



DRAFT TANZANIA STANDARD

Whey milk drink — Specification

DRAFT FOR PUBLIC REVIEW

TANZANIA BUREAU OF STANDARDS

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Milk Processors Association (TAMPA)
Shambani Milk Limited
TAMU Milk Limited

Tanzania Bureau of Standards
P O Box 9524
Dar es Salaam
Tel: +255 (22) 2450206/2450949/2450298
Fax: +255 22 2450298
E-mail: info@tbs.go.tz
Website: www.tbs.go.tz

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0 Foreword

Whey milk drink is a product obtained from milk by-product or milk serum which offers the advantages of convenience and portability to today's busy consumers. whey milk drink is the preferred source for ready-to-drink milk protein beverage because of the excellent nutritional qualities, tasteless flavour, ease of digestibility and unique functionality in human body.

Development of this Tanzania Standard was necessitated by the need to ensure the safety and quality of milk whey drink produced or traded in Tanzania.

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 Scope

This Tanzania standard specifies requirements, sampling and test methods for whey milk drink intended for direct human consumption.

2 Normative 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 109, Food processing units – code of hygiene

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

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

TZS 124, Milk and milk products – sampling for microbiological examination

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 268, General atomic absorption spectrophotometric method for determination of lead in food stuffs

TZS 450, Cheese methods of sampling and test

TZS 538, Packaging and labeling of foods

TZS 635, Milk and milk products — Guidance on sampling and methods of test

TZS 730–2, Microbiology of food and animal feeding stuffs – horizontal method for the enumeration of -b-glucuronidase-positive Escheria coli – part 2 – colony-count technique at 44 0c using 5-bromo-4-ch

TZS 799, Food stuffs – Determination of aflatoxin B1 and the total content

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

TZS 2426-1, Microbiology of food and animal feeding stuffs - Horizontal method for the enumeration of yeasts and moulds - Part 1: Colony count technique in products with water activity greater than 0.95

TZS 3704, Milk-based edible ices and ice mixes — Determination of fat content — Gravimetric method (Reference method)

TZS 1384, Milk determination of nitrogen content by Kjeldahl method

TZS 1390-1, Milk products and milk-based foods –Determination of fat content by the Weibull-Berntrop gravimetric method Part 1: Infants foods

CODEX STAN 192, General standard for food additives

193, Codex General Standard for Contaminants and Toxins in Food and Feed

ISO 3594, Milk fat — Detection of vegetable fat by gas-liquid chromatography of sterols (Reference method)

3 Terms and definitions

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

3.1 milk

normal, clean and fresh secretion extracted from the udder of a healthy milking animals

3.2 whey milk

milk by-product obtained during the manufacture of cheese, casein or similar products by separation from the curd after coagulation of milk and/or of products obtained from milk

NOTE – Coagulation is obtained through the action of, principally, rennet type enzymes.

4 Requirements

4.1 Raw materials

- a) whey milk,
- b) Sugar,
- c) Water,

4.2 Specific requirements

Whey milk drink 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 whey milk drink

S/No.	Components	Requirements	Methods of test
i.	Fat content, %, m/m	0.05 – 0.2	TZS 1390-1
ii.	Solid not fat (SNF), %, m/m	7.5 – 8.5	Annex A
iii.	Protein, %, m/m	2.7 – 3.5	TZS 1384
v	pH	4.1 – 4.5	Annex B

4 Food additives

Food additives usage shall comply with CODEX STAN 192, established by the Codex Alimentarius Commission.

5 Hygiene

5.1 whey milk drink shall be prepared under good hygienic practices as stipulated in TZS 109.

5.2 whey milk drink shall comply with the microbiological limits given in Table 2 when tested in accordance with the test methods specified therein.

Table 2 — Microbiological limits for whey milk drink

S/N	Micro organisms	Maximum limit	Test method
i)	<i>Escherichia coli</i> , per g	Absent	TZS 730-2
ii)	<i>Salmonella</i> spp, per 25 g	Absent	TZS 122
iii)	<i>Staphylococcus aureus</i> , per g	Absent	TZS 125 – 1
iv)	Moulds and yeasts, CFU/ g	10 ²	TZS 2426-1

6 Contaminants

6.1 Pesticide residues

Whey milk drink shall comply with maximum limits residues set by Codex Alimentarius Commission online database.

