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## **DRAFT EAST AFRICAN STANDARD**

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**Tomato products — Specification — Part 3: Tomato juice**

**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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## Tomato products — Specification — Part 3: Tomato juice

### 1 Scope

This Draft East African standard specifies requirements and method of sampling and test for unfermented but fermentable juice, intended for direct consumption, obtained from fresh tomatoes (*Lycopersicon esculentum* L.), puree, paste or concentrates.

### 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.

AOAC 971.27, Sodium chloride in canned vegetables. Method I

ISO 2173, *Fruit and vegetable products — Determination of soluble solids — Refractometric methods*  
AOAC 965.41, Mold in tomato products, Howard mold count

CAC/RCP 53, *Code of Hygienic Practice for Fresh Fruits and Vegetables*

EAS 35, *Edible salts — Specification*

EAS 38, *Labelling of prepackaged foods — Specification*

EAS 76, *Methods of test for tomato products*

CODEX STAN 192, General standards for food additives

ISO 4833 (all parts), *Microbiology of the food chain - Horizontal methods for the enumeration of microorganisms*

ISO 21527-1, *Microbiology of food and animal feedingstuffs — Horizontal methods for the enumeration of yeasts and moulds*

ISO 7251, *Microbiology of food and animal feedingstuffs — Horizontal methods for the detection and enumeration of presumptive Escherichia coli — Most Probable Number technique*

ISO 6579, *Microbiology of food and animal feedingstuffs — Horizontal methods for the detection of Salmonella spp.*

ISO 1842, *Fruit and vegetable products — Determination of Ph*

ISO 2172, *Fruit juice — Determination of soluble solids content — Pycnometric method*

ISO 6633, *Fruits, vegetables and derived products -- Determination of lead content -- Flameless atomic absorption spectrometric method*

### 3 Terms and definitions

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

#### 3.1

##### **tomato juice**

unconcentrated liquid extracted from ripe and sound tomatoes puree, paste or concentrates

#### 3.2

##### **natural tomato soluble solids (Ntss) content**

reading obtained on a refractometer at 20 °C expressed in terms of % sucrose, of the clear serum obtained for a tomato product containing no added salt, and that is uncorrected for acidity

### 3.3 defects

presence of seeds, skins, stems, cores and other coarse or hard substance

## 4 Requirements

### 4.1 General requirements

4.1.1 Tomato juice shall

- a) have a colour characteristic of the variety. No artificial colouring matter shall be added.
- b) have a characteristic tomato flavour and shall be free from flavour foreign to the product.
- c) have a good body with an evenly divided texture.
- d) flows readily and shall have a normal amount of insoluble tomato solids in suspension

4.1.2 Tomato juice shall be free from the following defects:

- (a) Dark specks or scale-like particles.
- (b) Seeds or other objectionable particles of seeds.
- (c) Tomato peels.
- (d) Extraneous plant materials.

### 4.2 Specific requirements

Tomato juice shall comply with the compositional requirements indicated in Table 1.

**Table 1 — Requirements for tomato juice**

S/N	Characteristic	Requirement	Method of test
i	sodium chloride, per cent by mass, max.	0.6	AOAC 971.27
ii	Natural tomato soluble solids content at 20 °C, % by mass, min.	4	ISO 2172/ ISO 2173
iii	pH	Not higher than 4.3	ISO 1842

## 5 Food additives

Food additives shall be used in accordance with CODEX STAN 192.

## 6 Contaminants

### 6.1 Pesticide residues

6.1.1 The product covered by the provisions of this Standard shall comply with those maximum pesticide residue limits established by the Codex Alimentarius Commission for this product.

## 6.2 Heavy metal limits

When tested in accordance with ISO 6633, the Lead content in tomato juice shall not exceed 0.03 mg/kg.

## 7 Hygiene

7.1 Tomato juice shall be prepared and handled in accordance with the appropriate provisions of EAS 39.

7.2 Tomato juice shall be free from pathogenic organisms and shall comply with the microbiological limits indicated in Table 2.

**Table 2 — Microbiological limits for tomato juice**

Type of micro-organism	Maximum limits	Test method
Total viable counts, cfu/ml	10	ISO 4833 (all parts)
Yeast/moulds cfu/ml	shall be absent	ISO 21527-1
Escherichia coli MPN/ml	shall be absent	ISO 7251
Salmonella sp. per 25 ml	shall be absent	ISO 6579
Mould filament, max.	30 % positive fields	AOAC 965.41

## 8 Minimum fill

Tomato juice shall occupy a minimum fill of not less than 90 % of the water holding capacity of the container and shall be determined in accordance with Annex A.

