



DRAFT TANZANIA STANDARD

Refined olive oil and refined olive pomace oil – Specification

DRAFT FOR STAKEHOLDER'S COMMENTS ONLY

TANZANIA BUREAU OF STANDARDS

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0 Foreword

In Tanzania refined olive oil and refined olive pomace oil are one of the traded edible oils.

This draft Tanzania Standard has been prepared in order to guide traders, producers/processors in achieving the safety and quality of refined olive and refined olive pomace oil which is fit for human consumption as well as for import and export markets.

In the preparation of this draft Tanzania Standard considerable help was derived from:
Codex Stan 33-1981, *Codex standard for olive oils and olive pomace oils*

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 (see clause 2).

1.0 Scope

This draft Tanzania Standard prescribes the requirements, methods of sampling and test for refined olive oil and refined olive pomace oil intended for direct human consumption.

2.0 Normative References

The following referenced standards are indispensable for the application of this draft standard. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced standard (including any amendments) applies.:

TZS 4, *Rounding off numerical values*

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

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

TZS 76, *Methods for determination of arsenic*

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

TZS 538, *Packaging and labeling of foods*

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*

TZS1326, *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 1330, *Animal and vegetable fats and oils – Determination of lovibond colour*

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*

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

TZS 115, *Permissible food additive and levels of use – Schedule*

TZS 1368, *Animal and vegetable fats and oils – Determination of ultraviolet absorbance expressed as specific UV extinction*

TZS 1370, *Animal and vegetable fats and oils – Determination tocopherol and tocotrienol content by HPLC*

TZS 1371, *Animal and vegetable fats and oils – Determination of individual and total sterol contents-Gas chromatographic method*

TZS 1372, *Olive oils and olive pomace oils – Determination of wax content by capillary gas chromatography*

TZS 288 part 2, *Animal and vegetable fats and oils – Analysis by gas chromatography of methyl esters of fatty acids*

codex 192-*General standards for food additives*

3.0 Terms and definitions

For the purpose of this draft Tanzania Standard the following terms and definitions shall apply:

3.1 olive oil

Is the oil obtained solely from the fruit of the olive tree (*Olea europaea* L.), to the exclusion of oils obtained using solvents or re-esterification processes and of any mixture with oils of other kinds.

3.2 virgin olive oils

Are the oils obtained from the fruit of the olive tree (*Olea europaea* L.) solely by mechanical or other physical means under conditions, particularly thermal conditions, that do not lead to alterations in the oil, and which have not undergone any treatment other than washing, decanting, centrifuging and filtration.

3.3 olive-pomace oil

Is the olive oil that is extracted from olive pulp after the first press treated with solvents or other physical treatments, to the exclusion of oils obtained by re-esterification processes and of any mixture with oils of other kinds.

3.4 refined olive oil

Olive oil obtained from virgin olive oils by refining methods which do not lead to alterations in the initial glyceridic structure.

3.5 refined olive-pomace oil

Oil obtained from crude olive-pomace oil by refining methods which do not lead to alterations in the initial glyceridic structure.

3.6 food additive

Any substance not normally consumed as food by itself and not normally used as a typical ingredient of refined olive/olive pomace oil whether or not, it has nutritive value, the intentional addition of which to refined olive/olive pomace oil for technological (including organoleptic) purposes in the manufacture, processing, preparation, treatment, packing, packaging, transport or holding of such refined olive/olive pomace oil may result, or may be reasonably expected to result (directly or indirectly) in it or its by-product becoming a component of or otherwise affecting the characteristic of such refined olive/olive pomace oil. The term does not include contaminants or substances added to refined olive/olive pomace oil for maintaining or improving nutritional qualities.

4.0 Requirements

4.1 General requirements

It shall be clear and free from adulterants, off odour, sediment, suspended and other foreign matter and separated water.

4.2 Chemical and physical requirements

Refined olive oil and refined olive pomace oil shall have the physical and chemical requirements as shown in table 1.

Table 1 — Physical and chemical characteristics of refined olive oil and refined olive pomace oil

	Characteristics	Requirements for types					Methods of test (see clause 2)
		Olive pomace oil	Refined olive pomace oil	Virgin olive oil	Refined olive oil	Olive oil	
1	Refractive index at 40 °C	1.4680-1.4707	1.4680-1.4707	1.4677-1.4705	1.4677-1.4705	1.4677-1.4705	TZS 1329:
2	Relative density at 20 °C	0.910 - 0.916	0.910 - 0.916	0.910 - 0.916	0.910 - 0.916	0.910 - 0.916	TZS 1328
3	Saponification value mg KOH/g	182-193	182-193	184-196	184-196	184-196	TZS 1325
4	Iodine value (Wijs)	75-92	75-92	75-92	75-94	75-94	TZS 1327
5	Unsaponifiable matter per cent by mass, max	3	3	1.5	1.5	1.5	TZS 1332
6	Moisture and volatile matter at	0.2	0.2	0.2	0.2	0.2	TZS 1326

	105 °C, % m/m, max						
7	Insoluble impurities, % m/m, max	0.05	0.05	0.05	0.05	0.05	TZS 1336:
8	Peroxide value milliequivalent peroxide oxygen per kg of the oil,max	5	5	15	5	10	TZS 1324
9	Acid value, max mg KOH/g	1	0.3	2.0	0.3	1	TZS 1331
10	Test for presence of Olive Residue (Pomace) oil in Olive Oil	Positive	Not applicable	Negative	Negative	Negative	Annex A
11	Total sterols mg/100g,min	180	160	100	100	100	TZS 1371
12	Erythrodiol and uvaol (% total sterols),max	Not applicable	Not applicable	4.5	4.5	4.5	TZS 1371
13	Wax content mg/kg,max	450	450	350	350	350	TZS 1372
14	Absorbency in UV at 270nm,max	1.70	2.00	0.25	1.10	0.90	TZS 1368:
15	Soap content, % m/m, max	0.005	0.005	0.005	0.005	0.005	TZS 1322

4.2.1 The clarity of the material shall be judged by the absence of turbidity after keeping the filtered sample at 20 °C for 24 hours.

