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Second edition

DRAFT MALAWI STANDARD

Preserved tomatoes – Specification

NOTE: This is a draft proposal and it shall neither be used nor regarded as a Malawi Standard

Preserved tomatoes – Specification

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FOREWORD

This draft proposal has been prepared by *MBS/TC 10*, Technical committee on *Processed foods*, to provide requirements for preserved tomatoes. It is the first revision of MS 28:1984.

The draft standard is based on the following standards:

CODEX STAN 13 – 1981, Rev 1 (2007), Amended (2013), (2017), *Standard for preserved tomatoes*;

East African Standard EAS 66 – 1:2017, *Tomato products – Specification – Part 1 – Canned tomatoes*

Acknowledgement is made for the use of the information.

TECHNICAL COMMITTEE

This draft proposal was prepared by Technical Committee *MBS/TC 10*, *Processed foods*, and the following companies, organizations and institutions were represented:

NOTICE

This draft standard shall be reviewed every five years, or earlier when it is necessary, in order to keep abreast of progress. Comments are welcome and shall be considered when the draft standard is being reviewed

DRAFT PROPOSAL

Preserved tomatoes – Specification

1 SCOPE

1.1 This draft standard applies the products, as defined in clause **3**, and offered for direct consumption, including for catering purposes or for repacking if required.

1.2 This draft standard also applies to the product when indicated as being intended for further processing.

2 NORMATIVE REFERENCES

The following standards contain provisions, which through reference in this text, constitute provisions of this draft standard. All standards are subject to revision and since any reference to a standard is deemed to be a reference to the latest edition of that standard, parties to agreements based on this draft standard are encouraged to take steps to ensure the use of the most recent edition of the standard indicated below. Information on current valid national and international standards can be obtained from the Malawi Bureau of Standards.

MS 19: *Labelling of prepacked foods – General standard;*

MS 21: *Code of hygienic conditions for food and food processing units;*

MS 25: *Tomato concentrates (tomato puree and paste) – Specification;*

MS 188: *Edible salt – Specification;*

MS 202: *Fortified white sugar – Specification;*

MS 218: *Drinking water – Specification;*

MS 230: *Tomatoes – Specification;*

MS 237: *Food additives – General standard;*

MS 302: *Contaminants and toxins in food;*

MS 624: *Nutrition labelling – Guidelines;*

MS 625: *Nutrition claims – Guidelines;*

MS 935: *Principles for the establishment and application of microbiological criteria for foods; and*

MS 1112: *Code of hygienic practices for fresh fruits and vegetables.*

ISO 4833: *Microbiology of the food chain - Horizontal methods for the enumeration of microorganisms;*

ISO 6579: *Microbiology of food and animal feeding stuffs – Horizontal methods for the detection of Salmonella spp;*

ISO 7251: *Microbiology of food and animal feeding stuffs – Horizontal methods for the detection and enumeration of presumptive Escherichia coli – Most Probable Number technique; and*

3 DESCRIPTION

3.1 Product definition

Preserved tomato is the product:

3.1.1 Prepared from fresh, washed, ripened tomatoes, conforming to the characteristics of the fruit of *Lycopersicon/Lycopersicum esculentum* P. Mill, of red or reddish varieties which are clean and which are sound complying with MS 230. The tomatoes shall have had the stems and calices removed and where necessary, the core;

3.1.2 Packed with or without a suitable packing medium and seasoning ingredients appropriate to the product; and

3.1.3 Processed by heat, in an appropriate manner, before or after being hermetically sealed in a container, so as to prevent spoilage.

3.2 Varietal type

Tomatoes of distinct varietal groups (cultivars open pollinated or hybrids) with respect to shape or other similar physical characteristics shall be designated as:

3.2.1 Round: globular or semi-globular shape.

3.2.2 Cylinder, pear, egg or plum: elongated shape.

3.3 Styles

Preserved tomatoes shall be prepared in the following styles:

3.3.1 Whole; tomatoes which keep their initial shape after processing. The whole form normally is prepared with peel removed; if the peel is not removed, then shall additionally be considered as “Unpeeled”;

3.3.2 Unwhole (pieces); tomatoes crushed or cut into sections whose shape may be irregular or regular tomatoes in this style shall be specified according with the type of grinding or cutting as follows:

