

PRELIMINARY NOTE

The Recommended International Code of Hygienic Practice for Foods for Infants and Children was adopted by the Codex Alimentarius Commission at its 13th Session in 1979. The 14th Session in 1981 adopted the Microbiological Specifications and Methods of Microbiological Analysis for Foods for Infants and Children.

The Commission has expressed the opinion that Codes of Practice might provide useful checklists of requirements for national food control or enforcement authorities.

RECOMMENDED INTERNATIONAL CODE OF HYGIENIC PRACTICE FOR FOODS FOR INFANTS AND CHILDREN CAC/RCP 21-1979

1. SECTION I - SCOPE

This Code of Hygienic Practice applies to all prepackaged foods produced, represented or purported to be for the special use of infants and/or children.

It contains the minimum hygienic requirements for the handling (including production, preparation, processing, packaging, storage, transport, distribution and sale) of such food to ensure a safe, sound and wholesome product.

2. SECTION II - DEFINITIONS

For the purposes of this Code the following expressions have the meaning stated:

- 2.1 **Adequate** - sufficient to accomplish the intended purpose of this Code.
- 2.2 **Children** - persons from the age of more than 12 months up to the age of three years.
- 2.3 **Cleaning** - the removal of soil, food residues, dirt, grease or other objectionable matter.
- 2.4 **Contamination** - the occurrence of any objectionable matter in the product.
- 2.5 **Disinfection** - the reduction without adversely affecting the food by means of hygienically satisfactory chemical agents and/or physical methods of the number of microorganisms to a level that will not lead to harmful contamination of food.
- 2.6 **Edible Product** - product fit for human consumption.
- 2.7 **Establishment** - any building(s) or area(s) in which food is handled after harvesting and the surroundings under the control of the same management.

2.8 **Food Handling** - any operation in the growing and harvesting, preparation, processing, packaging, storage, transport, distribution and sale of food.

2.9 **Food Hygiene** - all measures necessary to ensure the safety, soundness and wholesomeness of food at all stages from its growth, production or manufacture until its final consumption.

2.10 **Hermetically Sealed Containers** - containers which are designed and intended to protect the contents against the entry of microorganisms during and after heat processing.

2.11 **Infant** - a person not more than 12 months of age.

2.12 **Low-Acid Food** - any food, other than alcoholic beverages, where any component has a pH value greater than 4.6 after heat processing.

2.13 **Packaging Material** - any containers such as cans, bottles, cartons, boxes, cases, and sacks, or wrapping and covering material such as foil, film, metal, paper, waxpaper and cloth.

2.14 **Pests** - any animals capable of directly or indirectly contaminating food.

2.15 **Potable Water** - water fit for human consumption. Standards of potability should not be lower than those contained in the latest edition of the "International Standards for Drinking Water", World Health Organization.

2.16 **Protective Clothing** - special garments intended to prevent the contamination of food and used as outer wear by persons in an establishment and includes head coverings and footwear.

2.17 **Unfit for Human Consumption** - an article that would normally be edible but is inedible because of disease, decomposition or any other reason.

3. SECTION III - HYGIENIC REQUIREMENTS IN PRODUCTION/HARVESTING AREAS

3.1 Environmental Hygiene in Areas from which Raw Materials Are Derived

3.1.1 Unsuitable growing or harvesting areas

Food should not be grown or harvested when the presence of potentially harmful substances would lead to an unacceptable level of such substances in the food.

3.1.2 Protection from contamination by wastes

3.1.2.1 Raw food materials should be protected from contamination by human, animal, domestic, industrial and agricultural wastes which may be present at levels likely to be a hazard to health. Adequate precautions should be taken to ensure that these wastes are not used and are not disposed of in a manner which may constitute a public health hazard through the food.

3.1.2.2 Arrangements for the disposal of domestic and industrial wastes in areas from which raw materials are derived should be acceptable to the official agency having jurisdiction.

3.1.3 Irrigation control

Food should not be grown or produced in areas where the water used for irrigation might constitute a health hazard to the consumer through the food.

3.1.4 Pest and disease control

Control measures involving treatment with chemical, physical or biological agents should only be undertaken by or under direct supervision of personnel who have a thorough understanding of the potential hazards to health, particularly those which may arise from residues in the food. Such measures should only be carried out in accordance with the recommendations of the official agency having jurisdiction.

