इंटरनेट मानक

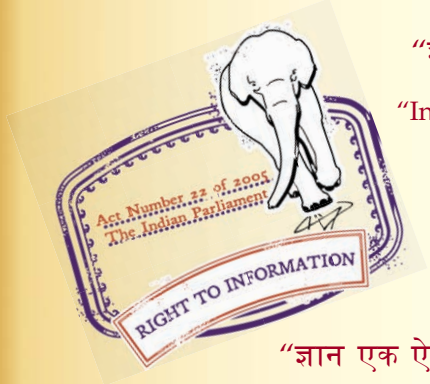
Disclosure to Promote the Right To Information

Whereas the Parliament of India has set out to provide a practical regime of right to information for citizens to secure access to information under the control of public authorities, in order to promote transparency and accountability in the working of every public authority, and whereas the attached publication of the Bureau of Indian Standards is of particular interest to the public, particularly disadvantaged communities and those engaged in the pursuit of education and knowledge, the attached public safety standard is made available to promote the timely dissemination of this information in an accurate manner to the public.

"जानने का अधिकार, जीने का अधिकार"
Mazdoor Kisan Shakti Sangathan
"The Right to Information, The Right to Live"

"पुराने को छोड नये के तरफ"
Jawaharlal Nehru
"Step Out From the Old to the New"

IS 2491 (1998): Food Hygiene - General Principles - Code of Practice [FAD 15: Food Hygiene, Safety Management and Other Systems]



"ज्ञान से एक नये भारत का निर्माण"
Satyanarayan Gangaram Pitroda
"Invent a New India Using Knowledge"

"ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है"
Bhartṛhari—Nītiśatakam
"Knowledge is such a treasure which cannot be stolen"

BLANK PAGE

IS 2491 : 1998
Reaffirmed 2009

भारतीय मानक

खाद्य स्वच्छता — सामान्य सिद्धान्त — रीति संहिता

(दूसरा पुनरीक्षण)

Indian Standard

FOOD HYGIENE — GENERAL PRINCIPLES — CODE OFPRACTICE

(*Second Revision*)

ICS 67.020

BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

July 1998

Price Group 5

FOREWORD

This Indian Standard (Second Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Food Hygiene 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. Foodborne illness and foodborne injury are, at best unpleasant, and at worst, can be fatal. There are also other consequences, such as damage to trade and tourism, which may lead to loss of earnings, unemployment and litigation. Food spoilage is wasteful, costly and can adversely affect trade and consumer confidence.

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 many countries 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 foodborne illness, foodborne 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.

Keeping in view the above, this Indian Standard was first published in 1963 and revised in 1972. In the second revision, the text has been updated and aligned with the Recommended International Code of Practice -General Principles of Food Hygiene [CAC/RCP-1(1969), Rev. 3(1997)] published by the Joint FAO/WHO Food Standards Programme, Codex Alimentarius Commission, Rome and is identical to it. The title has also been aligned with the Codex Code of Practice.

This Indian Standard lays a firm foundation for ensuring food hygiene and should be used in conjunction with each specific code of hygienic practice, where appropriate and IS 14595 : 1998 'Food hygiene — Microbiological criteria — Principles for establishment and application'. The standard follows the food chain from primary production through to final consumption, highlighting the key hygiene controls at each stage. It recommends a HACCP based approach wherever possible to enhance food safety.

There will inevitably be situations where some of the specific requirements contained in this standard are not applicable. The fundamental question in every case is 'what is necessary and appropriate on the grounds of the safety and suitability of food for consumption?'

The text indicates where such questions are likely to arise using the phrases'where necessary' and where appropriate. In practice this means that, although the requirement is generally appropriate and reasonable, there will nevertheless be some situations where it is neither necessary nor appropriate on the grounds of food safety and suitability. In deciding whether a requirement is necessary or appropriate, an assessment of the risk should be made, preferably within the framework of the HACCP approach. This approach allows the requirements in this standard to be flexibly and sensibly applied with a proper regard for the overall objectives of producing food which is safe and suitable for consumption. In doing so it takes into account the wide diversity of activities and varying degrees of risk involved in producing food.

This standard is subject to the provisions of the *Factories Act, 1948* and other food safety legislations, such as *Prevention of Food Adulteration Act, 1954* and Rules framed thereunder.

