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ICS 67.080.10

DRAFT EAST AFRICAN STANDARD

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 ###, *[name of committee]*, Subcommittee SC ##, *[name of subcommittee]*.

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.

This second/third/… edition cancels and replaces the first/second/… edition (EAS nnn-n:yyyy), which has been technically revised.

Fruit drinks — Specification

1 Scope

This draft East African Standard specifies the requirements and methods of sampling and test for fruit drinks either as ready to drink or dillutables containing fruit juice

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

fruit juices and nectars;

vegetable juices and nectars;

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.

CODEX STAN 192, *General standard for food additives*

Codex STAN I93, *General standard for contaminants and toxins in food and feed*

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

EAS 803, *Nutrition labelling — Requirements*

EAS 804, *Claims on foods — Requirements*

EAS 805, Use of nutritional and health claims — Requirements

EAS 39, *Code of practice for hygiene in the food and drink manufacturing industry*

EAS 153, *Drinking water — Specification*

Codex Stan 192, *Use of nutrition claims — Requirements*

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

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

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

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

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

ISO 6636-2, *Fruits, vegetables and derived products — Determination of zinc content — Part 2: Atomic absorption spectrometric method*

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

ISO 7952, *Fruits, vegetables and derived products — Determination of copper content — Method using flame atomic absorption spectrometry*

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

3 Terms and definitions

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

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at http://www.iso.org/obp

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
soluble solids content of the juice

3.9

Ready-to-drink

fruit drink is 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 and may contain the following;

a) Acidity regulator;

b) Permitted food conditioner

c) Permitted flavouring substances;

d) Permitted preservatives;

e) Permitted colouring substances;

f) Permitted nutrient supplement like vitamin C;

g) Salt and

h) Permitted sweeteners

3.10

Dilutables

fruit drinks that require dilution to taste by consumers

3.11

fruit puree_

means 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

3.12

Blended fruit drink_

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

3.12

food grade materials

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

4 Product description

4.1 Fruit drink (ready to drink) is a manufactured beverage intended for direct human consumption which contains fruit juice, fruit pulp or other edible parts of the fruits. It may be made from a single or a mixture of two or more fruits. It may be sweetened with either nutritive 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).

4.1.1Fruit Cordial_ Means 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

either nutritive or non-nutritive (intense) sweeteners, water, with or without salt and peel oil and any other ingredients suitable to the product.

4.1.2 Fruit squash_ Means cordial, containing after dilution in a minimum of one to three fruit juice at standard strength. It is made from fruit juice, nutritive or non-nutritive (intense) sweeteners, water, and diluted sugar syrup. Squashes may also contain food colouring and additional flavouring.

4.1.3 Fruit Crush_ Drinks obtained by squeezing/crushing fruits without further straining

5 Requirements

5.1 General requirements

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 and characteristic of the product, .

c) have not undergone any kind of deterioration or spoilage

d) be clean and free from foreign matter

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

5.2 Ingredients

5.2.1 Fruits

Fruit drink shall be prepared from fruits picked at the proper stage of maturity. The fruits used shall be free from damage or contamination as to make them unfit for human consumption.

5.2.2 Sweetening agents

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

b) Syrups (as defined in the Standard 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'

5.2.3 Water

The water used for the manufacture of fruit drinks shall be drinking water and complying with the requirements of EAS 153.

5.2.4 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.

5.3 Specific requirements

Fruit drinks shall conform to the compositional requirement in Table 1.

Table 1 — Compositional requirement of fruit drinks

S/N	Characteristic	Requirement	Method of test
I.	Ethanol content, % , max.	0.3	ISO 2448
II.	Acid insoluble ash, %, max.	0.02	ISO 763
III.	Min (%) of fruit juice/fruit puree in the final product; Ready to drink(RTD) Fruit Squash (in the undiluted form) Fruit Crush Fruit Cordial	 10 24 24 24	 GMP
IV.	Total soluble solids, min (%) Ready to drink(RTD) Fruit Squash (in the undiluted form) Fruit Crush Fruit Cordial	 10 40 55 30	 ISO 2173
V.	pH (Min)	2.5	
VI.	Co2	Not less than one volume	Annex A
***For the carbonated fruit drinks the volume of carbon dioxide shall be not less than one			

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 juice drinks shall comply with those maximum pesticide residue limits established by the Codex Alimentarius Commission for this product.

