
Tomato Soup — Specification

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Foreword

This Ethiopian Standard has been prepared under the direction of the Technical Committee 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.

Tomato soup – Specification

1. Scope

This Ethiopian Standard specifies the requirements, test methods and sampling for tomato soup intended for human consumption.

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) Specifications.

CES 73, Labeling of pre-packed foods – General standard.

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

ES ISO 927, Spices and condiments – Determination of extraneous matter and foreign matter content.

ES ISO 928, Spices and condiments – Determination of total ash.

ES 929, Code of practice – food hygiene management.

ES ISO 930, Spices and condiments – Determination of acid-insoluble ash.

ES ISO 939, Spices and condiments – Determination of moisture content – Entertainment method.

ES ISO 1871, Food and feed products — General guidelines for the determination of nitrogen by the Kjeldahl method.

ES 3377, Methods of tests for foods minerals and trace elements.

ES ISO 4831, Microbiology of food and animal feeding stuffs – Horizontal method for the detection and enumeration of Coliforms – Most probable number technique.

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

ES 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 technique.

ES ISO 5498, Agricultural food products – Determination of crude fiber content – General method.

ES ISO 6561-2, Fruits, tomatoes and derived products — Determination of cadmium content — Part 2: Method using flame atomic absorption spectrometry.

ES ISO 6579-1, Microbiology of the food chain – Horizontal method for the detection, enumeration and stereotyping of Salmonella – Part 1: Detection of Salmonella.

ES ISO 6579-2, Microbiology of food and animal feed – Horizontal method for the detection, enumeration and stereotyping of Salmonella – Part 2: Enumeration by a miniaturized most probable number technique.

ES ISO 6579-3, Microbiology of the food chain – Horizontal method for the detection, enumeration and stereotyping of Salmonella – Part 3: Guidelines for stereotyping of Salmonella spp.

ES ISO 6637, Fruits, Tomatoes and Derived Products – Determination of mercury content – Flameless atomic absorption method.

ES ISO 6888-1, Microbiology of food and animal feeding stuffs – Horizontal method for the enumeration of coagulase-positive staphylococci (*Staphylococcus aureus* and other species) – Part 1: Technique using Baird-Parker agar medium.

ES ISO 6888-2, Microbiology of food and animal feeding stuffs – Horizontal method for the enumeration of coagulase-positive staphylococci (*Staphylococcus aureus* and other species) – Part 2: Technique using rabbit plasma fibrinogen agar medium.

ES ISO 6888-3, Microbiology of food and animal feeding stuffs – Horizontal method for the enumeration of coagulase-positive staphylococci (*Staphylococcus aureus* and other species) – Part 3: Detection and MPN technique for low numbers.

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 9831, Animal feeding stuffs, animal products, and faeces or urine – Determination of gross calorific value – Bomb calorimeter method.

ES ISO 16050, Food stuffs – Determination of aflatoxin B1, and the total content of aflatoxin B1, B2, G1 and G2 in cereals, nuts and derived products – High performance liquid chromatographic method.

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.

ES ISO 24333, Cereals and cereal products sampling.

ES ISO 26642, Food products – Determination of the glycaemic index (GI) and recommendation for food classification.

ES ISO 27085, Animal feeding stuffs – Determination of calcium, sodium, phosphorus, magnesium, potassium, iron, zinc, copper, manganese, cobalt, molybdenum, arsenic, lead and cadmium by ICP-AES.

3. Terms and Definitions

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

3.1

tomato soup

a semi-liquid or liquid food product prepared by cooking tomatoes (fresh, puree, sauce, paste, concentrated) with or without legumes, cereals, herbs, spices, salt, oil, or fat, and optionally enriched with natural flavorings or approved food additives.

4. Requirements

4.1 General Requirements

4.1.1 The raw materials used for making the product shall comply with the relevant Ethiopian standards.

4.1.2 The product shall be free from:

4.1.2.1 unpleasant odor and flavors;

4.1.2.2 mould growth when examined with the naked eye;

4.1.2.3 rancidity;

4.1.2.4 foreign matters; and

4.1.2.5 any adulterants.

4.2 Specific Requirements

Tomato soup shall comply with the specific requirements in Table 1 below.

