

UNOFFICIAL TRANSLATION



MINISTERIAL REGULATION

**ON THE ESTABLISHMENT OF THAI AGRICULTURAL STANDARD :
GOOD MANUFACTURING PRACTICES FOR FROZEN DURIAN AS MANDATORY
STANDARD FOR EXPORT**

B.E. 2560 (2017)

By virtue of Section 5 paragraph one, Section 15 paragraph two and Section 19 of the Agricultural Standards Act, B.E. 2551 (2008), the Minister of Agriculture and Cooperatives hereby issues this Ministerial Regulation as follows:

Section 1 This Ministerial Regulation shall come into force after thirty days from the date of its publication in the Royal Gazette.

Section 2 The Thai Agricultural Standards TAS 9046-2017, in accordance with the Notification of the Ministry of Agriculture and Cooperatives on the Establishment of Thai Agricultural Standard: Good Manufacturing Practices for Frozen Durian under the Agricultural Standards Act, B.E. 2551 (2008) dated 13 January 2560 (2017), shall be established as a mandatory standard for frozen durian for export.

Given on the 26th June B.E. 2560 (2017)

(General Chatchai Sarikulya)
Minister of Agriculture and Cooperatives

Remark : Rationale for the promulgation of this Ministerial Regulation is that: At present, large volume of frozen durian is being produced for export with an increasing trend. Several importing countries have claimed that some frozen durian exporters have not complied with hygienic practices which adversely affect the overall export of Thai frozen durian. The Notification of the Ministry of Agriculture and Cooperatives on the Establishment of Thai Agricultural Standard on Manufacturing Practices for Frozen Durian has been established under the Agricultural Standard Act B.E. 2551 (2008), since 13th January 2017. In response to the urgent needs for the economic well-being of the country, the Agricultural Standard Committee considers it is appropriate to expediently promulgate the Good Manufacturing Practices for Frozen Durian as a mandatory standard. Therefore, the Agricultural Standard Committee decided to recommend the Minister to issue the Ministerial Regulation Good Manufacturing Practices for Frozen Durian as a mandatory standard for export in accordance with Section 19 of the Agricultural Standard Act B.E. 2551 (2008).

THAI AGRICULTURAL STANDARD

GOOD MANUFACTURING PRACTICES FOR FROZEN DURIAN

1. SCOPE

This agricultural standard covers good practices for frozen durian in the forms of whole fruit, durian flesh with or without seed starting from raw material receiving, processing, storing to transporting to ensure that frozen durian is safe and suitable for human consumption.

2. DEFINITIONS

For the purpose of this standard:

- 2.1 Cleaning means the removal of soil, food residue, dirt, grease or other objectionable matter.
- 2.2 Contaminant means any biological or chemical agent, foreign matter, or other substances not intentionally added to food which may compromise food safety or suitability.
- 2.3 Contamination means the introduction or occurrence of a contaminant in food or food environment.
- 2.4 Disinfection means 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.
- 2.5 Establishment means any building or area in which food is handled and the surroundings under the control of the same management
- 2.6 Food hygiene means all conditions and measures necessary to ensure the safety and suitability of food at all stages of the food chain.
- 2.7 Hazard means a biological, chemical or physical agent in, or condition of, food with the potential to cause an adverse health effect.
- 2.8 HACCP means a system which identifies, evaluates, and controls hazards which are significant for food safety.
- 2.9 Food handler means any person who directly handles packaged or unpackaged food, food equipment and utensils, or food contact surfaces and is therefore expected to comply with food hygiene requirements
- 2.10 Food safety means assurance that food will not cause harm to the consumer when it is prepared and/or eaten according to its intended use.
- 2.11 Food suitability means assurance that food is acceptable for human consumption according to its intended use.

This translation is made by the National Bureau of Agricultural Commodity and Food Standards (ACFS) to establish correct understanding about this standard to foreigners. Referring to Thai agricultural Standard in any jurisdiction shall be made to the Thai version only.

3. REQUIREMENTS

Requirements for frozen durian shall be as follows:

3.1 ESTABLISHMENT: DESIGN AND FACILITIES

3.1.1 General

Premises, equipment and facilities should be located, designed and constructed depending on the nature of the operations, and the risks associated with them to ensure that:

- a) contamination is minimized;
- b) design and layout permit appropriate maintenance, cleaning and disinfections and minimize 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 harborage.

3.1.2 LOCATION

3.1.2.1 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 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, establishments 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;
- d) areas where wastes, either solid or liquid, cannot be removed effectively.

3.1.2.2 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.

3.1.3 PREMISES AND ROOMS

3.1.3.1 Design and layout

The internal design and layout of food establishments should permit good food hygiene practices, including protection against cross-contamination between and during operations by foodstuffs.