3.3.2.1 Diced; tomatoes cut into cubes;

3.3.2.2 Sliced; tomatoes cut perpendicularly to the longitudinal axis in rounds with a regular thickness;

3.3.2.3 Wedges; tomatoes cut into four roughly equal parts;

3.3.2.4 Pulp or crushed or chopped; tomatoes crushed, ground or pulped when appropriate.

3.3.3 Other styles

Any other presentation of the product shall be permitted provided that the product:

- a) is sufficiently distinctive from other forms of presentation laid down in this draft proposal;
- b) meets all relevant requirements of this draft proposal, including requirements relating to limitations on defects, drained weight, and any other requirements which are applicable to that style which most closely resembles the style or styles intended to be provided for under this provision; and

- c) is adequately described on the label to avoid confusing or misleading the consumer.

3.4 Types of pack

Preserved tomatoes shall be packed in the following manner;

3.4.1 Solid Pack – without any added packing medium;

3.4.2 Regular Pack – with a packing medium added, as specified in clause **4.1.2**;

3.4.3 Flavoured, seasoned or stewed – packed with vegetable ingredients such as onions and peppers, not exceeding 10 % of the product.

4 ESSENTIAL COMPOSITION AND QUALITY FACTORS

4.1 Composition

4.1.1 Basic ingredients

Tomatoes as defined in clause **3** and packing medium when appropriate, as defined in clause **4.1.2**.

4.1.2 Packing media

Canned tomatoes shall be packed in the following packing media:

- a) Juice; the liquid obtained from ripened tomatoes, from the residue resulting from preparing tomatoes for canning or by diluting tomato concentrates;
- b) Tomato puree or tomato concentrate; as described in MS 25;
- c) Pulp; skinless ground tomatoes;
- d) Water; only in unpeeled preserved tomatoes

NOTE: Juice must not be intended as the fruit juice (including tomato juice)

4.1.3 Other permitted ingredients

4.1.3.1 Spices, aromatic herbs (such as basil leaves) and natural extracts of these and seasonings excluding tomato flavouring;

4.1.3.2 Salt (sodium chloride) complying with MS 188;

4.1.3.3 Sugars (sucrose, dextrose, dried glucose syrup, glucose syrup), when acidifying agents are used.

4.2 Quality criteria

4.2.1 Definitions

4.2.1.1 Whole or almost whole; A tomato of any size in which the contour is not materially altered by coring or trimming; that may be readily restored to practically its original conformation; it may be slightly cracked or split but not to the extent that there is substantial loss of shape.

4.2.1.2 Objectionable core material; Internal core material of tough and fibrous texture or tomato tissue representing the tomato core that is definitely objectionable as to appearance and edibility.

4.2.1.3 Blemishes; Areas into which lesions on the surface have penetrated and as a result thereof contrast strongly in colour or texture with the normal tomato tissue and should normally have been removed during processing. Damage by pests, mould, disease or injury to any extent that the appearance or eating quality is materially affected.

4.2.1.4 Extraneous plant material; Tomato leaves, stems, calyx bracts, and similar plant material.

4.2.1.5 Peel (or skin); The residual pieces of skin, having a length higher than 5 mm, which adheres to the tomato flesh or is found loose in the container.

4.2.2 Colour

Drained tomatoes shall have a normal red or reddish colour characteristics of tomatoes that have been properly prepared and processed. No artificial colouring matter shall be added to the product.

4.2.3 Flavour

Canned tomatoes shall have a normal flavour and shall be free from flavour foreign to the product. Canned tomatoes with special added ingredients shall have a flavour characteristic of that imparted by the tomatoes and the other substances used.

4.2.4 Wholeness

Canned tomatoes of 'whole' style shall consist of not less than 80 % of drained tomatoes in whole or almost whole units.

4.2.5 Defects and Allowances

The finished product shall be prepared from such materials and under such practices that it shall be substantially free from objectionable core material and extraneous plant material and shall not contain excessive defects whether specifically mentioned in this Standard or not. Certain common defects should not be present in amounts greater than the following limitations:

4.2.5.1 Peel (only for whole and peeled styles); Whole peeled: not more than 30 cm² aggregate area per kg of total contents.

4.2.5.2 Blemishes; Not more than 3.5 cm² aggregate area per kg of total contents.

4.2.5.3 pH; The pH must not exceed 4.5.

