
**Ice cream preparation and selling
establishment hygiene and environmental
health requirements**

Foreword

This Ethiopian Standard has been prepared under the direction of the Technical Committee for Sanitation, Hygiene and Health Related Service (TC 205) and published by the Ethiopian Standards Agency (ESA).

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Ice cream preparation and selling establishment hygiene and environmental health requirements

1. Scope

This Ethiopian standard specifies the hygiene and environmental health requirements in the preparation, packaging, storage, distribution and sale of different varieties of ice creams preparation and selling establishments.

2. Reference

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ES ISO 22000:2018, food safety management system – requirements for any organization in food chain.

ES 588: 2001, hazard analysis critical control point (HACCP) systems and guidelines for its application.

3. Terms and definition

3.1.

Ice cream

The frozen product obtained from cow or buffalo milk or a combination thereof or from cream, and/or other milk products, with or without addition of cane sugar (dextrose, liquid glucose and dried liquid glucose), eggs, fruits, fruit juices, preserved fruits, nuts, chocolates, edible flavors and permitted food colors. It may contain permitted stabilizers and emulsifiers in stipulated limits.

3.2.

Ice Cream Establishment

An establishment which receives raw materials or pre-processed ice cream and prepares through mixing of received supplies and serves frozen ice cream product.

3.3.

Ice cream preparation and selling service

Organizations that prepare ice cream from cow, camel and goat and other flavoring agents through keeping the cold chain for the purpose of selling.

3.4.

Environmental health

Public health concerned with monitoring or mitigating those factors in the environment that affect human health and disease.

3.5.**Hygiene**

Conditions or practices conducive to maintaining health and preventing disease, especially through cleanliness.

3.6.**Sewage**

Discharge from toilets, urinals, basins, showers, sinks and dishwashers, whether discharged through sewers.

3.7.**Ice cream mix**

Comprises milk fat, milk solids-not-fat (MSNF), sweeteners, stabilizers, colors, emulsifiers, and water.

3.8.**Sweeteners**

Improve the texture and palatability of the ice cream, impart sweet taste, and enhance flavors.

3.9.**Stabilizer**

A group of substances that help stabilize the structure of ice cream

3.10.**Freezing process**

The creation of ice from water in the mix.

3.11.**Potable water**

Water that is acceptable for human consumption;

3.12.**Sanitize**

Apply heat or chemicals, heat and chemicals, or other processes, to a surface so that the number of micro-organisms on the surface is reduced to a level that:

- (a) Does not compromise the safety of food with which it may come into contact; and
- (b) Does not permit the transmission of infectious disease.

3.13.**Environmental conditions**

conditions under which certain food may be required to be stored including temperature, humidity, lighting conditions and atmosphere.

3.14.

Food-borne disease

A disease that is likely to be transmitted through consumption of contaminated food.

3.15.

Potentially hazardous food

Food that has to be kept at certain temperature to minimize the growth of any pathogenic micro organisms that may be present in the food or to prevent the formation of toxins in the food.

3.16.

Hazard analysis critical control points (HACCP)

System which identifies, evaluates and controls hazards which are significant for food safety

[SOURCE: Codex Alimentarius]

3.17.

Premises

Any land, building (including residential premises) or places (including a public places or a moveable building or structure); or a part of a premises.

3.18.

Environmental health hazard

Any environmental factor or situation that can cause injury, disease or death.

3.19

Recycling

Process by which waste is processed in some way to be reformed into new or similar products.

3.20

Vectors

Arthropods and other invertebrates which transmit infection by inoculation into or through the skin or mucous membrane by biting or by deposit of infective materials on the skin or on food or other objects.

3.21

Personal hygiene

A condition promoting sanitary practices to the self

3.22

Food grade material

Materials that are free from substances that are hazardous to human health and may be permitted to come in contact with food.

