



AFDC 12(6595) P3

DRAFT TANZANIA STANDARD

Fruit drinks – Specification

FOR STAKEHOLDERS' ONLY

TANZANIA BUREAU OF STANDARDS



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Fruit drink – Specification

0 FOREWORD

Fruit drinks is a manufactured beverage intended for direct human consumption which contains fruit juice, fruit pulp or other edible parts of the fruits in which the juice content is not less than 10 %

In light of the need to safeguard the consumer and in order to ensure that fruit drinks imported and locally produced are safe and of good quality this Tanzania Standard was thus developed.

In the preparation of this Tanzania Standard assistance was drawn from EAS 77:2019 Fruit drink – Specification

In reporting the results of a test or analysis made in accordance with this Tanzania Standard, if the final value observed or calculated is to be rounded off, it shall be done in accordance with TZS 4 (see clause 2).

1 SCOPE

This Tanzania 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; and
- b) vegetable juices and nectars.

2 Normative References

The following referenced standards are indispensable for the application of this standard. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies:

TZS 4, Rounding off numerical values

TZS 585, Ready to drink (Non – carbonated) beverages – Specification

TZS 132, Edible common salt – Specification

TZS 118, Microbiology – General guidance for the enumeration of microorganisms – Colony count technique.



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TZS 119, Microbiology- General guidance for the enumeration of coliform – Most probable number technique.

Codex Stan 192, Food additives

TZS 268, General atomic absorption spectrophotometric method for determination of lead in food stuffs

TZS 1502, Fruits and Vegetables – Determination of Arsenic content

TZS 471, Methods of sampling and tests for alcoholic beverages

TZS 268/ 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

TZS 538/ EAS 38, Labelling of pre-packaged foods — General requirements

TZS 114/EAS 39, Hygiene in the in the food and drink manufacturing industry — Code of practice

TZS 59/EAS 153, Packaged drinking water — Specification

TZS 1496/ISO 2173, Fruit and vegetable products – Determination of soluble solids – Refractometric method

TZS 481:2015 (EAS 803:2014) - Nutrition labelling – Requirements

TZS 482:2015 (EAS 804:2014) - Claims – General Requirements

TZS 550:2015 (EAS 805:2014) - Use of nutrition and health claims - Requirements

TZS 1503:2016/ ISO 763-2003 Fruit and vegetable products — Determination of ash insoluble in hydrochloric acid

TZS 1491:2015 / ISO 1842-1991 Fruits and Vegetables – Determination of pH

TZS 1504:2016/ ISO 2448-1998 Fruits and vegetable products – Determination of ethanol content

TZS 118:2018(1st Ed) ISO 4833-1:2003 - Microbiology of food and animal feeding stuffs – Horizontal method for the enumeration of microorganisms – Colony-count technique at 30OC

TZS 118:2018(1st Ed) ISO 4833-1:2003 - Microbiology of food and animal feeding stuffs – Horizontal method for the enumeration of microorganisms- Part 2: Colony count at 30 degrees C by the pour plate technique

TZS 729: 2018 (3st Ed) ISO 4832: 2006 - Microbiology of food and animal feeding stuffs – Horizontal method for the enumeration of coliforms – Colony count technique



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TZS 963 (Part 3):2007 (1st Ed), Starch and derived products – Heavy metals content – Part 3 – Determination of lead content by atomic absorption spectrometry with electro-thermal atomization

TZS 731: 2018 (3rd Ed) ISO 7251: 2005 - Microbiology of food and feeding-stuffs – Horizontal method for the detection and enumeration of presumptive Escherichia Coli – Most Probable Number Technique

TZS 131: 2010 (2nd Ed) ISO 7954:1987 - Microbiology of food and animal feeding stuff – General guidance for enumeration of yeasts and moulds – Colony count technique at 25oC

TZS 1496:2016/ ISO 2173-2003 Fruits, vegetables and derived products – Sampling and methods of test – Part 10: Determination of soluble solids

TZS 1503:2016/ ISO 763-2003 Fruits and vegetable products – Determination of ash insoluble in hydrochloric acid

3 Terms and definitions

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



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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

dilutables

fruit drinks that require dilution to taste by 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

a drink in which the juice content is not less than 10 %,

4 Product description

4.1 Fruit 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 (single strength fruit juice) or a mixture of two or more fruits. It may be sweetened with 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).



