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# **DRAFT EAST AFRICAN STANDARD**

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**Fruit drinks — Specification**

## **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 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.

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 025, *Processed fruits, vegetables and tubers*.

Attention is drawn to the possibility that some of the elements of this document may be subject of patent rights. EAC shall not be held responsible for identifying any or all such patent rights.

## Fruit drinks — Specification

### 1 Scope

This East African Standard specifies the requirements, sampling and test methods for fruit drinks either as ready-to-drink or dilutables containing fruit juice.

This standard does not apply to the following categories of products for which other standards apply:

- a) fruit juices and nectars;
- b) vegetable juices and nectars; and
- c) water based flavored drinks.

### 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.

AOAC 999.10, *Lead, Cadmium, Zinc, Copper and iron in foods. Atomic absorption spectrophotometry after microwave digestion*

CODEX STAN 192, *General standard for food additives*

EAS 12, *Potable water — Specification*

EAS 38, *Labelling of pre-packaged foods — General requirements*

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

EAS 803, *Nutrition labelling — Requirements*

EAS 804, *Claims on foods — Requirements*

EAS 805, *Use of nutritional and health claims — Requirements*

ISO 763, *Fruit and vegetable products — Determination of ash insoluble in hydrochloric acid*

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

ISO 2173, *Fruit and vegetable products — Determination of soluble solids — Refractometric method*

ISO 2448, *Fruit and vegetable products — Determination of ethanol content*

ISO 4833-1, *Microbiology of the food chain — Horizontal method for the enumeration of microorganisms — Part 1: Colony count at 30 degrees C by the pour plate technique*

ISO 4833-2, *Microbiology of the food chain — Horizontal method for the enumeration of microorganisms — Part 2: Colony count at 30 degrees C by the surface plating*

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

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

ISO 6634, *Fruits, vegetables and derived products — Determination of arsenic content — Silver diethyldithiocarbamate spectrophotometric method*

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 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 Terms and definitions**

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

#### **3.1**

##### **fruit**

edible part of the plant that contains the seeds

#### **3.2**

##### **fruit juice**

liquid obtained from the edible part of sound, appropriately mature and fresh fruit or of fruit maintained in sound condition by suitable means

#### **3.3**

##### **fruit pulp**

edible portions of the fruit, mashed, or cut into pieces, but not reduced to a puree

#### **3.4**

##### **one gas (carbonation) volume**

amount of carbon dioxide the water volume absorbs at the standard atmospheric pressure at 15.6 °C

#### **3.5**

##### **carbonation**

process of addition of carbon dioxide to fruit drinks to achieve the characteristics of the product at the specified temperature and pressure

#### **3.6**

##### **standardized fruit juice**

juice made by blending single strength fruit juices to a standard or reference brix value

#### **3.7**

##### **single strength fruit juice**

natural liquid obtained from fruit without any blending or modification

#### **3.8**

##### **brix**

total soluble solids content of the juice

#### **3.9**

##### **dilutables**

fruit drinks that require dilution to suit the taste of consumers

### **3.10**

#### **fruit puree**

any unfermented pulpy fruit juice product obtained by finely comminuting and sieving only the edible portion of fruit or the fruit as a whole after removal of the rind and seeds or pits or pips, and preserved in a permitted manner

### **3.11**

#### **blended fruit drink**

any fruit drink obtained by mixing two or more fruit juice, pulp and/or purées from different kinds of fruit

### **3.12**

#### **food grade material**

material that will safeguard the hygienic, safety, nutritional, technological, and organoleptic qualities of the product

### **3.13**

#### **ready-to-drink**

fruit drink of a single strength or that the fruit drink which had been concentrated into a solid or liquid form, has been reconstituted or diluted according to the instructions on the container

### **3.14 Fruit drink**

is a manufactured beverage intended for direct human consumption which contains fruit juice, fruit pulp/puree, fruit juice concentrates or other edible parts of the fruits and other permitted ingredients and/or additives

## **4 Product description**

**4.1 Fruit drink** may be made from a single (single strength fruit juice) or a mixture of two or more fruits. It may be sweetened with nutritive and/ or non-nutritive (intense) sweeteners with or without added carbon dioxide and other permitted food additives. These beverages may be clear, cloudy, or may contain particulate matter (for example, fruit pieces, crushed pips, seeds and/or peel of the fruit).

**4.2 Fruit cordial** is a syrup concentrated drink which has to be diluted to a minimum ration of one to three, to produce a suitable drink after dilution. The product is obtained by blending clarified fruit juice with nutritive and/or non-nutritive (intense) sweeteners, water, with or without salt and peel oil and any other ingredients suitable to the product.

**4.3 Fruit squash** is cordial, containing after dilution in a minimum of one to three to produce a ready to drink. It is made from fruit juice, nutritive and/or non-nutritive (intense) sweeteners singly or in combination, water, and diluted sugar syrup. Squashes may also contain food colouring and additional flavouring.

