



## EAST AFRICAN STANDARD

---

### Frozen clam meat — Specification



**EAST AFRICAN COMMUNITY**

---

## 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.

© East African Community 2010 — All rights reserved\*

East African Community

P O Box 1096

**Arusha**

Tanzania

Tel: 255 27 2504253/8

Fax: 255-27-2504481/2504255

E-Mail: [eac@eachq.org](mailto:eac@eachq.org)

Web: [www.each.int](http://www.each.int)

---

\* © 2010 EAC — All rights of exploitation in any form and by any means reserved worldwide for EAC Partner States' NSBs.

## Introduction

Molluscs play a significant role in the economy of fishermen and other people living in coastal areas. Among the mollusks, clam is an important shellfish utilized for food. The common edible species of clams are *Villorita* and *Meretrix*. From clam meat is prepared by quick freezing raw or cooked meat obtained from fresh depurated live clams of edible species.

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

IS 14514:1998(R2003), *Clam Meat — Frozen — Specification*

CAC/RCP 52:2003(Rev. 4:2008), *Code of practice for fish and fishery products*

IS 4303-1:1975, *Code of hygienic conditions for fish industry — Part 1: Pre-processing stage*

IS 4303-2:1975, *Code of hygienic conditions for fish industry — Part 2: Canning stage*

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.mrlatabase.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.

**Contents**

1	Scope .....	1
2	Normative references .....	1
3	Description .....	3
3.1	Product definition .....	3
3.2	Presentation .....	3
3.3	Other presentations .....	3
4	Essential composition and quality factors .....	3
5	Food additives .....	3
6	Hygiene and handling .....	3
7	Packing and marking .....	4
7.1	Packing .....	4
7.2	Marking .....	4
8	Sampling, examination and analyses .....	5
9	Definition of defects .....	5
10	Lot acceptance .....	6
	Annex A (normative) Determination of cadmium .....	9

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

## Frozen clam meat — Specification

### 1 Scope

This standard prescribes requirements and method of sampling and test for frozen clam meat, minced clam meats or chopped clam meats prepared from any of the following species:

- *Mya arenaria*
- *Spisula solidissima*
- *Ensis directus*
- *Mercenaria mercenaria* or *Venus mercenaria*
- *Arctica islandica*
- *Saxidomus giganteus*
- Other species commonly associated with the clam family.

### 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.

CAC/GL 21, *Principles for the establishment and application of microbiological criteria for foods*

CAC/RCP 1, *Recommended international code of practice — General principles of food hygiene*

CAC/GL 30, *Principles and guidelines for the conduct of microbiological risk assessment*

CAC/GL 31, *Guidelines for the sensory evaluation of fish and shellfish in laboratories*

CD-K-572-2010, *Fish and fisheries products — Methods of sampling*

CAC/RCP 52[CD/K/521:2010], *Code of practice for fish and fishery products*

EAS 35, *Edible salt — Specification*

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

EAS 38, *Labelling of prepackaged foods — Specification*

EAS 41, *Fruits, vegetables and derived products — Sampling and methods of test*

EAS 103, *Schedule for permitted food additives*

EAS 123, *Distilled water — Specification*

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

ISO 6887-1, *Microbiology of food and animal feeding stuffs — Preparation of test samples, initial suspension and decimal dilutions for microbiological examination — Part 1: General rules for the preparation of the initial suspension and decimal dilutions*

ISO 6887-2, *Microbiology of food and animal feeding stuffs — Preparation of test samples, initial suspension and decimal dilutions for microbiological examination — Part 2: Specific rules for the preparation of meat and meat products*

ISO 6887-3, *Microbiology of food and animal feeding stuffs — Preparation of test samples, initial suspension and decimal dilutions for microbiological examination — Part 3: Specific rules for the preparation of fish and fishery products*

ISO 6888-1, *Microbiology of food and animal feeding stuffs — Horizontal method for the enumeration of coagulase-positive staphylococci (Staphylococcus aureus and other species) — Part 1: Technique using Baird-Parker agar medium*

ISO 6888-2, *Microbiology of food and animal feeding stuffs — Horizontal method for the enumeration of coagulase-positive staphylococci (Staphylococcus aureus and other species) — Part 2: Technique using rabbit plasma fibrinogen agar medium*

ISO 6888-3, *Microbiology of food and animal feeding stuffs — Horizontal method for the enumeration of coagulase-positive staphylococci (Staphylococcus aureus and other species) — Part 3: Detection and MPN technique for low numbers*