3.2 Harvesting and Production

3.2.1 Techniques

Methods and procedures associated with harvesting and production should be hygienic, and such as not to constitute a potential health hazard or result in contamination of the product.

3.2.2 Equipment and containers

Equipment and containers used for harvesting and production should be so constructed and maintained as not to constitute a hazard to health. Containers which are re-used should be of such material and construction as will permit easy and thorough cleaning. They should be cleaned and maintained clean and where necessary, disinfected. Containers previously used for toxic materials should not subsequently be used for holding foods or food ingredients.

3.2.3 Removal of obviously unfit materials

Raw materials which are obviously unfit for human consumption should be segregated during harvesting and production. Those which cannot be made fit by further processing should be disposed of in such a place and in such a manner as to avoid contamination of the food and/or water supplies or other food materials.

3.2.4 Protection against contamination and damage

Suitable precautions should be taken to protect the raw products from being contaminated by pests or by chemical, physical or microbiological contaminants or other objectionable substances. Precautions should be taken to avoid damage.

3.3 Storage on the Place of Production/Harvesting

Raw materials should be stored under conditions that will protect against contamination and minimize damage and deterioration.

3.4 Transportation

3.4.1 Conveyances

Conveyances for transporting the harvested crop or raw product from the production area or place of harvest or storage should be adequate for the purpose intended, and should be of such material and construction as will permit easy and thorough cleaning. They should be cleaned and maintained clean and where necessary disinfected and disinfested.

3.4.2 Handling procedures

All handling procedures should be such as will prevent raw materials from being contaminated. Care should be taken to prevent spoilage, to protect against contamination and to minimize damage. Special equipment - such as refrigeration equipment - should be used if the nature of the product or distances involved so indicate. If ice is used in contact with the product it should be of the quality required in Section 4.4.1.2.

4. SECTION IV - ESTABLISHMENT: DESIGN AND FACILITIES

4.1 Location

Establishments should be located in areas which are free from objectionable odours, smoke, dust or other contaminants and are not subject to flooding.

4.2 Roadways and Areas Used by Wheeled Traffic

Such roadways and areas serving the establishment and which are within its boundaries or in its immediate vicinity should have a hard paved surface suitable for wheeled traffic. There should be adequate drainage, and provision should be made to allow for cleaning.

4.3 Buildings and Facilities

4.3.1 Construction

Buildings and facilities should be of sound construction and maintained in good repair.

4.3.2 Working space

Adequate working space should be provided to allow for satisfactory performance of all operations.

4.3.3 Design: cleaning

The design should be such as to permit easy and adequate cleaning and to facilitate proper supervision of food hygiene.

4.3.4 Design: pests

The buildings and facilities should be designed to prevent the entrance and harbouring of pests and the entry of environmental contamination such as smoke, dust, etc.

4.3.5 Design: cross-contamination

Buildings and facilities should be designed to provide separation between those operations which may cause cross-contamination, by partition, location or other effective means. Separate rooms or areas should be provided for unpacking, washing or peeling of raw materials, as the case may be.

4.3.6 Design: operation flow

Buildings and facilities should be designed to facilitate hygienic operations by means of a regulated flow in the process from the arrival of the raw material at the premises to the finished product, and should provide for appropriate temperature conditions for the process and the product. Where appropriate, separate rooms or areas suitably equipped for the required purpose, should be provided for cooking or sterilization of food.

Where cooling is required, the establishments should provide sufficient capacity in cooling and freezing space to handle maximum product flow.

4.3.7 In food handling areas:

- **Floors**, where appropriate, should be of water-proof, non-absorbent, washable, non-slip and non-toxic materials, without crevices, and should be easy to clean and disinfect. Where appropriate, floors should slope sufficiently for liquids to drain to trapped outlets.
- **Walls**, where appropriate, should be of water-proof, non-absorbent, washable and non-toxic materials and should be light-coloured. Up to a height appropriate for the operation, they should be smooth and without crevices, and should be easy to clean and disinfect. Where appropriate angles between walls, between walls and floors, and between walls and ceilings should be sealed and coved to facilitate cleaning.
- **Ceilings** should be so designed, constructed and finished as to prevent the accumulation of dirt and minimize condensation, mould development and flaking and should be easy to clean.
- **Windows** and other openings should be so constructed as to avoid accumulation of dirt and those which open should be fitted with screens. Screens should be easily movable for cleaning and kept in good repair. Internal window sills, if present, should be sloped to prevent use as shelves.

