ETHIOPIAN STANDARD

ES 6688:2025

Second edition

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Jams, Jellies and Marmalades- Specification

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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).

This Ethiopian Standard cancels and replaces ES 6688:2021, *Jams, Jellies and Marmalades – Specifications.*

Jams, Jellies and Marmalades-Specification

1. Scope

This Ethiopian standard specifies requirements, methods of sampling and test of jams, jellies and marmalades intended for direct human consumption, including for catering purposes or for repacking if required.

2. Normative Reference

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 73, General standard for prepackaged foods – Labeling.

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

ES 929, Code of practice – Food hygiene management.

ES 1202, Honey – Specification.

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

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

ES ISO 7558, Guide to the prepacking of fruits and vegetables.

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 definitions shall also apply:

3.1.
Jam
Jam[1] is the product brought to a suitable consistency, made from the whole fruit, pieces of fruit, the unconcentrated and/or concentrated fruit pulp or fruit puree, of one or more kinds of fruit, which is mixed with foodstuffs with sweetening properties as defined in Section 3.6 – 3.12, with or without the addition of water.
Note: Citrus jam may be obtained from the whole fruit cut into strips and/or sliced.
The terms “preserve” or “conserve” are sometimes used to represent products covered by this Standard. The use of the terms “preserve” and “conserve” are thereby required to comply with the requirements for jam as set out in this Standard.

3.2.
Jellies
Jellies are the products brought to a semi-solid gelled consistency and made from the juice and/or aqueous extracts of one or more fruits, mixed with foodstuffs with sweetening properties as defined in Section 3.6 – 3.12, with or without the addition of water.

3.3.
Citrus Marmalade
Citrus marmalade is the product obtained from a single or a mixture of citrus fruits and brought to a suitable consistency. It may be made from one or more of the following ingredients: whole fruit or fruit pieces (which may have all or part of the peel removed), fruit pulp, puree, juice, aqueous extracts, and peel, and is mixed with foodstuffs with sweetening properties as defined in Section 3.6 – 3.12, with or without the addition of water.

3.4.
Non-citrus Marmalade
Non-citrus marmalade is the product prepared by cooking fruit (whole, in pieces, or crushed) with the addition of foodstuffs with sweetening properties as defined in Section 3.6 – 3.12, to obtain a semi-liquid or thick liquid.

[1] Citrus jam may be obtained from the whole fruit cut into strips and/or sliced.

3.5.
Jelly Marmalade
Jelly marmalade is the product described under citrus marmalade from which all the insoluble solids have been removed, but which may or may not contain a small proportion of thinly cut peel.

3.6.
Fruit
Fruit means all of the recognized fruits and vegetables that are used in making jams, including but not limited to those mentioned in this standard, fresh, frozen, canned, concentrated, dried, or otherwise processed and/or preserved. They shall be sound, wholesome, clean, and of suitable ripeness, but free from deterioration, and containing all their essential characteristics, except that they have been trimmed, sorted, and otherwise treated to remove any blemishes, bruises, toppings, tailings, cores, pits (stones), and may or may not be peeled.

3.7.
Fruit Pulp
Fruit pulp is the edible part of the whole fruit, if appropriate, less the peel, skin, seeds, pips, etc., which may have been sliced or crushed but which has not been reduced to a puree.

3.8.
Fruit Puree
Fruit puree is the edible part of the whole fruit, if appropriate, less the peel, skin, seeds, pips, and similar parts, which has been reduced to a puree by sieving or other processes.

3.9.
Aqueous Extracts
Aqueous extracts are the aqueous extract of fruits which, subject to losses necessarily occurring during proper manufacture, contain all the water-soluble constituents of the fruit concerned.

3.10.
Fruit Juices and Concentrates
Fruit juices and concentrates are products as defined in the Codex General Standard for Fruit Juices and Nectars (Codex Stan 247-2005).

