



CD/K/619:2010  
ICS 67.120.20

## **EAST AFRICAN STANDARD**

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**Handling, processing, quality evaluation and storage of poultry —  
Code of practice**

**EAST AFRICAN COMMUNITY**

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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 East Africa. It is envisaged that through harmonized standardization, trade barriers which are encountered when goods and services are exchanged within the Community will be removed.

In order to meet the above objectives, the EAC Partner States have enacted an East African Standardization, Quality Assurance, Metrology and Test Act, 2006 (EAC SQMT Act, 2006) to make provisions for ensuring standardization, quality assurance, metrology and testing of products produced or originating in a third country and traded in the Community in order to facilitate industrial development and trade as well as helping to protect the health and safety of society and the environment in the Community.

East African Standards are formulated in accordance with the procedures established by the East African Standards Committee. The East African Standards Committee is established under the provisions of Article 4 of the EAC SQMT Act, 2006. The Committee is composed of representatives of the National Standards Bodies in Partner States, together with the representatives from the private sectors and consumer organizations. 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 procedures of the Community.

Article 15(1) of the EAC SQMT Act, 2006 provides that "Within six months of the declaration of an East African Standard, the Partner States shall adopt, without deviation from the approved text of the standard, the East African Standard as a national standard and withdraw any existing national standard with similar scope and purpose".

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.

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## Introduction

With the installation of several poultry dressing plants in the region where a sizeable number of birds is handled and processed daily, it is necessary to have a comprehensive code on scientific handling, processing, quality evaluation and storage of poultry for providing wholesome dressed poultry for human consumption. Besides, the code will also enable the authorities in exercising due control on wastage of various valuable poultry products, many a time lost due to faulty handling and will also help in systematic ante-mortem and post-mortem inspection of poultry. This standard includes a quality evaluation card for dressed poultry (Annex A).

In the preparation of this East African Standard, the following sources were consulted extensively:

IS 7049:1973(R2000), *Code for Handling, Processing, Quality Evaluation and Storage of Poultry*

Codex Alimentarius website: [http://www.codexalimentarius.net/mrls/vetdrugs/jsp/vetd\\_q-e.jsp](http://www.codexalimentarius.net/mrls/vetdrugs/jsp/vetd_q-e.jsp)

USDA Foreign Agricultural Service website: <http://www.mrldatabase.com>

USDA Agricultural Marketing Service website: <http://www.ams.usda.gov/AMSV1.0/Standards>

European Union: [http://ec.europa.eu/enterprise/sectors/pharmaceuticals/veterinary-use/maximum-residue-limits/index\\_en.htm](http://ec.europa.eu/enterprise/sectors/pharmaceuticals/veterinary-use/maximum-residue-limits/index_en.htm)

Assistance derived from these sources is hereby acknowledged.

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*Draft for comments only — Not to be cited as East African Standard*

## Handling, processing, quality evaluation and storage of poultry — Code of practice

### 1 Scope

This code lays down guidelines for efficient handling, processing, quality evaluation and cold storage of poultry.

### 2 Normative references

The following referenced documents are indispensable for the application 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.

CD-K-618:2010, *Ante-mortem and post-mortem inspection of poultry — Code of practice*

CD-K-620:2010, *Poultry — Glossary of terms*

CD-K-622:2010, *Chicken canned in brine — Specification*

CD-K-623:2010, *Poultry — Canned chicken curry — Specification*

CD-K-629:2010, *Transport of small and medium sized seed-eating birds — Code of practice*

CD-K-630:2010, *Transport of poultry — Code of practice*

EAS 35, *Edible salt — Specification*

EAS 12, *Drinking (potable water) — Specification*

EAS 38, *Labelling of prepackaged foods — Specification*

EAS 39, *Hygiene in the food and drink manufacturing industry — Code of practice*