**4.4 Fruit crush** are drinks obtained by squeezing/crushing fruits without further straining.

## **5 Requirements**

### **5.1 Ingredients**

**5.1.1** The following ingredients shall comply with the relevant East African Standards.

- a) fruits;
- b) fruit juice;
- c) puree, pulp; and
- d) concentrates

### 5.1.2 Sweetening agents

- a) Honey, sucrose, glucose (dextrose anhydrous) or fructose, and other nutritive sweeteners and/or non-nutritive sweeteners may be added.

When non-nutritive sweetener is used, the amount and type shall comply with clause 6 and it shall be declared as such in accordance with clause 11.

- b) Syrups (as defined in the relevant standards for sugars), liquid sucrose, invert sugar solution, invert sugar syrup, fructose syrup, liquid cane sugar, isoglucose and high fructose syrup may be added only to fruit drinks from concentrate.

### 5.1.3 Water

The water used for the manufacture of fruit drinks shall comply with EAS 12.

### 5.1.4 Fortification

For the purposes of product fortification, essential nutrients such as vitamins and minerals may be added to fruit drinks. Such additions shall comply with national legislation established for this purpose.

## 5.2 General requirements

### 5.2.1 Fruit drinks shall

- a) have the essential physical, chemical, nutritional characteristics, colour, aroma and flavour of juice from the same kind of fruits from which it is made.
- b) have a uniform appearance and consistency.
- c) have not undergone any kind of deterioration or spoilage.
- d) free from foreign matter.

### 5.2.2 Clear fruit drinks shall remain so when stored under normal storage conditions.

## 5.3 Specific requirements

Fruit drinks shall comply with the specific requirements in Table 1 when tested in accordance with the methods specified therein.

**Table 1 — Specific requirements for fruit drinks**

S/N	Characteristic	Requirement	Test method
i.	Ethanol content, %, max.	0.3	ISO 2448
ii.	Acid insoluble ash, %, max.	0.1	ISO 763



iii.	Fruit juice/fruit puree in the final product %, min.		
	Ready to drink (RTD)	10	GMP
	Fruit squash (in the undiluted form)	24	
	Fruit crush	24	
	Fruit cordial	24	
iv.	Total soluble solids, %, min.		
	Ready to drink (RTD)	10	ISO 2173
	Fruit squash (in the undiluted form)	40	
	Fruit crush	55	
		30	
	Fruit cordial		
v.	pH, max.	4.5	ISO 1842
vi.	Carbon dioxide, CO <sub>2</sub> , <sup>a, b</sup> min.	One gas volume	Annex A
<p><sup>a</sup> Only applicable to carbonated fruit drinks.  <sup>b</sup> Where the drink contains more than one gas volume of carbon dioxide, the term carbonated /sparkling shall appear in the name of the product.</p>			

## 6 Food additives

6.1 Fruit drinks may contain only permitted additives in accordance with CODEX STAN 192.

6.2 For tomato drink, salt, spices and aromatic herbs may be used.

## 7 Contaminants

### 7.1 Pesticide residues

Fruit drinks shall comply with the pesticide residue limits prescribed by the Codex Alimentarius Commission of the respective commodity.

### 7.2 Heavy metal

Fruit drinks shall not contain heavy metal contaminants in excess of the limits specified in Table 2 when tested in accordance with the methods specified therein.

**Table 2 — Heavy metal contaminants limits for fruit drinks**

S/N	Heavy metal	Maximum limit, mg/kg	Test method
ii.	Lead (as Pb)	0.03	ISO 6633
iii.			

## 8 Hygiene

8.1 Fruit drinks shall be produced and handled under hygienic conditions in accordance with EAS 39.

8.2 Fruit drinks shall comply with the microbiological limits given in Table 3 when tested in accordance with the methods specified therein.

**Table 3 – Microbiological limits for fruit drinks**

S/N	Microorganism	Limit	Test method
i.	Total plate count, cfu/g, max.	10 <sup>3</sup>	ISO 4833-1 ISO 4833-2
ii.	<i>Escherichia coli</i> , cfu/g, max.	Absent	ISO 16649-2
iii.	Yeasts and moulds, cfu/g, max.	30	ISO 21527-2

## 9 Packaging

Fruit drinks shall be packaged in food grade material that ensures the integrity and safety of the product.

## 10 Labelling

### 10.1 General

In addition to the requirements of EAS 38, EAS 803, EAS 804 and EAS 805, the following specific labelling requirements shall apply and shall be legibly and indelibly marked on the container.

#### 10.1.1 Name of the product

10.1.1 The name of the product shall be "----- drink" or "----- fruit drink", or "----- squash, or "----- cordial or -----crush, where "-----" shall be replaced with the common name of the fruit(s) from which the drink is made.

