clothing, head covering and footwear?		
Are personnel with minor injury, cuts and wounds permitted to work in processing areas?		
Do personnel always wash their hands,		
a) at the start of food handling activities?		
b) immediately after using the toilet?		
c) after handling raw food or any contaminated material which could result in contamination of other food items?		
B-5.3 Personal Behaviour		
Do people engaged in food handling activities refrain from behaviour which could result in contamination of food, for example:		
a) Smoking?		
b) Spitting?		
c) Chewing or eating?		
d) Sneezing or coughing over unprotected food?		
Are personal effects such as jewellery, watches, pins, etc, brought in food handling areas?		
B-5.4 Visitors		
Do visitors to food manufacturing, processing or handling areas wear protective clothing and adhere to the other personal hygiene provisions in this section?		
B-6 CONVEYANCE AND BULK CONTAINERS		
B-6.1 General		
Is food adequately protected during transport to assure food safety?		
B-6.2 Design and Construction		
Are conveyances and bulk containers designed and constructed so that they:		
a) Do not contaminate foods or packaging?		
b) Can be effectively cleaned and, where necessary, disinfected?		
c) Permit effective separation of different foods or foods from non-food items where necessary during transport?		
d) Provide effective protection from contamination, including dust and fumes?		
e) Can effectively maintain the temperature, humidity, atmosphere and other conditions necessary to protect food from harmful or undesirable microbial growth and deterioration likely to render it unsuitable for consumption?		
f) Allow any necessary temperature, humidity and other conditions to be checked?		

<i>The Requirements to be Complied with</i>	<i>Compliance</i>	
	<i>Yes</i>	<i>No</i>
B-6.3 Use and Maintenance		
Are conveyances and containers for transporting food kept in an appropriate state of cleanliness, repair and condition?		
If the same conveyance or container is used for transporting different foods or non-foods, do effective cleaning and, where necessary, disinfection take place between loads?		
B-7 PRODUCT INFORMATION AND CONSUMER AWARENESS		
B-7.1 Batch Identification		
Is there master production document for each product being produced?		
Is stage of manufacture clearly indicated on containers?		
Is batch production record prepared for each batch of product and maintained?		
Do the batch production records indicate that each significant step in manufacturing was performed and checked by second individual whenever appropriate?		
B-8 TRAINING		
B-8.1 Awareness and Responsibilities		
Are personnel aware of their role and responsibility in protecting food from contamination or deterioration?		
Are personnel who handle strong cleaning chemicals or other potentially hazardous chemicals instructed in safe handling techniques?		
B-8.2 Training Programmes		
Are the following factors taken into account in assessing the level of training required:		
a) Nature of the food, in particular its ability to sustain growth of pathogenic or spoilage micro-organisms?		
b) Manner in which the food is handled and packed, including the probability of contamination?		
c) Extent and nature of processing or further preparation before final consumption?		
d) Conditions under which the food will be stored?		
e) Expected length of time before consumption?		
B-8.3 Instruction and Supervision		
Are periodic assessments of the effectiveness of training and instruction programmes carried out to ensure that procedures are being implemented effectively?		
Are training programmes routinely reviewed and updated?		
Is a system in place to ensure that food handlers remain aware of all procedures necessary to maintain the safety and suitability of food?		

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