EAS 103, *Schedule for permitted food additives*

EAS 123, *Distilled water — Specification*

ISO 936, *Meat and meat products — Determination of total ash*

ISO 1736, *Dried milk and dried milk products — Determination of fat content — Gravimetric method (Reference method)*

ISO 1737, *Evaporated milk and sweetened condensed milk — Determination of fat content — Gravimetric method (Reference method)*

ISO 4831, *Microbiology of food and animal feeding stuffs — Horizontal method for the detection and enumeration of coliforms — Most probable number technique*

ISO 4832, *Microbiology of food and animal feeding stuffs — Horizontal method for the enumeration of coliforms — Colony-count technique*

ISO 4833, *Microbiology of food and animal feeding stuffs — Horizontal method for the enumeration of microorganisms — Colony-count technique at 30 degrees C*

ISO 5537, *Dried milk — Determination of moisture content (Reference method)*

ISO 5985, *Animal feeding stuffs — Determination of ash insoluble in hydrochloric acid*

ISO 6491, *Animal feeding stuffs — Determination of phosphorus content — Spectrometric method*

ISO 6579, *Microbiology of food and animal feeding stuffs — Horizontal method for the detection of Salmonella spp.*

ISO 8156, *Dried milk and dried milk products — Determination of insolubility index*

ISO 9390, *Water quality — Determination of borate — Spectrometric method using azomethine-H*

ISO 13730, *Meat and meat products — Determination of total phosphorus content — Spectrometric method*

ISO 21527-1, *Microbiology of food and animal feeding stuffs — Horizontal method for the enumeration of yeasts and moulds — Part 1: Colony count technique in products with water activity greater than 0.95*

ISO 21527-2, *Microbiology of food and animal feeding stuffs — Horizontal method for the enumeration of yeasts and moulds — Part 2: Colony count technique in products with water activity less than or equal to 0.95*

### **3 Definitions**

For the purpose of this standard the following definition shall apply:

#### **3.1**

##### **broiler or fryer**

A broiler or fryer is a young chicken (usually 9 to 12 weeks of age) of either sex, that is, tendermeated with soft pliable, smooth-textured skin and flexible breastbone cartilage.

#### **3.2**

##### **hen or stewing chicken or fowl**

A hen or stewing chicken or fowl is a mature female chicken (usually more than 10 months of age) with meat less tender than that of a roaster, and nonflexible breastbone tip.

#### **3.3**

##### **culled poultry**

Unproductive poultry which are sent for slaughter.

### **4 Transport of poultry**

**4.1** Poultry of various species are usually transported from the farms to the poultry processing plants in cages, coops and crates. In some instances, specially built trucks are used. Care shall be taken in collecting and loading the live poultry at the farm and in unloading at the poultry processing plant so that the poultry shall not be bruised or injured.

**4.2** Special attention shall be directed to the humane transport of live poultry to prevent overcrowding and suffocation, exposure to extremes of temperature and transport over long distances without feed and water [see CD-K-630:2010]. The cages, coops, crates and vehicles should be disinfected before leaving the poultry processing plant, in order to reduce the possibility of the spread of poultry diseases.

### **5 Dressing plant and facilities**

**5.1** The slaughter, evisceration and packing of poultry should be conducted in such a manner as will result in hygienic processing, proper inspection and preservation for the production of clean and wholesome poultry and poultry products.

**5.2** Separate rooms should be provided for the following operations.

**5.2.1** Live poultry receiving and holding. Facilities should be provided for washing and disinfection of coops. There should also be a facility for watering of birds at the holding area if birds are to be retained for 8 hours or more.

**5.2.2** Slaughter and bleeding.

**5.2.3** Feather removal.

**5.2.4** Evisceration, chilling and packing. Adequate facility for the prompt removal of body heat of slaughtered poultry should be provided.

**5.2.5** Inedible products room for the storage of feathers and inedible waste products and concerned poultry carcasses, prior to transport to rendering plant for the preparation of inedible fats and animal food.

