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Second edition

DRAFT MALAWI STANDARD

**High protein cereal based foods for
infants and young children –
Specification**

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

High protein cereal based foods for infants and young children – Specification

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FOREWORD

This draft standard is the first revision of MS 90:1988. The revision of this standard is being done after consideration of technological advances in complementary foods for infants and young children that have resulted in development of new products. It has been prepared by the MBS/TC 10, *Processed foods* to provide requirements for high protein cereal based foods for infants and young children.

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

CODEXSTAN 074:1981, Rev 1-2006, *Codex standard for processed cereal based foods for infants and young children*;

CAC/GL8:1991, *Codex guidelines on formulated complementary foods for older infants and young children*;

World Food Programme Technical Specifications for the manufacture of super cereal Corn Soya Blend with sugar, version 15.1; and

USDA Commodity requirements; Corn soy blend plus for use in international food aid programs.

Acknowledgement is made for the use of the information.

TECHNICAL COMMITTEE

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

Catholic Relief Services;
Chancellor College (University of Malawi);
Ekwendeni Hospital;
Export Trading Company;
Feed the Children;
Jossam Foods;
Project Concern International;
Lilongwe University of Agriculture and Natural Resources (LUANAR);
Malawi Bureau of Standards;
Malawi Investment Trade Centre;

Mary's Meal;
Ministry of Health;
Department of Nutrition, HIV and Aids (Ministry of Health);
Mulanje Mission Hospital – Small scale Likuni Phala;
ND Madalitso Vitameal Plant;
Rab Procesors Limited;
The Polytechnic (University of Malawi);
The United Nations Children's Fund (UNICEF);
The United States Agency for International Development (USAID); and
World Food Program (WFP)

NOTICE

This 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 standard is being reviewed.

PUBLIC REVIEW DRAFT

DRAFT MALAWI STANDARD

High protein cereal based foods for infants and young children – Specification

1 SCOPE

This draft standard specifies the requirements and methods of sampling and test for high protein cereal based foods for infants and young children.

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

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

MS 145: Cereals and pulses – Method of sampling as milled products;

MS 148: Cereals and pulses – Determination of fat content;

MS 149: Cereals and pulses – Determination of ash content;

MS 237: Food additives – General standard;

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

MS 610: Cereal and cereal products – Determination of moisture content (Basic reference method);

MS 625: Nutritional labeling – Guidelines;

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

ISO 6888-1: 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;

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: Methods for the microbiological examination of foods – Part 2: Enumeration of yeast and moulds in foods;

Cap 48.02: The Metrology Act of Malawi.

3 DEFINITIONS

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

3.1

infants

persons from the age of 6 months and not more than 12 months of age

3.2

young children

persons from the age of 12 months up to the age of three years (36 months)

4 PRODUCT DESCRIPTION

4.1 High protein cereal based food for infant and young children is primarily prepared from one or more milled cereals, legumes in such proportions as to conform to the requirements in Table 1.

4.2 The product can be categorised as follows:

4.2.1 Products consisting of cereals which are or have to be prepared for consumption with milk or other appropriate nutritious liquids;

4.2.2 Cereals with and added high protein food which are or have to be prepared for consumption with water or other appropriate protein free liquids;

4.2.3 Pasta which are to be used after cooking in boiling water or other appropriate liquids;

4.1.4 Rusks and biscuits which are to be used either directly or, after pulverized, with addition of water, milk or other suitable liquids.

4.1.5 Flours which are prepared from heat treated cereal and legumes, vitamins and minerals.

5 ESSENTIAL COMPOSITION AND QUALITY FACTORS

5.1 Raw materials

5.1.1 Products covered in clauses **4.2.1** to **4.2.4** are prepared primarily from one or more cereal products such as wheat, rice, barley, oats, rye, maize, millet, sorghum and buckwheat. They may also contain legumes (pulses) like soya beans, beans, groundnuts, pigeon peas, cowpeas etc., and starchy foods such as cassava, potatoes, yam or their products in smaller proportions.

5.1.2 Products covered in clause **4.1.5**, shall be prepared from cereals and legumes complying with relevant Malawi Standards.

