



CD/K/518:2010
ICS 67.120.30

EAST AFRICAN STANDARD

Canned shrimps or prawns — 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

Web: www.each.int

Introduction

This standard defines minimum acceptability of canned shrimp for taint, decomposition, unwholesomeness and other requirements, other than weight and describes methods for determining that acceptability. Throughout this standard, the term "shrimp" will be used to denote both shrimps and prawns.

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

CODEX STAN 37:1981(Rev. 1:1995), *Standard for Canned Shrimps or Prawns*

Codex Alimentarius website: 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

Assistance derived from these sources is hereby acknowledged.

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

Contents

1	Scope	1
2	Normative references	1
3	Description	2
3.1	Production definition	2
3.2	Process definition	2
3.3	Presentation	2
4	Essential composition and quality factors	3
5	Food additives	3
6	Hygiene and handling	4
7	Labelling	4
8	Sampling, examination and analyses	5
9	Definition of defectives	6
10	Lot acceptance	8
	Annex A (normative) Sensory and physical examination	10
	Annex B (normative) Size designation of canned shrimps	11

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

Canned shrimps or prawns — Specification

1 Scope

This East African Standard applies to canned shrimp/prawn in hermetically sealed containers and prepared from species of any of the following families:

PENAEIDAE, PANDALIDAE, CRANGONIDAE, PALAEMONIDAE.

It does not apply to specialty products where shrimp constitutes less than 50% m/m of the contents.

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*

CAC/GL 53, *Guidelines on the judgement of equivalence of sanitary measures associated with food inspection and certification systems*

CODEX STAN 233, *Sampling Plans for Prepackaged Foods (AQL-6.5)*

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

EAS 35, *Edible salt — 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 4831:2006, *Microbiology of food and animal feeding stuffs — Horizontal method for the detection and enumeration of coliforms — Most probable number technique*

ISO 4832:2006, *Microbiology of food and animal feeding stuffs — Horizontal method for the enumeration of coliforms — Colony-count technique*

ISO 4833:2003, *Microbiology of food and animal feeding stuffs — Horizontal method for the enumeration of microorganisms — Colony-count technique at 30 degrees C*

ISO 6579:2002, *Microbiology of food and animal feeding stuffs — Horizontal method for the detection of *Salmonella* spp.*

ISO 6887-1:1999, *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 6887-3:2003, *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 6888-1:1999, *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 6888-2:1999, *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 6888-3:2003, *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 7251:2005, *Microbiology of food and animal feeding stuffs — Horizontal method for the detection and enumeration of presumptive Escherichia coli — Most probable number technique*

ISO 7937:2004, *Microbiology of food and animal feeding stuffs — Horizontal method for the enumeration of Clostridium perfringens — Colony-count technique*

ISO 13720:1995, *Meat and meat products — Enumeration of Pseudomonas spp.*

ISO 21567:2004, *Microbiology of food and animal feeding stuffs — Horizontal method for the detection of Shigella spp.*

ISO/TS 21872-1:2007, *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 21872-2:2007, *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*

3 Description

3.1 Production definition

Canned shrimp is the product prepared from any combination of species of the families *Penaeidae*, *Pandalidae*, *Crangonidae* and *Palaeomonidae* from which heads, shell, antennae have been removed.

3.2 Process definition

Canned shrimp are packed in hermetically sealed containers and shall have received a processing treatment sufficient to ensure commercial sterility.

3.3 Presentation

The product shall be presented as:

3.3.1 Peeled shrimp (conventional) — shrimp which have been headed and peeled without the intentional removal of the dorsal tract;

3.3.2 Peeled and de-veined (Cleaned) — peeled shrimp which have had the back cut open and the dorsal tract removed at least up to the last segment next to the tail. The portion of the cleaned or de-veined shrimp shall make up 95% of the shrimp contents;

3.3.3 Cocktail (Picnic) — Any mixture of shrimp sizes which does not contain more than 15% of the drained weight of the contents (m/m) broken shrimp.

3.3.4 Salad — Any size or mixture of sizes, which does not contain more than 50% m/m broken shrimp in a can.

3.3.5 Broken shrimp — more than 10% of the shrimp contents consist of pieces of peeled shrimp of less than four segments with or without the vein removed;

3.3.6 Other forms of presentation

Any other presentation shall be permitted provided that it:

3.3.6.1 is sufficiently distinctive from other forms of presentation laid down in this standard;

3.3.6.2 meets all other requirements of this standard;

3.3.6.3 is adequately described on the label to avoid confusing or misleading the consumer.

3.3.7 Size

Canned shrimp may be designated as to size in accordance with:

- (i) the actual count range may be declared on the label; or
- (ii) provisions given in Annex "B".

4 Essential composition and quality factors

4.1 Shrimp

Shrimp shall be prepared from sound shrimp of the species in 3.1 which are of a quality fit to be sold fresh for human consumption.