- **Doors** should have smooth, non-absorbent surfaces and, where appropriate, be self-closing and close fitting.
- **Stairs, lift cages and auxiliary structures** such as platforms, ladders, chutes, should be so situated and constructed as not to cause contamination to food. Chutes should be constructed with inspection and cleaning hatches.

4.3.8 Overhead structures

In food handling areas all overhead structures and fittings should be installed in such a manner as to avoid contamination directly or indirectly of food and raw materials by condensation and drip, and should not hamper cleaning operations. They should be insulated where appropriate and be so designed and finished as to prevent the accumulation of dirt and minimize condensation, mould development and flaking. They should be easy to clean.

4.3.9 Living quarters, etc.

Living quarters, toilets and areas where animals are kept should be completely separated from and should not open directly on to food handling areas.

4.3.10 Access control

If the establishment is not in its own building or buildings, the layout and control of access should be to prevent unauthorized persons from entering the establishment.

4.3.11 Materials

The use of material which cannot adequately be cleaned and disinfected such as wood, should be avoided, unless their use would clearly not be a source of contamination.

4.4 Sanitary Facilities

4.4.1 Water supply

4.4.1.1 An ample supply of water, in compliance with Section 7.3 of the **Recommended International Code of Practice - General Principles of Food Hygiene (CAC/RCP 1-1969, Rev. 2 (1985) Codex Alimentarius Volume 1)** under adequate pressure and of suitable temperature should be available with adequate facilities for its storage, where necessary, and distribution, and with adequate protection against contamination. An adequate supply of hot water not less than +80°C should be available at all times during the working hours.

4.4.1.2 **Ice** should be made from water, in compliance with Section 7.3 of the **General Principles of Food Hygiene** referred to in Section 4.4.1.1 above, and should be manufactured, handled and stored so as to protect it from contamination.

4.4.1.3 **Steam** used in direct contact with food or food contact surfaces should contain no substances which may be hazardous to health or may contaminate the food.

4.4.1.4 **Non-potable water** should be carried in completely separate lines, identified preferably by colour and used for steam production, refrigeration, fire control and other similar purposes not connected with food with no cross-connection with or back-siphonage into the system carrying potable water (see also Section 7.3.2).

4.4.2 **Effluent and waste disposal**

Establishments should have an efficient effluent and waste disposal system which should at all times be maintained in good order and repair. All effluent lines (including sewer systems) should be large enough to carry peak loads and should be so constructed as to avoid contamination of potable water supplies.

4.4.3 **Changing facilities and toilets**

Adequate, suitable and conveniently located changing facilities and toilets should be provided in all establishments. Toilets should be so designed as to ensure hygienic removal of waste. These areas should be well lit, ventilated and where appropriate heated and should not open directly on to food handling areas. Hand washing facilities with warm or hot and cold water, a suitable hand-cleaning preparation and with suitable hygienic means of drying hands, should be provided adjacent to toilets and in such a position that the employee must pass them when returning to the processing area. Where hot and cold water are available mixing taps should be provided. Where paper towels are used, a sufficient number of dispensers and receptacles should be provided near to each washing facility. Taps should be of a non-hand operable type. Notices should be posted directing personnel to wash their hands after using the toilet.

4.4.4 **Hand washing facilities in processing areas**

For the use of personnel during operations adequate and conveniently located facilities for hand washing and drying should be provided wherever the process demands, especially in all areas where unpacked edible material is handled, and, where appropriate, facilities for hand disinfection. The facilities should be in full view of the production area. Warm or hot and cold water and suitable hand-cleaning preparations should be provided. Where hot and cold water are available mixing taps should be provided. There should be suitable hygienic means of drying hands. Where paper towels are used, a sufficient number of dispensers and receptacles should be provided adjacent to each washing facility. Taps of a non-hand operable type are desirable. The facilities should be furnished with waste pipes leading to drains.

4.4.5 **Disinfection facilities**

In all processing areas wherever the process demands, adequate facilities for cleaning and disinfection of working implements and equipment should be provided. These facilities should be of such nature as to permit proper cleaning and disinfection. They should be constructed of corrosion-resistant materials and should be easy to clean. Facilities for cleaning and disinfection of implements should be fitted with suitable means of supplying hot and cold water in sufficient quantity. The temperature of the hot water should be not less than +82°C at all times while food is being handled in that part of the establishment.

