



DRAFT TANZANIA STANDARD

Edible avocado oil — Specification

Draft for stakeholders comments

TANZANIA BUREAU OF STANDARDS

Edible avocado oil — Specification

0 Foreword

Edible avocado oil is a vegetable oil derived from the mesocarp of the avocado fruit (*Persea americana*) or obtained by processing the whole avocado fruit. Edible avocado oil is widely used in the food industry such as in baking, salad dressing and cooking.

This Tanzania standard lays down specifications aiming at ensuring the safety and quality of edible avocado oil produced or traded in the country for human consumption.

In preparation of this Tanzania Standard, considerable help was derived from:

CXS 210:1999 (Amended 2025), *Codex standard for named vegetable oils* published by 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 test methods for edible avocado oil derived from the avocado fruit (*Persea americana*) 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 standards for food additives*

TZS 4, *Rounding off numerical values*

TZS 54, *Animal and vegetable fats and oils — Sampling*

TZS 76, *General method for determination of arsenic silver diethyldithiocarmate photometric method*

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 288-2, *Animal and vegetable fats and oils - Gas chromatography of fatty acid methyl esters - Part 2: Preparation of methyl esters of fatty acids*

TZS 288-4, *Animal and vegetable fats and oils - Gas chromatography of fatty acid methyl esters - Part 4: Determination by capillary gas chromatography*

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 — High-performance 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 document, the following terms and definitions shall apply:

3.1 edible avocado oil

edible oil derived from either the mesocarp of the avocado fruit (*Persea americana*) or obtained by processing the whole avocado fruit and complies with the requirements of this standard

3.2 virgin avocado oil

avocado oil obtained, without altering the nature of the oil, by mechanical procedures, for example, expelling or pressing, and the application of heat only. The oil may have been purified by washing with water, settling, filtering and centrifuging only.

3.3 cold pressed avocado oil

avocado oil obtained, without altering the nature of the oil, by mechanical procedures only, for example, expelling or pressing, without the application of heat. The oil may have been purified by washing with water, settling, filtering and centrifuging only.

3.4 refined avocado oil

avocado oil obtained by mechanical procedures and/or solvent extraction and subjected to refining processes

4 Requirements

4.1 General requirements

4.1.1 Edible avocado oil shall be free from:

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

4.1.2 Colour shall be characteristic of the designated product

4.2 Specific requirements

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

Table 1 — Specific requirements for edible avocado oil

S/No.	Parameter	Requirement		Test method
i)	Relative density (at 20 °C/water at 20 °C)	0.910 - 0.920		TZS 1328
ii)	Refractive index, (ND 40 °C)	1.458 - 1.470		TZS 1329
iii)	Saponification value, mg KOH/g oil	170 - 202		TZS 1325
iv)	Iodine value (Wij's), g/100	78– 95		TZS 1327
v)	Unsaponifiable matter, g/kg, max.	19		TZS 1332
vi)	Moisture and matter volatile at 105 °C, % m/m, max.	0.2		TZS 1326
	Insoluble impurities, % m/m, max.	0.05		TZS 1336
vii)	Acid value, % mg KOH/g Oil, max.	Refined avocado oils	0.6	TZS 1331
		Cold pressed and virgin avocado oils	4	
viii)	Soap content, % m/m, max.	0.005		TZS 1322
ix)	Peroxide value, mEq peroxide- oxygen/kg oil, max.	Refined avocado oils:	10	TZS 1324
		Cold pressed and virgin avocado oils:	15	
x)	Iron (Fe) mg/kg,max.	Refined avocado oil	1.5	TZS 1335
		Cold pressed and virgin avocado oil	5.0	
xi)	Copper (Cu) mg/kg,max .	Refined avocado oil	0.1	TZS 1335
		Cold pressed and virgin avocado oil	0.4	
xii)	Fatty acid composition as shown in Annex A.			TZS 288-2 and TZS 288-4

xiii)	Levels of desmethylsterols as shown in Annex B	TZS 1371-1
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5 Food additives

5.1 Food additives shall not be used in virgin or cold pressed avocado oil.

5.2 Refined avocado oil may contain food additives in accordance with CXS 192.

6 Fortification

Edible avocado oil may be fortified in accordance with TZS 1313.

