



DRAFT TANZANIA STANDARD

Edible Flaxseed (Linseed) oil – Specification

Draft for stakeholders comments

TANZANIA BUREAU OF STANDARDS

Edible Flaxseed (Linseed) oil – Specification

0 Foreword

Edible Flaxseed (Linseed) oil comes from flaxseed (*Linum usitatissimum*). Flaxseed oil contains both omega-3 and omega-6 fatty acids, which are essential to human health. It is one of traded edible vegetable oil in Tanzania.

This Tanzania Standard has been prepared to ensure the safety and quality of edible Flaxseed (Linseed) oil produced domestically, exported or imported into the country.

In preparation of this Tanzania standard considerable help was derived from:

CODEX STAN 210 -1999 (Revised 2019), *Codex standard for named vegetable oils* published by the Codex Alimentarius Commission.

In reporting the results of a test or analysis made in accordance with this Tanzania Standard, if the final value observed or calculated is to be rounded off, it shall be done in accordance with TZS 4.

1 Scope

This Tanzania standard specifies the requirements, sampling and testing methods for flaxseed (Linseed) oil derived from the seeds of various cultivated species of *Linum usitatissimum* 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;

Codex stan 192, *General standards for food additives*

TZS 4, *Rounding off numerical values*

TZS 54, *Animal and Vegetable fats and oils – Sampling*

TZS 76, *Methods for determination of arsenic*

TZS 109, *Food processing units – Code of hygiene — General*

TZS 268, *General atomic absorption – Spectro – Photometric method for determination of lead in food stuffs*

TZS 538, *Packaging and labeling of foods*

TZS 799, *Foodstuffs – Determination of aflatoxin B₁, and the total content of aflatoxins B₁, B₂, G₁ and G₂ in cereals, nuts and derived products – Highperformance liquid chromatographic method*

TZS 1313, *Fortified edible oils and fats — Specification*

TZS 1322, *Oils and fats Sampling and test methods – Purity test*

TZS 1324, *Animal and vegetable fats and oils – Determination of peroxide value-Iodometric (visual) end point determination*

TZS 1325, *Animal and vegetable fats and oils - Determination of saponification value*

TZS 1326, *Animal and vegetable fats and oils – Determination of moisture and volatile matter*

TZS 1327, *Animal and vegetable fats and oils – Determination of iodine value*

TZS 1328, *Essential oils – Determination of relative density at 20 °C – Reference method*

TZS 1329, *Animal and vegetable fats and oils – Determination of refractive index*

TZS 1331, *Animal and vegetable fats and oils – Determination of acid value and acidity*

TZS 1332, *Animal and vegetable fats and oils – Determination of unsaponifiable matter-method using diethyl ether extraction*

TZS 1335, *Animal and vegetable fats and oils – Determination of copper, iron and nickel content-graphite furnace atomic absorption*

TZS 1336, *Animal and vegetable fats and oils – Determination of insoluble impurities content*

3 Terms and definitions

For the purpose of this Tanzania Standard the definitions below shall apply;

3.1 edible flaxseed (linseed) oil

oil obtained from dry ripened seed of flax plant (*Linum usitatissimum*) suitable for human consumption

3.2 virgin flaxseed (linseed) oil

flaxseed (linseed) 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 cold pressed flaxseed (linseed) oil

flaxseed (linseed) oil obtained, without altering the oil, by mechanical procedures only, e.g. expelling or pressing, without the application of heat. They may have been purified by washing with water, settling, filtering and centrifuging only.

3.4 refined/non-virgin flaxseed (linseed) oil

flaxseed (linseed) oil obtained, by mechanical procedures and/or solvent extraction and subjected to refining processes.

