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## DRAFT EAST AFRICAN STANDARD

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Edible soya bean oil — 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 015, *Oilseeds, edible fats and oils*.

This third edition cancels and replaces the second edition (EAS 297:2013), which has been technically revised.

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.

## Edible soya bean oil — Specification

### 1 Scope

This draft East African Standard specifies the requirements, sampling, and test methods for virgin and refined soya bean (soybean) oil derived from seeds of soya beans (*Glycine max* (L.) Merr.) intended for human consumption.

### 2 Normative references

The following documents are referred to in the text in such a way that some or all 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.

CXG 66, *Guidelines for the use of flavourings*

CXS 192, *General standard for food additives*

EAS 38, *Labelling of prepackaged foods — General requirements*

EAS 39, *Hygiene in the food and drink manufacturing industry — Code of practice*

EAS 769, *Fortified edible fats and oils — Specification*

EAS 803, *Nutrition labelling — Requirements*

EAS 804, *Claims — General requirements*

EAS 805, *Use of nutrition and health claims — Requirements*

ISO 660, *Animal and vegetable fats and oils — Determination of acid value and acidity*

ISO 661, *Animal and vegetable fats and oils — Preparation of test sample*

ISO 662, *Animal and vegetable fats and oils — Determination of moisture and volatile matter content*

ISO 663, *Animal and vegetable fats and oils — Determination of insoluble impurities content*

ISO 3596, *Animal and vegetable fats and oils — Determination of unsaponifiable matter— Method using diethyl ether extraction*

ISO 3657, *Animal and vegetable fats and oils — Determination of saponification value*

ISO 3960, *Animal and vegetable fats and oils — Determination of peroxide value*

ISO 3961, *Animal and vegetable fats and oils — Determination of iodine value*

ISO 5555, *Animal and vegetable fats and oils — Sampling*

ISO 6320, *Animal and vegetable fats and oils — Determination of refractive index*

ISO 6883, *Animal and vegetable fats and oils — Determination of conventional mass per volume (litre weight in air)*

ISO 10539, *Animal and vegetable fats and oils — Determination of alkalinity*

ISO 12193, *Animal and vegetable fats and oils — Determination of lead by direct graphite furnace atomic absorption spectroscopy*

ISO 13547 -2, *Copper, lead, zinc and nickel sulfide concentrates — Determination of arsenic Part 2: Acid digestion and by inductively coupled plasma atomic emission and spectrometric method*

ISO 15305, *Animal and vegetable fats and oils — Determination of Lovibond colour*

ISO 16050, *Foodstuffs — Determination of aflatoxin B1, and the total content of aflatoxins B1, B2, G1 and G2 in cereals, nuts and derived products — High-performance liquid chromatographic method*

ISO 21033, *Animal and vegetable fats and oils — Determination of trace elements by inductively coupled plasma optical emission spectroscopy (ICP-OES)*

### 3 Terms and definitions

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

- 3.1**  
**edible soya bean oil**  
oil derived from seeds of soya beans (*Glycine max* (L.) Merr.)
- 3.2**  
**virgin soya bean oil**  
edible soya bean oil obtained without altering its nature that may be obtained by use of mechanical procedures such as expelling or pressing, with or without the application of heat and without the use of solvents.
- 3.3**  
**non-virgin (refined) soya bean oil**  
edible oil obtained, by mechanical procedures and/or solvent extraction and subjected to refining processes to adopt it especially for use in food products.
- 3.4**  
**cold-pressed soya bean oil**  
virgin soya bean oil obtained without the application of heat.
- 3.5**  
**foreign matter**  
any undesirable material visible with naked eye in a packaged edible soya bean oil
- 3.6**  
**food grade packaging material**  
packaging material, made of substances which are safe and suitable for the intended use, and which will not impart any toxic substance or undesirable odour or flavour to the product

## 4 Requirements

### 4.1 General requirements

Edible soya bean oil shall:

- be obtained from soya bean seeds which are mature, clean and practically free from insect infestation
- be free from foreign matter;
- be free from rancid or undesirable odour and/or taste
- be free from admixture with other oils; and
- have colour characteristic of soya bean oil.

### 4.2 Specific requirements

Edible soya bean oil shall comply with the specific requirements given in Table 1 when tested in accordance with the test methods specified therein.

