ETHIOPIAN STANDARD

ES 7242:2025

First edition

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Fruit squash — Specification

ICS: 67.080.20

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Foreword

This Ethiopian Standard has been prepared under the direction of the Technical Commitee for Fruits and vegetables(Tc-13) and published by the Institute of Ethiopian Standards (IES).

In preparing this Ethiopian Standard reference have been made to the following:

Acknowledgements are made for the use of information from the above publication.

Fruit squash — Specification

1. Scope

This Ethiopian Standard specifies the requirements and methods of sampling and test for fruit squash for human consumption.

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 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.

CES 58, Drinking water (other than any packaged water) – Specification.

CES 73, General standard for prepackaged foods – Labeling.

ES 577, Recommended code of practice – General principle of food hygiene.

ES ISO 763, Fruit and vegetable products - Determination of ash insoluble in hydrochloric acid.

ES 929, Code of practice – food hygiene management.

ES ISO 1842, Fruits and vegetables products - Determination of pH.

ES ISO 2172, Fruit juice - Determination of soluble solids content - Pyknometric method.

ES ISO 2173, Fruit and vegetable products — Determination of soluble solids - Refractometric method.

ES ISO 2448, Fruits and vegetable products - Determination of ethanol content.

ES 2834, Sampling plans for prepackaged foods (AQL 6.5).

ES ISO 4832, Microbiology of food and animal feeding stuffs - Horizontal method for the enumeration of Coliforms - Colony-count technique.

ES ISO 4833-1, Microbiology of the food chain - Horizontal method for the enumeration of microorganisms - Part 1: Colony count at 30 0C by the pour plate technique.

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

ES ISO 6636-2, Fruits, vegetables and derived products - Determination of zinc content - Atomic absorption spectrometric method.

ES ISO 7251, Microbiology of food and animal feeding stuffs - Horizontal method for the detection and enumeration of presumptive Escherichia coli - Most probable number technique.

ES ISO 7952, Fruits, vegetables and derived products - Determination of copper content - Method using flame atomic absorption spectrometry.

ES ISO 17239, Fruits, vegetables and derived products - Determination of arsenic content - Method using hydride generation atomic absorption spectrometry.

ES 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.

ES 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.

ES ISO 22002-1, Prerequisite programmes on food safety - Part 1: Food manufacturing.

3. Terms and definitions

For the purposes of this standard the following terms and definitions shall 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 in to 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 squash to achieve the characteristics of the product at the specified temperature and pressure.

3.6.
dilutables
fruit squash that require dilution to taste by consumers.

3.7.
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.

4. Product description

Fruit Squash — is a non-alcoholic, concentrated fruit beverage, 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.

5. Ingredients

5.1. Fruits

Fruit squash 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. Sweetening agents

Honey (as defined in ES 1202), sucrose, glucose (dextrose anhydrous) or fructose (as defined in the Ethiopian Standard for Sugars), and other nutritive sweeteners or non-nutritive sweeteners may be added.

Syrups (as defined in the Ethiopian 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 squash from concentrate.

5.3. Water

The water used for the manufacture of fruit squash shall be drinking water and complying with the requirements of CES 58.

6. Requirements

6.1. General requirements

Fruit squash shall:

6.1.1. have a uniform appearance and consistency and characteristic of the product.

6.1.2. be clean and free from foreign matter.

6.1.3. be prepared from sound produce, excluding any fruit that is rotten, spoiled, or otherwise deteriorated to the extent

6.1.4. that it is unsuitable for human consumption

6.1.5. be practically free of mechanical and/or physiological damage;

6.1.6. be practically free of pests and diseases, and internal damage caused by them affecting the general

6.1.7. appearance of the produce;

6.1.8. be free of abnormal external moisture, excluding condensation following removal from cold storage;

6.1.9. be free of any foreign smell and/or taste;

6.2. Specific requirements

Fruit squash shall conform to the compositional requirement in Table 1 below.

Table 1 Compositional requirement of fruit squash

S.No	Characteristic	Requirement	Test Methods
1	Ethanol content, %, Max.	0.3	ES ISO 2448
2	Acid insoluble ash, %, Max.	0.02	ES ISO 763
3	Min. (%) of fruit juice/fruit puree in the final product (in the undiluted form)*	24	GMP
4	Total soluble solids, %, Min. (in the undiluted form)	40	ES ISO 2172
5	pH (Min.)	2.5	ES ISO 1842
6	CO_2	Not less than one volume	Annex A

* with exception of lime and lemon squashes which shall have a fruit content of not less than 20 %.

Note: For the carbonated Fruit squash the volume of carbon dioxide shall be not less than one.

7. Food additives

Fruit squash may contain only permitted additives in accordance with Codex Stan 192.