Indian Standard

FOOD HYGIENE — GENERAL PRINCIPLES — CODE OF PRACTICE

(Second Revision)

1 SCOPE

This standard covers the essential principles of food hygiene 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 Indian Standards listed below contain provisions 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:

IS No.	*Title*
3103 : 1975	Code of practice for industrial ventilation
3646 (Part I) : 1992	Code of practice for interior illumination: ` Part 1 General requirements and recommendations for working interiors (*first revision)*
4251:1967	Quality tolerances for water for processed food industry
7688 (Part 1): 1976	Code of practice for labelling of pre-packaged foods: General guidelines
(Part 2) : 1976	Guidelines on claims
(Part 3) : 1976	Nutritional labelling
14595 : 1998	Food hygiene — Microbiological criteria — Principles for establishment and application
15000: 1998	Food hygiene — Hazard analysis and critical control point (HACCP) — System and guidelines for its application

3 DEFINITIONS

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

3.1 Cleaning

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

Introduction or occurrence of a contaminant in food or food environment.

3.4 Disinfection

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 and the surroundings, under the control of the same management in which food and other related materials are handled.

3.6 Food Hygiene

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

3.7 Hazard

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

3.8 HACCP

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

3.9 Food Handler

Any person who directly handles food (packaged or unpackaged), food equipment and utensils, or food contact surfaces and is, therefore, expected lo comply with food hygiene requirements.

3.10 Food Safety

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

3.11 Food Suitability

Assurance that food is acceptable for human consumption according to its intended use.

3.12 Primary Production

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

4 PRIMARY PRODUCTION

4.0 **Objectives**

To reduce the likelihood of introducing a hazard which may adversely affect the safety of food, or its suitability for consumption, at later stages of the food chain, primary production should be managed in a way which ensures that food is safe and suitable for its intended use. Where necessary, this should include:

a) avoiding the use of areas where the environment poses a threat to the safety of food;

b) controlling contaminants, pests and diseases of animals and plants in such a way as not to pose a threat to food safety; and

c) adopting practices and measures to ensure food is produced under appropriately hygienic conditions.

4.1 Environmental Hygiene

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

4.2 **Hygienic Production**

4.2.1 The potential effects of primary production activities on the safety and suitability of food should 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 (see IS 15000) may assist in the taking of such measures.

4.2.2 On-farm programmes which achieve specific food safety goals are becoming an important part of primary production and should be encouraged. Producers should as far as practicable, implement measures to:

a) control contamination from air, soil, water, feedstuffs, 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.

4.2.3 Care should be taken to manage wastes and store harmful substances appropriately.

4.3 **Handling, Storage and Transport**

4.3.1 Procedures should be in place to:

a) sort food and food ingredients to segregate 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.

4.3.2 Care should be taken to prevent, as far as practi cable, deterioration and spoilage through appropriate measures which may include controlling temperature, humidity and/or other controls.

4.4 **Cleaning, Maintenance and Personnel Hygiene**

Appropriate facilities and procedures should be in place to ensure that necessary cleaning and mainte nance is carried out effectively and appropriate degree of personal hygiene is maintained.

5 ESTABLISHMENT — DESIGN. AND FACILITIES

5.0 **Objectives**

Attention to good hygienic design and construction, appropriate location, and the provision of adequate facilities is necessary to enable hazards to be effectively controlled. Depending on the nature of the operations and the risks associated with them, premises, equipment and facilities should be located, designed and constructed to ensure that:

a) contamination is minimized;

b) design and layout permit appropriate maintenance, cleaning and disinfections and minimise air-borne contamination;

c) surfaces and materials, in particular those in contact with food are non-toxic in intended use and where necessary, suitably durable, and easy to maintain and clean;

d) where appropriate, suitable facilities are available for temperature, humidity and other controls; and

e) there is effective protection against pest access and harbourage.

5.1 Location

5.3.1 *Establishment*

Potential sources of contamination need to be considered when deciding where to, locate a food

establishment as well as the effectiveness of any reasonable measures that might be taken to protect food. An establishment should not be located anywhere, where, after considering such protective measures, it is clear that there will remain a threat to food safety or suitability. In particular, an establishment should 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.

5.1.2 *Equipment*

Equipment should 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 **Premises and Rooms**

5.2.1 *Design and Layout*

Where appropriate, the internal design and layout of a food establishment should permit hygienic practices, including protection against cross-contamination between and during operations and storage.