ISO 7251, *Microbiology of food and animal feeding stuffs — Horizontal method for the detection and enumeration of presumptive Escherichia coli — Most probable number technique*

ISO 7937, *Microbiology of food and animal feeding stuffs — Horizontal method for the enumeration of Clostridium perfringens — Colony-count technique*

ISO 13720, *Meat and meat products — Enumeration of Pseudomonas spp.*

ISO 16050, *Foodstuffs — Determination of aflatoxin B<sub>1</sub>, and the total content of aflatoxin B<sub>1</sub>, B<sub>2</sub>, G<sub>1</sub> and G<sub>2</sub> in cereals, nuts and derived products — High performance liquid chromatographic method*

ISO 16654, *Microbiology of food and animal feeding stuffs — Horizontal method for the detection of Escherichia coli O157*

ISO 21567, *Microbiology of food and animal feeding stuffs — Horizontal method for the detection of Shigella spp.*

ISO/TS 21872-1, *Microbiology of food and animal feeding stuffs — Horizontal method for the detection of potentially enteropathogenic Vibrio spp. — Part 1: Detection of Vibrio parahaemolyticus and Vibrio cholerae*

ISO/TS 21872-2, *Microbiology of food and animal feeding stuffs — Horizontal method for the detection of potentially enteropathogenic Vibrio spp. — Part 2: Detection of species other than Vibrio parahaemolyticus and Vibrio cholerae*

ISO 11290-1, *Microbiology of food and animal feeding stuffs — Horizontal method for the detection and enumeration of Listeria monocytogenes — Part 1: Detection method*

ISO 11290-2, *Microbiology of food and animal feeding stuffs — Horizontal method for the detection and enumeration of Listeria monocytogenes — Part 2: Enumeration method*

### 3 Description

#### 3.1 Product definition

Frozen clam meat is meat picked either raw or after heating from *Villorita* species or *Meretrix* species or any other edible species of clams and frozen either raw or after cooking.

The frozen clam meat shall have satisfactory appearance and characteristic colour. It shall be free from discolouration, deterioration, sand particles, pieces of shell, filth or any other foreign matter.

#### 3.2 Presentation

Frozen clam meat shall be of following two types:

- a) Raw frozen clam meat (RFCM), and
- b) Cooked frozen clam meat (CFCM).

NOTE The clams treated with hot water for opening the shell with the meat picked up from it and subsequently frozen shall not be treated as cooked variety.

#### 3.3 Other presentations

Any other presentation of the product may be permitted provided that it:

- a) is sufficiently distinctive from the forms of presentation set out above; and
- b) meets all other regulatory requirements; and
- c) is adequately described on the label and in accordance with all regulatory labelling requirements.

### 4 Essential composition and quality factors

#### 4.1 Clam meat

Frozen clam meat shall be prepared from sound clam of the species designated in Clause 1 which are alive immediately prior to the commencement of processing and of a quality suitable for human consumption.

4.2 The frozen clam meat shall have a soft and firm texture. The material shall be of reasonably uniform size with broken pieces of meat not exceeding 10 percent by count.

#### 4.3 Other ingredients

The packing medium and all other ingredients used shall be of food grade quality and conform to all applicable East African standards.

### 5 Food additives

Only the use of additives complying with EAS 103 is permitted.

### 6 Hygiene and handling

6.1 The final product shall be free from any foreign material that poses a threat to human health.

**6.2** When tested by appropriate methods of sampling and examination in the standards listed in Clause 2, the product:

- (i) shall be free from micro-organisms capable of development under normal conditions of storage; and
- (ii) shall not contain any other substance including substances derived from microorganisms in amounts which may represent a hazard to health; and
- (iii) shall be free from container integrity defects which may compromise the hermetic seal.

**6.3** It is recommended that the product covered by the provisions of this standard be prepared and handled in accordance with the appropriate sections of CAC/RCP 1 and CAC/RCP 52.

