



## DRAFT TANZANIA STANDARD

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### Ghee – Specification

DRAFT STANDARD FOR PUBLIC COMMENTS ONLY

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### 0 FOREWORD

Ghee is a milk product obtained from butter or cream. In Tanzania manufacture of ghee is at small scale, but significant quantities are imported because of its valued culinary oil. Nevertheless, there is big scope for the expansion of the dairy industry in the country, and hence higher prospect for increasing production of ghee.

Accordingly, it has been felt necessary to guide the dairy industry and controlling authorities in safeguarding the health of consumers and assuring the safety and quality of ghee traded in the country.

In the preparation of this Tanzania standard considerable assistance was drawn from RS 294:2015, Cow ghee – Specification; published by the Rwanda Standards Board.

In reporting, the results of a test or analysis made in accordance with this 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 Ghee produced for human consumption.

### 2.0 REFERENCES

For the purpose of this Tanzania standard, the following references shall apply. 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 34-3 – Animal feeds and feeding stuffs – Sampling and test methods Part 3 – Microbiological.

TZS 54-1 – Oils and fats – Sampling and test methods – sampling, physical and chemical tests.

TZS 76 – Methods for determination of Arsenic

TZS 109 – Food processing units – code of hygiene

TZS 112 – Milk – Production, processing, transportation and distribution – code of hygiene.

TZS 118 – Microbiology of food and animal feeding stuffs – Horizontal method for enumeration of microorganisms – Colony count technique at 30 °C.

TZS 122 – Microbiology of food and animal feeding stuffs – Horizontal method for the detection of *Salmonella spp.*

TZS 125 – Microbiology of food and animal feeding stuffs – Horizontal method for the enumeration of coagulase-positive staphylococci (*Staphylococcus aureus* and other species) – Part 1: Technique using Baird-parker agar medium – Amendment 1: Inclusion of precision data.

TZS 253 – Butter – Method of sampling and test.

TZS 131 – Microbiology - General guidance for enumeration of yeast and moulds – Colony count technique at 25 °C.

TZS 538 – Labelling of pre-packaged foods — General requirements

TZS 852-2 – Microbiology of food and animal feeding stuffs – Horizontal method for detection and enumeration of *Listeria monocytogenes* - Enumeration method

TZS 731 – Microbiology of food and feeding stuffs – Horizontal method for detection and enumeration of presumptive *Escherichia coli* – Most Probable Number Technique  
 ISO 14674 - Milk and milk powder -- Determination of aflatoxin M1 content -- Clean-up by immunoaffinity chromatography and determination by thin-layer chromatography  
 ISO 8294 - Animal and vegetable fats and oils -- Determination of copper, iron and nickel contents -- Graphite furnace atomic absorption method  
 ISO 12193 - Animal and vegetable fats and oils -- Determination of lead by direct graphite furnace atomic absorption spectroscopy  
 CAC/MRL 2 - Maximum Residue Limits (MRLs) and Risk Management Recommendations (RMRs) for Residues of Veterinary Drugs in Foods.

### 3.0 TERMS AND DEFINITIONS

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

#### 3.1 ghee

product exclusively obtained from milk, cream or butter, by means of processes which result in almost total removal of water and non-fat solids, with special developed flavour and physical structure.

#### 3.2 milk

normal, clean and fresh secretions extracted from the udder of a healthy milking dairy animal, properly fed and kept, but excluding that got during the first seven days after calving.

### 4.0 REQUIREMENTS

#### 4.1 General requirements

##### 4.1.1 Raw materials

raw milk, cream, butter when used shall comply with specific Tanzania standard.

##### 4.1.2 Ghee shall be;

- a) pure clarified milk fat. It shall not contain any other fat or oil or any foreign substances.
- b) transparent amber when in liquid and golden yellow while in solid form,
- c) pleasant and characteristic flavour of ghee and free from foreign odour and taste.

