ICS 67.060

DMS 559:2022
Second edition

DRAFT MALAWI STANDARD

Soy protein products– Specification

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

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Soy protein products – Specification

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FOREWORD

This draft Malawi standard has been prepared by the MBS/TC 16, *Cereals, pulses, legumes and their products,* to provide requirements for soya protein products. It is the first revision of MS 559, *Soya protein products.*

In preparing this standard reference was made to the following standards:

Codex Standard, CXS 175: 1989 (Amended in 2019), *General standard for soy protein products;* and

East African Community standard, EAC 801:2013*, Soya protein products – Specification.*

Acknowledgement is made for the use of the information.

TECHNICAL COMMITTEE

This draft standard was prepared by the Technical Committee MBS/TC 16, *Cereals, pulses, legumes and their products,* and the following organizations were consulted:

Agricultural Development and Marketing Corporation;

Agricultural Commodity Exchange;

Auction Holdings Limited Commodity Exchange;

Consumer Association of Malawi;

Export Trading Limited;

Grain Traders and Processors Association;

Lilongwe University of Agriculture and Natural Resources;

Malawi Bureau of Standards;

Ministry of Agriculture – Bvumbwe Agricultural Research Station,

Ministry of Health – Department of Nutrition, HIV and AIDS;

Ministry of Industry and Trade;

National Smallholders Farmers Association of Malawi;

Rab Processors Limited;

Trademark East Africa; and

University of Malawi.

NOTICE

This standard shall be reviewed every 5 years or earlier when 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

Soy protein products – Specification

1 SCOPE

This draft standard specifies requirements and methods of sampling and test for soya protein products intended for human consumption.

2 NORMATIVE REFERENCES

The following standards contain provisions, which through reference constitute provisions of this draft standard. All standards are subject to revision and parties to agreements based on this standard are encouraged to apply the most recent editions of the standards listed below:

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

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

MS 144: *Agricultural food products – Determination of crude fibre content – General method;*

MS 188: *Edible salt – Specification;*

MS 237: *General standard for food additives;*

MS 244: *Soybeans – Specification;*

MS 302: *Contaminants and toxins in foods – General standard;*

ISO 4832: *Microbiology of food and animal feeding stuffs –Horizontal method for the enumeration of coliforms – Colony-count technique;*

ISO 4833: *Microbiology of the food chain – Horizontal method for the enumeration of microorganisms – Part 1: Colony count at 30 °C by the pour plate technique;*

ISO 2171: *Cereals, pulses and by-products – Determination of ash yield by incineration;*

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

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 11085: *Cereals, cereals-based products and animal feeding stuffs -- Determination of crude fat and total fat content by the Randall extraction method;*

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

ISO 20483: *Cereals and pulses – Determination of the nitrogen content and calculation of the crude protein content – Kjeldahl method;*

ISO 21527-2: *Microbiology of food and animal feedstuffs – Horizontal method for the enumeration of yeasts and moulds – Part 2: Colony count technique in products with water activity less than or equal to 0.95;* and

ISO 24557: *Pulses – Determination of moisture content – Air oven.*

3 TERMS AND DEFINITIONS

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

3.1
Soybean (*Glycine max (L) Merr)*
whole mature dry bean

3.2
Soya protein product (SPP)
Soya Protein Products (SPP) are foods produced by removing or decreasing certain major non-protein constituents (water, oil, carbohydrates) from soybeans or edible full fat soya flour in a manner that achieves high protein products with different protein content

4 CLASSIFICATION OF SOYA PROTEIN PRODUCTS

Soya protein products shall be classified as:

4.1 Defatted soya protein flour (DSF) or soya protein flour (SPF);

4.2 Soya protein concentrate (SPC); and

4.3 Soya protein isolate (SPI).

5 ESSENTIAL COMPOSITION AND QUALITY REQUIREMENTS

5.1 Raw materials

Soya protein products shall be made from the following:

5.1.1 Dry soybeans complying with MS 244.

5.1.2 Soybean flour complying with MS 478.

5.2 Optional ingredients

Soya protein products may contain among others the following ingredients:

5.2.1 Edible salt complying with MS 188;

5.2.2 Carbohydrates, including sugars;

5.2.3 Edible oils;

5.2.4 Minerals and vitamins;

5.2.5 Herbs and spices; and

5.2.6 Other protein products.

5.3 Requirements for the finished product

5.3.1 Soya protein products shall have a taste and odour characteristic of product and any approved food additive used;

5.3.2 Soya protein products shall have be free from rancidity and mistiness; and

5.3.3 They shall be free from foreign matter.

5.4 Compositional requirements

Soya protein products shall conform to the requirements in **Table 1.**

Table 1 – Requirements for soya protein products

1	2	3	4	5	6
S/no	**Characteristic**	**Requirements**			**Test method**
		Soya protein flour- (SPF or DSF)	**Soya protein concentrate (SPC)**	**Soya protein isolate (SPI)**	
1	Moisture content % m/m, max	10.0	10.0	10.0	ISO 24557
2	Protein (N x 6.25 dry basis) % m/m,	50 < 65	65 <90	> 90	ISO 20483
3	Soya oil (fats on dry basis) % m/m, max	1.0	1.0	1.0	ISO 11085
4	Total ash % m/m, max	8.0	8.0	8.0	ISO 2171
5	Crude fibre % m/m, max	5.0	6.0	0.5	ISO 5498
Note: Soya protein shall meet the requirements basing on protein content on dry weight basis excluding added vitamins, minerals, amino acids and food additives					

