DEAS 298: 2022

ICS 67.200.10

DRAFT EAST AFRICAN STANDARD

Edible cottonseed oil — Specification

EAST AFRICAN COMMUNITY

Second Edition 2022

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Foreword

Development of the East African Standard 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 which are encountered when goods and services are exchanged within the Community will be removed.

In order to meet the above objectives, the EAC Partner States have enacted an East African Standardization, Quality Assurance, Metrology and Testing Act, 2006 (EAC SQMT Act, 2006) to make provisions for ensuring standardization, quality assurance, metrology and testing of products produced or originating in a third country and traded in the Community in order to facilitate industrial development and trade as well as helping to protect the health and safety of society and the environment in the Community.

East African Standards are formulated in accordance with the procedures established by the East African Standards Committee. The East African Standards Committee is established under the provisions of Article 4 of the EAC SQMT Act, 2006. The Committee is composed of representatives of the National Standards Bodies in Partner States, together with the representatives from the private sectors and consumer organizations. 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 procedures of the Community

Article 15(1) of the EAC SQMT Act, 2006 provides that “Within six months of the declaration of an East African Standard, the Partner States shall adopt, without deviation from the approved text of the standard, the East African Standard as a national standard and withdraw any existing national standard with similar scope and purpose”.

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

This Second edition cancels and replaces the first edition, which has been technically revised.

Edible cottonseed oil — Specification

1 Scope

This East African standard specify the requirements, sampling and test methods for virgin and refined edible cottonseed oil derived from the seeds of various cultivated species of Gossypium spp. 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.

EAS 38, General standard for labelling of pre-packaged foods

EAS 39, Code of practice for hygiene for food and drink industries EAS 101, Food stuffs Methods of determining of arsenic content

EAS 769, Fortified edible oils and fats — Specification

CXS 192, General Standards for Food Additives

ISO 5555, Animal and vegetable fats and oils — Sampling

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

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

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

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

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

ISO 6320, Animal and vegetable fats and oils - Determination of refractive index.

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 3657, Animal and vegetable fats and Oils- Determination of saponification value

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

ISO 8294, Animal and vegetable fats and oils- determination of copper, iron and nickel contents-graphite furnace atomic absorption method

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

ISO 15305, Animal and vegetable fats and oils - Determination of lovibond colour.

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

3 Terms and definitions

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

3.1
Edible cottonseed oil
Oil derived from the seeds of various cultivated species of Gossypium spp which is fit for human consumption.

3.2
Edible oil
oil obtained without altering the nature of 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
Virgin vegetable oil
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

3.4
Non–virgin (refined) vegetable oil
oil obtained by mechanical procedures and/or solvent extraction and subjected to refining processes

4 Requirements

4.1 General

Edible cottonseed oil shall

a) be expressed from cotton seeds which are fit for the purpose;

b) be clear and free from adulterants, , and any other foreign matter;

c) be free from foreign and rancid odour and taste. The colour of the product shall be characteristic of the designated product; and

d) have acceptable taste and odour.

4.2 Specific quality requirements

Edible cottonseed oil shall conform to the specific quality requirements provided in Table 1.

Table 1 — Specific quality requirements for Edible cottonseed oil

S.No	Characteristic	Requirement	Test method
i.	Moisture and matter volatile at 105 °C, % m/m (	0.2	*ISO 662*
ii.	Insoluble impurities, % m/m	0.05	*ISO 662*
iii.	Soap content, % m/m	0.005	ISO 10539
iv.	Relative density (20 °C/water at 20 °C)	0.918 – 0.926	*ISO 6883*
v.	Refractive index, at 40 ° C	1.458 – 1.466	ISO 6320
vi.	Saponification value (mg KOH/g oil)	189 – 198	ISO 3657
vii.	Iodine value (Wij's), g/100	100– 123	ISO 3961
viii.	Colour, in a 0.635 cm cell in Lovibond unit, expressed as (Y+5R) not deeper than	10	ISO 15305
ix.	Unsaponifiable matter, g/kg, max.	15	ISO 3596
x.	Halphen test	Positive	Annex B
xi.	Acid value, mg KOH/g, max.	Virgin 4.0 Non-virgin 0.6	ISO 660
xii.	Peroxide value, meq. peroxide oxygen/kg, max.	10	ISO 3960
xiii.	Copper, mg/kg	Virgin 0.4 Non virgin 0.1	ISO 8294
xiv.	Iron, mg/kg	Virgin 5 Non virgin 1.5	ISO 8294

5 Fortification requirements

Edible cottonseed oil may be fortified in accordance to EAS 769.