3.11.
Citrus Fruit
Citrus fruit is fruit of the *Citrus L.* family.

3.12.
Foodstuffs with Sweetening Properties
a) All sugars as defined in Ethiopian standards.
b) Sugars extracted from fruit (fruit sugars).
c) Fructose syrup.
d) Honey as defined in ES 1202.

4. Essential Composition

4.1. Composition

4.1.1. Basic Ingredients

a) Fruit ingredient, as defined in Section 3.6 – 3.12 (fruit, fruit pulp, fruit puree, aqueous extracts, fruit juices and concentrates, citrus fruit and food stuffs with sweetening properties) in quantities laid down in Sections 4.1.2 a) – d) below.

   In the case of jellies, the quantities, where appropriate, shall be calculated after deduction of the weight of water used in preparing the aqueous extracts.

b) Foodstuffs with sweetening properties as defined in Section 3.6 – 3.12.

4.1.2. Fruit Content

The following percentage fruit content for jams and jellies specified at 4.1.2 a) or 4.1.2 b) below shall apply and be labelled in accordance with Section 10.2:

a) The products, as defined in Section 3.1 – 3.5, shall be produced such that the quantity of fruit ingredient used as a percentage of finished products shall be not less than **45% in general**, with the exception of the following fruits:

- 35% for blackcurrants, mangoes, quinces, rambutan, redcurrants, rosehips, roselles, rowanberries, and sea-buckthorns;
- 30% for soursop and cranberry;
- 25% for banana, cempedak, ginger, guava, jackfruit, and sappota;
- 23% for cashew apples;
- 20% for durian;
- 10% for tamarind;
- 8% for passion fruit and other strong-flavoured or high-acidity fruits[2].

When fruits are mixed together, the minimum content must be reduced in proportion to the percentages used.

b) The products, as defined in Section 3.1 – 3.5, shall be produced such that the quantity of fruit ingredient used as a percentage of finished products shall be not less than 35% in general, with the exception of the following fruits:

- 25% for blackcurrants, mangoes, quinces, rambutan, redcurrants, rosehips, roselles, rowanberries, and sea-buckthorns;
- 20% for soursop and cranberry;
- 16% for cashew apples;
- 15% for banana, cempedak, guava, jackfruit, and sappota;
- 11%–15% for ginger;
- 10% for durian;
- 6% for passion fruit, tamarind, or other strong-flavoured or high-acidity fruits[2].

Fruits, when used at higher percentages, could render the product unpalatable in accordance with consumer preferences in the country of retail sale.

When fruits are mixed together, the minimum content must be reduced in proportion to the percentages used.

In the case of Labrusca grape jam, grape juice and grape juice concentrate, when added as optional ingredients, may constitute a part of the required fruit content.

c) Citrus Marmalade

The product, as defined in Section 3.1 – 3.5, shall be produced such that the quantity of citrus fruit ingredients used in the manufacturing of 1000 g of finished product must not be less than **200 g**, of which at least **75 g** must be obtained from the endocarp[3].

In addition, the term “jelly marmalade” as defined in Section 3.1 – 3.5 may be used when the product contains no insoluble matter but may contain small quantities of thinly cut peel.

[2]Fruits when used at higher percentages, could render the product unpalatable in accordance with consumers preferences in the country of retail sale.

[3]In the case of citrus fruit, the endocarp means the fruit pulp (or flesh) which is often subdivided into segments and vesicas containing the juices and the seeds.

d) Non-Citrus Marmalade

The product, as defined in Section 3.1 – 3.5, shall be produced such that the quantity of fruit ingredient used as a percentage of the finished product shall not be less than **30% in general**, with the exception of the following fruits:

- 11% for ginger.

4.2. Other Permitted Ingredients

Any appropriate food ingredient of plant origin may be used in the products covered by this Standard. This includes fruit, herbs, spices, nuts, alcoholic drinks, essential oils, and vegetable edible oils and fats (used as antifoaming agents), as long as they do not mask poor quality or mislead the consumer.

For example, red fruit juice and red beetroot juice may only be added to jams as defined in points 4.1.2 a) and b) made from gooseberries, plums, raspberries, redcurrants, rhubarb, rosehips, roselle, or strawberries.