4. Requirements

4.1. General requirements

- 4.1.1. All staff shall be trained and certified by recognized body for their intended field of work.
- 4.1.2. A training program shall be designed, implemented and periodically reviewed by management to improve staff competence, according to the identified needs.
- 4.1.3. All staff is responsible for the quality of customer service in related with hygiene and environmental health.
- 4.1.4. Premises shall have hand washing facilities that are located where they can be easily accessed;
- 4.1.5. In all ice cream preparation activities, basic hygiene and conservation conditions shall be defined and respected.
- 4.1.6. Prepared ice cream shall be preserved in such a way that the quality is maintained.
- 4.1.7. The premises shall be equipped with sufficient number of appliances so that at all times, the temperature and humidity may be maintained at a level so as to provide comfortable and healthy condition.
- 4.1.8. Premises shall have a lighting system that provides natural or artificial light for the activities conducted.
- 4.1.9. Floors Walls and ceilings shall be designed and constructed in a way that is appropriate for the activities conducted on the food premises.
- 4.1.10. The management shall responsible for the pest control prevention system at the premises.
- 4.1.11. Waste generated shall be segregated, collected and generally controlled as per ES 6433:2019 and ES 612: 2013.
- 4.1.12. The Ice Cream Establishment shall provide the adaptation of the workplace if it employs a person with any kind of disability.
- 4.1.13. The management shall ensure the correct maintenance of the building facilities for those with disabilities.
- 4.1.14. The buildings, facilities and equipment shall pose no risks to customer or staff.

5. Specific requirements

5.1. Premises requirements

Design and construction of food premises shall:

- 5.1.1. Shall be appropriate for the activities for which the premises are used;

- 5.1.2. Shall have natural or mechanical ventilation to effectively remove fumes, smoke, steam and vapors.
- 5.1.3. Shall have a lighting system that provides natural or artificial light for the activities conducted
- 5.1.4. Shall provide adequate space for the activities to be conducted on the food premises and for the fixtures, fittings and equipment used for those activities;
- 5.1.5. Shall permit the premises to be effectively cleaned and, if necessary, sanitized; and disinfected

5.2. Staff requirements

There shall be a person/department responsible for:

- 5.2.1. Monitoring the provision of the services; like assign personnel supervising the cleanliness of the toilet,
- 5.2.2. Identifying and recording any incident related to the provision of the services;
- 5.2.3. Initiating actions to ensure customer satisfaction in compliance with hygiene and environmental health.

5.3. Additional Training program

- 5.3.1. The training program shall meet the following requirements:
 - 5.3.1.1. After recruitment of the new member of staff, a training or orientation period shall be provided Training, such as environmental good practices, hygiene and safety issues;
 - 5.3.1.2. Other emergency training (e.g. what to do in an emergency, evacuation plan) and basic life support (BLS) or first aid training shall be included.
 - 5.3.1.3. All staff shall be trained according to their role in the ice cream establishment.

Training shall include,

- a. Duties and responsibilities of the staff according to their role ;
- b. Customer satisfaction,
- c. Emergency situation and response;
- d. Safety of the foods and beverages;
- e. Non conformity in any service according to the duties of the staff.

5.4. Customer service;

- 5.4.1.1. Shall provide service promptly and diligently in accordance with the good hygiene practice.
- 5.4.1.2. Shall be identifiable; it is recommended that the staff member's name is displayed on a tag;
- 5.4.1.3. Shall Avoid making loud noises as much as possible or raised voices during the performance of tasks;
- 5.4.1.4. Shall Know how to act in case of emergency;
- 5.4.1.5. Shall be aware of any specific accommodation/arrangements available for customer with any kind of disability.

5.4.2. **Services and facilities for staff**

The management shall define the services and facilities offered to staff and conform to the following:

- 5.4.2.1. The management shall decide and avail the staff use uniforms and other necessary personal protective equipment as per service type; whereas for food handlers the color of uniform shall be white.
- 5.4.2.2. The management shall avail facilities for staffs to change clothes for their job position,
- 5.4.2.3. the changing facilities shall be provided separate men's and women's employee locker rooms and vestibule entrances to block sightlines into the locker rooms;
- 5.4.2.4. There shall be bathrooms and closets with toilet paper, paper towels or hand dryers, soap or sanitizer, wastepaper baskets, pedal dustbin and hangers.
- 5.4.2.5. All staff facilities shall be clean and well maintained.