4.4.6 Lighting

Adequate natural or artificial lighting should be provided throughout the establishment. Where appropriate, the lighting should not alter colours and the intensity should not be less than:

540 lux (50 foot candles) at all inspection points or points requiring otherwise close examination

220 lux (20 foot candles) in work rooms

110 lux (10 foot candles) in other areas.

Light bulbs and fixtures suspended over food materials in any stage of production should be of a safety type and protected to prevent contamination of food in case of breakage.

4.4.7 Ventilation

Adequate ventilation should be provided to prevent excessive heat, steam, condensation and dust and to remove contaminated air. The direction of the air flow should never be from a dirty area to a clean area. Ventilation openings should be provided with a screen or another protecting enclosure of non-corrodable material. Screens should be easily removable for cleaning.

In areas where dry powdered materials are handled, special provisions such as suction hoods or room partitions should be used to prevent the spreading of dust.

4.4.8 Facilities for storage of waste and inedible material

Facilities should be provided for the storage of waste and inedible material prior to removal from the establishment. These facilities should be designed to prevent access to waste or inedible material by pests and to avoid contamination of food, potable water, equipment, buildings or roadways on the premises.

4.5 Equipment and Utensils

4.5.1 Materials

All equipment and utensils used in food handling areas and which may contact food should be made of material which does not transmit toxic substances, odour or taste, is non-absorbent, is resistant to corrosion and is capable of withstanding repeated cleaning and disinfection. Surfaces should be smooth and free from pits and crevices. The use of wood and other materials which cannot be adequately cleaned and disinfected should be avoided except when their use would clearly not be a source of contamination.

The use of different materials in such a way that contact corrosion can occur should be avoided.

4.5.2 Sanitary design, construction and installation

4.5.2.1 **All equipment and utensils** should be so designed and constructed as to prevent hygienic hazards and permit easy and thorough cleaning and disinfection and, where practicable, be visible for inspection. Stationery equipment should be installed in such a manner as to permit easy access and thorough cleaning.

4.5.2.2 **Containers for inedible material and waste** should be leak-proof, constructed of metal or other suitable impervious material which is easy to clean or disposable and able to be closed securely.

4.5.2.3 **All refrigerated spaces** should be equipped with temperature measurement or recording devices.

4.5.3 Equipment identification

Equipment and utensils used for inedible materials or waste should be so identified and should not be used for edible products.

4.5.4 Tanks and vessels

All surfaces which may come in contact with food should be visible for inspection and readily accessible for manual cleaning. Bottoms of fixed vessels may be of the cone type or may be flat and inclined at an angle of 3-5° for easy drainage. In either case, a drain cock should be provided at the lowest point.

Mixing, blending and homogenizing equipment should be of a type which does not allow food to come into direct contact with seals and bearings which are often a serious source of contamination.

4.5.5 Piping

The piping system should be designed so as to permit free drainage and prevent the occurrence of blind sections in pipes, joints, valves and gauges.

Pipe runs should be kept as short as possible; right-angled joints should be avoided and pipes should slope to a drainage point with a recommended fall of at least 1 in 120.

Cocks, valves and gauges should be accessible and easily dismantled for inspection and cleaning.

4.5.6 Pumps

Pumps should be so designed as to be readily dismantled for cleaning. Shaft seals should be of the mechanical type and accessible for inspection and maintenance. Bearings

should be located outside the food zone and be of sealed or self-lubricating type.

5. SECTION V - ESTABLISHMENT; HYGIENE REQUIREMENTS

5.1 Maintenance

The buildings, equipment, utensils and all other physical facilities of the establishment, including drains, should be maintained in good repair and in an orderly condition. As far as practicable, rooms should be kept free from steam, vapour and surplus water.

5.2 Cleaning and Disinfection

5.2.1 Cleaning and disinfection should meet the requirements of this code. For further information on these procedures see Annex I of the **General Principles of Food Hygiene** referred to in Section 4.4.1.1 of this Code.

5.2.2 To prevent contamination of food, all equipment and utensils should be cleaned as frequently as necessary and disinfected whenever circumstances demand. They should also be cleaned and disinfected at the conclusion of the work shift.