4.2 Other ingredients

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

4.3 Final product

Products shall meet the requirements of this Standard when lots examined in accordance with Clause 10 comply with the provisions set out in Clause 9. Products shall be examined by the methods given in Clause 8.

5 Food additives

Only the use of the following additives is permitted.

Additive	Maximum level in the final product
Colours: The following colours may be added at the level provided for in the standard for the purpose of restoring colour lost in processing:	
102 Tartrazine	30 mg/kg in the final product, singly or in combination
110 Sunset Yellow FCF	
123 Amaranth	
124 Ponceau 4R	
Sequestrant	
385 Calcium disodium EDTA	250 mg/kg
Acidity Regulator	
330 Citric acid	GMP
338 Orthophosphoric acid	850 mg/kg

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 by the Codex Alimentarius Commission, the product:

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

6.3 It is recommended that the products covered by the provisions of this standard be prepared and handled in accordance with the appropriate sections of the current edition of CAC/RCP 1 and the sections on the Products of Aquaculture in the International Code of Practice for Fish and Fishery Products CAC/RCP 52.

6.4 Microbiological and heavy metal contaminant limits

The material shall meet the microbiological and heavy metal requirements as given in Table 1 and Table 2.

Table 1 — Microbiological limits

S/No.	Type of microorganism	Maximum limit	Method of test
(i)	<i>Pseudomonas</i> species per gram	Absent	ISO 13720
(ii)	<i>Salmonella</i> in 30 g	Absent	ISO 6579
(iii)	<i>E. coli</i> per g	Absent	ISO 7251
(iv)	<i>Shigella</i> per g	Absent	ISO 21567
(v)	<i>Coliforms</i> g (per 100 g)	Absent	ISO 4832
(vi)	<i>Staphylococcus aureus</i> per 10 g	Nil/g	ISO 6888
(vii)	Total viable count	10 ⁴ /g	ISO 4833
(viii)	<i>Vibrio cholerae</i>	Absent	ISO/TS 21872
(ix)	<i>Clostridium perfringens</i>	Absent	ISO 7937

Table 2 — Contaminant limits for dried fish

Type of contaminant		Maximum limit (mg/kg)	Method of test
(i)	Arsenic	0.1	EAS 41
(ii)	Copper	0.4	EAS 41
(iii)	Iron	5.0	EAS 41
(iv)	Tin		
	(a) For product packed in tin plate	50.00	EAS 41
	(b) For product packed in other packing containers	250.00	EAS 41
(v)	Mercury	0.5	EAS 41
(vi)	Lead	0.3	EAS 41
(vii)	Cadmium	0.3	EAS 41
(viii)	Methylmercury	0.5	EAS 41
(ix)	Zinc	50.0	EAS 41

7 Labelling

In addition to provisions of EAS 38 the following specific provisions apply:

7.1 The name of the food

7.1.1 The name of the product as declared on the label shall be "shrimp", or "prawns", and may be preceded or followed by the common or usual name of the species in accordance with the law and custom of the country in which the product is sold and in a manner not to mislead the consumer.

7.1.2 The name of the product shall be qualified by a term descriptive of the presentation in accordance with 3.3.1 to 3.3.4.

7.1.3 If the canned shrimp are labelled as to size, the size shall comply with the provisions of 3.3.5 and Annex "B".

7.1.4 Broken shrimp defined in 3.3.3 shall be so labelled.

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 can of shrimp 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 in accordance with Annex A and CAC/GL 31.

8.3 Determination of net weight

Net contents of all sample units shall be determined by the following procedure:

- (i) Weigh the unopened container;
- (ii) Open the container and remove the contents;
- (iii) Weigh the empty container, (including the end) after removing excess liquid and adhering meat;
- (iv) Subtract the weight of the empty container from the weight of the unopened container. The resultant figure will be the net content.

8.4 Determination of drained weight

The drained weight of all sample units shall be determined by the following procedure:

- (i) Maintain the container at a temperature between 20 °C and 30 °C for a minimum of 12 hours prior to examination;
- (ii) Open and tilt the container to distribute the contents on a pre-weighed circular sieve which consists of wire mesh with square openings of 2.8 mm × 2.8 mm;
- (iii) Incline the sieve at an angle of approximately 17-20° and allow the shrimps to drain for two minutes, measured from the time the product is poured into the sieve;
- (iv) Weigh the sieve containing the drained shrimps;
- (v) The weight of drained shrimps is obtained by subtracting the weight of the sieve from the weight of the sieve and drained product.