Table 1 Specific requirement for tomato soup

S.No	Characteristics	Requirements	Test Methods
1	Carbohydrate, %, m/m, Min.	shall be declared	ES ISO 6642
2	Total energy, kcal/100g	shall be declared	ES ISO 2175
3	Total Fat content, %, m/m, Max.	5	ES ISO 11085
4	pH, Max.	4.5	ES ISO 1842
5	Total dissolved solids content, % by mass, Min.	8.5	ES ISO 2173
6	Acid insoluble ash, %, m/m, Max.	0.1	ES ISO 930

Note: The amount of salt shall be declared on the labelling.

5. Food Additives

Food additives in the tomato soup shall comply with Codex Stan 192.

6. Contaminants

6.1 Metals contaminants

Tomato soup shall comply with those maximum limits for heavy metal contaminants specified in Codex Stan 193, and in particular listed in Table 3 below.

Table 3 Metal limits in tomato soup

S.No	Characteristics	Maximum limit, mg/kg (ppm)	Test Methods
1	Lead	0.1	ES ISO 6637
2	Arsenic	0.2	ES ISO 27085
3	Mercury	0.1	ES ISO 6637
4	Cadmium	0.1	ES ISO 6561-2
5	Tin	250	—

6.2 Pesticide residues

The product shall comply with those maximum residue limits established by the Codex Alimentarius Commission for this or its similar food commodity.

6.3 Mycotoxins

The product shall comply with those maximum mycotoxin limits as established by the Codex Alimentarius Commission for food and feed stuffs. In particular, total Aflatoxins in this product shall not exceed 10 µg/kg and 5 µg/kg for aflatoxin B1 when tested in accordance with ES ISO 16050.

7. Hygiene

- 7.1** The product shall be produced, prepared and handled in accordance with ES 577, ES 929 and ES ISO 22002-1.
- 7.2** The product shall be free from pathogenic microorganisms and shall comply with the microbiological limits indicated in Table 4 below.

Table 4 Microbiological limits for tomato soup

S.No	Characteristics	Requirements	Test Methods
1	Total plate count, cfu/g, Max.	10 ²	ES ISO 4833-1 ES ISO 4833-2
2	Total Coliform, cfu/g, Max.	10	ES ISO 4831
3	<i>S. aureus</i> , cfu/g	Absent	ES ISO 6888-1 ES ISO 6888-2 ES ISO 6888-3
4	<i>E. coli</i> , cfu/g	Absent	ES ISO 7251
5	<i>C. botulinum</i> , cfu/g	Absent	ES ISO 17919
6	<i>Salmonella</i> , cfu/25g	Absent	ES ISO 6579-1 ES ISO 6579-2 ES ISO 6579-3
7	Yeast and molds, cfu/g, Max.	10	ES ISO 21527-1 ES ISO 21527-2

8. Packaging and Labelling

8.1 Packaging

- 8.1.1** The product shall be packed clean, sound, free from insect and fungal infestation, and the packing material shall be of food grade quality and hermetically sealed.
- 8.1.2** The product shall be packed in containers that safeguard the hygienic, nutritional, and organoleptic qualities of the product.
- 8.1.3** The containers, including packaging material, shall be made of substances that are safe and suitable for their intended use. They shall not impart any toxic substance or undesirable odour or flavor to the product.
- 8.1.4** The container shall be filled in accordance with the pre-packed and labelling standard (CES 73).

8.2 Labelling

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

- Name of the product as “**Tomato Soup**”;
- Name, address and physical location of the producer/packer/importer;
- List of ingredients (in descending order). If there is any ingredient of animal origin, mention as non-fasting;

- d) Code or batch number;
- e) Nutritional information;
- f) Net content (mass) in SI unit;
- g) Country of origin;
- h) Manufacturing date (dd/mm/yyyy);
- i) Instruction for use;
- j) Storage recommendation; and
- k) Expiry date (dd/mm/yyyy).

9. Sampling Method

Tomato soup shall be sampled using the method specified in ES ISO 24333.

Bibliography

AOAC 925.56, *Iodine in iodized salt* — Titrimetric method

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

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