5.2.3 Adequate precautions should be taken to prevent food from being contaminated during cleaning or disinfection of rooms, equipment or utensils by water and detergents or by disinfectants and their solutions. Detergents and disinfectants should be suitable for the purpose intended and should be acceptable to the official agency having jurisdiction. Any residues of these agents on a surface which may come in contact with food should be removed by thorough rinsing with water, in compliance with Section 7.3 of the **General Principles of Food Hygiene** referred to in Section 4.4.1.1 of this Code, before the area or equipment is again used for handling food.

5.2.4 Either immediately after cessation of work for the day or at such other times as may be appropriate, floors, including drains, auxiliary structures and walls of food handling areas should be thoroughly cleaned.

5.2.5 Changing facilities and toilets should be kept clean at all times.

5.2.6 Roadways and yards in the immediate vicinity of and serving the premises should be kept clean.

5.3 Hygiene Control Programme

A permanent cleaning and disinfection schedule should be drawn up for each establishment to ensure that all areas are appropriately cleaned and that critical areas, equipment and material are designated for special attention. A single individual who should preferably be a permanent member of the staff of the establishment and whose duties should be independent of production, should be appointed to be responsible for the cleanliness of the establishment. He should have a thorough understanding of the significance of contamination and the hazards involved. All cleaning personnel should be well-trained in cleaning techniques. Completion of each task in the cleaning and disinfection schedule should be signed and dated in an appropriate

record.

5.4 **By-Products**

By-products should be stored in such a manner as to avoid contamination of food. They should be removed from the working areas as often as necessary and at least daily.

5.5 **Storage and Disposal of Waste**

Waste material should be handled in such a manner as to avoid contamination of food or potable water. Care should be taken to prevent access to waste by pests. Waste should be removed from the food handling and other working areas as often as necessary and at least daily. Immediately after disposal of the waste, receptacles used for storage and any equipment which has come into contact with the waste should be cleaned and disinfected. The waste storage area should also be cleaned and disinfected.

5.6 **Exclusion of Domestic Animals**

Animals that are uncontrolled or that could be a hazard to health should be excluded from establishments.

5.7 **Pest Control**

5.7.1 There should be an effective and continuous programme for the control of pests. Establishments and surrounding areas should be regularly examined for evidence of infestation.

5.7.2 Should pests gain entrance to the establishment eradication measures should be instituted. Control measures involving treatment with chemical, physical or biological agents should only be undertaken by or under direct supervision of personnel who have a thorough understanding of the potential hazards to health resulting from the use of these agents, including those hazards which may arise from residues retained in the product. Such measures should only be carried out in accordance with the recommendations of the official agency having jurisdiction.

5.7.3 Pesticides should only be used if other precautionary measures cannot be used effectively. Before pesticides are applied, care should be taken to safeguard all food, equipment and utensils from contamination. After application, contaminated equipment and utensils should be thoroughly cleaned to remove residues prior to being used again.

5.8 **Storage of Hazardous Substances**

5.8.1 Pesticides or other substances which may represent a hazard to health should be suitably labelled with a warning about their toxicity and use. They should be stored in locked rooms or cabinets used only for that purpose and dispensed and handled only by authorized and properly trained personnel or by persons under strict supervision of trained personnel. Extreme care should be taken to avoid contaminating food.

5.8.2 Except when necessary for hygienic or processing purposes, no substance which could contaminate food should be used or stored in food handling areas.

5.9 **Personal Effects and Clothing**

Personal effects and clothing should not be deposited in food handling areas.

6. **SECTION VI - PERSONNEL HYGIENE AND HEALTH REQUIREMENTS**

6.1 **Hygiene Training**

Managers of establishments should arrange for adequate and continuing training of all food handlers in hygienic handling of food and in personal hygiene so that they understand the precautions necessary to prevent contamination of food. Instruction should include relevant parts of this Code. Attendance records should be kept.

6.2 **Medical Examination**

Persons who come in contact with food in the course of their work should have a medical examination prior to their employment if the official agency having jurisdiction, acting on medical advice, considers that this is necessary, either because of epidemiological considerations, the nature of the food prepared in a particular establishment or the medical history of the prospective food handler. Medical examination of a food handler should be carried out at other times when clinically or epidemiologically indicated.

6.3 **Communicable Diseases**

The management should take care to ensure that no person, while known or suspected to be suffering from, or to be a carrier of a disease likely to be transmitted through food or while afflicted with infected wounds, skin infections, sores or with diarrhoea, is permitted to work in any food handling area in any capacity in which there is any likelihood of such a person directly or indirectly contaminating food with pathogenic micro-organisms. Any person so affected should immediately report to the management that he is ill.