10.1.2 In the case of fruit drink products manufactured from two or more fruits, the product name shall include the names of the fruit drinks comprising the mixture in descending order of proportion by weight (m/m) or the words "fruit drink blend", "a fruit drink mixture", "mixed fruit drink" or other similar wording.

In case of fruit squash, cordial or crush the word "drink" shall be substituted respectively.

10.1.2 Date of manufacture

10.1.3 Expiry date.

10.1.4 Brand /trade name.

10.1.5 List of ingredients.

10.1.6 Net contents.

10.1.7 Instructions for use.

10.1.8 Storage conditions.

10.1.9 Name and address of the manufacturer.

10.1.10 Country of origin.

## **10.2 Additional labelling requirements**

The following designations shall be used where applicable:

- a. When food additive sweeteners are employed as substitutes for sugars in fruit drinks, the statement, “with sweetener(s),” shall be included in conjunction with or in close proximity to the product name;
- b. If non-nutritive sweetener is used, the following words “contains non-nutritive sweetener for special dietary use” shall be declared on the label in close proximity; and
- c. The name, type and the amount of non-nutritive sweeteners used shall be indicated in the label.

## **10.3 Fruit juice content declaration**

Fruit drinks, squashes, crushes and cordials shall be labelled with declaration of juice content as specified in Table 1.

## **10.4 Nutritional labelling, nutrition and health claims**

Nutritional labelling, nutrition and health claims may be made in accordance with EAS 803, EAS 804 and EAS 805.

If non- nutritive sweetener is used, the following words ‘contain non-nutritive sweetener for special dietary use’ shall be declared on the label in close proximity.

## **10.5 Labelling prohibitions**

The following are prohibited:

If the product is a drink that contains the juice whose color, taste or other organoleptic properties have been modified to the extent that the original juice is no longer recognizable by the end processing or if the content of the juice is less than 10 %, then the source fruits shall not be depicted on the label by sketch or pictorial presentations.

No fruit drink may be represented pictorially on the label except the species of fruits or fruit juices present, in the fruit drink in amounts constituting 10 % or more, provided that where two or more fruits or fruit juices are used, the combination of the fruits or fruit juices whose content individually constitutes 10 % or more may be used in the pictorial.

## **11 Sampling**

Sampling shall be done in accordance with Annex B.

## **Annex A** (normative)

### **Methods of measuring gas volume**

#### **A.1 Principle**

The method involves sniffting of the top gas. The pressure reading should drop to 2 psi, to remove the air before testing for carbon dioxide volume. In so doing correction of altitude as per table should be considered as pressure is affected by altitude.

The apparatus consists of pressure gauge having a hollow spike with holes in its side. The bottle is inserted from the side into the slot provided in the neck of the carbon dioxide tester and is secured in place by tightening with a threaded system. The pressure gauge is inserted until the needle point touches the crown cork. There is a snift valve on the gauge stem which is kept closed until the needle point of the pressuregauge is forced through the crown cork. The reading is noted on the gauge.

#### **A.2 Procedure**

Clamp the bottle in the frame of the gas volume tester. Pierce the crown cork but do not shake the bottle. Snift off the top gas quickly until the gauge reading drops to zero. Make certain to close the valve instantly theneedle touches zero in the pressure gauge. Shake the bottle vigorously until the gauge gives the reading that additional shaking does not change. Record the pressure. Note the temperature and record. Obtain the volume of gas from pressure-temperature chart (carbon dioxide chart).

## Annex B (normative)

### Sampling

#### B.1 Definitions

##### B.1.1 lot

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

##### B.1.2 lot size

number of primary containers or units in the lot

##### B.1.3 sample size

total number of sample units drawn for examination from a lot

##### B.1.4 sample unit

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

#### B.2 Sampling plans

Sampling shall be done in accordance with the plan specified in Table B.1.

Table B.1 — Sampling plan

Lot size (primary containers)	Size of container, <i>n</i> <sup>a</sup>
Net weight equal to or less than 1 kg (2.2 lb)	
4 800 or less	13
4 801 to 24 000	21
24 001 to 48 000	29
48 001 to 84 000	48
84 001 to 144 000	84
144 001 to 240 000	126
Over 240 000	200
Net weight greater than 1 kg (2.2 lb) but not more than 4.5 kg (10 lb)	
2 400 or less	13

2 401 to 15 000	21
15 001 to 24 000	29
24 001 to 42 000	48
42 001 to 72, 000	84
72 001 to 120 000	126
Over 120 000	200
Net weight greater than 4.5 kg (10 lb)	
600 or less	13
601 to 2 000	21
2 001 to 7 200	29
7 201 to 15 000	48
15 001 to 24 000	84
24 001 to 42 000	126
Over 42 000	200
<sup>a</sup> $n$ = number of primary containers in sample.	