3.1.3.2 Internal structures and fittings

Structures within food establishments should be soundly built of durable materials and be easy to maintain, clean and where necessary, able to be disinfected safety and suitability of food as follows:

- 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.
- f) doors should have smooth, non-absorbent surfaces, and be easy to clean and, where necessary, disinfect;
- 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, and inert to the food, to detergents and disinfectants under normal operating conditions.

3.1.3.3 Cold store for frozen durian

The cold store should be properly designed to maintain steady product temperature at -18°C or colder as follows:

- a) Walls, floor, ceiling, and doors are able to maintain constant product temperature e.g. proper lining with insulator.
- b) Adequate air flow around the stored product.
- c) Loss of cold air and leaks of any refrigerant are prevented. In case of any leak, immediate corrective action shall be applied.
- d) provide with a system and devices to control and record temperatures on a regular basis.

3.1.4 EQUIPMENT

3.1.4.1 General

Equipment and containers (other than once-only use containers and packaging) coming into contact with food, should be designed to avoid the contamination and cause no damage to the product as follows;

- a) able to be adequately cleaned, disinfected and maintained
- b) made of materials with no toxic effect in intended use.
- c) durable and movable or capable of being disassembled to allow for maintenance, cleaning, disinfection and inspection for example, to facilitate inspection for pests.

3.1.4.2 Food control and monitoring equipment

Freezing process control shall be designed to allow thermal centre temperatures of the product is chilled as quickly as possible to prevent the growth of pathogenic microorganisms during freezing. Equipment should be designed to have effective means of controlling and monitoring such as

- a) equipment for cooling, cold store or freezer necessary to food safety and suitability can be rapidly achieved and effectively maintained.
- b) equipment should have effective means of controlling and monitoring temperature and air-flow or and any other characteristic likely to have a detrimental effect on the safety or suitability of food. These requirements are intended to ensure that critical limits established in HACCP-based plans can be monitored.

3.1.4.3 Containers for waste and inedible or dangerous substances

Containers for waste, by-products and inedible or dangerous substances, should be suitably designed and constructed to prevent intended or unintended contamination of food by, for examples;

- a) Clear identification and separation.
- b) Containers used to hold dangerous substances should be lockable.
- c) Made of impervious material.

3.1.5 FACILITIES

3.1.5.1 General

The facilities should be sufficient and appropriate to ensure safety and suitability of food.

3.1.5.2 Water supply

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

Potable water should be complied with the law in line with the latest edition of WHO Guidelines for Drinking Water Quality. Non-potable water (for use in, for example, fire control, refrigeration system and other 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.

3.1.5.3 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.

3.1.5.4 Cleaning

Facilities should be suitably designated for cleaning of raw material, utensils and equipment.

3.1.5.5 Personnel hygiene facilities and toilets

Personnel hygiene facilities should be designed and made available to ensure that an appropriate degree of personal hygiene can be maintained and to avoid contaminating food; and such facilities should be suitably located.. Facilities should include the followings:

- a) hygienic hand washing and drying tools , including wash basins.
- b) toilets of appropriate hygienic design; and
- c) adequate changing facilities for personnel.

3.1.5.6 Temperature control

Adequate facilities should be available for refrigerating and freezing durian, storing products and monitoring product temperatures including controlling ambient temperatures to ensure the safety and suitability of food..

3.1.5.7 Air quality and ventilation

- a) Adequate means of natural or mechanical ventilation should be provided, in particular to:
 - minimize air-borne contamination of food, for example, from aerosols and condensation droplets;
 - control ambient temperatures;
 - control odours which might affect the suitability of food; and
 - control humidity, where specific area is of risk to ensure the safety and suitability of food.
- b) 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.

3.1.5.8 Lighting

Adequate natural or artificial lighting should be provided to enable the undertaking to operate in a hygienic manner. Lighting should not be such that the resulting colour is misleading in particular at the inspection points of raw material or product. The intensity should be adequate to the nature of the operation. Lighting fixtures should, where appropriate, be protected to ensure that product is not contaminated by breakages.

3.1.5.9 Storage

Adequate facilities for the storage of product and non-food chemicals (e.g. cleaning agents, lubricants, fuels) should be provided.

Product storage facilities should be designed and constructed to:

- a) permit adequate maintenance and cleaning;
- b) avoid pest access and harbourage;
- c) enable product to be effectively protected from contamination during storage and provide an environment which minimizes the deterioration of product (e.g. by temperature and humidity control).

The type of facilities required will depend on the nature of the products. Cleaning agents and hazardous substances should be separately and securely stored.