**6.4** The material shall also satisfy the limits for heavy metals and microbiological activity prescribed in Table 1.

**Table 1 — Microbiological and heavy metal limits for frozen clam meat**

Characteristic	Requirement	Method of test
(1)	(2)	(3)
i) Total bacterial count/g, in the finished product, Max	100 000	ISO 4833
ii) <i>Escherichia coli</i> count/g, Max	20	ISO 7251
iii) Faecal <i>Streptococci</i> count/g, Max	100	Annex H
iv) Coagulase positive <i>Staphylococci</i> /g, Max	100	ISO 6888
v) <i>Salmonella</i> , per 25 g	Absent	ISO 6579
vi) <i>Shigella</i> , per 25 g	Absent	ISO 21567
vii) <i>Vibrio cholerae</i> , per 25 g	Absent	ISO/TS 21872
viii) <i>Listeria monocytogenes</i> , per 25 g	Absent	ISO 11290
ix) Histamine content, mg/100 g, max	20.0	Annex ___
<b>x) Heavy metals:</b>		
a) Mercury, mg/kg, Max	0.5	EAS 41
b) Copper, mg/kg, Max	20.0	EAS 41
c) Zinc, mg/kg, Max	50.0	EAS 41
f) Arsenic, mg/kg, Max	0.1	EAS 41
e) Lead, mg/kg, Max	0.3	EAS 41
f) Tin, mg/kg, Max		
(i) For product packed in tin plate	50.0	EAS 41
(ii) For product packed in other packing containers	250.0	EAS 41
g) Cadmium	0.3	EAS 41

## **7 Packing and marking**

### **7.1 Packing**

The material shall be packed in suitable container as agreed between the purchaser and the processor. In the absence of any such agreement the material shall be packed in containers which may withstand the stress and strain of transportation and prevent deterioration during transportation and frozen storage.

### **7.2 Marking**

**7.2.1** Each container having the wrapped frozen material shall be marked or labelled with the

following particulars:

- a) Name and type of the material with brand name, if any;
- b) Name and address of the processor;
- c) Batch number or code number;
- d) Net mass;
- e) Date of packing;
- f) The words 'Best before ..... (month and year)' to be indicated; and
- g) Any other requirement as given OIML R87, *Quantity of product in prepackages*.

**7.2.2** The product may also be marked with a Standard Mark.

## **8 Sampling, examination and analyses**

### **8.1 Sampling**

**8.1.1** The sampling and tolerance plans in CD-K-572:2010 shall be used to determine the acceptability of the lot. The sampling plans dictate the minimum sample size to be taken. If necessary, in the opinion of the inspector, more than the minimum sample size specified may be taken.

**8.1.2** Sampling of lots for the sensory examination of the product shall be in accordance with CD-K-572:2010 except that a lower acceptance number for decomposition shall be used as indicated in the sampling tables.

The tables specify the minimum number of sample units to be used for the following types of inspections:

- a) Level I — Sensory examinations of all products subject to inspection other than lots which are subject to reinspection.
- b) Level II — Sensory examinations of all products which are under reinspection.

**8.1.3** The sample unit shall consist of a container of clams and the entire contents thereof.

### **8.2 Sensory and physical examination**

Samples taken for sensory and physical examination shall be assessed by persons trained in such examination and in accordance with CAC/GL 31.

## **9 Definition of defects**

A sample unit will be considered defective when it exhibits any of the properties defined below.

### **9.1 Taint**

A unit will be considered tainted when any of the following conditions are found:

- a) **Rancid** — Odour characterized by the distinct or persistent odour of oxidized oil; or  
Flavour characterized by that of oxidized oil which leaves a distinct bitter aftertaste.
- b) **Abnormal** — Distinct and persistent odour or flavour uncharacteristic of the species or method of preparation, such as ash-like or charcoal-like, feedy, burnt or acrid, metallic, and not defined as rancid or decomposed; or

## CD/K/574:2010

Flavour or odour resulting from the improper addition or mixing of ingredients.

### 9.2 Decomposition

A unit will be considered decomposed when any of the following conditions are found:

- a) **Odour or flavour** — A sample unit affected by persistent and distinct objectionable odours or flavours indicative of decomposition or rancidity. Persistent, distinct and uncharacteristic odour or flavour including but not limited to the following: sour, musty, vegetable, fruity, ammonia, yeasty, hydrogen sulphide, faecal, putrid.
- b) **Discolouration** — Distinct discolouration characterized by a blue, black, orange or yellow colour to the meat.
- c) **Texture** — Breakdown of tissue characterized by structure which is very soft or mushy.

### 9.3 Unwholesome

- a) **Critical foreign material** — A lot will be considered defective when any of the following conditions are found:
  - the presence of any material which has not been derived from clams (and packing media) and which poses a threat to human health (such as glass, etc.); or
  - distinct and persistent odour or flavour of any material which has not been derived from clams (and packing media) and which poses a threat to human health (such as solvents, fuel oil, etc.).
- b) **Foreign material** — A unit will be considered defective when the following condition is found:
  - the presence in the sample unit of any matter, which has not been derived from clams (and packing media) but does not pose a threat to human health (such as insect pieces, sand, etc.), and is readily recognized without magnification or is present at a level determined by any method including magnification that indicates non-compliance with good manufacturing or sanitation practices.
- c) **Other defects** — A unit will be considered defective when any of the following conditions are found:
  - 1) **Struvite crystals** (magnesium ammonium phosphate crystals) Any struvite crystal greater than 5 mm in length.
  - 2) **Sulphide blackening** (smut) — Staining of the meat in excess of 5% of the drained contents.
  - 3) **Discolouration of packing medium** — The packing medium is blue or black.