#### 4.2 Specific requirements

Ghee shall comply with the requirements specified in Table 1:

**Table 1: Specific requirements for ghee**

S/No.	Characteristic	Requirement	Test method
1)	Moisture, % (m/m), max.	0.3	TZS 54-1
2)	Melting point range, °C	28 – 44	
3)	Reichert value	26 – 29	
4)	Free fatty acid, as oleic acid (%) m/m, max.	0.4	
5)	Milk fat % (m/m), min.	99.7	
6)	Insoluble impurities, % (m/m), max.	0.05	

7)	Refractive Index	40-43	
8)	Peroxide value (mEq O <sub>2</sub> /kg fat), max.	0.1	

## 5.0 CONTAMINANTS

### 5.1 Metal contaminants

Ghee shall not contain any metal harmful to human health and when tested, the heavy metal limits shall not exceed the levels specified in Table 2.

**Table 2: Metal contaminant limits for ghee**

S/No.	Contaminant	Maximum limit	Test method
1)	<i>Iron (Fe)</i> , mg/kg	0.2	ISO 8294
2)	<i>Copper (Cu)</i> , mg/kg	0.05	ISO 8294
3)	<i>Lead (Pb)</i> , mg/kg	0.1	ISO 12193
4)	<i>Arsenic (As)</i> , mg/kg	0.1	TZS 76

### 5.2 Pesticide and veterinary drug residues

Pesticides and Veterinary drug residues in ghee shall comply with maximum residual limits (MRLs) for pesticides and veterinary drug residues as prescribed in the CAC/MRL 2.

### 5.3 Aflatoxin M1

Ghee shall not contain Aflatoxin M1 more than 0.5 µg/kg when tested in accordance with ISO 14674.

## 6.0 HYGIENE

**6.1** Ghee shall be prepared under strict hygienic conditions according to TZS 109 (See clause 2).

**6.2** Sample of ghee tested shall not contain microbiological count more than the requirements prescribed in Table 3.

**Table 3: Microbiological limits**

S/No.	Micro-organisms	Maximum limits	Method of test
1)	Total plate count, cfu/g	10 <sup>3</sup>	TZS 118
2)	<i>Escherichia coli</i> , cfu/g	Absent	TZS 731
3)	<i>Salmonella spp per 25g</i>	Absent	TZS 122
4)	Yeast and moulds, cfu/g, max	10	TZS 131
5)	<i>Staphylococcus aureus per 25g</i>	10 <sup>2</sup>	TZS 125
6)	<i>Bacillus cereus</i>	Absent	ISO 7932
7)	<i>Clostridium spp.</i>	Absent	TZS 34-3

## **7.0 SAMPLING AND TESTS**

### **7.1 Sampling**

Sampling of ghee shall be done according to TZS 54-1 (see clause 2).

### **7.2 Tests**

Testing of ghee shall be done according to test methods prescribed in Tables 1, 2, and 3

## **7.0 PACKAGING, MARKING AND LABELLING**

### **8.1 Packaging**

In addition to the packaging requirements prescribed in TZS 538 (see clause 2), ghee shall also be packed in non-absorbent containers which shall be impervious to air, water and fat. The containers shall not affect the composition, properties or appearance of ghee. Ghee shall be packaged in air tight containers, which shall be sealed to prevent contamination.

### **8.2 Marking and labelling**

In addition to marking and labelling requirements prescribed in TZS 538, ghee containers shall be also legibly and indelibly marked with the following:

- a) Name of the product "Ghee" or designated source of milk
- b) The date of manufacture
- c) Country of origin
- d) Name and address of manufacturer and / or licensed packer
- e) Expiry date
- f) Net content in metric unit
- g) Batch or code number
- h) Nutritional information
- i) Registered trade mark, if any
- j) Instruction for use
- k) Storage condition and hygienic handling of the product.
- l) The language on the label shall be "Kiswahili" or Kiswahili and English. Additional language may be used depending on the designated market.

**8.3** The container may also be marked with TBS Certification Mark.

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