6.4 **Injuries**

Any person who has a cut or wound should not continue to handle food or food contact surfaces until the injury is completely protected by a water proof covering which is firmly secured, and which is conspicuous in colour. Adequate first-aid facilities should be provided for this purpose.

6.5 **Washing of Hands**

Every person, while on duty in a food handling area, should wash his hands frequently and thoroughly with a suitable hand cleaning preparation under running warm water in compliance with Section 7.3 of the **General Principles of Food Hygiene** referred to in Section 4.4.1.1 of this Code. Hands should always be washed before commencing work, immediately

after using the toilet, after handling contaminated material and whenever else necessary. After handling any material which might be capable of transmitting disease, hands should be washed and disinfected immediately. Notices requiring handwashing should be displayed. There should be adequate supervision to ensure compliance with this requirement.

6.6 Personal Cleanliness

Every person engaged in a food handling area should maintain a high degree of personal cleanliness while on duty, and should at all times while so engaged wear suitable protective clothing including head covering and footwear, all of which articles should be cleanable unless designed to be disposed of and should be maintained in a clean condition consistent with the nature of the work in which the person is engaged. Aprons and similar items should not be washed on the floor. During periods where food is manipulated by hand, any jewellery that cannot be adequately disinfected should be removed from the hands. Personnel should not wear any insecure jewellery when engaged in food handling.

6.7 Personal Behaviour

Any behaviour which could result in contamination of food, such as eating, use of tobacco, chewing (e.g. gum, sticks, betel nuts, etc.) or unhygienic practices, such as spitting, should be prohibited in food handling areas.

6.8 Gloves

Gloves, if used in the handling of food products, should be maintained in a sound, clean and sanitary condition. The wearing of gloves does not exempt the operator from having thoroughly washed hands. Gloves should be made of an impermeable material except where their usage would be inappropriate or incompatible with the work involved.

6.9 Visitors

Precautions should be taken to prevent visitors to food handling areas from contaminating food. These may include the use of protective clothing. Visitors should observe the provisions recommended in Sections 5.9, 6.3, 6.4 and 6.7 of this Code.

6.10 Supervision

Responsibility for ensuring compliance by all personnel with all requirements of Sections 6.1 to 6.9, inclusive should be specifically allocated to competent supervisory personnel.

7. SECTION VII - ESTABLISHMENT: HYGIENIC PROCESSING REQUIREMENTS

7.1 Raw Material Requirements in the Establishment

Raw materials used for the production of food for infants and children should, where applicable, comply with their appropriate Codes of Hygienic Practice. If no appropriate Code of Hygienic Practice exists, the **Recommended International Code of Practice - General**

Principles of Food Hygiene (CAC/RCP 1-1969, Rev. 2 (1985) Codex Alimentarius Volume 1) should apply.

7.1.1 Acceptance

No raw material or ingredient should be accepted by the establishment if known to contain parasites, micro-organisms or toxic, decomposed or extraneous substances which will not be reduced to acceptable levels by normal plant procedures of sorting and/or preparation or processing.

Raw materials used for the production of food for infants and children should not contain pesticide residues or other objectionable substances in a concentration in the final product believed to constitute a health hazard for infants and children.

Raw materials destined for the production of food for infants and children should be of high hygienic conditions.

Food of animal origin should only be derived from healthy stock.

7.1.2 Inspection and sorting

Raw materials or ingredients should be inspected and sorted prior to being moved into the processing line and where necessary laboratory tests should be made. Only clean sound raw materials or ingredients should be used in further processing.

7.1.3 Raw materials and ingredients stored on the premises of the establishment should be maintained under conditions that will prevent spoilage, protect against contamination and minimize damage. Stocks of raw materials and ingredients should be properly rotated, and should be stored under cool conditions.

7.2 Prevention of Cross-Contamination

7.2.1 General remarks

Effective measures should be taken to prevent contamination of food material by direct or indirect contact with material at an earlier stage of the process.

7.2.2 Personal behaviour

Persons handling raw materials or semi-processed products capable of contaminating the end product should not come into contact with any end product unless and until they discard all protective clothing worn by them during the handling of raw materials or semi-processed products which have come into direct contact with or have been soiled by raw material or semi-processed products and they have changed into clean protective clothing.

7.2.3 Hand washing

If there is a likelihood of contamination, hands should be washed thoroughly between handling products at different stages of processing.