**5.3 Water supply** — Particular attention should be paid to water supply to the poultry dressing plant. The quality of water used should satisfy the requirements for good drinking water.

**5.4 Ventilation** — Particular attention should also be given to ventilation. Illumination should be sufficiently strong, properly situated and should not cause glare.

**5.5 Personnel hygiene** — Personnel shall wear special working clothes including head gear of washable material, and the personnel shall be guided so that each individual carries out his particular work as correctly, effectively and hygienically as possible. In this connection, the veterinarian shall explain the necessity of frequent hand washing and disinfection during work and specially after visiting the toilet. Omission of such principles in the processing of the poultry can result in transmission of infection from bird to bird and from human being to slaughtered poultry (see EAS 39).

**5.6** There shall be satisfactory disposal of sewage.

## **6 Ante-mortem and post-mortem inspection of poultry**

The poultry shall be subjected to an ante-mortem and post-mortem inspection according to the procedure laid down in CD-K-618:2010.

## **7 Handling and processing**

**7.1 Stunning** — The poultry may preferably be stunned. In that case the poultry may be hung on shackles attached to chains running on an overhead track and made unconscious with one blow on the head. In large establishments poultry may be stunned by efficient electrical stunners.

**7.2 Bleeding** — The birds should be bled by giving a cut on the jugular vein below the earlobe and slid along the line while being bled-out, towards the scald bath. In small processing plants, the operation may be done manually. The bleeding time should preferably be not less than 90 seconds to ensure proper bleeding.

### **7.3 Scalding**

**7.3.1** Scalding shall be done after all movements (reflexes) have ceased. The temperature of the scald water shall be maintained at about 60 °C, and the poultry should be kept in it for about 2 minutes.

**7.3.2** Care should be taken to maintain a bacterial count less than 10 000 per ml in this water, unless the scald vessel is supplied with a suitable overflow.

**NOTE** Scalding in hot water at 60 °C gives the easiest feather-plucking, but may result in the flesh becoming tough. In that case a lower temperature 55 to 57 °C may be used.

7.3.3 The scald container shall be thoroughly cleaned daily.

7.3.4 The scald water shall be changed during slaughter.

7.4 **Plucking** — Immediately after scalding, the plucking of poultry shall be done by machine, followed by a brief manual fine-plucking.

7.5 **Removal of feet** — From hygiene point of view, removal of the feet at the tarsometatarsal joint shall be done at this stage, as this would make it possible to avoid dirt and dirty water from the feet and legs running down the body, after opening the abdominal cavity.

7.6 **Evisceration and chilling** — First the oil gland shall be removed. The abdominal cavity should then be opened by means of a transverse cut. A circular cut should be made around the vent so that the intestines and organs can be removed. This procedure shall be followed very carefully, without any damage to the intestine by cuts or tearing.

NOTE It has been estimated that 1 g of faecal matter contains more than  $2.5 \times 10^9$  bacteria and there is enormous contamination which can take place in the abdominal cavity, the thoracic cavity and on the surface of the bird. Furthermore, as poultry is the most significant reservoir for *Salmonella* organism, it is important to remove the organs, and proper veterinary control holds back such contaminated birds from washing and cleaning out, before the poultry can be allowed to continue for further processing.

7.7 At this point of the slaughter line the veterinary evaluation of the poultry as discussed in CD-K-618:2010 shall be made.

7.8 After the inspection has been carried out, the poultry shall be given a washing with water. The intestines and the organs shall be removed, washed and collected. The gizzard and the head shall be removed. The poultry shall then be once more sprayed with water after which the lungs and the kidneys shall be removed by vacuum or by means of a suitably constructed fork. The poultry should be given a further spray with water after the removal of lungs and kidneys to ensure that the bird entering the spin-chiller is as clean as possible.

7.8.1 The bird thus processed shall then be cooled in running water containing 2 to 5 ppm chlorine in a spin-chiller or in other types of chiller.

