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Second edition

**DRAFT MALAWI STANDARD
(COMESA AND SADC HARMONIZED)**

**Canned sardine and sardine type
products – Specification**

Note: This is a draft standard and it shall neither be used nor regarded as a Malawi standard

Canned sardine and sardine type products – Specification

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FOREWORD

This draft standard is a Common Market for Eastern and Southern Africa (COMESA) and Southern African Development Community (SADC) Harmonized Text, covering the requirements for canned sardines and sardine type products.

The harmonization of standards and technical regulations in the COMESA is an obligation under the COMESA Treaty in order to promote the achievement of the aims and objectives of the Common Market as set out in Article 3 of COMESA Treaty.

In SADC, harmonization of standards and technical regulations is also an obligation under the SADC Trade Protocol which was established under the SADC Treaty to provide elimination of tariffs and non-tariff barriers to trade.

This draft standard is identical to the following standards:

CODEXSTAN 94:1981, *Codex standard for canned sardines and sardine type products*, which was adopted by COMESA, except for the inclusion of the microbiological limits (clause 5.4); and

SADC HT 78, *Canned sardines and sardine type products – Specification*.

Acknowledgement is made for the use of the above standards.

TECHNICAL COMMITTEE

This Malawi standard was prepared by MBS/TC 39, the Technical Committee on *Fish and fishery products*, and the following companies, organizations and institutions were represented:

Malawi Bureau of Standards.

MALDECO Fisheries

Malawi College of Fisheries;

Ministry of Agriculture, Irrigation and Water Development – Department of Fisheries;

Lake Harvest; and

Lilongwe University for Agriculture and Natural Resources.

NOTICE

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

DRAFT MALAWI STANDARD FOR PUBLIC REVIEW

DRAFT MALAWI STANDARD

**Canned sardines and sardine type products –
Specification**

1 SCOPE

This draft Malawi standard applies to canned sardines and sardine-type products packed in water or oil or other suitable packing medium. It does not apply to speciality products where fish content constitute less than 50 % m/m of the net contents of the can.

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 standard are encouraged to take steps to ensure the use of the most recent edition of the standard indicated below. Information on currently valid national and draft Malawi standards may be obtained from the Malawi Bureau of Standards.

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

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

MS 214: *Potable water – Specification;*

MS 237: *Food additives – General Standard;*

MS 302: *General standard for contaminants and toxins in foods and feed;*

MS 770: *Fresh and chilled fish – Specification;*

MS 790: *Code of practice for fish and fishery products;*

MS 1241: *Guidelines for the sensory evaluation of fish and shellfish in laboratories;*

CAC/RCP 8: *Recommended international code of practice for the processing and handling of quick frozen foods;*

ISO 4833: *Microbiology of food and animal feeding stuffs – Horizontal method for the enumeration of microorganisms – Colony-count technique at 30 degrees;*

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

ISO 6888: *Microbiology of food and animal feeding stuffs – Horizontal method for the enumeration of coagulase-positive staphylococci (Staphylococcus aureus and other species);*

ISO 7251: *Microbiology of food and animal feeding stuffs – Horizontal method for the detection and enumeration of presumptive Escherichia coli – Most probable number technique;*

ISO 7937: *Microbiology of food and animal feeding stuffs – Horizontal method for the enumeration of Clostridium perfringens – Colony-count technique;*

ISO 11290: *Microbiology of the food chain – Horizontal method for the detection and enumeration of Listeria monocytogenes and of Listeria spp.;*

ISO 16050: *Foodstuffs – Determination of aflatoxin B₁, and the total content of aflatoxin B₁, B₂, G₁ and G₂ in cereals, nuts and derived products – High performance liquid chromatographic method;*

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 0.9;*

ISO/TS 21872-1: *Microbiology of food and animal feeding stuffs – Horizontal method for the detection of potentially enteropathogenic Vibrio spp. – Part 1: Detection of Vibrio parahaemolyticus and Vibrio cholera;*

ISO/TS 21872-2: *Microbiology of food and animal feeding stuffs – Horizontal method for the detection of potentially enteropathogenic Vibrio spp. – Part 2: Detection of species other than Vibrio parahaemolyticus and Vibrio cholera;*

ISO 27085: *Animal feeding stuffs – Determination of calcium, sodium, phosphorus, magnesium, potassium, iron, zinc, copper, manganese, cobalt, molybdenum, arsenic, lead and cadmium by ICP- AES;*

AOAC 990.04: *Mercury (Methyl) in sea food by liquid chromatography-Atomic Absorption Spectroscopy (LC-AAS);*

AOAC 977.13: *Fluorimetric method for the determination of histamine;*

AOAC 977.15 / 974.14: *Mercury in fish by Flame Atomic Absorption Spectroscopy (FAA); and*

AOAC 983.18: *Moisture in meat and meat products, preparation of sample procedure.*

3 DESCRIPTION

3.1 Product definition

Canned Sardines or sardine type products are prepared from fresh or frozen fish of the following species:

- *Sardina pilchardus*;
- *Sardinops melanostictus*, *S. neopilchardus*, *S. ocellatus*, *S. sagax* *S. caeruleus*;
- *Sardinella aurita*, *S. brasiliensis*, *S. maderensis*, *S. longiceps*, *S. gibbosa*;
- *Clupea harengus*;
- *Clupea bentinki*;
- *Sprattus sprattus*;
- *Hyperlophus vittatus*;
- *Nematalosa vlaminghi*;
- *Etrumeus teres*;
- *Ethmidium maculatum*;
- *Engraulis anchoita*, *E. mordax*, *E. ringens*; and
- *Opisthonema oglinum*.

