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## DRAFT EAST AFRICAN STANDARD

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Handling, processing and distribution of fish — Code of practice —  
Retail

EAST AFRICAN COMMUNITY

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Draft for Comments Only

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## Foreword

Development of the East African Standards has been necessitated by the need for harmonizing requirements governing quality of products and services in the East African Community. It is envisaged that through harmonized standardization, trade barriers that are encountered when goods and services are exchanged within the Community will be removed.

The Community has established an East African Standards Committee (EASC) mandated to develop and issue East African Standards (EAS). The Committee is composed of representatives of the National Standards Bodies in Partner States, together with the representatives from the public and private sector organizations in the community.

East African Standards are developed through Technical Committees that are representative of key stakeholders including government, academia, consumer groups, private sector and other interested parties. Draft East African Standards are circulated to stakeholders through the National Standards Bodies in the Partner States. The comments received are discussed and incorporated before finalization of standards, in accordance with the Principles and procedures for development of East African Standards. XXXXXX.

East African Standards are subject to review, to keep pace with technological advances. Users of the East African Standards are therefore expected to ensure that they always have the latest versions of the standards they are implementing.

The committee responsible for this document is Technical Committee EASC/TC 003, *Fish and fishily products*.

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## Handling, processing and distribution of fish — Code of practice — Retail

### 1 Scope

This Draft East African Standard provides guidelines for handling, processing and distribution in retailing of fish and fish products intended for human consumption.

### 2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EAS 12, Potable water — Specification

EAS 62-1, Fish handling and processing — Code of practice — Part 1: Fresh fish

### 3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

#### 3.1

##### **fish**

any shellfish or of the cold-blooded (ectothermic) aquatic vertebrates with fins

#### 3.2

##### **chilling**

process of cooling fish to a temperature approaching that of melting ice

#### 3.3

##### **cleaning**

removal of soil, food residues, dirt, grease or other objectionable matter

### 3.4

#### **contaminant**

any biological or chemical agent, foreign matter or other substances not intentionally added to food that may compromise food safety or suitability

### 3.5

#### **contamination**

introduction or occurrence of a contaminant in fish and their products

### 3.6

#### **control measure**

any action and activity that can be used to prevent or eliminate a food safety hazard or reduce it to an acceptable level

### 3.7

#### **corrective action**

any action to be taken when the results of monitoring at the CCP indicate a loss of control

### 3.8

#### **critical control point (CCP)**

step at which control can be applied and is essential to prevent or eliminate a food safety hazard or reduce it to an acceptable level

### 3.9

#### **critical limit**

a criterion that separates acceptability from unacceptability

### 3.10

#### **decision tree**

sequence of questions applied to each process step with an identified hazard to identify which process steps are CCPs

### 3.11

#### **decomposition**

deterioration of fish, shellfish and their products including texture breakdown and causing a persistent and distinct objectionable odour or flavour

### 3.12

#### **defect**

condition found in a product that fails to meet essential quality, composition and/or labelling provisions of the appropriate applicable East African standards

### **3.13**

#### **hazard**

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

### **3.14**

#### **hazard analysis**

process of collecting and evaluating information on hazards and conditions leading to their presence in order to decide which are significant for food safety

### **3.15**

#### **Hazard Analysis and Critical Control Point (HACCP)**

system that identifies, evaluates and controls hazards that are significant for food safety

### **3.16**

#### **microbiological contamination**

presence, introduction, reintroduction, growth and/or survival of pathogens of public health concern

### **3.17**

#### **raw materials**

fresh and frozen fish, shellfish and/or their parts that may be utilized to produce fish and shellfish products intended for human consumption

### **3.18**

#### **chilled water**

water cooled by ice or a suitable refrigeration system

### **3.19**

#### **shelf-life**

period during which the product maintains its sensory qualities, microbiological and chemical quality at a specific storage temperature

### **3.20**

#### **validation**

obtaining evidence that the elements of the HACCP plan are effective

### **3.21**

#### **verification**

application of methods, procedures, tests and other evaluations, in addition to monitoring to determine compliance with the HACCP plan



### 3.22

#### retail

operation that stores, prepares, packages, serves or otherwise provides fish and their products directly to the consumer for preparation by the consumer for human consumption

## 4 Facility design and construction

The facility should include a product flow-through pattern that is designed to prevent potential sources of contamination, minimize process delays (which could result in further reduction in essential quality), and prevent cross-contamination of finished product from raw materials. Fish and other aquatic invertebrates are highly perishable foods and should be handled carefully and chilled without undue delay. Therefore, the facility should be designed to facilitate rapid processing and subsequent storage.