52.2 *Internal Structures and Fittings*

Structures within a food establishment should 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 should be satisfied. where necessary, to protect the safety and suitability of food:

a) The surfaces of walls, partitions and floors should be made of impervious materials with no toxic effect in intended use;

b) Walls and partitions should have a smooth surface up to a height appropriate to the operation;

c) Floors should be constructed to allow adequate drainage and cleaning;

d) Ceilings and overhead fixtures should be constructed and finished to minimize the build up of dirt and condensation, and the shedding of particles;

e) Windows should 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 should be fixed;

f) Doors should 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 should be in sound condition, durable and easy to clean, maintain and disinfect. They should be made of smooth, non-absorbent materials, which are inert to the food, detergents and disinfectants, under normal operating conditions.

5.2.3 *Temporary/Mobile Premises and Vending Machines*

Premises and structures covered here include market stalls, mobile sales and street vending vehicles and temporary premises in which food is handled, such as tents. Such premises and structures should 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 should be adequately controlled to ensure the safety and suitability of food.

5.3 **Equipment**

5.3.1 *General*

Equipment and containers (other than once-only use containers and packaging) coming into contact with food, should 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 should be made of materials with no toxic effect in intended use. Where necessary, equipment should be durable and movable or capable of being disassembled to allow for maintenance, cleaning, disinfection, monitoring and inspection.

5.3.2 *Food Control and Monitoring Equipment*

In addition to the general requirements given in **53.1,** equipment used to cook, heat treat, cool, store or freeze food should 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 should also be designed to allow temperatures to be monitored and controlled. Where necessary, such equipment should 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 microorganisms 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 (see IS 15000) can be monitored; and

c) temperatures and other conditions necessary to food safety and suitability can be rapidly achieved and maintained.

5.3.3 *Containers for Waste and Inedible Substances*

Containers for waste materials, by-products and inedible or dangerous substances, should be specifically identifiable, suitably constructed and, where appropriate made of impervious material. Containers used to hold dangerous substances should be identified and, where appropriate, be lockable to prevent malicious or accidental contamination of food.

5.4 **Facilities**

5.4.1 *Water Supply*

5.4.1.1 Adequate supply of potable water (see IS 425 1) with appropriate facilities for its storage, distribution and temperature control, should be available whenever necessary to ensure the safety and suitability of food.

5.4.1.2 Non-potable water (for use in, for example, fire control, steam production, refrigeration and other similar purposes where it would 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 systems.

5.4.2 *Drainage and Waste Disposal*

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

5.4.3 *Cleaning*

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

5.4.4 *Personnel Hygiene Facilities and Toilets*

Personnel hygiene facilities, suitably located and designated, should be available to ensure that an appropriate degree of personal hygiene can be maintained and contamination of food avoided. Where appropriate, facilities should 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, where appropriate;

b) lavatories of appropriate hygienic design; and

c) adequate cleaning facilities for personnel.

5.4.5 *Temperature Control*

Depending on the nature of the food operations undertaken, adequate facilities should be available for heating, cooling, cooking, 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.

5.4.6 *Ventilation*

5.4.6.1 Adequate means of natural or mechanical ventilation should be provided, in particular to:

a) minimise 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.

5.4.6.2 Ventilation systems should 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.

5.4.7 *Lighting*

Adequate natural or artificial lighting should be provided to enable the undertaking to operate in a hygienic manner. Where necessary, lighting should not be such that the resulting colour is misleading. The intensity should be adequate to the nature of the operation. Lighting fixtures should, where appropriate, be protected to ensure that food is not contaminated by breakages [see IS 3 103 and IS 3646 (Part 1)].

5.4.8 *Storage*

5.4.8.1 Where necessary, adequate facilities for the storage of food, ingredients and non-food materials such as packing materials, cleaning materials, lubricants, fuels, should be provided.

5.4.8.2 Where appropriate, food storage facilities should 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 minimises the deterioration of food, such as by temperature and humidity control.

5.4.8.3 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 should be provided.

6 CONTROL OF OPERATION

6.0 Objectives

To reduce the risk of unsafe food by taking preventive measures to assure the safety and suitability of food at an appropriate stage in the operation by controlling food hazards, it is desirable to:

a) formulate design requirements with respect to raw materials: composition, processing, distribution, and consumer use to be met in the manufacture and handling of specific food items; and

b) design, implement, monitor and review effective control systems.