4. Requirements

4.1 General requirements

Edible flaxseed (linseed) oil shall;

- a) be free from foreign and rancid odour and taste;
- b) be clear and free from adulterants, sediments, suspended or foreign matter and separated water

4.2 Specific requirements

Edible flaxseed (linseed) oil shall comply with specific requirements given in Table 1 when tested in accordance with the methods specified therein;

Table 1- Specific requirements for edible flaxseed (Linseed) oil

S. No.	Parameter	Requirement	Test method
i.	Relative density (at 25 °C/water at 25 °C)	0.925 - 0.935	TZS 1328
ii.	Refractive index at 40 °C	1.472-1.475	TZS 1329
	Refractive index at 20°C	1.472-1.487	
iii.	Saponification value, mg KOH/g oil	185 -197	TZS 1325
iv.	Iodine value (g I ₂ /100g)	170 - 211	TZS 1327
v.	Unsaponifiable matter, g/kg, max.	20	TZS 1332
vi.	Moisture and matter volatile at 105 °C, % m/m, max.	0.2	TZS 1326
vii.	Insoluble impurities, % m/m, max.	0.05	TZS 1336
viii.	Soap content, % m/m, max.	0.005	TZS 1322
ix.	Iron (Fe) mg/kg	Cold pressed and virgin oil: 5 Refined oil: 1.5	TZS 1335
x.	Copper (Cu) mg/kg	Cold pressed and virgin oil: 0.4 Refined oil: 0.1	TZS 1335
xi.	Acid value, mg KOH/g Oil, max.	Refined oil: 0.6 Cold pressed and virgin oil: 4	TZS 1331
xii.	Peroxide value, mEq/kg, max.	Refined oil :10 Cold pressed and virgin oil: 15	TZS 1324

5 Food additives

Refined flaxseed (linseed) oil may contain food additives in accordance with Codex Stan 192. In addition, food additives shall not be used in virgin or cold pressed flaxseed (linseed) oil.

6. Fortification

Edible flaxseed (linseed) oil may be fortified in accordance with TZS 1313.

7 Hygiene

Edible flaxseed (linseed) oil shall be processed, handled and stored in accordance with TZS 109 .

8 Contaminants

8.1 Aflatoxin

Aflatoxin level for edible flaxseed (linseed) oil shall not exceed maximum limits as given in Table 2 when tested in accordance with test method specified therein:

Table 2- Aflatoxin limits for edible flaxseed (linseed) oil

S/N	Aflatoxin	Maximum limit (µg/kg)	Method of test
i)	Total aflatoxin	10	TZS 799
ii)	Aflatoxin B1	5	

8.2 Pesticide residues

Edible flaxseed (linseed) oil shall comply with relevant maximum pesticide residue limits established by the Codex Alimentarius Commission online data base.

8.3. Heavy metal contaminants

Edible flaxseed (linseed) oil shall comply with the maximum heavy metal limits as specified in Table 3.

Table 3– Maximum Limits for heavy metal contaminants in edible flaxseed (linseed) oil

S/No	Contaminant	Maximum limit	Test Method
i	Lead (Pb) mg/kg	0.08	TZS 268
ii	Arsenic (As) mg/kg	0.1	TZS 76

9 Packing, Marking and Labelling

Edible flaxseed (linseed) oil shall be packed, marked and labelled in accordance with TZS 538.

9.1 Packing

Edible flaxseed (linseed) oil shall be packed in containers of food grade materials and properly sealed to ensure safety and quality requirements of the product are maintained throughout the shelf life.

9.2 Marking and labelling

9.2.1 In addition each container of edible flaxseed (linseed) oil shall be legibly and indelibly marked with the following information:

- Name of the product shall be " flaxseed (linseed) oil ";
- The words virgin or refined shall be declared on the label to indicate the type of oil
- Name, physical address of the manufacturer and/or packer;
- Batch or lot number;

- e) Date of manufacturer;
- f) Expiry date;
- g) Net weight in Metric unit;
- h) Country of origin;
- i) Storage conditions;
- j) List of ingredients in descending order, including the specific name of additives;

9.2.2 The containers may also be marked with the TBS Standards Mark of Quality.

NOTE – The TBS Standards Mark of Quality shall be used by the manufacturers only under licence from TBS. Particulars of conditions under which the licences are granted, may be obtained from TBS.

10 Sampling and Tests

10.1 Sampling

Edible flaxseed (linseed) oil shall be sampled in accordance with TZS 54.

10.2 Tests

Edible flaxseed (linseed) oil shall be tested in accordance with the test methods given in this Tanzania standard.

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