7.2.4 Equipment

All equipment which has been in contact with raw materials or contaminated material should be thoroughly cleaned and disinfected prior to being used for contact with end products.

7.3 Use of Water

7.3.1 General requirements

As a general principle only potable water, as defined in the latest edition of "International Standards for Drinking Water" (WHO), should be used in food handling.

7.3.2 Non-potable water

Non-potable water may be used with the acceptance of the official agency having jurisdiction for steam production, refrigeration, fire control and other similar purposes not connected with food. However, non-potable water may, with special acceptance by the official agency having jurisdiction, be used in certain food handling areas, when this does not constitute a hazard to health.

7.3.3 Recirculated water

Water recirculated for reuse within an establishment should be treated and maintained in a condition so that no health hazard can result from its use. The treatment process should be kept under constant surveillance. Alternatively, recirculated water which has received no further treatment may be used in conditions where its use would not constitute a health hazard and will not contaminate either the raw material or the end product. Recirculated water should have a separate distribution system which can be readily identified. The acceptance of the official agency having jurisdiction should be required for any treatment process and for the use of recirculated water in any food process.

7.4 Processing

7.4.1 Processing should be supervised by technically competent personnel.

7.4.2 All steps in the production process, including packaging, should be performed without unnecessary delay and under conditions which will prevent the possibility of contamination, deterioration, or the development of pathogenic and spoilage micro-organisms.

7.4.3 Rough treatment of containers should be avoided to prevent the possibility of contamination of the processed product.

7.4.4 Methods of preservation should be such as to protect against contamination or development of a public health hazard and against deterioration within the limits of good commercial practice.

7.5 Packaging

All food for infants and children should be packed in containers which protect the food from contamination and deterioration.

7.5.1 Packaging material

All packaging materials should be stored in a clean and sanitary manner. The material should be appropriate for the product to be packed and for the expected conditions of storage and should not transmit to the product objectionable substances beyond the limits acceptable to the official agency having jurisdiction. The packaging material should be sound and should provide appropriate protection from contamination.

Vacuum packed containers sealed with quick-twist, screw-on or snap-on lids, which have an annular space between the inner edge of the lid's rim and the container itself, should have such space eliminated by lid or container design or be made inaccessible by sealing.

7.5.2 Inspection

Product containers should not have been used for any purpose which may lead to contamination of the product. Containers should be inspected immediately before use to ensure that they are in a satisfactory condition and where necessary cleaned and/or disinfected; no water, other than portable water, should be used for washing empty containers. When washed they should be well drained before filling. Only packaging material required for immediate use should be kept in the packing or filling area.

7.5.3 Precluding contamination

Packing should be done under conditions that preclude the introduction of contamination into the product.

7.5.4 Lot identification

Each container shall be permanently marked in code or in clear to identify the producing factory and the lot.

A lot is a quantity of food produced under identical conditions, all packages of which should bear a lot number that identifies the production during a particular time interval, and usually from a particular "line" or other critical processing unit.

7.5.5 Storage instructions

Instructions for proper storage and use should be given on the label.

7.6 Storage and Transport of the End-Product

The end-product should be stored and transported under such conditions as will preclude the contamination with and/or proliferation of micro-organisms and protect against deterioration of the product or damage to the container. During storage, periodic inspection of the end product should take place to ensure that only food which is fit for human consumption is despatched and that end-product specifications are complied with. The product should be despatched in the sequence of the lot numbers.

7.6.1 Thermally processed low-acid canned food should be produced according to the **Recommended International Code of Hygienic Practice for Low-Acid and Acidified Low-Acid Canned Foods (CAC/RCP 23-1979, Rev. 1 (1989) Codex Alimentarius Volume 1 and Supplement 1)**.

7.6.2 Checking for defects

Each lot should be checked after filling. Containers showing defects which may affect product quality, should be rejected.

7.6.3 Vacuum checking

In the case of thermally processed vacuum packed containers. The vacuum of all containers should be checked after heat processing.

7.7 Sampling and Laboratory Control Procedures

7.7.1 Each establishment should have access to laboratory control of the products processed. Such control should reject all food that is unfit for human consumption or that does not comply with the end product specifications.

Laboratories checking for pathogenic micro-organisms should be well separated from food processing areas.

7.7.2 Sampling

Representative samples of the end product should be taken to assess the safety and quality.