## 9 Packaging

Tomato juice shall be packed in suitable food grade containers having no action on the products. The containers shall be free from other products that may lead to contamination and alter the quality, composition, flavour, odour and taste of the products. Containers shall be air tight and shall be provided with tamper- proof seals and closures. Containers shall preclude contamination with or proliferation of microorganisms in the products during storage and transport

## 10 Labelling

### 10.1 Labelling of retail containers

In addition to the requirements of EAS 38, the following specific labelling requirements shall apply and shall be legibly and indelibly marked:

- a) Name of product shall be "Tomato juice"
- b) Name, physical and postal address of manufacturer/importer
- c) Country of origin
- d) Date of manufacture and expiry date
- e) List of ingredients
- f) Net volume
- g) Storage condition
- h) Batch number in code or in clear

### 9.4 Labelling of non-retail containers

Information for non-retail containers shall be given either on the container or in accompanying documents, except that the name of the product, lot identification, and the name and address of the manufacturer, packer, distributor or importer, as well as storage instructions, shall appear on the container. However, lot identification, and the name and address of the manufacturer, packer,

distributor or importer may be replaced by an identification mark, provided that such a mark is clearly identifiable with the accompanying documents.

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## Annex A (normative)

### Determination of the fill of the container

#### A.1 Scope

This method applies to glass containers.

#### A.2 Definition

The water capacity of a container is the volume of distilled water at 20 °C which the sealed container will hold when completely filled.

#### A.3 Procedure

**A.3.1** Select a container which is undamaged in all respects.

**A.3.2** Weigh the filled container, (W1)

**A.3.3** Empty, Wash, dry and weigh the empty container (W2).

**A.3.4** Fill the container with distilled water at 20 °C to the level of the top thereof, and weigh the container thus filled (W3).

**A.3.5** Calculate the water capacity of a container

$$\text{WCC (Water Capacity of the Container)} = W3 - W2$$

#### A.4 Calculation and expression of results

Subtract the weight (W2) found in A.3.3 from the weight (W1) found in A.3.2 and divide the result by WCC found in A.3.5 and multiply by 100 fill the container. Results are expressed as percentage.

$$\begin{aligned} \text{Fill of the container} &= (W1 - W2) / \text{WCC} * 100 \\ &= (W1 - W2) / (W3 - W2) * 100 \end{aligned}$$

## **Annex B (normative)**

### **Sampling and compliance**

#### **B.1 Compliance**

Unless otherwise provided in a standard, a lot of canned vegetables shall be deemed in compliance for the following factors, to be determined by the sampling and acceptance procedure as provided in B.2, namely:

##### **B.1.1 Quality**

The quality of a lot shall be considered acceptable when the number of defectives does not exceed the acceptance number (*c*) in the sampling plans.

##### **B.1.2 Fill of container**

A lot shall be deemed to be in compliance for fill of container (packing medium and vegetable ingredient) when the number of defectives does not exceed the acceptance number (*c*) in the sampling plans.

##### **B.1.3 Drained weight**

A lot shall be deemed to be in compliance for drained weight based on the average value of all samples analyzed according to the sampling plans.

#### **B.2 Sampling and acceptance procedure**

##### **B.2.1 Definitions**

###### **(i) Lot**

A collection of primary containers or units of the same size, type, and style manufactured or packed under similar conditions and handled as a single unit of trade.

###### **(ii) Lot size**

The number of primary containers or units in the lot.

###### **(iii) Sample size**

The total number of sample units drawn for examination from a lot.

###### **(iv) Sample unit**

A container, a portion of the contents of a container, or a composite mixture of product from small containers that is sufficient for the examination or testing as a single unit. For fill of container, the sample unit shall be the entire contents of the container.

###### **(v) Defective**

Any sample unit shall be regarded as defective when the sample unit does not meet the criteria set forth in the standards.

###### **(vi) Acceptance number (*c*)**

The maximum number of defective sample units permitted in the sample in order to consider the lot as meeting the specified requirements.

###### **(vii) Acceptable quality level (AQL)**

The maximum percent of defective sample units permitted in a lot that will be accepted approximately 95 percent of the time.

## B.2.2 Sampling plans

Lot size (primary containers)	Size of container	
	$n^1$	$c^2$
<b>net weight equal to or less than 1 kg (2.2 lb)</b>		
4,800 or less	13	2
4,801 to 24,000	21	3
24,001 to 48,000	29	4
48,001 to 84,000	48	6
84,001 to 144,000	84	9
144,001 to 240,000	126	13
Over 240,000	200	19
<b>net weight greater than 1 kg (2.2 lb) but not more than 4.5 kg (10 lb)</b>		
2,400 or less	13	2
2,401 to 15,000	21	3
15,001 to 24,000	29	4
24,001 to 42,000	48	6
42,001 to 72,000	84	9
72,001 to 120,000	126	13
Over 120,000	200	19
<b>net weight greater than 4.5 kg (10 lb)</b>		
600 or less	13	2
601 to 2,000	21	3
2,001 to 7,200	29	4
7,201 to 15,000	48	6
15,001 to 24,000	84	9
24,001 to 42,000	126	13
Over 42,000	200	19
<sup>1</sup> $n$ = number of primary containers in sample. <sup>2</sup> $c$ = acceptance number.		



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1. *United States Standards for Grades of Tomato Juice*, Effective date July 22, 1985
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6. Codex Alimentarius website: [http://www.codexalimentarius.net/mrls/pestdes/jsp/pest\\_q-e.jsp](http://www.codexalimentarius.net/mrls/pestdes/jsp/pest_q-e.jsp)
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