6.1 Control of Food Hazards

6.1.1 Food business operators should control food hazards through the use of systems, such as HACCP (*see* IS 15000). They should:

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

c) review control procedures periodically, and whenever the operations change.

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

6.1.3 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. A model of such a food safety system is given in IS 15000.

6.2 Hygiene Control Systems — Key Aspects

6.2.1 *Time and Temperature Control*

6.2.1.1 Inadequate food temperature control is one of the most common causes of foodborne illness or food spoilage. Such controls include time and temperature of cooking, processing and storage. Systems should be in place to ensure that temperature is controlled effectively where it is critical to the safety and suitability of food.

6.2.1.2 Temperature control systems should take into account:

a) the nature of the food, for example, its water activity, *p*H, and likely initial level and types of microorganisms;

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.

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

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

6.2.2 *Specific Process Steps*

Specific process steps which contribute to food hygiene may include among others, chilling, thermal processing, irradiation, drying, chemical preservation and vacuum or modified atmospheric packaging.

6.2.3 *Microbiological and Other Specifications*

Systems described in 6.1 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 should be based on sound scientific principles and state, where appropriate, monitoring procedures, analytical methods and action limits.

6.2.4 *Microbiological Cross-Contamination*

6.2.4.1 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 should be effectively separated, from ready-to-eat foods, with effective intermediate cleaning and disinfection, where appropriate.

6.2.4.2 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 be required to put on clean protective clothing including footwear and wash their hands before entering.

6.2.4.3 Surfaces, utensils, equipment, fixtures and fittings should be thoroughly cleaned and where necessary disinfected after raw food, particularly meat and poultry, has been handled or processed.

6.2.5 *Physical and Chemical Contamination*

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

6.3 Incoming Material

6.3.1 No raw material or ingredient should be accepted by an establishment if it is known to contain parasites, undesirable microorganisms, 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 should be identified and applied.

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

6.3.3 Stocks of raw materials and ingredients should be subject to effective stock rotation.

6.4 **Packaging**

Packaging design and materials should provide adequate protection for products to minimise contamination, prevent damage, and accommodate proper labelling. Packaging materials or gases, where used, shall be non-toxic and shall not pose threat to the safety and suitability of food under the specified conditions of storage and use. Where appropriate, reusable packaging should be suitably durable, easy to clean and, where necessary, disinfected.

6.5 **Water**

6.5.1 ***In Contact with Food***

6.5.1.1 Only potable water (see IS 4251) should 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, such as 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).

6.5.1.2 Water recirculated for reuse should 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 should be effectively monitored. Recirculated 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.

6.5.2 ***As an Ingredient***

Potable water (see IS 4251) should be used wherever necessary to avoid food contamination.

6.5.3 Ice ***and Steam***

Ice should be made from water that complies with 5.4.1. Ice and steam should be produced, handled and stored to protect them from contamination. Steam used in direct contact with food or food contact surfaces should not constitute a threat to the safety and suitability of food.

6.6 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 should 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.

6.7 **Documentation and Records**

Where necessary, appropriate records of processing, production and distribution should 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.

6.8 **Recall Procedures**

Managers should ensure 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, should be evaluated for safety and may need to be withdrawn. The need for public meanings should be considered.

7 ESTABLISHMENT — MAINTENANCE AND SANITATION

7.0 **Objective**

To facilitate the continuing effective control of food hazards, pests, and other agents likely to contaminate food, it is desirable to establish an effective system to:

a) ensure adequate and appropriate maintenance and cleaning,

b) control pests,

c) manage waste, and

d) monitor effectiveness of maintenance and sanitation procedures.

7.1 Maintenance and Cleaning

7.1.1 ***General***

7.1.i.l Establishment and equipment should 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 6.1); and

c) prevent contamination of food, for example, from metal shards, flaking plaster, debris and chemicals.

7.1.1.2 Cleaning should remove food residues and dirt which may be a source of contamination. The necessary cleaning methods and materials will depend on the nature of the food business. Disinfection may be necessary after cleaning.

7.1.1.3 Cleaning chemicals should be handled and used carefully and in accordance with manufacturer's instructions and store, where necessary, separate from food, in clearly identified containers to avoid the risk of contaminating food.

