



DRAFT TANZANIA STANDARD

Crude palm kernel oil — Specification

Draft for stakeholders comments

TANZANIA BUREAU OF STANDARDS

Crude palm kernel oil — Specification

0 Foreword

Crude palm kernel oil is obtained from the kernel of the fruit of the palm species *Elaeis guineensis*. It is used in the manufacture of edible palm kernel oil which is used in food industries.

This Tanzania Standard lays down specifications aiming at ensuring the safety and quality of crude palm kernel oil produced or traded in the country for further processing.

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

MS 80:2011, *Palm Kernel Oil-Specification* published by the Department of Standards Malaysia

CXS 210:1999 (Amended 2023), *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 crude palm kernel oil derived from the kernel of the fruit of the palm species *Elaeis guineensis* intended for further processing in the food industry.

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

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 — SpectroPhotometric method for determination of lead in food stuffs*

TZS 538, *Packaging and labeling of foods-General requirement*

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*

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

TZS 1333, *Animal and vegetable fats and oils- Determination of melting point in open capillary tubes (slip point)*

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

TZS 4646, *Code of Practice for the storage and transport of edible fats and oils in bulk*

3 Terms and definitions

For the purpose of this document, the following terms and definitions shall apply:

3.1 crude palm kernel oil

oil derived from the kernel of the fruit of the palm species *Elaeis guineensis* Jacq.

4 Requirements

4.1 General requirements

4.1.1 Crude palm kernel oil shall be free from:

- a) foreign matter
- b) adulterants, and
- c) rancid odour

4.2 Specific requirements

Crude palm kernel 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 crude palm kernel oil

S/No.	Parameter	Requirement	Test method
i)	Relative density (at 20 °C/water at 20 °C)	0.899 - 0.914	TZS 1328
ii)	Refractive index, (ND 40 °C)	1.448-1.452	TZS 1329
iii)	Saponification value, mg KOH/g oil	243 - 249	TZS 1325
iv)	Iodine value (Wij's), g/100	14-21	TZS 1327
v)	Moisture and matter volatile at 105 °C, % m/m, max.	0.5	TZS 1326
vi)	Free Fatty Acid (FFA) (as lauric acids),	5.0	TZS 1331

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	%, m/m, Min.		
vii)	Iron (Fe) mg/kg,Max.	5.0	TZS 1335
viii)	Copper (Cu) mg/kg,Max .	0.4	TZS 1335
ix)	Colour in a 133.35 mm (5.25 in.) Lovibond, Min.	8.0R	TZS 1330
x)	Slip melting point, °C	27.3 - 28	TZS 1333

5 Food additives

5.1 Food additives shall not be used in crude palm kernel oil.

6 Hygiene

Crude palm kernel oil shall be produced, processed, handled and stored in accordance with TZS 109.

7 Contaminants

7.1 Pesticide residues

Crude palm kernel oil shall comply with relevant maximum pesticide residue limits established by the Codex Alimentarius Commission.

7.2 Heavy metals

Crude palm kernel oil shall not exceed the 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 crude palm kernel oil

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

8 Packaging, marking and labelling

8.1 Packaging

Crude palm kernel 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.

8.2 Marking and labelling

8.2.1 In addition to the requirements given in TZS 538, each container of crude palm kernel oil shall be legibly and indelibly marked with the following information:

- a) name of the product as "Crude palm kernel oil";

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- b) name and physical address of the manufacturer and/or packer;
- c) batch or lot number;
- d) date of manufacture;
- e) expiry date;
- f) net weight in metric unit;
- g) country of origin; and
- h) storage conditions

8.2.2 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.

9 Storage and transportation

Storage and transportation of crude palm kernel oil in bulk shall be in accordance with TZS 4646.

10 Sampling and tests

10.1 Sampling

Crude palm kernel oil shall be sampled in accordance with TZS 54.

10.2 Tests

Crude palm kernel oil shall be tested in accordance with the test methods given in this Tanzania Standard.

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