3.2 Process definition

The products are packed in hermetically sealed containers and shall have received a processing treatment sufficient to ensure commercial sterility.

3.3 Presentation

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

- (i) contains at least two fish in each can;

- (ii) meets all requirements of this draft standard;
- (iii) is adequately described on the label to avoid confusing or misleading the consumer; and
- (iv) contain only one fish species.

3.4 Definition of defectives

A sample unit will be considered defective when it exhibits any of the properties defined below.

3.4.1 Foreign matter

The presence in the sample unit of any matter, which has not been derived from the fish or the packing media, does not pose a threat to human health, and is readily recognized without magnification or is present at a level determined by any method including magnification that indicates non-compliance with good manufacturing and sanitation practices.

3.4.2 Odour/flavour

A sample unit affected by persistent and distinct objectionable odours or flavours indicative of decomposition or rancidity.

3.4.3 Texture

- (i) Excessively mushy flesh uncharacteristic of the species in the presentation.
- (ii) Excessively tough or fibrous flesh uncharacteristic of the species in the presentation.

3.4.4 Discolouration

A sample unit affected by distinct discolouration indicative of decomposition or rancidity or by sulphide staining of more than 5 % of the fish by weight in the sample unit.

3.4.5 Objectionable matter

A sample unit affected by Struvite crystals – any struvite crystal greater than 5 mm in length.

4 ESSENTIAL COMPOSITION AND QUALITY FACTORS

4.1 Raw material

4.1.1 The products shall be prepared from sound fish of the species listed under clause 3.1 which are of a quality fit to be sold fresh for human consumption.

4.1.2 Head and gills shall be completely removed; scales and/or tail may be removed. The fish may be eviscerated. If eviscerated, it shall be practically free from visceral parts other than roe, milt or kidney. If gutted, it shall be practically free from undigested feed or used feed.

4.2 Other ingredients

The packing medium and all other ingredients used shall be of food grade quality and conform to all applicable Malawi/Codex standards.

4.3 Decomposition

The products shall not contain more than 10 mg/100 g of histamine based on the average of the sample unit tested.

4.4 Microbiological limits

The products shall comply with microbiological limits as indicated in Table 1

Table 1: Microbiological limits for canned sardines and sardine type products

1	2	3	4
SL No	Micro-organisms	Max. limits	Method of test
i)	<i>Salmonella</i> per 25 g	Absent	ISO 6579
ii)	<i>E. coli</i> per gram	Absent	ISO 7251
iii)	<i>Listeria monocytogenes</i>	Absent	ISO 11290 Part 1 &2
iv)	<i>Staphylococcus aureus</i> cfu per gram	10 ²	ISO 6888
v)	<i>Clostridium perfringens</i> per gram	Absent	ISO 7937
vi)	<i>Vibrio Spp</i> per gram	Absent	ISO 21872
vii)	Total viable count per gram	10 ⁵	ISO 4833

4.5 Final product

Products shall meet the requirements of this standard when lots are examined in accordance with clause **10**. Product shall be examined by the methods given in clause **9**.

5 FOOD ADDITIVES

Only the use of the food additives that comply with the requirements prescribed in MS 237 is permitted.

6 CONTAMINANTS

Canned sardines and sardine type products shall conform to those maximum levels for heavy metals and other contaminants as stipulated in MS 302.

7 HYGIENE

7.1 The final product shall be free from any foreign material that poses a threat to human health.

7.2 The products shall comply with any microbiological criteria in accordance with CAC/GL 21.

7.3 When tested by appropriate methods of sampling and examination as prescribed by the Codex Alimentarius Commission, the product:

(i) shall be free from micro-organisms capable of development under normal conditions of storage;

(ii) no sample unit shall contain histamine that exceeds 20 mg per 100 g;

(iii) shall not contain any other substance including substances derived from microorganisms in amounts which may represent a hazard to health in accordance with standards established by the Codex Alimentarius Commission; and

(iv) shall be free from container integrity defects which may compromise the hermetic seal.

7.4 It is recommended that the product covered by the provisions of this standard be prepared and handled in accordance with MS 21, CAC/RCP 23; and MS 790.

8 PACKAGING AND LABELLING

8.1 Packaging

Canned sardines and sardine type products shall be packaged in food grade containers.

8.2 Labelling

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

8.2.1 Name of the food

The name of the product shall be:

8.2.1.1 "Sardines" (to be reserved exclusively for *Sardina pilchardus* (Walbaum)); or "X sardines" of a country, a geographic area, the species, or the common name of the species, and in a manner not to mislead the consumer.