3.2 CONTROL OF OPERATION

3.2.1 GENERAL

The requirements related to production process, control and monitoring hazards to products shall be formulated, in particular, appropriate preventive measures starting from raw material, processing to transporting including the review of efficacy of the control system that is able to reduce risk of unsafe food and to assure on safe and suitability of product for consumption.

3.2.2 CONTROL OF FOOD HAZARDS

Production process and hazards control for the product should be properly designed through the use of systems such as HACCP or they should practices as follows:

- 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 should be applied starting from raw material receiving, processing storing to transporting in order 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 of products or raw material, calibrating equipment, or correct loading of mass products in refrigerated units. In some cases a system based on expert advice, and involving documentation, may be appropriate to apply. A model of such a food safety system is described in Thai Agricultural Standard on Hazard Analysis and Critical Control (HACCP) System and Guidelines for its Application (TAS. 9024).

3.2.3 INCOMING MATERIAL REQUIREMENTS

The specification of raw material shall be established/identified and implemented accordingly. No raw material should be accepted if it is known to contain undesirable micro-organisms, pesticides, which would not be reduced to an acceptable level by normal sorting and freezing. Raw material and maturity of durian shall be inspected and sorted before freezing. In addition, raw material stored shall be managed in a first-in, first-out basis.

3.2.3.1 Inspection of raw material shall be as follows:

- a) In case durian obtained from the collectors under approved vendor lists (AVL), the test results associated with quality and safety according to their specifications shall be made available by taking into account laws and regulations and import requirements of the trading partners or;
- b) In case durian obtained from growers or collectors, durian, as raw material, should come from production sources where :
 - certification or evidence showing that the farms are complied with Thai Agricultural Standard on Good agricultural practices for Food Crops (TAS 9001) or equivalent, or,
 - evidence showing that no use of pesticides or correct use of pesticides according to recommendations or ;
 - certification or evidences showing that proper uses of pesticides according to other standards.
- c) In case durian fruit obtained from establishment, the establishment shall be certified according to Thai Agricultural Standard on Good Manufacturing Practices for Collecting House of Fresh Fruits and Vegetables (TAS. 9047) or Thai Agricultural Standard on Good Manufacturing Practices for Packing House of Fresh Fruits and Vegetables (TAS. 9035) or equivalent.
- d) In case durian flesh with or without seed obtained from producer, such producer shall be certified according to Thai Agricultural Standard on Good Manufacturing Practices for Packing House of Fresh Fruits and Vegetables (TAS. 9035) or Thai Agricultural Standard on Good Manufacturing Practices for Pre-cut Fresh Fruits and Vegetables (TAS. 9039) or Thai Agricultural Standard. Code of Practice: General Principles of Food Hygiene (TAS. 9023) or equivalent.
- e) In case where raw material is not obtained from the abovementioned sources, there shall be quality and safety inspection for pesticide residues and contaminants as specified by law and relevant standards. The test results shall be kept as evidence.

3.2.3.2 Specification and inspection methods for durian maturity shall be in accordance with Thai Agricultural Standard on Durian (TAS. 3) or equivalent.

3.2.3.3 Randomly check for the quality of receiving raw material regularly to ensure the required specifications. At least once a year, raw material shall be randomly sampled for testing of pesticide residues and/or other hazardous substances e.g. pesticide, ripening agents by certified laboratory.

3.2.4 KEY ASPECTS OF HYGIENE CONTROL SYSTEMS**3.2.4.1 TIME AND TEMPERATURE CONTROL**

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

Key points required for temperature and time control:

- a) raw material preparation;
- b) freezing ;
- c) cold chain storage;
- d) transportation should also specify tolerable limits for time and temperature variations. Temperature recording device should be checked at regular intervals and tested for accuracy.

3.2.4.2 RAW MATERIAL PREPARATION

Appropriate procedures shall be in place for sorting and segregating that are unsuitable prior to freezing. Such raw material shall be prepared in a hygienic manner without delay including temperature control to minimize growth of microorganism which may affect quality and safety of the product.

3.2.4.3 FREEZING

The freezing process should be performed in such a manner as minimize chemical, biochemical and microbiological changes, by taking into account the freezing system. to ensure that thermal center of the product has reached at -18°C or colder as quickly as possible. After freezing operation, the product should be moved to a cold store as quickly as possible and maintain the product temperature at -18°C or colder.

3.2.4.4 FROZEN STORAGE

Temperatures of the cold storage shall be controlled at -18°C or colder with minimum of fluctuation.

- a) Stocks shall be properly placed in the cold room in such a manner that could prevent contamination and the circulation of cold air is not impeded to the extent that the product temperature is adversely affected.
- b) Stocks shall be rotated on a “First in-First out” basis or shortest durability date. In no case, should products be stored beyond their specified shelf-life.