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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 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 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 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.

Note: The use of both nutritive sweeteners and non-nutritive sweeteners (blending) in the same product is prohibited

- 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.



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5.1.3 Water

The water used for the manufacture of fruit drinks shall comply with TZS 59.

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) be clean and free from foreign matter.

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

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	TZS.1504/SO 2448
ii.	Acid insoluble ash, %, max.	0.02	TZS.1503ISO 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	



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S/N	Characteristic	Requirement	Test method
iv.	Total soluble solids, %, min. Ready to drink (RTD) Fruit squash (in the undiluted form) Fruit crush Fruit cordial	 10 40 55 30	 TZS 1496/ISO 2173
v.	pH, min.	2.5	TZS1491/ISO 1842
vi.	Carbon dioxide, CO ₂ , ^{a, b} min.	One gas volume	Annex A

^a Only applicable to carbonated fruit drinks.
^b Where the drink contains more than one gas volume of carbon dioxide, the term carbonated /sparkling shall appear in the name of the product.

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 as per CODEX STAN 193.

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
i.	Arsenic (as As)	0.2	TZS 1502 /ISO 6634
ii.	Lead (as Pb)	0.03	TZS 963-3 /ISO 6633
iii.	Cadmium as (as Cd)	0.05	TZS 268/AOAC 999.10



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8 Hygiene

8.1 Fruit drinks shall be produced and handled under hygienic conditions in accordance with TZS.114

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 ³	TZS 118 /ISO 4833-1 TZS/ISO 4833-2
ii.	<i>Escherichia coli</i> , cfu/g, max.	Absent	TZS 731/ISO 16649-2
iii.	Yeasts and moulds, cfu/g, max.	30	TZS 131/ISO 21527-2

9 Packaging

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

10 Weights and measures

The volume filled shall comply with the weights and measures regulations

11 Labelling

11.1 General

In addition to the provisions covered under TZS 538 (see clause 2) Fruit drink shall be legibly and indelibly marked on the label with the following information.

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.



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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.

11.2.3 Date of manufacture

11.2.4 Expiry date.

11.2.5 Brand /trade name.

11.2.6 List of ingredients.

11.2.7 Net contents.

11.2.8 Instructions for use.

11.2.9 Storage conditions.

11.2.10 Name and address of the manufacturer.

11.2.11 Country of origin.

11.3 Additional labelling requirements

11.3.1 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 " shall be declared on the label and
- c) The name, type and the amount of non-nutritive sweeteners used shall be indicated in the label.

11.4 Fruit juice content declaration

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

11.5 Nutritional labelling, nutrition and health claims

Nutritional labelling, nutrition and health claims may be made in accordance with TZS 481, TZS 482 and TZS 550.



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If non- nutritive sweetener is used, the following words 'contain non-nutritive sweetener' shall be declared on the label.

11.6 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.

12 Sampling

Sampling shall be done in accordance with Annex B.

12.1 The language on the label shall be "Kiswahili" or Kiswahili and English. A second language may be used depending on the designated market.

12.2 The containers may also be marked with the TBS standards Mark of Quality

NOTE - The TBS Standards Mark of Quality may be used by the manufactures only under licence from TBS. Particulars of Conditions under which the licences are granted may be obtained from TBS



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Annex A (normative)

Methods of measuring gas volume

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 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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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, n^a
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



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Lot size (primary containers)	Size of container, n^a
2 001 to 7 200	29
7 201 to 15 000	48
15 001 to 24 000	84
24 001 to 42 000	126

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