8.5 Determination of size designation

The size, expressed as the number of shrimp per 100g of drained product, is determined by the following equation:

$$\frac{\text{Number of whole shrimp in unit}}{\text{Actual drained weight of unit}} \times 100 = \text{Number of shrimps/100g}$$

8.6 Physical examination

8.6.1 Complete external can examination.

8.6.2 Open can and complete drained weight determination, according to defined procedures. A drained weight determination should only be conducted on samples which have equilibrated at room temperature for several hours. This will ensure that any gelled brine has liquified.

8.6.3 Remove product from can. Examine can interior for presence of foreign material, sulphide blackening, struvite, and corrosion or other can interior defects.

8.6.4 Examine liquid and surface of shrimp for presence of struvite crystals, sulphide blackening, foreign material, or undesirable parts. Assess colour.

8.6.5 Examine each unit for style of presentation as required: When a size designation is declared, count the number of whole shrimp present. Calculate the whole shrimp present per 100 g using the following formula:

$$\frac{\text{number of whole shrimp in unit}}{\text{actual drained weight of unit}} \times 100 = \text{no. of shrimp/100 g}$$

During this procedure, separate broken pieces and determine the percentage of broken shrimp present. The percentage of broken shrimp may be calculated using the following formula:

$$\frac{\text{weight of broken shrimp}}{\text{actual drained weight of unit}} \times 100 = \% \text{ broken shrimp}$$

Where shrimp is further described on the label (e.g. "deveined"), product is examined for compliance. All percentages are calculated based on the actual drained weight of the unit.

8.6.6 Assess odour. Assess flavour and texture as required.

8.6.7 Record any defect for that unit on the appropriate worksheet.

9 Definition of defectives

A sample unit will be considered defective when it fails to meet any of the following final product requirements referred to in 4.3.

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 uncharacteristic odours or flavours such as burnt or acrid, metallic, or associated with feed, and not defined as rancid or decomposed; or
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: fruity, vegetable, musty, yeasty, sour, faecal, ammonia, hydrogen sulphide, putrid.
- b) **Discolouration** — A sample unit affected by distinct blackening of more than 10% of the surface area of individual shrimp which affects more than 15% of the number of shrimp in the sample unit.
- c) **Texture** — Breakdown of muscle structure characterized by:
 - 1) muscle structure which feels dry as though no packing medium had been used; or
 - 2) muscle structure which is very soft, mushy or pasty uncharacteristic of the species in the presentation; or
 - 3) muscle structure which is rubbery or tough, to the feel, or when chewing.

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 shrimp (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 shrimp (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 shrimp (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) — Sulphide blackening affecting greater than 5% of the drained contents.

- 3) **Undesirable parts** — Any combination of loose or attached shell, head pieces or antennae in excess of 2% of the drained weight.

9.4 Failure to meet a standard of identity

- a) **Broken Shrimp** — A unit will be considered defective for broken shrimp if it fails the following criteria when examined by the method outlined in Clause 8.

Size Designation	Maximum Number of Broken Shrimp Permitted (% m/m)
Extra Large, Jumbo	5
Large	5
Medium	5
Small	10
Tiny	15
No size designation	10
Style Designation	
Picnic or Cocktail	15
Salad	50
Broken	no maximum

- b) **Deveining (Cleaning)** — In the case of deveined shrimp, a unit will be considered defective for deveining if it is found to contain more than 5% m/m of improperly cleaned or deveined shrimp, when examined using the method outlined in section 7.
- c) **Size Designation** — When a size designation is declared, a unit will be considered defective for size designation if it exceeds the maximum count per 100 g declared weight specified in section 4.2, when examined by the method outlined in Clause 8.
- d) **Count Range** — When a count range is declared, a unit will be considered defective for count range if the count is greater than or less than the range specified on the label, when examined by the method outlined in Clause 8.

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; 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 average net weight and the average drained weight of all sample units examined is not less than the declared weight and provided there is no unreasonable shortage in any individual container;
- (v) the Food Additives, Hygiene and Labelling requirements of Clauses 5, 6, and 7 are met.
- (vi) 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.



Canned shrimp example



Canned prawn example

Draft for comment

Annex A
(normative)

Sensory and physical examination

1. Complete external can examination for the presence of container integrity defects or can ends which may be distorted outwards.
2. Open can and complete weight determination according to defined procedures in 8.3 and 8.4.
3. Carefully remove the product and examine for size designation in accordance with the procedure in Section 8.5.
4. Examine product for discolouration, foreign and objectionable matter.
5. Assess odour, flavour and texture in accordance with CAC/GL 31.

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

Annex B
(normative)

Size designation of canned shrimps

The terms "extra large", "jumbo", "large", "medium", "small", "tiny" may be used provided that the range is in accordance with the following table:

Number of whole shrimp (including pieces greater than 4 segments) per 100g of drained product

<u>Size designation</u>	<u>Range</u>
Extra Large or Jumbo	13 or less
Large	14-19
Medium	20-34
Small	35-65
Tiny	more than 65

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