7.1.2 ***Cleaning Procedures and Methods***

Cleaning can be carried out by the 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 54.1, to remove loosened soil and residues of detergent;
d) dry cleaning or other appropriate methods for removing and collecting residues and debris; and
e) where necessary, disinfection.

7.2 Cleaning Programmes

7.2.1 Cleaning and disinfection programmes should ensure that all parts of the establishment are appropriately clean and should include' the cleaning of cleaning equipment.

7.2.2 Cleaning and cleaning programmes should be continually and effectively monitored for their suitability and effectiveness and where necessary, documented.

7.2.3 Where written cleaning programmes are used, they should 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.

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

7.3 Pest Control Systems

7.3.1 ***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 should be employed to avoid creating an environment conducive to pests. Good sanitation, inspection of incoming materials and good monitoring can minimise the likelihood of infestation and thereby limit the need for pesticides.

7.3.2 ***Preventing Access***

Buildings should 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 should be kept sealed. Wire mesh screens, for example,on open windows, doors and ventilators, will reduce the problem of pest entry. Animals should, wherever possible, be excluded from the grounds of factories and food processing plants.

7.3.3 ***Harbourage and Infestation***

The availability of food and water encourages pest harbourage and infestation. Potential food sources should be stored in pest-proof containers and/or stacked above the ground and away from walls. Areas both inside and outside food premises should be kept clean. Where appropriate, refuse should be stored in covered and pest-proof containers.

7.3.4 ***Monitoring and Detection***

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

7.3.5 ***Eradication***

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

7.4 Waste Management

Suitable provision shall be made for the removal and storage of waste. Waste shall 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 shall be kept appropriately clean.

7.5 Monitoring Effectiveness

Sanitation systems should be monitored for effective ness, 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.

8 ESTABLISHMENT — PERSONAL HYGIENE

8.0 Objectives

People who do not maintain an appropriate degree

of personal cleanliness, who have certain illnesses or conditions or who behave inappropriately, can contaminate food and transmit illness to consumers. To ensure that those who come directly or indirectly into contact with food are not likely to contaminate food, it is desirable to:

a) maintain an appropriate degree of personal cleanliness, and

b) behave and operate in an appropriate manner.

8.1 Health Status

Periodical medical examination of a food handler should be carried out. People known, or suspected, to be suffering from, or to be a carrier of a disease or illness likely to be transmitted through food, should not be allowed to enter any food handling area if there is a likelihood of their contaminating food. Any person so affected should immediately report illness or symptoms of illness to the management. Conditions which should be reported to management so that any need for medical examination and/or possible exclusion from food handling can be considered, include jaundice, diarrhoea, vomiting, fever, sore throat with fever, visibly infected skin lesions (boils, cuts, etc) and discharges from the ear, eye or nose.

8.2 Personal Cleanliness

8.2.1 Food handlers should 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, should be covered by suitable waterproof dressings.

8.2.2 Personnel should always wash their hands when personal cleanliness may effect 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.

8.2.3 Personnel should avoid handling ready to eat food, where appropriate.

8.3 Personal Behaviour

8.3.1 People engaged in food handling activities should refrain from behaviour which could result in contamination of food, for example, smoking, spitting, chewing or eating, and sneezing or coughing over unprotected food.

8.3.2 Personal effects, such as jewellery, bangles, watches, pins or other items should not be worn or brought into food handling areas if they pose a threat to the safety and suitability of food.

8.4 Visitors

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

9 TRANSPORTATION — CONVEYANCE AND BULK CONTAINERS

9.0 Objectives

Food may become contaminated, or may not reach its destination in a suitable condition for consumption, unless effective control measures are taken during transport, even where adequate hygiene control measures have been taken earlier in the food chain. Measures should be taken where necessary to:

a) protect food from potential sources of contamination,

b) protect food from damage likely to render the food unsuitable for consumption,

c) provide an environment which effectively controls the growth of pathogenic or spoilage microorganisms and the production of toxins in food, and

d) to ensure that the type of conveyances or containers required depends on the nature of the food and the conditions under which it has to be transported.

9.1 Design and Construction

Where necessary, conveyances and bulk containers should 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.

9.2 Use and Maintenance

9.2.1 Conveyances and containers for transporting food should 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 should take place between loads.

9.2.2 Where appropriate, particularly in bulk trans port, containers and conveyances should be designated and marked for food use **only and be used only for** that purpose.