5.5. **Personal hygiene**

All food handlers shall meet the following personal hygiene conditions:

- 5.5.1. shall be clean, have clean hands, and clean and trimmed fingernails;
- 5.5.2. hair shall be clean and covered and long hair should be tied back;
- 5.5.3. they shall wash their hands before starting to work and after each break;
- 5.5.4. Shall not wear visible rings, earrings or piercings, bracelets or watches. When it is not possible to temporarily remove them, these items shall be adequately protected by a food grade plaster;
- 5.5.5. Other staffs who occasionally enter the preparation room shall wear protective clothing.
- 5.5.6. Shall have clean protective clothing, e.g. apron or overall should be worn where appropriate. This should particularly advisable in businesses serving large quantities of ice-cream, e.g. ice-cream parlors.
- 5.5.7. Protective clothing shall not be worn outside the food handling area
- 5.5.8. Personal garments shall not be worn over the protective clothing.
- 5.5.9. Shall cover cuts, sores or grazes with a colored waterproof dressing.
- 5.5.10. Shall not smoke, consume food, chew gum, and lick your fingers, cough or sneeze where ice-cream is being prepared or served.
- 5.5.11. Shall not serve ice-cream if you are suffering from diarrhea, vomiting, jaundice, fever, sore throat with fever, infected skin lesions/cuts

6. Ice cream preparation

- 6.1. The area shall be 20m² enough to
 - 6.1.1. Place deep freeze refrigerators shall be available.
 - 6.1.2. Proper handling & storage of raw materials and supplies (sweeteners, coloring additives and emulsifiers);
 - 6.1.3. safely moving of food handlers;
- 6.2. Raw materials and supplies shall be handled with a food grade material. (containers and shelf)
- 6.3. Dairy products to be used for ice cream preparation shall be pasteurized or extracted from pasteurized milk. (Pasteurization shall be done as per ESA xxxx pasteurization standard).
- 6.4. Ice cream raw materials, sweeteners and coloring additives shall only be mixed with a mixer machine manufactured for ice cream mixing purpose.
- 6.5. Ice cream mixer shall be made from a food grade material.
- 6.6. Ice cream mixer shall be easily cleanable and able to avoid contamination.
- 6.7. Ice cream mix shall only be made from valid edible products and unexpired supplies.
- 6.8. Once an ice cream mix is prepared it shall be immediately stored and kept frozen at a Temperature of -23 °C.
- 6.9. Ice cream sweeteners, coloring additives and emulsifiers shall only be added after ice cream mix is frozen.
- 6.10. Finished ice cream product shall be packed with a food grade material, with appropriate labeling information as per ESA 359 parameters.
- 6.11. If ice cream is served with a biscuit cup prepared at the ice cream establishment, the cup biscuit shall be prepared as per ESA 6662-2021 bakery standard.
- 6.12. Finished ice cream product shall be stored, transported and displayed in a frozen state at a Temperature of - 23 °C.
- 6.13. Finished ice cream product shall be served and consumed as frozen, at the serving room only.
- 6.14. Ice cream storage, deep freezers and displaying refrigerators shall be cleaned with food grade detergents
- 6.15. Ice cream storage, deep freezers and displaying refrigerators shall be built with digital thermometers and at least one portable thermometer.
- 6.16. Digital and portable thermometers shall be calibrated at least once in a year, as per ESA xxxxx Calibration standard.

7. Ice-cream serving

- 7.1. The serving area shall be 12 m².
- 7.2. there shall be cleanable closed shelf, for serving utensils and equipment
- 7.3. There shall be at least one ice cream display refrigerator at serving room.
- 7.4. There shall be a food grade ice cream spoon, one for each ice cream items.
- 7.5. If the ice cream establishment receives finished ice cream product, it shall fulfill required supplier documentations and ensure cold chain receiving requirements.
- 7.6. An ice cream in display refrigerators, if not sold within 8-12 hours; it shall be properly discarded.
- 7.7. The ice cream shall be placed in a temperature of below -18°C.
- 7.8. An ice cream once placed in display refrigerators, shall not be returned back to deep freeze in any circumstances.
- 7.9. Serving chairs and tables shall be easily cleanable and with no physical damage.
- 7.10. There shall be a pedal based plastic dust bin in serving room.
- 7.11. The serving room shall be free of contaminant, wastes, and rodents.

8. Toilet

- 8.1. There shall be a toilet facility.
- 8.2. A 1.2 m X 1.2 area of latrine separate for male and female.
- 8.3. Hand washing with running tap water and basin shall be available at least 3 m far from toilet.

9. Water supply

- 9.1.1. Premises shall have supply of water.
- 9.1.2. Shall use potable water for all activities that use water that are conducted on the premises.

10. Storage and distribution

- 10.1. In the storage room the temperature shall be less than -18°C.
- 10.2. Opened ice cream shall be placed in under -18°C for 2-3 weeks and if unopened for up to 2 months.
- 10.3. Frozen and hardened product shall be stored and often distributed prior to reach to the end consumer.
- 10.4. A retail ice cream manufacturer, the product shall be fresh in the store and sold very soon after manufacture.