5.5 Microbiological limits

Soya protein products shall not contain any pathogenic organisms and shall comply with microbiological limits given in **Table 2.**

Table 2 – Microbiological limits for soya protein products

1	2	3	4
S/No	**Microorganism**	**Maximum limit**	**Method of test**
1	*E.coli*, MPN/g	Absent	ISO 7251
2	*Salmonella spp*. per 25 g	absent	ISO 6579
3	Yeast and moulds, cfu/g	10^4	ISO 21527-2
4	Total Plate Count (TPC), cfu/g	10^4	ISO 4833
5	Coliform, cfu/g	10	ISO 4832

6 HYGIENE

The processing of soya protein products shall be done in premises built and maintained under hygienic conditions as prescribed in MS 21.

7 FOOD ADDITIVES

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

8 CONTAMINANTS

8.1 Heavy metals

Products covered by this draft proposal shall comply with the maximum limits of heavy metals specified in MS 302.

8.2 Pesticides residues

Soya protein products shall comply with the maximum pesticides residues limits established by the Codex Alimentarius Commission.

8.3 Aflatoxins

The maximum content of aflatoxins in soya protein products when determined in accordance with the ISO 16050 shall not exceed 5 ppb (µg/kg) for aflatoxin B_1 and 10 ppb for total aflatoxin.

9 PACKAGING AND LABELLING

9.1 Packaging

9.1.1 Soya protein products shall be packed in food grade material which guarantees the safety and integrity of the product.

9.1.2 The fill of each package shall comply with Metrology act of Malawi.

9.1.3 Each package shall be securely sealed.

9.2 Labelling

In addition to the provisions prescribed in MS 19, the following shall appear in legible and indelible marking on each package and on each outer container:

9.2.1 The name of the product shall be “soy protein flour/defatted soy flour” or “soy protein concentrate” or “soy protein isolate” as classified in clause **4.**

9.2.2 Brand name/trade name;

9.2.3 The name and physical address of the manufacturer;

9.2.4 Lot identification/ batch/code number

9.2.5 Net weight in metric units;

9.2.6 List of ingredients in descending order

9.2.7 Expiry date;

9.2.8 Date of manufacture;

9.2.9 Country of origin; and

9.2.10 Storage conditions.

10 SAMPLING AND METHOD OF TESTS

10.1 The method of drawing a representative sample and the criteria for conformity shall be done as outlined in **Annex A.**

10.2 Soy protein products shall be tested in accordance with **Table 1** and **Table 2** and any other equivalent test methods.

ANNEX A
(Normative)

SAMPLING FOR SOYA PROTEIN PRODUCTS

A.1 General requirements for sampling

A.1.1 Sampling shall be done by a person agreed to between the purchaser and the packer and in the presence of the purchaser (or his representative) and the packer (or his representative).

A.1.2 Samples shall be stored in such a manner that the temperature of the material does not vary unduly from the normal temperature.

A.1.3 Sampling equipment shall be clean and dry when used.

A.1.4 Precaution shall be taken to protect samples and containers from adventitious contamination.

A.1.5 Samples shall be collected in a protected place not exposed to damp air, dust or soot.

A.1.6 The samples shall be placed in clean containers odourless and dry containers. The sample containers shall be of such a size that they are almost completely filled by the sample.

A.1.7 Each container shall be sealed air tight after filling and marked with full details of sampling, batch or code number, name of manufacturer and other important particulars of the consignment.

A.2 Scale of sampling

A.2.1 **Lot**; in any consignments all the packets containing soya protein products of the same size and from the same batch shall be grouped together to constitute a lot.

A.2.2 The number of packets to be selected from the lot for testing shall depend upon the size of the lot and shall be in accordance with **Table A.1.**

Table A.1: Number of containers to be selected for sampling

1	2
No. of packets in the lot	**No. of packets to be selected**
Up to 50	3
51 to 150	5
151 to 500	8
501 to 3000	13
3001 and above	20

A.2.3 The packages to be selected for sampling shall be chosen at random from the lot

A.3 Test for conformity

A.3.1 The selected packages shall be opened and sampled under sterile conditions for microbiological tests.

A.3.2 Each of the selected opened packages shall be examined separately for appearance and other general requirements stipulated in clause **5.4.**

A.3.3 The contents of the selected and opened packages shall then be mixed to obtain a composite sample to be tested for other tests.

A.4 Criteria for conformity

The lot shall be declared conforming if all the tested parameters conform to the requirements specified in this draft standard.

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THE MALAWI BUREAU OF STANDARDS

The Malawi Bureau of Standards is the standardizing body in Malawi under the aegis of the Ministry of Trade and Industry. 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.