

DRAFT KENYA STANDARD

**DKS 3029:
2024**

ICS 67.200.10

First Edition

Crude soya bean oil — Specification

PUBLIC REVIEW DRAFT

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In order to keep abreast of progress in industry, Kenya Standards shall be regularly reviewed. Suggestions for improvements to published standards, addressed to the Managing Director, Kenya Bureau of Standards, are welcome.

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Kenya Bureau of Standards, Popo Road, Off Mombasa Road,
P.O. Box 54974 - 00200, Nairobi, Kenya



+254 020 6948000, + 254 722202137, + 254 734600471



info@kebs.org



@KEBS_ke



kenya bureau of standards (kebs)

Foreword

This Kenya Standard was prepared by the Edible fats and oils Technical Committee under the guidance of the Standards Projects Committee, and it is in accordance with the procedures of the Kenya Bureau of Standards.

Kenya Bureau of Standards (KEBS) has established Technical Committees (TCs) mandated to develop Kenya Standards (KS). The Committees are composed of representatives from the public and private sector organizations in Kenya.

Kenya Standards are developed through Technical Committees that are representative of key stakeholders including government, academia, consumer groups, private sector and other interested parties. Draft Kenya Standards are circulated to stakeholders through the KEBS website and notifications to World Trade Organization (WTO). The comments received are discussed and incorporated before finalization of the standards, in accordance with the Procedures for Development of Kenya Standards.

Kenya Standards are subject to review, to keep pace with technological advances. Users of the Kenya Standards are therefore expected to ensure that they always have the latest versions of the standards they are implementing.

This standard was developed to guide the industry in addressing quality and safety issues of crude canola soya bean oil. The development of this standard also seeks to promote local production of crude soya bean oil and subsequent consumption and trade of soya bean oil to reduce the overreliance on importation of edible oil.

It is to be noted that the products are considered as raw materials and should not be sold for direct human consumption, but they are instead meant for further processing.

During the preparation of this standard, reference was made to the following document (s):

CXS 19, Standard for edible fats and oils not covered by individual standards.

CXS 210, Standard for Named Vegetable Oils

Acknowledgement is hereby made for the assistance derived from this (these) source (s).

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Crude soya bean oil — Specification

1 Scope

This Draft Kenya Standard specifies requirements, sampling and test methods for crude soya bean (soybean) oil derived from soya beans (seeds of *Glycine max* (L.) Merr.) intended for further processing.

2 Normative references

The following referenced documents 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.

AOAC 952.13, *Arsenic in food. Silver diethyldithiocarbamate*

KS CXC 36, *Code of Practice for the Storage and Transport of Edible Fats and Oils in Bulk*

KS CXS 192, *General Standard for Food Additives*

KS EAS 38, *Labelling of prepackaged foods — Specification*

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

KS EAS 804, *Claims — General requirements*

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

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

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

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

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

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

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

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

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

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

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

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

3 Terms and definitions

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

3.1 crude soya bean oil
 raw vegetable oil composed primarily of glycerides of fatty acids intended for further processing obtained from soya beans (seeds of *Glycine max* (L.) Merr.) .

3.2 crude high-oleic acid soya bean oil
 raw vegetable oil composed primarily of glycerides of fatty acids intended for further processing, obtained from high-oleic acid oil-bearing seeds of varieties derived from soya beans (seeds of *Glycine max* (L.) Merr.).

3.3 foreign matter
 any undesirable material visible with naked eye in a packaged crude soya bean oil

3.4 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

Crude soya bean oil shall:

- a) have colour and odour characteristic of crude soya bean oil
- b) be practically free from foreign matter; and
- c) be free from adulterants

4.2 Specific requirements

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

Table 1 — Specific requirements for crude soya bean oil

S/N	Parameter	Requirement	Test Method
i)	Relative density (20 °C/ water at 20 °C)		KS ISO 6883
	<ul style="list-style-type: none"> • Crude soya bean oil • Crude high-oleic acid soya bean oil 	0.919 - 0.925 0.909 - 0.923	
ii)	Refractive index, (ND 40°C)		KS ISO 6320
	<ul style="list-style-type: none"> • Crude soya bean oil • Crude high-oleic acid soya bean oil 	1.466 - 1.470 1.462 - 1.468	

iii)	Saponification value, mg KOH/g, oil		KS ISO 3657
	<ul style="list-style-type: none"> Crude soya bean oil Crude high-oleic acid soya bean oil 	189 – 195 188 – 192	
iv)	Iodine value (Wijs), g/100		KS ISO 3961
	<ul style="list-style-type: none"> Crude soya bean oil Crude high-oleic acid soya bean oil 	124–139 75 – 95	
v)	Moisture and volatile matter at 105 °C, % m/m max.	0.5	KS ISO 662
vi)	Insoluble impurities % m/m max	0.5	KS ISO 663
vii)	Copper (Cu), mg/kg max.	0.4	KS ISO 21033
viii)	Iron (Fe), mg/kg max.	5.0	
ix)	Free Fatty Acid (FFA) (as oleic acid) %, m/m max	2.0	KS ISO 660

5 Food additives and colouring agents

Food additives and colouring agents shall not be used in crude soya bean oil.

6 Contaminants

6.1 Pesticide residues

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

6.2 Heavy metals

Crude soya bean oil shall comply with those maximum limits specified in Table 2 when tested in accordance with the methods specified therein.

Table 2 — Heavy metal contaminant limits in crude soya bean oil

S/N	Contaminant	Maximum Limit mg/kg	Test Method
i)	Lead (Pb)	0.08	KS ISO 12193
ii)	Arsenic (As)	0.1	AOAC 952.13 or KS ISO 13547-2

7 Hygiene

Crude soya bean oil shall be produced, prepared and handled in accordance with KS EAS 39.

8 Packaging, storage and transportation

8.1 Packaging

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

8.2 Storage and transportation

Storage and transportation of crude soya bean oil in bulk shall be in accordance with KS CXC 36.

9 Labelling

9.1 In addition to requirements of KS EAS 38, the following shall apply:

- a) Name of the product as; "Crude soya bean/soybean oil"

9.2 Where the product claims high oleic acid content, it shall be declared in accordance with KS EAS 804.

10 Sampling

Sampling and sample preparation for test shall be carried out in accordance with KS ISO 5555 and KS ISO 661 respectively.

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 crude soya bean oil

Carbon configuration	Composition %	
	Crude soya bean oil	Crude high-oleic acid soya bean oil
C12:0	< 0.1	< 0.1
C14:0	< 0.2	< 0.5
C16:0	8.0 – 13.5	2.5 – 8.0
C16:1	< 0.2	< 0.1
C17:0	< 0.1	< 0.8
C17:1	< 0.1	< 1.5
C18:0	2.0 – 5.4	3.2 – 5.0
C18:1	17.0 – 30.0	65.0 – 87.0
C18:2	48.0 – 59.0	1.0 – 16.0
C18:3	4.5 – 11.0	1.0 – 6.0
C20:0	0.1 – 0.6	< 1.0
C20:1	< 0.5	< 1.0
C20:2	< 0.1	< 0.1
C22:0	< 0.7	< 0.7
C22:1	< 0.3	< 0.4
C24:0	< 0.5	< 0.5

Bibliography

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