5.1.3 The product shall be free from rancid taste or musty odour.

5.2 Compositional requirements

Table 1: Compositional requirements for high protein cereal based foods for infants and young children

| S/N | Parameter | Requirement | Method of test |
|-----|---|-------------|----------------|
| 1 | Moisture content, % by mass, max. | 11 | MS 610 |
| 2 | Protein content, % by mass, min | 14 | ISO 20483 |
| 3 | Fat, % by mass, max. | 8 | ISO 11085 |
| 4 | Crude fibre (on dry basis), % by mass, max. | 4 | MS 144 |
| 6 | Ash content, % by mass, max. | 5 | MS 149 |
| 7 | Vitamin A, IU/100g max. | 3460 IU | AOAC |
| 8 | Folic Acid, µg/100 g | 110 | AOAC |
| 9 | Iron, mg/100 g | 4 | AOAC |
| 10 | Zinc, mg/100 g | 5 | AOAC |

6 FOOD ADDITIVES

Food additives may be used in the preparation of high protein cereal based foods for infants and young children and shall be in accordance with MS 237.

7 CONTAMINANTS

7.1 Pesticide residues

Products covered by this draft standard shall comply with the maximum residue limits for pesticides as established by the Codex Alimentarius Commission.

7.2 Other contaminants

7.2.1 Products covered by this draft standard shall comply with the maximum levels of contaminants and toxins in accordance with MS 302.

7.2.2 The product shall be free from objectionable extraneous matter.

7.2.3 High protein cereal based foods for infants and young children shall contain not more than 0.1 µg/Kg aflatoxin when tested in accordance with ISO 16050 and deoxynivalenol (DON) levels shall be 0.2 ppm when analysed using HPLC.

8 HYGIENE

8.1 High protein cereal based foods for infants and young children shall be prepared and handled in accordance with MS 21 and shall conform to microbiological limits in Table 2.

Table 2: Microbiological requirements for high protein cereal based foods

| S/N | Microorganism | Requirement | Test method |
|-----|---|-----------------|-------------|
| 1 | Total plate count, cfu/g, max | 10 ⁵ | ISO 4833 |
| 2 | Coliforms , cfu/g, max | 100 | ISO 4832 |
| 3 | <i>Escherichia coli</i> , cfu/g | <10 | ISO 7251 |
| 4 | <i>Salmonella</i> , 25 g | Absent | ISO 6579 |
| 5 | Yeasts and moulds, cfu/g, max. | 10 ² | ISO 21527-2 |
| 6 | <i>Staphylococcus aureus</i> , cfu/g, max | <10 | ISO 6888 |

8.2 During handling, storage and transportation, effective measures must be taken to prevent cross contamination with chemicals, microbial or physical contaminants.

9 PACKAGING AND LABELLING

9.1 Packaging

9.1.1 High protein cereal based foods shall be packaged in food grade material which will safeguard the hygienic, nutritional, technological and organoleptic qualities of the product;

9.1.2 The net weight of the packaged high protein cereal based foods for infants and young children shall be in accordance with the Weights and measures Act of Malawi.

9.2 Labelling

9.2.1 In addition to the requirements of MS 19, the following specific labelling requirements shall apply and shall be legibly and indelibly marked:

9.2.1.1 Name of the product

9.2.1.2 Name, location and address of the manufacturer shall be declared and/or brand name / trade name.

9.2.1.3 Declaration of preservatives by common name or international number if any;

9.2.1.4 Preparation instructions;

9.2.1.5 Date of manufacture;

9.2.1.6 Lot / batch identification in code or clear;

9.2.1.7 Expiry date;

9.2.1.8 Country of origin;

9.2.1.9 The net weight in metric units;

9.2.1.10 Storage instructions;

9.2.2 Labelling of nutritional shall be done in accordance with MS 625; and

9.2.3 When labelling non-retail packages, information for non-retail packages shall either be given on the packages or in accompanying documents, except that the name of the product, lot identification and the name and address of the manufacturer or packer shall appear on the packages.

10 METHODS OF SAMPLING AND TESTS

10.1 The method of sampling shall be done in accordance with MS 145.

10.2 Testing shall be done in accordance with the methods indicated against each requirement in Table 1 and 2 or other equivalent methods.

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



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