8. SECTION VIII - END-PRODUCT SPECIFICATIONS

8.1 General

The food for infants and/or children should be free from foreign and other objectionable matter to the extent possible in good manufacturing practice, as well as free from toxic substances in a concentration believed to constitute a health hazard for infants and children.

8.2 **Pesticide Residues and Food Additives**

The food for infants and/or children should comply with the requirements for pesticide residues and food additives laid down by the Codex Alimentarius Commission.

8.3 **Microbiological Specifications**

The following microbiological specifications are of an advisory nature in accordance with the General Principles for the Establishment and Application of Microbiological Criteria for Foods adopted by the Codex Alimentarius Commission. The specifications are intended to increase assurance that the provisions of hygienic significance have been met but should not be regarded as mandatory.

Product	Test	Case	Class Plan	n	c	Limit per g	
						m	M
8.3.1 Dried biscuit type product ^a	none	-	-	-	-	-	-
8.3.1.1 plain	Coliforms	5	3	5	2	<3 ^d	20
8.3.1.2 coated	Salmonellae ^{b c}	11	2	10	0	0	-
8.3.2 _f Dried and instant products ^e	Mesophilic aerobic bacteria ^g	6	3	5	2	10 ³	10 ⁴
	Coliforms	6	3	5	1	<3 ^d	20
	Salmonellae ^c	12	2	60	0	0	-
8.3.3 _h Dried products requiring heating before consumption ^f	Mesophilic aerobic bacteria	4	3	5	3	10 ⁴	10 ⁵
	Coliforms	4	3	5	2	10	100
	Salmonellae ^c	10	2	5	0	0	-

^a Dry shelf-stable products.

^b Applies only to products containing one or more *Salmonella* sensitive ingredients, e.g. chocolate coatings.

^c For the examination of such foods for the presence of *Salmonella*, 25 g samples shall be used and these may be pooled.

^d <3 means no positive tube in the standard-3-tube MPN method.

^e Products intended for consumption after addition of liquid; includes dried infant formulae, instant infant cereals, etc.; microbial limits apply to dry product.

^f Includes supplementary products, e.g. sweetening agents, starches, texturizers and similar products, singly or in combination.

^g Not applicable to products which are produced by a microbial fermentation process.

^h Products intended for consumption after addition of liquid and which are specified to be heated to boiling before consumption; microbial limits apply to dry product.

8.3.4 Thermally processed products packaged in hermetically sealed containers ^a	These products: a) shall be free of microorganisms capable of growth in the product under normal non refrigerated conditions of storage and distribution; b) shall not contain any substances originating from microorganisms in amounts which may represent a hazard to health; and c) if they have a pH above 4.6 shall have received a processing treatment which renders the products free of viable forms of microorganisms having public health significance.
--	--

^a Includes aseptically canned products and liquid infant formulae; assumes these products are manufactured in accordance with the respective Codes of Good Manufacturing Practice.

8.4 **Methods for Microbiological Analysis for Foods for Infants and Children (Up to Three Years)**

8.4.1 **Mesophilic aerobic bacteria**

Draft International Standard ISO/DIS 4833. Refer to ICMSF (1974), Chapter 7, pages 83-91 for collection and preparation of samples for analysis; in all instances 25 g shall constitute a sample unit (analytical unit); incubation of agar plates shall be at 30°C.

8.4.2 **Coliform count**

Draft International Standard ISO/DIS 4831. Collection and preparation of samples, sample unit and incubation as in viable colony count above.

8.4.3 **Salmonellae**

According to the "Report of the 13th Session of the Codex Committee on Food Hygiene, Rome, 10-13 May 1976, Appendix VI, para. 9".

Collection and preparation of samples, sample unit and incubation as in viable colony count above.

8.4.4 Labour and cost of testing may be reduced by testing pooled sample units (analytical units). Studies have shown ¹ that salmonellae may be detected with equal accuracy, and that there is no significant difference in sensitivity when testing a large sample versus multiple subsamples. Therefore, 25 g sample units may be composited to a quantity not to exceed 400 g. Analysis may then proceed as for a 25 g unit with appropriate change in equipment, media volume, etc.

¹ American Public Health Association, 1976. Compendium of Methods for the Microbiological Examination of Foods, M.L. Speck (Ed.), Chapter 25, page 313. American Health Association, 1015 18th St., N.W., Washington D.C. 20036, USA.