4.3. Soluble Solids

The soluble solids content for the finished products defined in Sections 4.1.2 a) – c) shall in all cases be between 60 to 65 percent or greater.

In the case of the finished product defined in Section 4.1.2 d), the soluble solids content shall be 40 percent to 65 percent or less.

5. Requirements

5.1. General requirements

5.1.1. The end product shall be of an appropriate gelled consistency, having normal colour and flavour appropriate to the type or kind of fruit ingredient used in the preparation of the mixture, while taking into account any flavour imparted by optional ingredients or any permitted colouring agents used.

5.1.2. It shall be free from defective materials normally associated with fruits.

5.1.3. Jelly and extra jelly shall be reasonably clear or transparent.

5.2. Specific Requirements

5.2.1. Defects and Allowances for Jams

The products covered by this Standard shall be largely free of defects such as plant material skins (if peeled), stones and pieces of stones and mineral matters. In the case of berry fruits, dragon fruit and passion fruit, seeds shall be considered a natural fruit component and not a defect unless the product is presented as “seedless”.

5.2.2. Classification of “Defectives”

A container that fails to meet one or more of the applicable quality requirements as set out in Section 5.1 should be considered as a “defective”.

5.2.3. Lot Acceptance

A lot should be considered as meeting the applicable quality requirements referred to in Section 5.1 when the number of “defectives” as defined in Section 5.3 does not exceed the acceptance number of the appropriate sampling in ES 2834.

6. Food Additives

Only those food additive classes listed below are technologically justified and may be used in products covered by this Standard. Within each additive class, only those food additives listed below, or referred to, may be used and only for the functions, and within limits, specified.

Acidity regulators, antifoaming agents, firming agents, preservatives and thickeners used in accordance with Table 3 of the Codex General Standard for Food Additives (Codex Stan 192-1995) are acceptable for use in foods conforming to this Standard.

Acidity Regulators

INS No.	Name of the Food Additive	Maximum Level
334; 335(i), (ii); 336(i), (ii); 337	Tartrates	3,000 mg/kg

Antifoaming Agents

INS No.	Name of the Food Additive	Maximum Level
900a	Polydimethylsiloxane	10 mg/kg

Colours

INS No.	Name of the Food Additive	Maximum Level
100(i)	Curcumin	500 mg/kg
101(i), (ii)	Riboflavins	200 mg/kg
104	Quinoline Yellow	100 mg/kg
110	Sunset Yellow FCF	300 mg/kg
120	Carmines	200 mg/kg
124	Ponceau 4R (Cochineal Red A)	100 mg/kg
129	Allura Red AC	100 mg/kg
133	Brilliant Blue FCF	100 mg/kg
140	Chlorophylls	GMP
141(i), (ii)	Chlorophylls and Chlorophyllins, Copper Complexes	200 mg/kg
143	Fast Green FCF	400 mg/kg
150a	Caramel I – Plain Caramel	GMP
150b	Caramel II – Sulfite Caramel	80,000 mg/kg
150c	Caramel III – Ammonia Caramel	80,000 mg/kg
150d	Caramel IV – Sulfite Ammonia Caramel	1,500 mg/kg
160a(i)	Carotenes, beta-, synthetic	500 mg/kg singly or in combination
160a(iii)	Carotenes, beta-, Blakesleatrispora	500 mg/kg singly or in combination
160e	Carotenal, beta-apo-8’	500 mg/kg singly or in combination
160f	Carotenoic acid, ethyl ester, beta-apo-8’	500 mg/kg singly or in combination
160a(ii)	Carotenes, beta-, vegetable	1,000 mg/kg
160d(i), 160d(iii)	Lycopenes	100 mg/kg
161b(i)	Lutein from Tageteserecta	100 mg/kg
162	Beet Red	GMP
163(ii)	Grape Skin Extract	500 mg/kg
172(i)-(iii)	Iron Oxides	200 mg/kg