8.2.1.2 The name of the packing medium shall form part of the name of the food.

8.2.1.3 If the fish has been smoked or smoke flavoured, this information shall appear on the label in close proximity to the name.

8.2.1.4 In addition, the label shall include other descriptive terms that will avoid misleading or confusing the consumer.

9 SAMPLING, EXAMINATION AND ANALYSES

9.1 Sampling

9.1.1 Sampling of lots for examination of the final product shall be in accordance with CODEXSTAN 233.

9.1.2 Sampling of lots for examination of net weight and drained weight where appropriate shall be carried out in accordance with an appropriate sampling plan meeting the criteria established by the Codex Alimentarius Commission.

9.2 Sensory and physical examination

Samples taken for sensory and physical examination shall be assessed by persons trained in such examination and in accordance with annex A and the MS 1241.

9.3 Determination of net weight

Net contents of all sample units shall be determined by the following procedure:

9.3.1 Weigh the unopened container;

9.3.2 Open the container and remove the contents;

9.3.3 Weigh the empty container, (including the end) after removing excess liquid and adhering meat; and

9.3.4 Subtract the weight of the empty container from the weight of the unopened container. The resultant figure will be the net content.

9.4 Determination of drained weight

The drained weight of all sample units shall be determined by the following procedure:

9.4.1 Maintain the container at a temperature between 20 °C and 30 °C for a minimum of 12 hours prior to examination;

9.4.2 Open and tilt the container to distribute the contents on a pre-weighed circular sieve which consists of wire mesh with square openings of 2.8 mm x 2.8 mm;

9.4.3 Incline the sieve at an angle of approximately 17 – 20° and allow the fish to drain for two minutes, measured from the time the product is poured into the sieve;

9.4.4 Weigh the sieve containing the drained fish; and

9.4.5 The weight of drained fish is obtained by subtracting the weight of the sieve from the weight of the sieve and drained product.

9.5 Procedure for packs in sauces (washed drained weight)

9.5.1 Maintain the container at a temperature between 20 °C and 30 °C for a minimum of 12 hours prior to examination.

9.5.2 Open and tilt the container and wash the covering sauce and then the full contents with hot tap water (approx. 40 °C), using a wash bottle (e.g. plastic) on the tared circular sieve.

9.5.3 Wash the contents of the sieve with hot water until free of adhering sauce; where necessary separate optional ingredients (spices, vegetables, fruits) with pincers. Incline the sieve at an angle of approximately 17 - 20° and allow the fish to drain two minutes, measured from the time the washing procedure has finished.

9.5.4 Remove adhering water from the bottom of the sieve by use of paper towel. Weigh the sieve containing the washed drained fish.

9.5.5 The washed drained weight is obtained by subtracting the weight of the sieve from the weight of the sieve and drained product.

9.6 Determination of histamine

Determine histamine in accordance with the method outlined in AOAC 997.13.

10 LOT ACCEPTANCE

A lot will be considered as meeting the requirements of this standard when:

10.1 The total number of defectives as classified according to clause **3.4** does not exceed the acceptance number (c) of the appropriate sampling plan with an Acceptable Quality Level (AQL) of 6.5;

10.2 The total number of sample units not meeting the presentation defined in **3.3** does not exceed the acceptance number (c) of the appropriate sampling plan in CODEXSTAN 233.

10.3 The average net weight or the average drained weight where appropriate of all sample units examined is not less than the declared weight, and provided there is no unreasonable shortage in any individual container; and

10.4 The food additives, hygiene and labelling requirements of clauses **5, 6, 7** and **8** are met.

ANNEX A
(Normative)

SENSORY AND PHYSICAL EXAMINATION

- A.1** Complete external can examination for the presence of container integrity defects or can ends which may be distorted outwards.
- A.2** Open can and complete weight determination according to defined procedures in clauses **9.3, 9.4** and **9.5**.
- A.3** Carefully remove product and examine for discolouration, foreign matter and struvite crystals. The presence of a hard bone is an indicator of under processing and will require an evaluation for sterility.
- A.4** Assess odour, flavour and texture in accordance with MS 1241.

DRAFT MALAWI STANDARD FOR PUBLIC REVIEW

THE MALAWI BUREAU OF STANDARDS

The Malawi Bureau of Standards is the standardizing body in Malawi under the aegis of the Ministry of Industry and Trade. Set up in 1972 by the Malawi Bureau of Standards Act (Cap: 51:02), the Bureau is a parastatal body whose activities aim at formulating and promoting the general adoption of standards relating to structures, commodities, materials, practices, operations and from time to time revise, alter and amend the same to incorporate advanced technology.

CERTIFICATION MARK SCHEME

To bring the advantages of standardization within the reach of the common consumer, the Bureau operates a Certification Mark Scheme. Under this scheme, manufacturers who produce goods that conform to national standards are granted permits to use the Bureau's "Mark of Quality" depicted below on their products. This Mark gives confidence to the consumer of the commodity's reliability.