**4.1** The design and construction of a facility should take into consideration the following:

**4.1.1** For ease of cleaning and disinfection, the following should apply:

- a) the surfaces of walls, partitions and floors should be made of impervious, non-toxic materials;
- b) all surfaces with which fish and their products might come into contact should be of corrosion-resistant, impervious material that is light-coloured, smooth and easily cleanable;
- c) walls and partitions should have a smooth surface up to a height appropriate to the operation;
- d) floors should be constructed to allow adequate drainage;
- e) ceilings and overhead fixtures should be constructed and finished to minimize the buildup of dirt and condensation, and the shedding of particles;
- f) windows should be constructed to minimize the build-up of dirt and, where necessary, be fitted with removable and cleanable insect-proof screens. Where necessary, windows should be fixed;
- g) doors should have smooth, non-absorbent surfaces; and
- h) joints between floors and walls should be constructed for ease of cleaning (round joints).

**4.1.2** To minimize contamination, the following should apply:

- a) facility layout should be designed to minimize cross-contamination and may be accomplished by physical or time separation;
- b) all surfaces in handling areas should be non-toxic, smooth, impervious and in sound condition in order to minimize the build-up of fish slime, blood, scales and guts and to reduce the risk of physical contamination;
- c) working surfaces that come into direct contact with fish and their products should be in sound condition, durable and easy to maintain. They should be made of smooth, non-absorbent and non-toxic materials, and inert to fish and their products, detergents and disinfectants under normal operating conditions;
- d) adequate facilities should be provided for the handling and washing of products and should have an adequate supply of cold potable water for that purpose;
- e) suitable and adequate facilities should be provided for storage and/or production of ice;

- f) ceiling lights should be covered or otherwise suitably protected to prevent contamination by glass or other materials;
- g) ventilation should be sufficient to remove excess steam, smoke and objectionable odours, and cross-contamination through aerosols should be avoided;
- h) adequate facilities should be provided for washing and disinfecting equipment, where appropriate;
- i) non-potable water lines should be clearly identified and separated from potable water to avoid contamination;
- j) all plumbing and waste lines should be capable of coping with peak demands;
- k) accumulation of solid, semi-solid or liquid wastes should be minimized to prevent contamination;
- l) where appropriate, containers for offal and waste material should be clearly identified, suitably constructed with a fitted lid and made of impervious material;
- m) separate and adequate facilities should be provided in order to prevent contamination by:
  - 1) poisonous or harmful substances;
  - 2) dry storage of materials, packaging, etc.;
  - 3) offal and waste materials.
- n) adequate hand washing and toilet facilities, isolated from handling area, should be available;
- o) prevent the entry of birds, insects or other pests and animals; and
- p) water supply lines should be fitted with back-flow devices, where appropriate.

**4.1.3** Adequate lighting should be provided to all work surfaces

## **4.2 Product tracing and recall procedures**

A system for recall of product is a necessary component of a prerequisite programme because no process is fail-safe. Product tracing, which includes lot identification, is essential to an effective recall procedure. The following should therefore be taken into consideration:

- a) managers should ensure effective procedures are in place to effect the complete product tracing and rapid recall of any lot of fishery product from the market;
- b) appropriate records of processing, production and distribution should be kept and retained for a period that exceeds the shelf-life of the product;
- c) each container of fish and their products intended for the final consumer or for further processing should be clearly marked to ensure the identification of the producer and of the lot;
- d) where there is a health hazard, products produced under similar conditions, and likely to present a similar hazard to public health, may be withdrawn. The need for public warnings should be considered; and
- e) recalled products should be held under supervision until they are destroyed, used for purposes other than human consumption, or reprocessed in a manner to ensure their safety.
- f)

### 4.3 Training

4.3.1 Fish hygiene training is of fundamental importance. All personnel should be aware of their role and responsibility in protecting fish from contamination and deterioration. Handlers should have the necessary knowledge and skill to enable them to handle fish hygienically. Those who handle strong cleaning chemicals or other potentially hazardous chemicals should be instructed in safe handling techniques.

4.3.2 Each fish facility should ensure that individuals have received adequate and appropriate training in the design and proper application of HACCP or its equivalent.

### 4.4 Handling of fresh fish

4.4.1 Fresh fish should be handled in accordance with EAS 62- 1.

4.4.2 Under normal sorting and/or processing, no fish, shall be accepted if they are known to contain parasites, undesirable micro-organisms, pesticides, veterinary drugs or toxic, decomposed or extraneous substances known to be harmful to human health.

4.4.3 When fish determined as unfit for human consumption they shall be removed and stored separately from the catch and disposed off in a proper manner.

4.4.4 All fish deemed fit for human consumption shall be handled properly with particular attention being paid to time and temperature control.

#### a) Time and temperature control

Temperature is the single most important factor affecting the rate of fish deterioration and multiplication of micro- organisms. For species prone to histamine production, time and temperature control may be the most effective method for ensuring food safety. Therefore, it is essential that fresh fish, fillets and their products that are to be chilled should be held at a temperature as close as possible to 0 °C

#### b) Minimize deterioration – time

To minimize deterioration, it is important that:

- i. chilling should commence as soon as possible; and
- ii. fresh fish and other aquatic invertebrates should be kept chilled, processed and distributed with care and minimum delay.