4.2.6 Classification of defectives

A container that fails to meet one or more of the applicable quality requirements, as set out in clause **4.2.5**, shall be considered as a defective.

5 FOOD ADDITIVES

5.1 Only those food additives listed under this product in MS 237 shall be used and only within the limits specified.

6 CONTAMINANTS

6.1 The products covered by this draft standard shall comply with the maximum levels as stated in MS 302. In order to consider the concentration of the product, the determination of the maximum levels for contaminants shall take into account the natural total soluble solids, the reference value being 4.5 for fresh fruits.

6.2 The products covered by this draft standard shall comply with the maximum pesticides residue limits established by the Codex Alimentarius Commission. In order to consider the concentration of the product, the determination of the maximum pesticides residue limits shall take into account the natural total soluble solids, the reference value being 4.5 for fresh fruit.

7 HYGIENE

7.1 Products covered by this draft standard shall be prepared and handled in accordance with the appropriate clauses of MS 21 and MS 1112.

7.2 The products shall comply with microbiological criteria established in accordance with MS 935 and the microbiological limits in table 1.

Table 1 – Microbiological limits for preserved tomatoes

1	2	3
Type of micro-organism	Maximum limits	Test method
Total viable counts, cfu/g	10	ISO 4833 (all parts)
Yeast/moulds cfu/g	shall be absent	ISO 21527-1
Escherichia coli MPN/g	shall be absent	ISO 7251
Salmonella sp. per 25 g	shall be absent	ISO 6579

8 PACKAGING AND LABELLING

8.1 Packaging

8.1.1 Preserved tomatoes shall be packed in suitable food grade containers having no action on the products. The containers shall be free from other products that may lead to contamination and alter the quality, composition, flavour, odour and taste of the products.

8.1.2 Containers shall be air tight and shall be provided with tamper- proof seals and closures. Containers shall preclude contamination with or proliferation of microorganisms in the products during storage and transportation.

8.1.3 Minimum fill

The container shall be well filled with the product (including packing medium when appropriate) which shall occupy not less than 90 % of the water capacity of the container. The water capacity of the container is the volume of distilled water at 20 °c which the sealed container will hold when completely filled.

8.1.4 Drained weight

Drained weight of the contents shall be not less than 60 % of the net weight of the container.

8.1.5 Classification of defectives

A container that fails to meet the requirement of minimum fill in clause 8.1.3 and clause 8.1.4 shall be considered as a defective.

8.2 Labelling

In addition to the requirements of MS 19, the following specific provisions shall apply:-

8.2.1 Name of the product

The name of the product shall be:

- a) **“Peeled tomatoes”** or **“Whole peeled tomatoes”**, for the products **“Whole”**, if the peel has been removed;

- b) **“Tomatoes”**, for the other presentations;
- c) **“Unpeeled tomatoes”**, if the peel has not been removed.

8.2.2 The styles, as defined in clause **3.3** and the packing media defined in clause **4.1.2** shall be declared as part of the name or in close proximity to the name.

8.2.3 If an added ingredient, as defined in clause **4.1.3**, alters the flavour characteristic of the product, the name of the food shall be accompanied by the term **“flavoured with X”** or **“X flavoured”** as appropriate.

8.2.4 If the product is produced in accordance with the other styles provision set in clause **3.3.3**, the label shall contain in close proximity to the name of the product such additional words or phrases that will avoid misleading or confusing the consumer.

8.2.5 The following may be stated on the label:

- a) the type: **“solid pack”** if the pack complies with clause **3.4.1**; and
- b) the packing material: **“juice”** or other, if the pack complies with clause **3.4.2**.

8.2.6 Name, and address of manufacturer/importer;

8.2.7 Country of origin;

8.2.8 Date of manufacture and expiry date in code or in clear ;

8.2.9 List of ingredients;

8.2.10 Net content;

8.2.11 Storage condition; and

8.2.12 Batch number and in code or in clear.

8.2.13 Nutrition labelling and nutrition claims

Nutritional labelling and nutrition claims shall be done according to the provisions prescribed in MS 624 and MS 625.

8.3 Labelling of non – retail containers

8.3.1 Information for non-retail containers shall be given either on the container or in accompanying documents, except that the name of the product, lot identification and the name and address of the manufacturer, packer, distributor or importer, as well as storage instructions, shall appear on the container.