- 10.5. Once Ice cream is manufactured; it shall be stored, transported, distributed, and sold in the frozen state.
- 10.6. Ice cream cold chain shall be maintains at -23°C. The distribution chain is called the cold chain and varies from manufacturer to manufacturer.
- 10.7. Storage shall be protected from contamination and the environmental conditions under which Not adversely affect the safety and suitability of the ice cream.

11. Transportation and distribution of ice cream

- 11.1. All vehicles used for the transportation of ice-cream shall be constructed and operated as to protect their contents from exposure to sunlight, dust and from contamination.
- 11.2. The vehicles shall be kept clean and no substance capable of contaminating.
- 11.3. The ice-cream shall be transported in the vehicles in such a manner as to cause contamination of the product.
- 11.4. The arrangement shall be made to keep the ice-cream in bulk containers or in retail packing in a frozen condition at a temperature not exceeding -12°C until they are distributed.
- 11.5. All precautions shall be taken to prevent contamination of the contents of the packages during distribution.
- 11.6. Loading and unloading from vehicles and from stores shall be as fast as practicable.
- 11.7. The Loading and unloading from vehicles and from stores methods used shall minimize product temperature rise.

12. Returned ice cream

- 12.1. Ice-cream returned in broken and open containers after distribution shall be discarded.
- 12.2. Any ice-cream which has been melted or exposed to temperature above -5°C during distribution and is returned to the plant in unopened containers, shall be subjected to re-pasteurization and then used for freezing.

13. Safety requirements

- 13.1. The management is responsible for ensuring that the proper safety measures are defined and put in place. these shall include the management of:
- 13.1.1. risk and accident prevention;
 - 13.1.2. safety of people, assets, buildings and facilities;
 - 13.1.3. Fire protection and management of emergencies.

- 13.1.4. Safety measures of all devices and equipment used in different areas of the ice cream preparation and selling service especially the electrical devices and equipment; drainage systems and installations (e.g. outlets, electrical dividers ...) shall be implemented.
- 13.1.5. Equipment (e.g. regular and emergency lighting, switches, power sources, tap fixtures) shall operate correctly, be safe and have no noticeable damage.
- 13.1.6. Safety equipment shall be duly signposted and shall be operative, visible and accessible.
- 13.1.7. The night club shall keep up dated and valid certificates/records of legal inspections when applicable.

14. Health Safety in terms of pest control

- 14.1. The management is responsible for the pest control prevention system at the premises.
- 14.2. A pest control plan shall be defined and documented by qualified staff (internal or subcontracted), according to the needs and facilities of the ice cream preparation and selling services.
- 14.3. Treatment records as well as a copy of the authorization and sanitary registration of the products used shall be retained.

15. Waste management

15.1. Solid Waste management

- 15.1.1. Solid Waste generated shall be segregate, collected and generally controlled as per ES xxx.
- 15.1.2. Each solid waste container shall be identified indicating the type of waste and shall be duly closed.
- 15.1.3. The waste bags shall be removed whenever necessary and at least once a day (e.g. external collector, waste room).

15.2. Liquid waste management

- 15.2.1. Liquid Waste generated shall be classified and collected as per ES xxx.
- 15.2.2. There shall be a plan for liquid waste disposal
- 15.2.3. Liquid waste shall be dispose in septic tank or with the system of municipal liquid waste disposal line.
- 15.2.4. The institution shall not disposed liquid waste with rainy water.
- 15.2.5. The institution shall be avail all documents related to waste disposal.

16. Cleaning services

- 16.1. Cleaning products shall be used responsibly, respecting the instructions of the manufacturer related to both safety of people and to protection of the environment.
- 16.2. Environmentally friendly and chlorine-free cleaning products should preferably be used, as well as microfiber cloths that reduce the amount of cleaning liquid required. Furthermore, the following requirements shall be met:
- 16.3. Cleaning tools for the bathroom shall be identified according to the use given to them
- 16.4. Cleaning products shall retain their original labels or be visibly identified. If these need to be transferred to a smaller container, this should have an automatic dispensing system.
- 16.5. Food receptacles that could result in accidents if mistaken shall never be used;
- 16.6. During cleaning activities and when the floor is wet, warning signposting shall be displayed to inform customer and prevent accidents;
- 16.7. The minimum content of cleaning storage rooms and of cleaning trolleys shall be defined.
- 16.8. Housekeeping staff shall report incidents (e.g. defective lights, damaged faucets) and shall keep the cleaning equipment in a suitable condition for performing its function.