#### c) Minimize deterioration – temperature control

Where temperature control is concerned:

- i. sufficient and adequate icing or chilled or chilled water systems where appropriate, should be employed to ensure that fish and other aquatic invertebrates are kept chilled at a temperature as close as possible to 0 °C;
- ii. fish should be stored in shallow layers and surrounded by finely divided melting ice;
- iii. live fishes are to be transported at temperatures tolerable for species;
- iv. chilled or chilled water systems and/or cold storage systems should be designed and maintained to provide adequate cooling and/or freezing capacities during peak loads;
- v. fish should not be stored in chilled water systems to a density that impairs its working efficiency; and

- vi. monitoring and controlling the time and temperature and homogeneity of chilling should be performed regularly.

## **5 Retail of fish and fish products**

### **5.1 General**

**5.1.1** In the context of recognizing controls at individual processing steps, this clause provides examples of potential hazards and defects and describes technological guidelines that can be used to develop control measures and corrective action. At a particular step, only the hazards and defects that are likely to be introduced or controlled at that step are listed. However, within the scope of this standard, it is not possible to give details of critical limits, monitoring, record-keeping and verification for each of the steps as these are specific to particular hazards and defects.

**5.1.2** Fish and their products at retail should be received, handled, stored and displayed to consumers in a manner that minimizes potential food safety hazards and defects and maintains essential quality. products should be purchased from known or approved sources Retail operators should develop and use written purchase specifications designed to ensure food safety and desired quality levels. Retail operators should be responsible for maintaining quality and safety of products.

**5.1.3** Proper storage temperature after receipt is critical to maintaining product safety and essential quality. Chilled products should be stored in a hygienic manner at temperatures less than or equal to 4 °C (40 °F), MAP products at 3 °C (38 °F) or lower, while frozen products should be stored at temperatures less than or equal to -18 °C (0 °F).

**5.1.4** Preparation and packaging should be carried out in a manner consistent with the principles and recommendations found in clause 4. Products in an open full display should be protected from the environment, for example, by the use of display covers (sneeze guards). At all times, displayed fish items should be held at temperatures and in conditions that minimize the development of potential bacterial growth, toxins and other hazards in addition to loss of essential quality.

**5.1.5** Consumer information at the point of purchase, for example, placards or brochures that inform consumers about storage, preparation procedures and potential risks of products if mishandled or improperly prepared, is important to ensuring that product safety and quality are maintained.

**5.1.6** A system of tracking the origin and codes of fish and their products should be established to facilitate product recall or public health investigations in the event of the failure of preventive health protection processes and measures.

### **5.2 Receiving of fish and their products at retail**

#### **5.2.1. General considerations**

The following should therefore apply:

- a) the transport vehicle should be examined for overall hygienic condition. Products subject to filth, taint or contamination should be rejected;
- b) the transport vehicle should be examined for possible cross-contamination of ready-to-eat fish and fishery products by raw fish and fishery products. Determine that cooked-ready-to-eat product has not been exposed to raw product or juices;
- c) all products should be examined for decomposition and spoilage at receipt. Products exhibiting signs of decomposition should be rejected; and
- d) when a log of the cargo-hold temperature for the transport vehicle is kept, records should be examined to verify adherence to temperature requirements.

## **5.2.2. Receiving of chilled products at retail**

### **5.2.2.1. Potential hazards**

- a) microbiological contamination;
- b) chemical and physical contamination;
- c) histamine formation;
- d) botulinum toxin formation.

### **5.2.2.2. Potential defects**

- a) spoilage (decomposition);
- b) contaminants;
- c) filth

### **5.2.2.3 Technical procedure**

Product temperature should be taken from several locations in the shipment and recorded. Chilled fish and their products should be maintained at or below 4 °C (40 °F). MAP product, if not frozen, should be maintained at or below 3 °C (38 °F).

## **5.2.3. Reception of frozen products at retail**

### **5.2.3.1. Potential hazards** Unlikely.

### **5.2.3.2 Potential defects**

- a) thawing;
- b) contaminants;
- c) filth.

### **5.2.3.3. Technical procedure**

For the control of the above hazards and defects, the following guidance should apply:

- a) incoming frozen fish should be examined for signs of thawing and evidence of filth or contamination. suspect shipments should be refused; and
- b) incoming frozen fish should be checked for internal temperatures, taken and recorded from several locations in the shipment. Frozen fish and their products should be maintained at or below –18 °C (0 °F).

## **5.3. Chilled storage of products at retail**

### 5.3.1 Potential hazards

- a) histamine formation;
- b) microbiological contamination;
- c) chemical contamination;
- d) botulinum toxin formation.