8.3.2 However, lot identification and the name and address of the manufacturer, packer, distributor or importer may be replaced by an identification mark, provided that such mark is clearly identifiable with the accompanying documents.

9 METHODS OF SAMPLING AND TEST

9.1 Sampling shall be done in accordance with Annex A.

9.2 Test methods for preserved have been outlined in Annex B.

**ANNEX A
(Normative)**

METHOD OF SAMPLING

A1 QUALITY

The quality of a lot shall be considered acceptable when the number of defectives does not exceed the acceptance number (c) in the sampling plans in table **A.2.2**.

A1.2 Fill of container

A lot shall be deemed to be in compliance for fill of container (packing medium and vegetable ingredient) when the number of defectives does not exceed the acceptance number (c) in the sampling plans in table **A.2.2**.

A1.3 Drained weight

A lot shall be deemed to be in compliance for drained weight based on the average value of all samples analyzed according to the sampling plans in table **A.2.2**.

A2 SAMPLING AND ACCEPTANCE PROCEDURE

A2.1 Definitions

A2.1.1 Lot: A collection of primary containers or units of the same size, type, and style manufactured or packed under similar conditions and handled as a single unit of trade.

A2.1.2 Lot size: The number of primary containers or units in the lot.

A2.1.3 Sample size: The total number of sample units drawn for examination from a lot.

A2.1.4 Sample unit: A container, a portion of the contents of a container, or a composite mixture of product from small containers that is sufficient for the examination or testing as a single unit. For fill of container, the sample unit shall be the entire contents of the container.

A2.1.5 Defective: Any sample unit shall be regarded as defective when the sample unit does not meet the criteria set forth in the standards.

A2.1.6 Acceptance number (c): The maximum number of defective sample units permitted in the sample in order to consider the lot as meeting the specified requirements.

A2.1.7 Acceptable quality level (AQL): The maximum percent of defective sample units permitted in a lot that will be accepted approximately 95 % of the time.

A2.2 Sampling plans

Sampling plans shall be done in accordance with table **A.2.2**.

Table A.2.2 – Sampling plans

Net weight is equal to or less than 1 kg		
Lot size (N)	Sample size (n)	Acceptance number (c)
4,800 or less	6	1
4,801 - 24,000	13	2
24,001 - 48,000	21	3
48,001 - 84,000	29	4
84,001 - 144,000	38	5
144,001 - 240,000	48	6
more than 240,000	60	7
Net weight is greater than 1 kg but not more than 4.5 kg		
Lot size (N)	Sample Size (n)	Acceptance number (c)
2,400 or less	6	1
2,401 - 15,000	13	2
15,001 - 24,000	21	3
24,001 - 42,000	29	4
42,001 - 72,000	38	5
72,001 - 120,000	48	6
more than 120,000	60	7
Net weight greater than 4.5 kg		
Lot size (N)	Sample size (n)	Acceptance number (c)
600 or less	6	1
601 - 2,000	13	2
2,001 - 7,200	21	3
7,201 - 15,000	29	4
15,001 - 24,000	38	5
24,001 - 42,000	48	6
more than 42,000	60	7

**ANNEX B
(Normative)**

DETERMINATION OF THE FILL OF THE CONTAINER

B1 SCOPE

This method applies to fill of glass containers.

B2 DEFINITION

The water capacity of a container is the volume of distilled water at 20 °C which the sealed container will hold when completely filled.

B3 PROCEDURE

B3.1 Select a container which is undamaged in all respects.

B3.2 Weigh the filled container, (W_1)

B3.3 Empty, Wash, dry and weigh the empty container (W_2).

B3.4 Fill the container with distilled water at 20 °C to the level of the top thereof, and weigh the container thus filled (W_3).

B3.5 Calculate the water capacity of a container

Where water capacity of the container (WCC) = $W_1 - W_2$

B4 CALCULATION AND EXPRESSION OF RESULTS

B4.1 Fill Percentage =
$$\frac{W_1 - W_2 \times 100}{W_3 - W_2}$$

Where ,

W_1 is the weight of the filled container;

W_2 is the weight of the empty container; and

W_3 is the weight of the container filled with distilled water.

B4.2 The results are expressed as ml of water.

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