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## **DRAFT EAST AFRICAN STANDARD**

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### **Edible sesame (simsim) 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.

EAS 333 was prepared by Technical Committee EASC/ TC/015, Oil Seeds, Edible Fats and Oils.

This second third edition cancels and replaces the first second edition (EAS 333:201300), which has been technically revised



# Edible sesame(simsim) oil — Specification

## 1 Scope

This Draft East African standard specify the requirements, methods of sampling and test for virgin and refined sesame oil derived from the seed of *Sesamum indicum* L. intended for human consumption.

## 2 Normative references

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

CXS 192 General Standard for Food additives

CXG 66 Guidelines for the Use of Flavourings

EAS 38, Labelling of pre-packaged foods — Specification

EAS 39, Code of practice for hygiene for food and drink manufacturing industries

EAS 769, Fortified edible oils and fats — Specification

EAS 804, Claims on foods —Requirements

EAS 805, Use of nutritional and health claims — Requirement

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 2590, General method for determining of arsenic — Diethyldithiocarbamate photometric method

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

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

ISO 3960, Animal and vegetable fats and oils — Determination of peroxide value — Iodometric (visual) endpoint determination

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 8294, Animal and vegetable fats and oils — Determination of copper, iron and nickel contents — Graphite furnace atomic absorption method

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

### **3 Terms and definitions**

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

- 3.1 edible sesame oil**  
is edible oil derived from sesame seeds (seeds of *Sesamum indicum* L.).
- 3.2 virgin sesame oil**  
edible oil obtained, without altering the nature of the oil, by mechanical procedures, for example, expelling or pressing, and the application of heat only. It may have been purified by washing with water, settling, filtering and centrifuging only.
- 3.3 refined (non–virgin) sesame oil**  
edible oil obtained, by mechanical procedures and/or solvent extraction and subjected to refining processes.
- 3.4 cold pressed sesame oil**  
sesame oil obtained, without altering the nature of the oil by mechanical procedures, for example, expelling or pressing, without the application of heat. It may have been purified by washing with water, settling, filtering and centrifuging only.
- 3.5 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**

Sesame oil shall be

- a) be free from adulterants, sediments, and any other foreign matter;
- b) have acceptable taste and odour; and
- c) be free from admixture with other oils.

## 4.2 Specific requirements

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

**Table 1 — Specific requirements for sesame oil**

S/No.	Characteristic	Requirement	Test method
i.	Relative Density (20 °C/ water at 20 °C)	0.915 – 0.924	ISO 6883
ii.	Refractive Index (at 40 °C)	1.465 – 1.469	ISO 6320
iii.	Saponification Value (mg KOH/g oil)	186 – 195	ISO 3657
iv.	Iodine Value (Wij's) g/100g	104 – 120	ISO 3961
v.	Unsaponifiable Matter, g/kg, max.	20	ISO 3596
vi.	Acid Value, mg KOH/g oil, max.	Refined oil 0.6 virgin oil 4	ISO 660
vii.	Peroxide Value, meq oxygen/kg oil, max.	Virgin 15 Refined 10	ISO 3960
viii.	Moisture and matter volatile at 105 °C, % m/m, max	0.2	ISO 662
ix.	Insoluble impurities, % m/m, max	0.05	ISO 663
x.	Soap content, % m/m, max	0.005	ISO 10539
xi.	Iron, mg/kg, max	Virgin 5 Refined 1.5	ISO 8294
xii.	Copper, mg/kg, max	Virgin 0.4 Refined 0.1	ISO 8294
xiii.	Sesame oil test (Baudouin)	Positive	Annex B

## 4.3 Fortification of edible sesame oil

Edible sesame oil may be fortified in accordance with EAS 769.

## 5 Food additives

5.1 Virgin or cold pressed sesame oils shall not contain food additives

5.2 Refined sesame oil may contain food additives as permitted in CXS 192

## 6 Flavouring agents

Flavouring used in refined edible sesame oil shall comply with guidelines for use of flavourings CXG 66-2008.



## 7 Hygiene

Edible sesame oil shall be produced, prepared and handled in accordance with EAS 39.

## 8 Contaminants

### 8.1 Pesticide residues

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

### 8.2 Heavy metal contaminants

Edible sesame oil shall comply with the maximum limits specified in Table 2.

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

S/No.	Contaminant	Maximum limit	Test method
i.	Lead, mg/kg	0.08	ISO 12193
ii.	Arsenic, mg/kg	0.1	ISO 2590

## 9 Aflatoxin limits in virgin sesame oil

Aflatoxin limits in virgin edible sesame oil shall be 10ppb for total aflatoxin and 5ppb for aflatoxin B<sub>1</sub>.

## 10 Packaging

Edible sesame oil shall be packaged in food grade containers and sealed in manner to ensure the safety and quality requirements specified in this standard are maintained throughout the shelf life of the product.

## 11 Labelling

11.1 In addition to the labelling requirements in EAS 38 the name of the product shall be 'sasame oil' or 'simsim oil' and with the description as either:

- a) virgin,
- b) refined or non-virgin

### 11.2 Claims

Where Health and nutrition claims have been used, they shall be done in accordance to EAS 804 and EAS 805

## 12 Sampling

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

## Annex A (informative)

### GLC Fatty acid composition

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

**Table A.1 — GLC Fatty acid composition for sesame oil**

Carbon Configuration	C14	C16:0	C16:1	C18:0	C17:0	C17:1	C18:0	C18:1	C18:2	C18:3	C20:0	C20:1	C22:0	C24:0
Composition %	<0.1	7.9-12.0	<0.2	3.5-6.0	<0.2	<0.1	4.5 – 6.7	34.4-45.5	36.9-47.9	0.2–1.0	0.3 – 0.7	<0.3	<1.1	<0.3

## Annex B (Normative)

### Test for the presence of sesame seed oil (modified baudiouin test)

#### B.1 General

The development of a permanent pink colour with furfural solution in the presence of hydrochloric acid indicates the presence of sesame seed oil.

#### B.2 Reagents

The reagents shall be of recognized analytical quality.

**B.2.1** Hydrochloric acid (36-37%), specific gravity 1.19

**B.2.2** Furfural solution

Two per cent (2%) of furfural distilled not earlier than 24 hours prior to the test in 90% (v/v) ethanol (specific gravity 0.832 to 0.835). The reagent is stable up to 3 months if kept in a refrigerator

#### B.3 Procedure

**B.3.1** Take 5 ml of the oil or melted fat in a 25 ml measuring cylinder (or test tube) provided with a glass stopper and add 5 ml of hydrochloric acid and 0.4 ml of furfural solution.

**B.3.2** Insert the glass stopper and shake vigorously for two minutes.

**A.3.3** Allow the mixture to separate.

**A.3.4** The development of a pink or red colour in the acid layer indicates presence of sesame seed oil.

**B.3.5** Confirm by adding 5 ml of water and shaking again.

**B.3.6** If the colour persists, sesame seed oil is present. If the colour disappears, sesame seed oil is absent.

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