**Table 1 — Specific compositional and quality requirements for edible soya bean oil**

| S/N   | Characteristic                                                               | Requirement          | Test method |
|-------|------------------------------------------------------------------------------|----------------------|-------------|
| i)    | Moisture and Volatile matter at 105 °C, %, m/m, max.                         | 0.2                  | ISO 662     |
| ii)   | Insoluble impurities, %, m/m, max.                                           | 0.05                 | ISO 663     |
| iii)  | Soap Content, %, m/m, max.                                                   | 0.005                | ISO 10539   |
| iv)   | Acid value, (mg/KOH/g (max.)).<br>• Virgin<br>• Non-virgin (refined)         | 4.0<br>0.6           | ISO 660     |
| v)    | Peroxide value, (mEq oxygen/kg (max.))<br>• Virgin<br>• Non-virgin (refined) | 15<br>10             | ISO 3960    |
| vi)   | Iron (Fe), mg/kg, max.<br>• Virgin<br>• Non-virgin (refined)                 | 5.0<br>1.5           | ISO 21033   |
| vii)  | Copper, mg/kg, max.<br>• Virgin<br>• Non-virgin (refined)                    | 0.4<br>0.1           |             |
| viii) | Iodine Value (Wij's)                                                         | 120 – 143            | ISO 3961    |
| ix)   | Saponification value, mg KOH/g oil                                           | 189-195              | ISO 3657    |
| x)    | Unsaponifiable matter, g/kg, max.                                            | 15                   | ISO 3596    |
| xi)   | Refractive index, at 40°C                                                    | 1.466 – 1.470        | ISO 6320    |
| xii)  | Relative density at 20 °C                                                    | 0.919 – 0.925        | ISO 6883    |
| xiii) | Colour units in a 25.4 mm Lovibond cell, max.                                | Red: 6<br>Yellow: 60 | ISO 15305   |

## 5 Fortification

Edible refined soya bean oil may be fortified in accordance with EAS 769.

## 6 Food additives

6.1 Edible virgin soya bean oil shall not contain food additives.

6.2 Food additives when used in edible refined soya bean oil shall comply with CXS 192.

## 7 Flavouring agents

7.1 Edible virgin soya bean oil shall not contain flavouring agents.

7.2 Flavouring agents when used in edible refined soya bean oil shall comply with CXG 66.

## 8 Contaminants

### 8.1 Pesticide residues

Edible soya bean oil shall comply with those maximum pesticide residue limits established by the Codex Alimentarius Commission for this commodity.

### 8.2 Heavy metal contaminants

Edible soya bean oil shall comply with the maximum limits of heavy metals as specified in Table 2 when tested in accordance with the test methods therein.

**Table 2 — Limits for heavy metal contaminants in edible soya bean oil**

| S/N | Contaminant  | Maximum limit<br>mg/kg | Test method  |
|-----|--------------|------------------------|--------------|
| i.  | Lead (Pb)    | 0.08                   | ISO 12193    |
| ii. | Arsenic (As) | 0.1                    | ISO 13547 -2 |

### 8.3 Aflatoxins

Aflatoxin levels in edible soya bean oil shall not exceed the limits given in Table 3 when tested in accordance with the test method specified therein.

**Table 3 — Aflatoxin limits for edible canola (rapeseed) oil**

| S/No. | Characteristic  | Maximum limit<br>µg/kg | Test method |
|-------|-----------------|------------------------|-------------|
| i.    | Total aflatoxin | 10                     | ISO 16050   |
| ii.   | Aflatoxin B1    | 5                      |             |

## **9 Hygiene**

Edible soya bean oil shall be produced, processed, handled and stored in accordance with EAS 39.

## **10 Packaging**

Edible soya bean oil shall be packaged in food grade packaging material and sealed in a manner that will safeguard the hygienic, nutritional, and organoleptic properties of the product.

## **11 Labelling**

In addition to the labelling requirements specified in EAS 38, the following information shall be legibly and indelibly labelled:

- a) name of the product as “Soya bean oil” or “Soybean oil”;
- b) type of the oil as:
  - i) virgin;
  - ii) cold-pressed
  - iii) non-virgin (refined)

## **12 Nutrition and health claims**

Edible soya bean oil may have claims on nutrition and health. Such claims when declared shall comply with EAS 803, EAS 804 and EAS 805.

## **13 Sampling**

Sampling shall be carried in accordance with ISO 5555 and samples prepared for testing according to ISO 661.

**Annex A**  
(informative)

**Gas Liquid Chromatography (GLC) fatty acid composition**

When required the fatty acid profile should be determined by Gas Liquid Chromatography. Ranges of fatty acids are as given in Table A.1.

**Table A.1 — GLC fatty acid composition for edible soya bean oil**

| Carbon configuration | Composition<br>% |
|----------------------|------------------|
| C12:0                | < 0.1            |
| C14:0                | < 0.2            |
| C16:0                | 8.0 – 13.5       |
| C16:1                | < 0.2            |
| C17:0                | < 0.1            |
| C17:1                | < 0.1            |
| C18:0                | 2.0 – 5.4        |
| C18:1                | 17.0 – 30.0      |
| C18:2                | 48.0 – 59.0      |
| C18:3                | 4.5–11.0         |
| C20:0                | < 0.6            |
| C20:1                | < 0.5            |
| C20:2                | < 0.1            |
| C22:0                | < 0.7            |
| C22:1                | < 0.3            |
| C22:2                | ND               |
| C24:0                | < 0.5            |
| C24:1                | ND               |

## Bibliography

[1]

[2]

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