7.2 Metal contaminants

Fruit drinks shall not exceed levels of metals specified in Table 2;

Table 2 — Metal contaminants

Metal	Maximum (mg/kg)	Method of test
Arsenic (as As)	0.2	ISO 6634
Copper (as Cu)	1.5	ISO 7952
zinc (as Zn)	5	ISO 6636-2,
Lead (as Pb)	0.03	ISO 6633

8 Hygiene

Fruit drinks shall be produced and handled in a hygienic manner in accordance with EAS 39. Fruit drinks shall conform to the limits for microbiological contaminants in Table 3.

Table 3 – Microbiological limits for fruit drinks

s/n	Microorganisms	Maximum limit	Method of Test
I.	Total aerobic count, CFU/mL	100	ISO 4833-2
II.	Total coliforms, per 100 mL	Absent	ISO 4832
III.	*E. coli*, per 100 mL	Absent	ISO 7251
IV.	Yeast and moulds, CFU/mL	10	ISO 21527-1

9 Packaging

Fruit drinks shall be packaged in food grade containers

10 Weights and measures

Fruit drinks shall be packaged in accordance with the Weights and Measures of Partner States' regulations

11 Labelling

11.1 General

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

11.2 Name of the product

11.2.1 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.

11.2.2 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

11.5 Name of business and Address of the manufacturer, packager, distributor, importer, exporter or vendor of the product, whichever may apply, shall be declared.

11.6 Instructions for use shall be declared

11.7 Storage conditions

Net Content — the net content shall be declared by volume in metric units (Systeme Internationale).

11.8 Lot Identification — each container shall be embossed or otherwise permanently marked in code or in clear identity the producing factory and the lot.

11.9 Place/country of origin

11.10 Date of Manufacture

11.11 Date of expiry

11.12 irradiation status, where applicable

11.2.2 The following designations shall be used where applicable:

a) where the product has been sweetened exclusively with non-nutritive sweeteners, the words "contains non-nutritive sweeteners” or “sweetened with non-nutritive sweeteners" shall appear in close proximity to the name of the product followed by an indication of the quantity of non-nutritive sweeteners added;

b) where the drink contains more than one gas volume of carbon dioxide, the term carbonated /sparkling shall appear in in the name of the product;

11.3 Fruit juice content declaration

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

11.4 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.

11.5 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.

12 Sampling of fruit drinks

12.1 Scale of sampling

12.1.1 Lot

All containers in a consignment belonging to the same batch of manufacture shall constitute a lot. If the consignment is declared to consist of different batches of manufacture, containers of the same batch shall be grouped together and each group so formed shall constitute a separate lot.

Sample shall be tested from each lot for ascertaining conformity to the requirements of this standard.

12.1.2 Sample size

The number of containers to be selected from a lot for testing for microbiological and other requirements shall depend on the size of the lot and shall be in accordance with Table 3.

Table 3 – Number of containers to be selected for sampling Number of containers in the lot, N	**Number of containers to be selected (n)**	
	Microbiological	**Other tests**
up to 1300	12	18
1301 to 3200	18	24
3201 and above	24	30

12.1.3 Sampling method

The containers to be selected for testing shall be chosen at random from the lot by the following procedure. Starting from any container, count them as 1,2,3….. up to *r*. Every *r*th containers thus counted shall be withdrawn, *r* being the integral part of *N*/*n*, where N is the total number of containers in the lot and *n* is the total number of container to be chosen (see Table 3).

12.2 Test samples and reference samples

12.2.1 Samples for microbiological tests

The sample containers selected for microbiological tests (see col. 2 of Table 3) shall be divided at random into three equal sets and labelled with all particulars of sampling. One of these sets of sample containers shall be for the buyer; another for the supplier and the third set is the reference.

12.2.2 Samples for other tests

The sample containers selected for other tests (see col. 3 of Table 3) shall be divided at random into three equal sets and labelled with all the particulars of the sample. One of these sets of sample containers shall be for the buyer, another for the supplier and third is the reference.

12.2.3 Reference samples

Referee samples shall consist of a set of sample containers for microbiological tests (see 12.2.1) and a set of sample containers for other tests (see 12.2.2) and shall bear the seals of the buyer and supplier or as agreed to between the two.

13 Methods of analysis

Test of fruit drinks shall be done in accordance with the East African Standards stated in the relevant clauses.

ANNEX A

Method of measuring gas volume

Principle

The method involves snifting 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 pressure gauge is forced through the crown cork. The reading is noted on the gauge.

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 the needle 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)
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Bibliography

[1] US 62, Fruit drinks specification