Preservatives

INS No.	Name of the Food Additive	Maximum Level
200–203	Sorbates	1,000 mg/kg
210–213	Benzoates	1,000 mg/kg
220–225, 227, 228 539	Sulfites	50 mg/kg as residual SO_2 in the end product, except when made with sulfited fruit when a maximum level of 100 mg/kg is permitted in the end product

7. Flavourings

The following flavourings are acceptable for use in foods conforming to this Standard when used in accordance with good manufacturing practices and in compliance with the Codex Guidelines for the Use of Flavourings (CAC/GL 66-2008): natural flavouring substances that are extracted from the named fruits in the respective product; natural mint flavour; natural cinnamon flavour; vanillin, vanilla or vanilla extracts.

8. Contaminants

The products covered by this Standard shall comply with the maximum levels of the Codex General Standard for Contaminants and Toxins in Food and Feed (Codex Stan 193-1995).

The products covered by this Standard shall comply with the maximum residue limits for pesticides established by the Codex Alimentarius Commission.

Table 3 maximum limits for metals contaminants

Characteristics	**Max Level** (mg/kg)	**Test Methods**
Arsenic(As)	0.01	ES ISO 17239
Lead(Pb)	0.1	ES ISO 6733
Copper (Cu)	5.0	ES ISO 7952
Zinc (Zn)	5.0	ES ISO 6636
Tin(Sn)	250	ES ISO 2447
Mercury(Hg)	0.001	ES ISO 6637
Cadmium(cd)	0.003	ES ISO 6732

9. Hygiene

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

The products should comply with any microbiological criteria established in accordance with the *Principles for the Establishment and Application of Microbiological Criteria for Foods* (CAC/GL 21-1997).

Table 3 Microbiological limits

Characteristics	Limit	Test Methods
Total plate count, (cfu/g), Max.	10^2	ES ISO 4833
Coli form, (cfu/g)	Absent	ES ISO 4832
Yeasts and moulds, (cfu/g)	Absent	ES ISO 21527-1
Salmonella sp, cfu/g	Absent	ES ISO 6579
E. coli cfu/mL	Absent	ES ISO 7251

10. Packaging and Labelling

10.1. Packaging

The packaging shall comply with the requirements of ES ISO 7558 and shall consider the following:

- The product shall be packed which shall be clean, sound, and free from insects and fungi infection and the packing material shall be of food grade quality.
- 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 odour or flavour to the product.

NOTE 1 Packaging materials may be required to meet different regulations in Ethiopia.

10.2. Labelling

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 names of the products shall be:

i. In the case of Section 4.1.2 (a):

- Name of product which shall reflect the true name of the fruit, used in the manufacture of the jam, jellies and marmalade (for example **"Pineapple Jam"** or **"Strawberry Jam"** …). When two or more different fruits are used in combination the product shall be labelled as **"**mixed fruit jam, jellies or marmalades**"**.

ii. In the case of Section 4.1.2 (b):

- Jam (or preserve or conserve or fruit spread);
- Jelly (or fruit spread).

iii. In the case of Section 4.1.2 (c):

- Marmalade or Jelly Marmalade.

iv. In the case of Section 4.1.2 (d):

- **"X"** marmalade **("X"** is a non-citrus fruit).

b) Name and physical address of the manufacturer;

c) Declaration of preservative by common name or international numbering; if any

d) Batch/Lot number;

e) Net content (mass) in SI unit;

f) Class of the product;

g) Country of origin;

h) Date of packing/manufacture (dd/mm/yy);

i) Expiry date (dd/mm/yy);

j) Instruction for use; and

k) Storage condition.

11. Methods of Sampling

Sampling of jams, jellies and marmalades shall be done in accordance with ES 2834.

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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).

For More Information?

Contact us at the following address.

The Head Office of IES is at Addis Ababa.

☎011-6460685, 011-6460565
011-6460880
2310AddisAbaba, Ethiopia
E-mail:info@ethiostandards.org
Website:www.ethiostandards.org

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