NOTE 1 Although the bird has been sprayed, its inner and outer surfaces are heavily contaminated. In spin-chiller with water at a temperature of 5 to 7°C most of the bacterial flora will stop growing and the number of bacteria on the surfaces of the body will be decimated by the continuous movement in water and by the addition of fresh water. The amount of water which is necessary for cooling is about 6 litres per bird.

NOTE 2 Poultry flesh contains little or no bacteria. The most important contamination comes from outside, that is, from air, water, food and faecal matter during its passage along the slaughter line; and also by means of knives, hands, clothes, and equipment. Some of those bacteria which are found on the poultry skin are *Pseudomonas*, *Achromobacter*, *Flavobacteria*, *micrococci*, *coliform Alkaligene*; *Proteus* and *Bacillus*. As the growth of these bacteria causes putrefaction of the poultry, first on the free surfaces and thereafter in the flesh itself, it is necessary to stop their growth as rapidly as possible and keep the poultry cooled. Lowering the temperature reduces the rate of bacterial growth considerably.

7.9 **Draining** — After evisceration and cleaning, the birds shall be drained for 5 to 10 minutes since an undrained dripping bird when packed and frozen tends to be coated diffusely with irregularly formed ice layers which mar the uniformity in appearance of the carcass.

## 8 Grading

8.1 The poultry shall be graded on the basis of the characteristics given in 8.1.1 to 8.1.4.

8.1.1 Dressed mass (with and without giblet and neck).

8.1.2 Dressing percentage =  $\frac{\text{Dressed mass after washing}}{\text{Live mass}} \times 100$

8.1.3 Degree of fleshing (to be determined by using breast angle-meter).

8.1.4 Keel bone length (to be determined with the help of vernier calipers).

## 9 Quality evaluation

The 10-week old birds shall be steam-cooked at 0.70 to 1.05 kg/cm<sup>2</sup> pressure for 15 to 10 minutes respectively. The processed birds shall be evaluated for quality as per the evaluation card given in Annex A.

## 10 Packing

**10.1** Before packing, the gizzard rid of the internal contents and mucosal layer, the heart after removal of pericardium, the liver and the neck should be placed into the abdominal cavity of the carcass enclosed in a plastic bag. Dress the carcass by folding back the wings and introducing the legs through the abdominal opening out through the vent opening.

**10.2** The drained and dressed birds shall be packed into suitable sized polythene bags (50 micron gauge) or other suitable packing media. Before final sealing, the packs shall be immersed into vats containing water to expel the content of air between the carcass and the bag, taking care that no water is introduced in the pack. Alternatively, vacuum packing or shrink wrapping of the packs may be adopted. After the air inside is expelled, the bag shall be sealed in a sealer or shall be knotted using rubber bands.

## 11 Storage

**11.1** The bulk quantities of processed poultry may be stored either under refrigeration, or frozen.

**11.1.1** The poultry should be stored under refrigeration at 1 °C. The period of storage under refrigeration should not exceed 10 days.

**11.1.2** The poultry may be frozen at -23 to -18 °C, and may be stored to 9 months.

**Annex A**  
(normative)

**Evaluation card for numerical scoring for overall quality and acceptance of dressed poultry**

Name \_\_\_\_\_ Date \_\_\_\_\_

Product \_\_\_\_\_ Time \_\_\_\_\_

**A.1 Overall quality**

Please rate these samples for overall quality according to the following grade descriptions and scoring:

Quality grade description	Score
Excellent	9-10
Good	6-8
Fair	4-5
Poor	1-3

Code No.	Colour	Texture	Taste	Odour	Overall Quality
—	—	—	—	—	—
—	—	—	—	—	—
—	—	—	—	—	—
—	—	—	—	—	—

**A.2 Acceptance score sheet**

	Points
Like very much	7
Like moderately	6
Like slightly	5
Neither like nor dislike	4
Dislike slightly	3
Dislike moderately	2
Dislike very much	1

Please encircle the point at which you rate the quality (use reverse side for additional remarks).

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