



DRAFT TANZANIA STANDARD

Mayonnaise — Specification

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- *Ministry of Agriculture
- Tanzania Food and Nutrition Centre (TFNC)
- Small Industries Development Organization (SIDO)
- Tanzania Industrial Research and Development Organization (TIRDO)
- Tanzania Chamber of Commerce, Industry and Agriculture (TCCIA)
- Tanzania Commission for Science and Technology
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- Tanzania Private Sector Foundation (TPSF)
- *University of Dar es salaam(UDSM)

The organizations marked with an asterisk (*) in the above list, together with the following were directly represented on the Technical Committee entrusted with the preparation of this Tanzania Standard:

- Tunu Agriproducts & Consultancy Limited
- GFP Organic Spices TZ Ltd.
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Mayonnaise — Specification

0 Foreword

Mayonnaise is an oil in water emulsion that is added to food before consumption to improve flavour and palatability.

This draft Tanzania Standard was prepared to ensure the safety and quality of mayonnaise produced for local consumption and export market.

In the preparation of this Tanzania Standard assistance was sought from:

Codex Stan 168-1989, *Codex standard for mayonnaise*.

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 (see clause 2).

1 Scope

This Tanzania Standard specifies requirements, sampling and test methods for mayonnaise intended for human consumption.

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.

CXS 192, *General standard for food additives*

ISO 3706, *Phosphoric acid for industrial use (including food stuffs) — Determination of total phosphorus (v) oxide content — Quinoline phosphomolybdate gravimetric method*

TZS 2623/ISO 17189, *Butter, edible oil emulsions and spreadable fats — Determination of fat content*

TZS 4, *Rounding off numerical values*

TZS 33, *Spices and condiments — Sampling*

TZS 109, *Food processing units — Code of hygiene — General*

TZS 118, *Microbiology of food and animal feeding stuffs — Horizontal method for the enumeration of microorganisms — Colony-count technique at 30 °C*

TZS 122/ISO 6579, *Microbiology of food and feeding stuffs — Horizontal method for the detection of salmonella spp.*

TZS 123, *Microbiological examination for clostridium perfringens — Test method*

TZS 125, *Microbiology of food and animal feeding stuffs — Horizontal method for enumeration of coagulase — Positive staphylococci (Staphylococcus aureus and other species)*

TZS 2426-1/ISO 21527-1, *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 268, *General atomic absorption spectrophotometric method for determination of lead in food stuffs*

TZS 538/EAS 38, *Labelling of pre-packaged foods — General requirements*

TZS 730-2/ISO 16649-2, *Microbiology of food and animal feeding stuffs — Horizontal method for the enumeration of -b-glucuronidase-positive Escherichia coli — Part 2 — Colony-count technique at 44 °C using 5-bromo-4-chloro-3-indolyl-b-D-glucuronide*

TZS 789/EAS 12, *Potable water — Specification*

TZS 1491, *Fruits and vegetables — Determination of pH*

TZS 1492, *Fruits and vegetables — Determination of Tin content*

TZS 1495, *Fruits and vegetables — Determination of Copper content*

TZS 1502, *Fruits and Vegetables — Determination of Arsenic content*

TZS 1529, *Fruits and Vegetables — Determination of Sodium Chloride in brine*

TZS 2288, *Edible fats and oils — Specification*

3 Terms and definitions

For the purposes of this draft Tanzania Standard, the following terms and definitions shall apply.

3.1 mayonnaise

A smooth thick stable emulsion of edible vegetable oil, water, egg yolk or any other emulsifier, and acidifying agent with or without the addition of optional ingredients indicated in this standard

3.2 emulsion

mixture of two fluids such as oil and water that is achieved by breaking up the molecules in both substances into very fine, small droplets in order to keep the combination from separating

3.3 emulsifier

a food additive that helps to create or maintain a uniform mixture of two or more phases in a food

4 Requirements

4.1

4.1 Raw materials

4.1.1 Main Ingredients

- a) Water shall be of potable quality complying with TZS 789 (see clause 2);
- b) edible vegetable oils shall comply with Tanzania Standard.
- c) Emulsifier (If egg yolk is used it shall be hen eggs) complying with Tanzania Standard.
- d) Acidifying agents complying with Tanzania Standard.

4.1.2 Optional ingredients

The product may include the following optional ingredients;

- a) hens' egg white;
- b) hens' egg products;
- c) sugar;
- d) food grade salt;
- e) condiments, spices, herbs;
- f) fruits and vegetables including fruit juice and vegetable juice;
- g) mustard; and
- h) dairy products.