6 Food additives

Only food additives permitted in CXS 192 for use in Cottonseed oil may be used.

7 Contaminants

Edible cottonseed oil shall conform the limits provided in table 2 and any other contaminant established in CXS 193.

Table 2 — Limits for contaminants in edible cottonseed oil

S. No	Contaminants	Maximum level	Test method
i.	Lead, mg/kg	0.08	ISO 12193
ii.	Arsenic, mg/kg	0.1	AOAC 963.21, 942.17

7.2 Pesticide residues

Edible cottonseed oil shall conform to those maximum residue limits established by the Codex Alimentarius Commission for this product.

NOTE Where the use of certain pesticides is prohibited by some Partner States, then it should be notified to all Partner States accordingly.

8 Hygiene

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

9 Packaging

Edible cottonseed oil shall be packaged in food grade, non-absorbent materials which do not have adverse influence upon effects on the composition of the product including its nutritional value, properties and appearance.

10 Labelling

10.1 General

In addition to the requirements of EAS 38 and EAS 803, the following specific provisions shall apply:

a) the name of the product shall be "Cottonseed oil;"

b) The words ‘Virgin’, ‘non virgin’ or ‘refined’ shall be declared on the label to indicate the type of oil;

10.3 Nutrition and health claims

Nutrition and health claims may be used in compliance with EAS 804 and EAS 805.

11 Sampling

Sampling shall be carried in accordance with ISO 5555 and samples prepared for testing according to with ISO 661Samples shall be taken in a protected place not exposed to damp air, dust or soot.

Annex A
(informative)

GLC fatty acid composition

Carbon configuration	Fatty acid composition(%)	Test Methods
C6:0	ND	ISO 5508
C8:0	ND	
C10:0	ND	
C12:0	ND-0.2	
C14:0	0.6-1.0	
C16:0	21.4-26.4	
C16:1	ND-1.2	
C17:0	ND-0.1	
C17:1	ND-0.1	
C18:0	2.1-3.3	
C18.1	14.7-21.7	
C18:2	46.7-58.2	
C18:3	ND-0.4	
C 20:0	0.2-0.5	
C 20:1	ND-0.1	
C20:2	ND-0.1	
C22:0	ND-0.6	
C22:1	ND-0.3	
C22:2	ND-0.1	
C24:0	ND-0.1	
C24:1	ND	
NOTE- Free fatty acid composition is expressed as % of total fatty acids ND-None Detectable, defined as ≤0.05		

Annex B
(normative)

Cottonseed oil (Halphen) test

B.1 Scope

This annex describes a method for the detection of cottonseed oil in vegetable oils.

B.2 Principle

The fat is reacted with a solution of sulphur in carbon disulphide in the presence of amyl alcohol. The presence of cottonseed oil is detected by visual examination of the colour developed.

B.3 Reagents

The following reagents are required. All reagents and water shall be of recognized analytical quality

B.3.1 Amyl alcohol

B.3.2 Precipitated sulphur solution

Dissolve 1 g of precipitated sulphur in 100 ml of carbon disulphide.

Warning! Extreme care should be taken in handling carbon disulphide owing to its high flammability and low ignition temperature.

B.4 Apparatus

The following item of apparatus is required.

B.4.1 Glass tube

15 mL minimum capacity, heavy gauge, closed at one end and provided with a secure seal. Alternatively a screw top bottle of similar capacity may be used.

B.5 Sampling and preparation of the sample for analysis

See clause 7

B.6 Procedure

Mix in the glass tube (B. 4.1) 2.5 mL of the fat with 2.5 mL of a mixture of equal volumes of the amyl alcohol (B.3.1) and the precipitated sulphur solution (B.3.2).

Close the tube securely and immerse it to one third of its depth in boiling water. A reddish colour will develop in 30 min if cottonseed oil is present.

NOTE Kapok oil will give a similar reddish colour, and other oils containing cyclopropene acids and fats from animals fed on cottonseed products may also give a similar colour. Heat-treated or hydrogenated cottonseed oils will give either a diminished colour, or no colour. The depth of the colour developed cannot therefore be taken as a measure of the percentage of cottonseed oil in a mixture.

B.7 Test Report

The test report shall specify the method in accordance with which sampling was carried out, if known, the method used, the result obtained, indicating clearly the method of expression used and, if the repeatability has been checked, the final quoted result obtained.

It shall also mention any operating conditions not specified in this Standard, or regarded as optional, as well as any incidents that may have influenced the result.

The test report shall include all the information necessary for the complete identification of the sample