17. Fire extinguisher and first aid kit

17.1. Fire extinguisher

- 17.1.1. There shall be fire extinguisher not less than 2 kilogram by weight and filled with carbon dioxide.
- 17.1.2. Fire extinguishers shall be placed in a clear and user-friendly manner in the serving room, warehouse, staff dining room, and at important place of the building.
- 17.1.3. The fire extinguisher shall be renewed annually
- 17.1.4. Employees of the organization shall receive training on the use of fire extinguisher.

17.2. First aid kit

- 17.2.1. There shall be sufficient first aid kit according to the size of the organization and the number of employees in it.
- 17.2.2. It shall be placed in a clear, user-friendly manner and where necessary.

Annex A

Guidelines for cleaning of ice cream machine.

All machines should be cleaned thoroughly and frequently. The cleaning procedure and the frequency of cleaning will depend on a number of factors including the type of machine (i.e. self-pasteurizing or non-pasteurizing machine) and the frequency of use. Retailers should consult the manufacturer or supplier of the machine for advice. The following section is for guideline purposes only.

Guidelines for cleaning

1. Drain and discard all ice-cream from the machine.
2. Clean:
 - The tank of the machine using the machines washing cycle
 - The hopper and the tip of the dispenser unit (these need particular attention as they are open to contamination during refilling of mix and dispensing of ice cream)
 - The dismantled parts (dismantle the machine according to the manufacturer's instructions and wash the parts in a designated sink or bucket)
 - The outside of the machine.
3. Inspect and replace any damaged seals and o-rings. Reassemble the machine and lubricate parts as specified by the manufacturer.
4. Sanitize the machine as specified by the manufacturer. Drain the sanitizing solution from the machine and rinse well with drinking water.
5. Refill the machine with a small amount of ice-cream mix and discard the first run.

Annex B

Hand washing procedure

Hands shall be:

1. Washed with warm soapy water for a minimum of 15-20 seconds (Pay particular attention to fingertips and thumbs)
2. Rinsed with warm water
3. Dried (using a paper towel, hand dryer or cabinet roller towel).
4. Wash your hands frequently and always:
 - 4.1. Before and after handling all food
 - 4.2. After using the toilet
 - 4.3. After smoking
 - 4.4. After sneezing, coughing and using a handkerchief
 - 4.5. After touching your nose, ears, mouth or hair
 - 4.6. After performing routine cleaning tasks
 - 4.7. After handling rubbish
 - 4.8. After handling money
 - 4.9. Before gloving and after glove removal

(NOTE: Single service disposable gloves should be of good quality. They should be discarded when damaged or soiled, or when interruptions occur in the operation, e.g. when handling money).

Organization and Objectives

The Ethiopian Standards Agency (ESA) is the national standards body of Ethiopia established in 2010 based on regulation No. 193/2010. ESA is established due to the restructuring of Quality and Standards Authority of Ethiopia (QSAE) which was established in 1998.

ESA's objectives are:-

- ❖ Develop Ethiopian standards and establish a system that enable to check whether goods and services are in compliance with the required standards,
- ❖ Facilitate the country's technology transfer through the use of standards,
- ❖ Develop national standards for local products and services so as to make them competitive in the international market.

Ethiopian Standards

The Ethiopian Standards are developed by national technical committees which are composed of different stakeholders consisting of educational Institutions, research institutes, government or ganizations, certification, inspection, and testing organizations, regulatory bodies, consumer association etc. The requirements and/or recommendations contained in Ethiopian Standards are consensus based that reflects the interest of the TC representatives and also of comments received from the public and other sources. Ethiopian Standards are approved by the National Standardization Council and are kept under continuous review after publication and updated regularly to take account of latest scientific and technological changes. Orders for all Ethiopian Standards, International Standard and ASTM standards, including electronic versions, should be addressed to the Documentation and Publication Team at the Head office and Branch (Liaisons) offices. A catalogue of Ethiopian Standards is also available freely and can be accessed in f rom our website.

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ESA, representing Ethiopia, is a member of the International Organization for Standardization (ISO), and Codex Alimentarius Commission (CODEX). It also maintains close working relations with the International Electro-technical Commission (IEC) and American Society for Testing and Materials (ASTM). It is a founding member of the African Regional Organization for standardization (ARSO).

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