4.2 General requirements

The product shall have the following characteristics

4.2.1. Colour

The colour of mayonnaise shall be of the characteristics of the ingredients used.

4.2.2 Flavour

The flavour of mayonnaise shall be characteristic of mayonnaise with natural or nature identical flavouring and free from foreign flavours and off flavours, such as those coming from mouldy, rancid, fermented or burnt particles.

4.2.3 Texture

Texture of the product shall be semi solid, uniform, smooth and free from lumps.

4.3 Specific requirements

Mayonnaise shall comply with the requirements given in Table 1, when tested in accordance with the test methods specified therein.

Table 1 — Chemical requirement

S/N	Characteristics	Requirements			Test method (See clause 2)
		High fat product (min)	Medium fat product	Low fat product	
1	Total fat content, %m/m Min.	70	35 - 70	Less than 35	TZS 2623
2	Egg yolk %m/m, min ^a	5	5	5	Annex A and Annex B
3	pH	3.2- 5	3.2- 5	3.2- 5	TZS 1491
4	Sodium chloride, %, max.	10	10	10	TZS 1529
^a) Technically pure means that 20 % of albumen is tolerated related to the egg yolk. NOTE The minimum egg content shall only apply to products where eggs have been used as ingredient. This parameter does not apply to eggless products					

5 Food additives

The use of food additives in mayonnaise shall be in accordance with CXS 192 (See clause 2).

6 Contaminants

6.1 Heavy metals

Mayonnaise shall not contain any metallic contaminants in excess of levels specified in Codex Stan 193 (See clause 2) and Table 2.

Table 2 — Limit for metallic contaminants for mayonnaise

S/N	Characteristics	Maximum (mg/kg)	Test method (See clause 2)
1	Arsenic (as As)	0.1	TZS 1502
2	Tin (as Sn)	250	TZS 1492
3	Copper (as Cu)	2.0	TZS 1495
4	Lead (as Pb)	0.1	TZS 268

6.2 Pesticide residues

Mayonnaise shall comply with the maximum pesticide residue limits established by the Codex Committee on Pesticide Residues for this commodity.

7 Hygiene

Mayonnaise shall be prepared under Good Hygienic Practices as stipulated in TZS 109 (See clause 2) and shall be complied to the requirements specified in Table 3.

Table 3 — Microbiological requirements for mayonnaise

S/N	Characteristic	Recommended level	Test method (See clause 2)
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1	Total plate count, cfu/g, (max.)	1x10 ³	TZS 118
2	<i>Escherichia coli</i> , cfu/g, max.	Absent	TZS 730-2
3	Yeasts and moulds at 25 °C, cfu/g, max.	1 x 10 ²	TZS 2426-1
4	<i>Clostridium perfringens</i> , cfu/g, max.	1 x 10 ¹	TZS 123
5	<i>Staphylococcus aureus</i> , in 1 g	Absent	TZS 125
6	<i>Salmonella</i> , in 25 g	Absent	TZS 122

7 Sampling and test methods

7.1 Sampling

Mayonnaise shall be sampled in accordance with TZS 33 (See clause 2).

7.2 Test methods

Sample of mayonnaise shall be tested for conformity with the requirements of this Tanzania Standard by following the methods of chemical, contaminants and microbiological analysis specified in Table 1, Table 2 and Table 3.

8 Packaging, marking and labelling

8.1 Packaging

Mayonnaise shall be packed in clean and sound food grade containers made of a material which does not affect the safety and quality of the product but protects it from light and from the entrance of moisture.

8.2 Marking and labelling

Labelling of mayonnaise shall be done in accordance with TZS 538/EAS 38 and the following particulars shall be legibly and indelibly marked on each bag/container:

- Common name of the product, 'Mayonnaise';
- The statement /indication of fat content "High fat / Medium fat / Low fat"
- Trade name or brand name, if any;
- Name and address of the manufacturer and/or packer;
- Batch or code number;
- Date of packing;
- Net weight;
- Country of origin;
- Expiry date;
- Storage condition; and
- Statements on allergens

8.3 The containers may also be marked with the 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 licences are granted may be obtained from TBS.

Annex A

(normative)

Determination of Egg-Yolk Solids

A.1 General

The accurate estimation of egg-yolk solids in salad cream or mayonnaise is somewhat difficult. It is probably most frequently determined from phospholipid content. The following method, employing methanol, appears to give reasonably satisfactory results.