### 5.3.2 Potential defects:

- a) decomposition;
- b) contaminants;
- c) filth.

### 5.3.3. Technical procedure

For the control of the above hazards and defects, the following guidance should apply:

- a) products in chilled storage should be held at 4 °C (40 °F). MAP product should be held at 3 °C (38 °F) or below;
- b) fish should be properly protected from filth and other contaminants through proper packaging and stored off the floor;
- c) a continuous temperature-recording chart for fish storage coolers is recommended;
- d) the cooler room should have proper drainage to prevent product contamination;
- e) ready-to-eat items and molluscan shellfish should be kept separate from each other and other raw food products in chilled storage. Raw product should be stored on shelves below cooked product to avoid cross-contamination from drip; and
- f) a proper product rotation system should be established. This system could be based on first-in, first-out usage, production date or “best before” date on labels, sensory quality of the lot, etc, as appropriate.

## 5.4 Frozen storage of products at retail

### 5.4.1 Potential hazards

Unlikely.

### 5.4.2 Potential defects

- a) chemical decomposition (rancidity);
- b) dehydration

### 5.4.3 Technical guidance

For the control of the above hazards and defects, the following guidance should apply:

- a) product should be maintained at –18 °C (0 °F) or less. Regular temperature monitoring should be carried out. A recording thermometer is recommended;

- b) fish products should not be stored directly on the floor. Product should be stacked to allow proper air circulation.

## **5.5 Preparation and packaging chilled products at retail**

Refer to 5.3.3.

### **5.5.1 Potential hazards**

- a) microbiological contamination;
- b) histamine formation;
- c) physical and chemical contamination;
- d) allergens.

### **5.5.2 Potential defects:**

- a) decomposition;
- b) incorrect labelling.

### **5.5.3 Technical procedure**

For the control of the above hazards and defects, the following guidance should apply:

- a) care should be taken to ensure that handling and packaging of products is conducted in accordance with the guidelines in clause 4;
- b) care should be taken to ensure that labelling is in accordance with the guidelines in clause 4 and relevant East African standard
- c) care should be taken to ensure that product is not subjected to temperature abuse during packaging and handling; and
- d) care should be taken to avoid cross-contamination between ready-to-eat and raw fish in the work areas or by utensils or personnel.

## **5.6 Retail display of chilled fish**

### **5.6.1 Potential hazards**

- a) Histamine formation;
- b) microbiological contamination;
- c) botulinum toxin formation.

### **5.6.2 Potential defects:**

- a) decomposition;
- b) dehydration.

### **5.6.3 Technical procedure**

For the control of the above hazards and defects, the following guidance should apply:

- a) products in chilled display should be kept at 4 °C (40 °F) or below. Temperatures of products should be taken at regular intervals;
- b) ready-to-eat items should be separated from each other and from raw food products in a chilled full- service display. A display diagram is recommended to ensure that cross-contamination does not occur;
- c) if ice is used, proper drainage of melt water should be in place. Retail displays should be self-draining. Replace ice daily and ensure ready-to-eat products are not placed on ice upon which raw product has previously been displayed;
- d) each commodity in a full-service display should have its own container and serving utensils to avoid cross- contamination;
- e) care should be taken to avoid arranging product in such a large mass/depth that proper chilling cannot be maintained and product quality is compromised;
- f) care should be taken to avoid drying of unprotected products in full-service displays. Use of an aerosol spray, under hygienic conditions, is recommended;
- g) product should not be added above the “load line” where a chilled state cannot be maintained in self- service display cases of packaged products;
- h) product should not be exposed to ambient room temperature for a prolonged period of time when filling/stocking display cases; and
- i) fish in full-service display cases should be properly labelled by signs or placards to indicate the commonly accepted name of the fish so the consumer is informed about the product.

## **5.7 Retail display of frozen fish**

### **5.7.1 Potential hazards**

Unlikely.



### 5.7.2 Potential defects

- a) thawing;
- b) dehydration (freezer burn).

### 5.7.3 Technical procedure

For the control of the above hazards and defects, the following guidance should apply:

- a) product should be maintained at  $-18\text{ }^{\circ}\text{C}$  ( $0\text{ }^{\circ}\text{F}$ ) or below. Regular temperature monitoring should be carried out. A recording thermometer is recommended;
- b) product should not be added above the “load line” of cabinet self-service display cases. Upright freezer self-service display cases should have self-closing doors or air curtains to maintain a frozen state;
- c) product should not be exposed to ambient room temperature for a prolonged period of time when filling/stocking display cases;
- d) a product rotation system to ensure first-in, first-out usage of frozen fish should be established;
- e) frozen fish in retail displays should be examined periodically to assess packaging integrity and the level of dehydration or freezer burn.

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