3.2.4.5 MICROBIOLOGICAL AND OTHER SPECIFICATIONS

The product quality shall be controlled to comply with the microbiological, chemical or physical requirements according to TAS, relevant laws and regulations or importing country requirements.

3.2.4.6 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 durian should be effectively separated, either physically or by time, from frozen durian, 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 should be thoroughly cleaned and where necessary disinfected after use.

3.2.4.7 PHYSICAL AND CHEMICAL CONTAMINATION

Systems should be in place to prevent contamination of foods by foreign matter such as glass fragments or scrap metal from machinery, dust, harmful fumes and unwanted chemicals. In manufacturing and processing, suitable detector or screening devices should be used.

3.2.5 PACKAGING

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

3.2.6 WATER

3.2.6.1 IN CONTACT WITH FOOD

Only potable water 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, e.g. chilling, and in food handling areas, provided this does not constitute a hazard to the safety and suitability of food. 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.

3.2.6.2 ICE

Ice should be made from water that complies with section 3.1.5.1 Ice should be produced, handled and stored to protect them from contamination.

3.2.6.3 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.

3.2.8 DOCUMENTATION AND RECORDS

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.

3.2.9 RECALL PROCEDURES

Managers should ensure 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 warnings should be considered.

Recalled products should 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.

3.3 ESTABLISHMENT: MAINTENANCE AND SANITATION

3.3.1 GENERAL

Establishment should establish effective system to control food hazard from pest and other agent likely to contaminate to product.

- a) To ensure adequate and appropriate maintenance and cleaning
- b) Control pest
- c) Manage waste; and
- d) Monitor effectiveness of maintenance and sanitation procedure

3.3.2 MAINTENANCE

Establishments 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 section 4.1)
- c) prevent contamination of food, e.g. from metal shards, flaking plaster, debris and chemicals.

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.

Cleaning chemicals should 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.

3.3.3 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 section 4, 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 with subsequent rinsing unless the manufacturers' instructions indicate on scientific basis that rinsing is not required.

3.3.4 CLEANING PROGRAMMES

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

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

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.

Programmes should be drawn up in consultation with relevant specialist expert advisors.

3.3.5 PEST CONTROL SYSTEMS

3.3.5.1 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 minimize the likelihood of infestation and thereby limit the need for pesticides.

3.3.5.2 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.

3.3.5.3 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, pest-proof containers.

3.3.5.4 MONITORING AND DETECTION

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

3.3.5.5 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.

3.3.6 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.

3.3.7 MONITORING EFFECTIVENESS

Sanitation systems should 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.

3.4 ESTABLISHMENT: PERSONAL HYGIENE

3.4.1 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, 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.

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

3.4.2 ILLNESS AND INJURIES

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.);
- discharges from the ear, eye or nose.

3.4.3 PERSONAL CLEANLINESS

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.

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

- at the start of food handling activities;
- immediately after using the toilet; and
- after handling raw food or any contaminated material, where this could result in contamination of other food items; they should avoid handling ready-to-eat food, where appropriate.

3.4.4 PERSONAL BEHAVIOUR

People engaged in food handling activities should refrain from behavior which could result in contamination of food, for example:

- smoking;
- spitting;
- chewing or eating;
- sneezing or coughing over unprotected food.
- Personal effects such as jewellery, 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.

3.4.5 VISITORS

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

3.5 TRANSPORTATION

3.5.1 GENERAL

Measure shall 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.

3.5.2 REQUIREMENTS

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 at -18°C or colder, 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

3.5.3 TRANSPORT AND DISTRIBUTION

The product temperature during transport and distribution should be carried out to maintains a product temperature of -18°C or colder.

Distribution of quick frozen foods should be carried out in such a way that any rise in product temperature be kept to a minimum within, as appropriate, the limit which is not effect the safety and quality of the products.

3.5.4 USE AND MAINTENANCE

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.

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

3.6 PRODUCT INFORMATION AND CONSUMER AWARENESS

3.6.1 GENERAL

Products should bear appropriate information to ensure that:

- a) 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;

b) the lot or batch can be easily identified and recalled if necessary.

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

3.6.2 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. Codex General Standard for the Labelling of Prepackaged Foods (CODEX STAN 1-1985, latest version) applies.

3.6.3 PRODUCT INFORMATION

All 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.

3.6.4 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. Codex General Standard for the Labelling of Prepackaged Foods (CODEX STAN 1-1985, latest version) applies.

3.6.5 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.

3.7 TRAINING

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.

3.7.1 GENERAL

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.

3.7.2 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.

3.7.3 TRAINING PROGRAMMES

Factors to take 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 micro-organisms;
- 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.

3.7.4 INSTRUCTION AND SUPERVISION

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

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.

3.7.5 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.