## 10 Lot acceptance

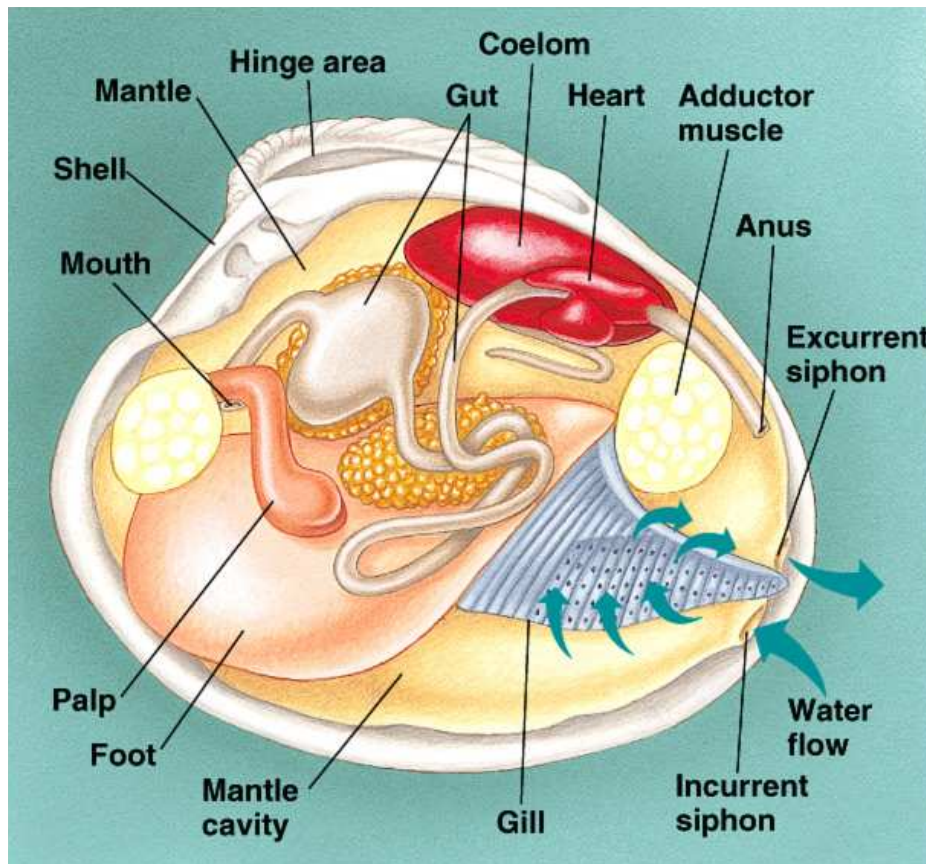
A lot shall be considered as meeting the requirements of this standard when:

- (i) not any single instance of critical foreign matter occurs; or
- (ii) the total number of sample units found defective for taint, decomposition or unwholesomeness, individually or in combination, does not exceed the acceptance number for the sample size designated in the sampling plans in CD-K-572:2010; or
- (iii) the total number of sample units found defective for decomposition does not exceed the acceptance number (c) shown in parentheses for the sample size designated in the sampling plans in CD-K-572:2010; or

- (iv) the Food Additives, Hygiene and Labelling requirements of Sections 5, 6, and 7 are met.
- (v) the total number of sample units found defective for standards of identity (style of presentation) and size designation or count range (if a size designation or count range is declared), does not exceed the acceptance number for the sample size designated in the sampling plans.



Frozen clam meat



Anatomy of clam



Live clam

**Annex A**  
(normative)

**Determination of cadmium**

**Procedure**

Weigh 10-15 g of the homogenized sample into a Kjeldahl's flask and allow it to digest using suitable volumes of nitric acid and perchloric acid (4:1 v/v). Cool the solution and make up the volume after removing excess nitric acid using ammonium oxalate solution. The sample is directly aspirated over a flame in an atomic absorption spectrometer and the concentration measured. A calibration curve is prepared from standard cadmium solution made from cadmium metal.

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

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

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