7 Hygiene

Edible avocado oil shall be produced, processed, handled and stored in accordance with TZS 109.

8 Contaminants

8.1 Pesticide residues

Edible avocado oil shall comply with relevant maximum pesticide residue limits established by the Codex Alimentarius Commission.

8.2 Heavy metals

Edible avocado oil shall not exceed the maximum limits for heavy metal specified in Table 2 when tested in accordance with test methods specified therein.

Table 2 — Maximum limits for heavy metal in edible avocado oil

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

9 Packaging, marking and labelling

9.1 Packaging

Edible avocado oil shall be packaged in food grade containers and sealed in manner 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 to the requirements given in TZS 538, each container of edible avocado oil shall be legibly and indelibly marked with the following information:

- a) name of the product as "Edible avocado oil";
- b) words "Virgin" or "Cold pressed" or "Refined" to indicate the type of the oil;

- c) name and physical address of the manufacturer/producer and/or packer;
- d) batch or lot number;
- e) date of manufacture/production;
- f) expiry date;
- g) net weight or volume in metric unit;
- h) country of origin;
- i) storage conditions; and
- j) list of ingredients in descending order, including the specific name of additives when used in refined avocado oil.

9.2.2 The containers may also be marked with the TBS standards mark of quality.

NOTE — The TBS Standards Mark of Quality may be used by 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 avocado oil shall be sampled in accordance with TZS 54.

10.2 Tests

Edible avocado oil shall be tested in accordance with the test methods given in this Tanzania Standard.

Annex A (normative)

Gas Liquid Chromatography (GLC) fatty acid composition

Ranges of fatty acids composition of edible avocado oil as determined by Gas Liquid Chromatography (expressed as percentage of total fatty acids) are as given in Table A.1.

Table A.1 — GLC fatty acid composition for edible avocado oil

Fatty acid	%, composition	Test method
C6:0	ND	TZS 288 2 and TZS 288-4
C8:0	ND	
C10:0	ND	
C12:0	ND	
C14:0	ND-0.3	
C16:0	11.0-26.0	
C16:1	4.0-17.1	
C17:0	ND-0.3	
C17:1	ND-0.1	
C18:0	0.1-1.3	
C18:1	42.0-75.0	
C18:2	7.8-19.0	
C18:3	0.5-2.1	
C20:0	ND-0.7	
C20:1	ND-0.3	
C20:2	ND	
C22:0	ND-0.5	
C22:1	ND	
C22:2	ND	
C24:0	ND-0.2	
C24:1	ND-0.2	
ND – non detectable, defined as $\leq 0.05\%$		

Annex B

(normative)

Levels of desmethylsterols

When required, the levels of desmethylsterols in avocado oil as a percentage of total sterols shall be as given in Table A.2.

Table A.2 — Levels of desmethylsterols in avocado oil from authentic samples as a percentage of total sterols.

Desmethylsterol	Level in avocado oil ^(a)	Test methods
Cholesterol	ND - 0.5	TZS 1371-1
Brassicasterol	ND - 0.5	
Campesterol	4.0 - 8.3	
Stigmasterol	0.3 - 2.0	
Beta-sitosterol	79.0 - 93.4	
Delta-5-avenasterol	2.0 - 8.0	
Delta -7- stigmastenol	ND – 1.5	
Delta-7-avenasterol	ND – 1.5	
Others	ND - 2.0	
Total sterols (mg/kg)	3000 - 7500	

^(a)Avocado oil also contains 1.0 - 2.5% clerosterol

ND – Non-detectable, defined as $\leq 0.05\%$