4.2.2 Admixture with other Oils – The material shall be free from admixture with mineral or other oils of vegetable or animal origin when tested according to the methods prescribed in TZS 1322 (see clause 2).

4.2.3 Fatty acid composition as determined by TZS 288 part 2 (see clause 2) (% total fatty acids) shall be:

Fatty acid	Virgin olive oils	Olive oil refined olive oil	Olive-pomace oil Refined olive pomace oil
C14:0	0.0 - 0.05	0.0 - 0.05	0.0 - 0.05
C16:0	7.5 – 20.0	7.5 - 20.0	7.5 - 20.0
C16:1	0.3 - 3.5	0.3 - 3.5	0.3 - 3.5
C17:0	0.0 - 0.3	0.0 - 0.3	0.0 - 0.3
C17:1	0.0 - 0.3	0.0 - 0.3	0.0 - 0.3
C18:0	0.5 - 5.0	0.5 - 5.0	0.5 - 5.0
C18:1	55.0 - 83.0	55.0 - 83.0	55.0 - 83.0
C18:2	3.5 – 21.0	3.5 - 21.0	3.5 - 21.0
C18:3 ³			
C20:0	0.0 - 0.6	0.0 - 0.6	0.0 - 0.6

C20:1	0.0 - 0.4	0.0 - 0.4	0.0 - 0.4
C22:0	0.0 - 0.2	0.0 - 0.2	0.0 - 0.3
C24:0	0.0 - 0.2	0.0 - 0.2	0.0 - 0.2

4.3 Food additives

4.3.1 Refined olive oil and refined olive-pomace oil may contain alpha-tocopherols *d-alpha* tocopherol, mixed tocopherol concentrate, *dl-alpha*-tocopherol, to restore natural tocopherol lost during the refining process. The concentration of alpha-tocopherol in the final product shall not exceed 200 mg/kg when tested according to TZS 1370 (see clause 2).

4.3.2 Refined olive oil and refined olive-pomace oil may also contain food additives which are prescribed in codex 192

4.3.3 fortification

5.0 Contaminants

5.1 Heavy metal contaminants

The level of heavy metal contaminants in refined olive oil and refined olive pomace oil shall conform to the limits specified in table 2.

Table 2 — Limits for contaminants in refined olive oil and refined olive pomace oil

Contaminant	Maximum level	Test method
Iron, mg/kg	1.5	TZS 1335
Copper, mg/kg	0.1	TZS 1335
Lead, mg/kg	0.1	TZS 268
Arsenic, mg/kg	0.1	TZS 76
Nickel, mg/kg	0.1	TZS 1335

5.2 Pesticides residues

The maximum allowable pesticides residue limits in refined olive oil and refined olive pomace oil shall be as prescribed in the relevant Codex Alimentarius Standard.

6.0 Hygiene

Refined olive oil and refined olive pomace oil shall be produced, processed, handled in accordance with TZS 109 (see clause 2).

7.0 Sampling and test methods

7.1 Sampling

The material shall be sampled as prescribed in TZS 54 (see clause 2).

7.2 Test method

7.2.1 Quality of reagents

Unless specified otherwise, analytical grade chemicals and distilled water shall be used in tests.

7.2.2 Testing shall be in accordance with TZS 1322 (see clause 2) and as provided in the respective tables and annex A of this draft Tanzania Standard.

8 Packaging, marking and labeling

8.1 Refined olive oil and refined olive pomace oil shall be supplied in suitably sealed and closed food grade containers of material protecting the product from spoilage or contamination without adversely affecting the physical, chemical and sensory quality of the product.

8.2 Refined olive oil and refined olive pomace oil shall be marked and labeled in accordance with TZS 538 (see clause 2). In labeling Kiswahili or Kiswahili and English shall be used. In addition, each Container of refined olive oil and refined olive pomace oil shall be legibly and indelibly marked with the following information:

- a) Name of the product
- b) Physical and postal address of the manufacturer and/or packer
- c) Date of manufacture and expiry date
- d) A complete list of ingredients in descending order of proportion
- e) Net content
- f) Batch number
- g) Manufacturer's registered trade mark
- h) Country of origin
- i) Place the products away from direct sunlight

8.3 The containers shall also be marked with the TBS Standards Mark of Quality.

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

Annex A

Test for presence of olive residue (pomace) oil in olive oil

A.1 Principle

The test is based on the temperature of precipitation of salts of fatty acids after saponification.

A.2 Preparation of sample

The sample is filtered through paper at a temperature slightly above the melting point of certain solid constituents which could separate from the fluid fatty matter.

A.3 Procedure

Saponify 1 gm of oil by boiling for 10 minutes with 5 ml alcoholic KOH (42.5 gm KOH in 72 ml water made up to 500 ml with 95 % ethyl alcohol). After cooling add 1.5 ml aqueous acetic acid (1+ 2 by volume such that 1.5 ml exactly neutralizes 5 ml of aqueous alcoholic KOH) and 50 ml of 70 % ethanol warmed to 50 °C. Mix, insert a thermometer and allow to cool.

A.4 Results

If a precipitate forms above 40 °C, the test for the presence of olive residue oil is positive. Allow to cool to ambient temperature for 12 hrs. Observe solution again. The formation of a flocculent precipitate floating in the middle of the liquid also indicates that the test is positive. A cloudiness not forming into flakes does not indicate the presence of olive residue oil.

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