10 PRODUCT INFORMATION AND CONSUMER AWARENESS

10.0 Objectives

Insufficient product information, and/or inadequate knowledge of general food hygiene, can lead to products being mishandled at later stages in the food chain. Such mishandling can result in illness, or products becoming unsuitable for consumption, even where adequate hygiene control measures have been taken earlier in the food chain. To prevent such situations, the following is desirable:

a) Products should bear appropriate information to ensure that adequate and accessible information is available to the next person in the food chain to enable them to handle, store, process, prepare and display the product safely and correctly, and the lot or batch can be easily identified and recalled if necessary;

b) Consumers should have enough knowledge of food hygiene to enable them to understand the importance of product information, make informed choices appropriate to the individual, and prevent contamination and growth or survival of foodborne pathogens by storing, preparing and using it correctly; and

c) Information for industry or trade users should be clearly distinguishable from consumer information, particularly on food labels.

10.1 Lot Identification

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

10.2 Product Information

All food products should 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.

10.3 Labelling

Prepackaged foods should 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)]. Specific product standards may also be referred to.

10.4 **Consumer Education**

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

11 TRAINING

11.0 Objectives

Training is fundamentally important to any food hygiene system. Inadequate hygiene training, and/or instruction and supervision of all people involved in food related activities pose a potential threat to the safety of food and its suitability for consumption. It is, therefore, desirable that those engaged in food operations who come directly or indirectly into contact with food should be trained, and/or instructed in food hygiene to a level appropriate to the operations they are to perform.

11.1 Awareness and Responsibilities

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

11.2 Training Programmes

Factors which shall be taken into account in assessing the level of training required include:

a) the nature of the food, in particular its ability to sustain growth of pathogenic or spoilage microorganisms;

b) the manner in which the food is handled and packed, including the probability of contamination;

c) the extent and nature of processing or further preparation before final consumption;

d) the conditions under which the food will be stored; and

e) the expected length of time before consumption.

11.3 Instruction and Supervision

11.3.1 Periodic assessments of the effectiveness of training and instruction programmes should be made and routine supervision and checks should be undertaken to ensure that procedures are being carried out effectively.

11.3.2 Managers and supervisors of food processes should 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.

11.4 Refresher Training

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

Bureau of Indian Standards

BIS is a statutory institution established under the ***Bureau of Indian Standard Act, 1986*** to promote harmonious development of the activities of standardization, marking and quality certification of goods and attending to connected matters in the country.

Copyright

Review of Indian Standards

Amendments are issued to standards as the need arises on the basis of comments. Standards are also reviewed periodically; a standard along with amendments is reaffirmed when such review indicates that no changes are needed; if the review indicates that changes are needed, it is taken up for revision. Users of Indian Standards should ascertain that they are in possession of the latest amendments or edition by referring to the latest issue of 'BIS Handbook' and 'Standards: Monthly Additions'.

This Indian Standard has been developed from Doc : No. FAD 45 (891).

Amendments Issued Since Publication

Amend No.	Date of Issue	Text Affected

BUREAU OF INDIAN STANDARDS

Headquarters :

Manak Bhavan, 9 Bahadur Shah Zafar Marg, New Delhi- 110002
Telephones : 323 01 31, 323 3315, 323 9402

Telegrams : Manaksanstha
(Common to all offices)

Regional Offices :		Telephone
Central :	Manak Bhavan, 9 Bahadur Shah Zafar Marg NEW DELHI 110002	323 7617 323 3841
Eastern :	1/14 C.I.T. Scheme VII M, V.I.P. Road, Maniktola CALCUTTA 700054	337 8499 3378561 337 8626, 337 9120
Northern :	SCO 335-336, Sector 34-A, CHANDIGARH 160022	60 3843 60 2025
Southern :	C.I.T. Campus, IV Cross Road, CHENNAI 600113	235 0216, 235 0442 235 1519, 235 2315
Western :	Mankalaya, E9 MIDC, Marol, Andheri (East) MUMBAI 400093	832 9295, 832 7858 832 7891, 832 7892

Branches : AHMADABAD. BANGALORE. BHOPAL. BHUBANESHWAR. COIMBATORE. FARIDABAD. GHAZIABAD. GUWAHATI. HYDERABAD. JAIPUR. KANPUR. LUCKNOW. NAGPUR. PATNA. PUNE. THIRUVANANTHAPURAM.

Printed at Printograph, New Delhi, Ph : 5726847