



DRAFT TANZANIA STANDARD

Unrefined shea butter– Specification

Draft for stakeholders comments

TANZANIA BUREAU OF STANDARDS

Unrefined shea butter– Specification

0 Foreword

Unrefined shea butter is the butter extracted from sheanut. Unrefined shea butter doesn't undergo any chemical refining process or extraction. It can be used in recipes that call for butter, margarine or lard. It is also used as an additive in the production of chocolates, pastries and as a cooking fat.

This Tanzania Standard has been prepared to ensure the safety and quality of unrefined shea butter produced, exported or imported into the country.

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

CXS 325R-2017 (Amended in 2020), *Regional standard for unrefined shea butter* 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 unrefined shea butter intended for direct human consumption, or as an ingredient in the manufacture of food products.

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;

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 288 *Animal and vegetable fats and oils — Analysis by gas chromatography of methyl ester of fatty acids*

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*

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 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*

3 Terms and definitions

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

3.1 shea butter

vegetable fat derived from the kernels of the shea nut (nut kernels from the tree) scientifically known as *Vitellaria paradoxa*, C.F. Gaertn (synonyms: *Butyrospermum paradoxum*, *Butyrospermum parkii*), from the Sapotaceae family.

3.2 unrefined shea butter

oleaginous material obtained from the nut kernel of the *Vitellaria paradoxa*, C.F. Gaertn (synonyms: *Butyrospermum paradoxum*, *Butyrospermum parkii*), from the Sapotaceae family by manual or mechanical methods. It can be obtained through a thermal process or cold pressed, which does not alter the nature of the fat and it can be purified by washing with water, settling, filtering and centrifuging.

4. Requirements

4.1 General requirements

Unrefined shea butter shall;

- a) not be mixed with other fats;
- b) be free of all foreign matter;
- c) have the characteristic colour, aroma and flavour of unrefined shea butter and be free from rancidity. The colour varies from ivory-coloured to yellowish

4.2 Specific requirements

Unrefined shea butter 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 unrefined shea butter

S. No.	Parameter	Requirement	Test method
i.	Relative density at 20 °C	0.91 – 0.98	TZS 1328
ii.	Density at 40 °C	0.89 – 0.93	ISO 6883
iii.	Refractive index at 44°C	1.4620 – 1.4650	TZS 1329
iv.	Saponification value, mg KOH/g fat	160 - 195	TZS 1325

v.	Iodine value (g I ₂ /100g)	30 - 75	TZS 1327
vi.	Unsaponifiable matter (% m/m)	1 – 19	TZS 1332
vii.	Melting point (°C)	35 – 40	TZS 1333
viii.	Fatty acid composition	Annex A	TZS 288

4.3 Grading requirements

Unrefined shea butter shall comply with the grading requirements given in Table 2 when tested in accordance with the test methods specified therein;

Table 2 — Grading requirements for unrefined shea butter

S/No	Characteristics	Grade I	Grade II	Test methods
		Maximum level	Maximum level	
i	Water content (% m/m)	0.05	0.2	TZS 1326
ii	Free fatty acids (%m/m)	1	3	TZS 1331
iii	Peroxide value (milliequivalents of active oxygen/kg oil)	10	15	TZS 1324
iv	Insoluble impurities (% m/m)	0.09	0.2	TZS 1336

Note:

Grade I: This grade of unrefined shea butter can be used for direct human consumption;

Grade II: This grade of unrefined shea butter can be used as an ingredients in the food industry (confectionery, chocolate, edible oil or the base for margarines).

5 Food additives

No food additives are permitted for use in unrefined shea butter.

6 Hygiene

6.1 Unrefined shea butter shall be produced, handled and stored in accordance with TZS 109 .

6.2 Unrefined shea butter shall comply with microbiological limits given in Table 3 when tested in accordance with the methods specified therein;

Table 3 - Microbiological limits for unrefined shea butter

S/N	Microorganism	Limit	Test method
i	<i>Salmonella</i> spp per 25 g	absent	TZS 122-1
ii	<i>Escherichia coli</i> cfu/g	absent	TZS 730-2
iii	Yeast and moulds, cfu/g, max.	10 ³	TZS 2426-2

7 Contaminants

7.2 Pesticide residues

Unrefined shea butter shall comply with relevant maximum pesticide residue limits established by the Codex Alimentarius Commission available online.

7.2. Heavy metal contaminants

Unrefined shea butter shall comply with the maximum heavy metal limits as specified in Table 4.

Table 4– Maximum Limits for heavy metal contaminants in unrefined shea butter

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

8 Packing, Marking and Labelling

Unrefined shea butter shall be packed, marked and labelled in accordance with TZS 538.

8.1 Packing

Unrefined shea butter shall be packed in food grade containers and properly sealed 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 each container of unrefined shea butter shall be legibly and indelibly marked with the following information:

- a) Name of the product shall be " Unrefined shea butter ";
- b) Grading shall be declared on the label to indicate the grade of unrefined shea butter and its intended uses
- c) Name, physical address of the manufacturer and/or packer;
- d) 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,

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

Unrefined shea butter shall be sampled in accordance with TZS 54.

10.2 Tests

Unrefined shea butter shall be tested in accordance with the test methods given in this Tanzania standard

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Annex A

(Normative)

Fatty acid composition of unrefined shea butter

Fatty acid composition of unrefined shea butter as determined by gas liquid chromatography from authentic samples (expressed as percentage of total fatty acids).

Fatty Acid	% levels of fatty acids	Test method
Lauric acid (C 12:0)	< 1	TZS 288
Myristic acid (C 14:0)	<0.7	
Palmitic acid (C 16:0)	2 - 10	
Palmitoleic acid (C 16:1)	<0.3	
Stearic acid (C 18:0)	25-50	
Oleic acid (C 18:1)	32-62	
Linoleic acid (C 18:2)	1-11	
Linolenic acid (C 18:3)	<1	
Arachidonic acid (C 20:0)	<3.5	

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