8. Contaminants

The products covered by this Standard shall comply with the maximum levels of the General Standard for Contaminants and Toxins in Food and Feed (Codex Stan 193).

8.1. Pesticide residues

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

8.2. Metal contaminants

Fruit squash shall not exceed levels of metals specified in Table 2 below.

Table 2 Metal contaminants

S.No	Characteristic	Limit (mg/kg, Max.)	Test Methods
1	Arsenic (As)	0.2	ES ISO 17239
2	Copper (Cu)	5	ES ISO 7952
3	Zinc (Zn)	5	ES ISO 6636-2
4	Lead (Pb)	0.03	ES ISO 6633
5	Tin	250	ES ISO 2447
6	Mercury	0.001	ES ISO 6637

9. Hygiene

Fruit squash shall be manufactured and handled in a hygienic manner in accordance with ES 577, ES 929 and ES ISO 22002-1.

Fruit squash shall be free of pathogenic microorganisms and shall conform to the microbiological requirements in Table 3 below.

Table 3 Microbiological limits for fruit squash

S.No	Characteristic	Limits	Test Methods
1	Total plate count, cfu/g, Max.	100	ES ISO 4833-1
2	Total coliforms, per 100 mL	Absent	ES ISO 4832
3	*E. coli*, per 100 mL	Absent	ES ISO 7251
4	Yeast and moulds, cfu/g, Max.	10	ES ISO 21527-1 ES ISO 21527-2

10. Packaging and labelling

10.1. Packaging

10.1.1. Dried mango shall be packed in clean, sound, free from insects and fungi infection and the packing material shall be of food grade quality.

10.1.2. The containers, including packaging material, shall be made of substances which are safe and suitable for their intended use. They shall not impart any toxic substance or undesirable odor or flavor to the product.

10.2. Labelling

10.2.1. The labelling shall comply with the requirements of CES 73, and shall be legibly and indelibly marked with the following:

a) Name of the product:

- The name of the product shall be **“Fruit Squash”** shall be replaced with the common name of the fruit(s) from which the squash is made.
- In the case of fruit squash products manufactured from two or more fruits, the product name shall include the names of the Fruit squash comprising the mixture in descending order of proportion by weight (m/m) or the words **"fruit squash blend"**, **"a fruit squash mixture"**, **"mixed fruit squash "** or other similar wording.

b) Name and physical and postal address of manufacturer, exporter/importer;

c) Batch or identification code;

d) Net content in SI unit;

e) Expiry date (dd,mm,yy);

f) List of ingredients;

g) Storage instruction;

h) Country of origin;

i) Date of manufacture (dd,mm,yy); and

j) Any other information required by the purchaser.

10.2.2. The following designations shall be used where applicable:

i) 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.

ii) Where the squash contains more than one gas volume (Annex A) of carbon dioxide, the term carbonated/sparkling shall appear in the name of the product.

11. Method of sampling

Sampling of fruit squash shall be done in accordance with ES 2834.

Annex A
(Normative)
Method of measuring gas volume

Principle

The method involves snifting off 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 a 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 the pressure–temperature chart (Carbon dioxide chart).

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INSTITUTE OF ETHIOPIAN STANDARDS

Organization and Objectives

The Institute of Ethiopian Standards (IES) is the national standards body of Ethiopia. IES is re-named by the proclamation number 1263/2021, from Ethiopian Standards Agency (ESA) to Institute of Ethiopian standards, with the mandate given by the regulation Number, 193/2010 and proclamation number, 1263/2021.

IES's objectives are:

- Develop Ethiopian standards and establish a system that enable to check whether goods and service are in compliance with the required standards,
- Facilitate the country's technology transfer through the use of standards,
- Develop national standards for local products and services so as to make them competitive in the international market.
- Conduct standards related research and provide training and technical support.

Ethiopian Standards

The Ethiopian Standards are developed by national technical committees which are composed of different stakeholders consisting of educational and research institutes, governmental organizations, certification, inspection, and testing organizations, regulatory bodies, consumer association etc. The requirements and/ or recommendations contained in Ethiopian Standards are consensus based that reflects the interest of the TC representatives and also of comments received from the public and other sources. Ethiopian Standards are approved by the National Standardization Council and are kept under continuous review after publication and updated regularly to take account of latest scientific and technological changes.

Orders for all Ethiopian Standards, International Standard and ASTM standards, including electronic versions, should be addressed to the Documentation and Publication Team at the Head office and Branch (Liaisons) offices). A catalogue of Ethiopian Standards is also available freely and can be accessed from our website.

 International Involvement IES, representing Ethiopia, is a member of the International Organization for Standardization (ISO), International Electro-technical Commission (IEC) and Codex Alimentarius Commission (CODEX). It also maintains close working relations with the American Society for Testing and Materials (ASTM). It is a founding member of the African Regional Organization for standardization (ARSO).

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