A.2 Procedure

Reflux 20 g of salad cream with 100 mL of absolute methyl alcohol for 6 hours, stand overnight. Filter, re-extract the residue with methanol and wash through the filter with more solvent. Evaporate the combined filtrates containing the extracted organic phosphorus to dryness on the water bath. Transfer the residue to a digestive flask, wet oxidise with sulphuric-nitric acid and wash into a 100-mL volumetric flask. Make up to 100 mL at room temperature, mix and filter. Pipette 50 mL of filtrate into a further 100 mL volumetric flask, neutralize with ammonia (0.88), make just acid with dilute nitric acid, add 25 mL of vanadate-molybdate reagent and dilute to the mark. Mix and measure the absorbance at 270 nm.

A.3 Calculation

A.3.1 Egg-yolk solids = $P_2O_5 \times 56$

A.3.2 Dried egg = Egg-yolk solid $\times 1.48$

A.3.3 The methanol extracts 1.20 % P_2O_5 from dried egg compared with 0.15 % from soya flour.

Annex B

(normative)

Determination of Phosphorus (And Lecithin) in Egg-Yolk

B.1 General

The determination of phosphorus and eventual calculation of lecithin may be used to determine the freshness of the egg.

B.2 Procedure

B.2.1 Pre-treatment

A (i) Extract 10 g of sample held in a filter thimble in the soxhiet apparatus for four hours with analytical grade chloroform.

(ii) Evaporate off all the chloroform in a platinum dish. Add 5 cm³ of analytical chloroform and proceed as in C, omitting stage (i).

B (i) To 1.5 g sample, add 2.5 cm³ distilled water and 70 cm³ alcohol and shake.

(ii) Stand on a hot water bath for fifteen minutes making up the volume with additional alcohol where necessary.

(iii) Filter through a Whatman No. 4 grade filter paper into a 100 cm³ graduated flask.

(iv) Wash the residue with benzene and make up the solution to 100 cm³ with further additions of benzene.

(v) Shake to emulsify. Pipette 50 cm³ of solution immediately into a clean platinum dish and proceed as in C omitting stage (i).

C (i) Weigh 0.05 g of sample into a platinum dish. Add 5 cm³ of analytical grade chloroform.

(ii) Add 8 cm³ 4 % alcoholic potash and evaporate to dryness in an oven held at 105 °C.

(iii) Char using an Argand burner and then ash at dull red heat in a muffle furnace.

(iv) When the dish has cooled, add 5 cm³ concentrated hydrochloric acid and evaporate to dryness.

(v) Extract the residue with 10 cm³ 1 M hydrochloric acid. Filter through a Whatman No 54 grade filter paper into a 100 cm³ graduated flask. Wash any residue with hot distilled water.

(vi) Neutralize with normal sodium hydroxide using phenolphthalein as indicator. Make to the mark with distilled water.

B.2.2 Determination

- (a) Take a sufficient volume by pipette of the prepared solution as will contain 5 ng to 50 ng phosphorus and transfer to a stout boiling tube. The total volume shall be 5 cm³; if lower than this add distilled water.
- (b) Add, by fast running pipette, 1 cm³ 20 % potassium iodide solution (containing 0.5 % sodium carbonate), then swirl.
- (c) Stopper with a glass ball and hold in a boiling water bath for 15 minutes, (of) 3 Remove and cool in an icebath. Add sufficient freshly prepared 0.5 % sodium sulphite to remove the iodine colour and add to give a slight excess.
- (e) Transfer the solution and make up to 50 cm³ in a graduated flask (or smaller volume if found necessary).
- (f) Measure the colour strength of the solution when held in a 1 cm glass cell using one litre ford 608 filters on the Spekker Absorptiometer.
- (g) Carry out a check on the Absorptiometer.

B.2.3 Calculation**B.2.3.1 Phosphorus**

Calculate the phosphorus content by reference to the previously prepared reference curve for a standard phosphorus solution. This solution can be prepared by dissolving 4.388 g analytical grade potassium dihydrogen phosphate in distilled water, adding 2 cm³ concentrated sulphuric acid and making to 1 dm³ in a graduated flask. The solution contains 1000 µg phosphorus/cm³, lower concentrations can be obtained by solution. For comparison purposes, in a series of tests 1 µg phosphorus/cm³ gives a Spekker absorptiometer reading of 0.285.

B.2.3.2 Lecithin

Phosphorus multiplied by 25.5 equals lecithin content.