6.2 Veterinary drugs residues

Whey milk drink shall comply with maximum tolerable residue limits for antibiotics and other veterinary drugs set by Codex Alimentarius Commission online database.

6.3 Heavy metals

When tested in accordance with TZS 268, the level of Lead (Pb) shall not exceed 0.02 mg/kg.

6.4 Aflatoxins

When tested in accordance with TZS 799, the level of aflatoxin M1 shall not exceed 0.50 µg/kg.

7 Sampling and method of tests

7.1 Sampling

Sampling of whey milk drink shall be done in accordance with TZS 635

7.2 Methods of tests

Samples of whey milk drink shall be tested to ascertain conformity of the product to the requirements of each specification by the methods described in the respective standards provided under Table 1 and Table 2 of this standard.

8 Packaging, marking and labeling

8.1 Packing

whey milk drink shall be packed in food grade packaging material that safeguards the integrity and safety of the product.

8.2 Marking and labeling

The container shall be marked and labeled in accordance with TZS 538. In addition, each container of product shall be legibly and indelibly marked with the following information:

- a) name of the product
- b) name and physical address of manufacturer;
- c) Net content in metric units;
- d) batch or code number;
- e) list of ingredients;
- f) nutritional information;
- g) date of manufacture
- h) expiry date;
- i) instructions for storage;
- j) declaration of allergens if any; and
- k) country of origin.

8.3 The container shall also be marked with TBS Certification Mark.

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

ANNEX A
(Normative)

Determination of solids non-fat in milk (AOAC 990. 21)

A.1 Apparatus and materials

A.1.1 Analytical balance, capable of weighing to the nearest 1 mg, with a readability of 0.1 mg.

A.1.2 Desiccator, containing an efficient drying agent.

A.1.3 Drying oven, well-ventilated and capable of being maintained at $100\text{ }^{\circ}\text{C} \pm 1\text{ }^{\circ}\text{C}$ for 3hours.

A.1.4 Flat dish/ Moisture dish,

A.2 Procedure

A.2.1 Weigh accurate about 3g of the material in a pre-weighed moisture dish (about 5 cm diameter).

A.2.2 Record the test portion weight to nearest 0.1 mg immediately after weight stabilizes.

A. 2.3 Place a dish in an oven and dry at $100\pm 1^{\circ}\text{C}$ for 3 hours.

A.2. 4 Remove the dish from an oven and cool to room temperature in desiccator ($\geq 30\text{min}$).

A.2.5 Weigh dish plus dry milk on the same balance that was used for initial weighing.

A.3 Calculation

The total solids content, expressed as a mass fraction in percent, is given by the equation

$$\text{Total solids, m/m\%} = \frac{m}{m} \% = \frac{(M2 - M)100}{M1 - M2}$$

Where

M is the mass, in grams, of the dish

M1 is the mass, in grams, of the dish + Milk test portion

M2 is the mass, in grams, of the dish + dry milk

MILK SOLID NON FAT, %= TOTAL SOLIDS, % - FAT, %

Annex B
(normative)

Determination of pH

B.1 General

The pH value or hydrogen ion concentration gives a measure of the true acidity of whey milk drink. The relationship between pH and acidity of milk whey drink is only approximate. In milk whey drink the pH ranges from 4.2 to 4.6. The value is reduced by the development of acidity. The pH of milk whey drink may be determined rapidly by using the indicator strips.

B.2 Indicator strips

Indicator paper strips or discs are made by soaking strips of absorbent paper in a suitable indicator and drying them.

A rough estimate of pH is obtained by dipping a strip of the prepared paper in whey milk drink and observing the colour. Bromocresol purple (pH range 4 to 7, colour changes from yellow to purple) and bromothymol blue (pH range 4 to 7, colour changes from straw yellow to bluish-green) are commonly used as indicators. Both narrow and wide range ready-made indicator papers are available over the pH range 2.0 to 10.5.

Indicator paper strips shall always be kept in closed containers and under dry conditions.

B.3 pH meter

The pH meter may be used to determine pH in milk whey drink

B.4 Interpretation

On an average, whey milk drink gives a pH of 4.6. whey milk drink of pH over 4.6 should be regarded with suspicion as indication of poor fermentation as a result of starter culture inhibition. pH below 4.2 is as a result of over fermentation.