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First edition

DRAFT PROPOSAL

Cassava wheat composite flour – Specification

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

Cassava wheat composite flour – Specification

Obtainable from the
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FOREWORD

This draft proposal was prepared by MBS/TC 19, the Technical Committee on *Bread and Confectioneries*, to provide the requirements for wheat and sweetpotato blended flours.

In preparing this draft proposal, reference was made to the following African standard:

ARS 840:2016, *Cassava wheat composite flour – Specification*.

Acknowledgement is made for the use of the information.

TECHNICAL COMMITTEE

This draft proposal was prepared by MBS/TC 19, the Technical Committee on *Bread and Confectioneries* and the following companies, organizations and institutions were consulted:

Bakhresa Grain Milling;
Blantyre City Council;
Bread Talk;
Bvumbwe Agricultural Research Station;
International Potato Center Malawi;
Lilongwe University of Agriculture & Natural Resources;
Ministry of Health – Department of Nutrition, HIV & AIDS;
National Fortification Alliance;
Universal Industries Limited; and
University of Malawi.

NOTICE

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

DRAFT PROPOSAL

Cassava wheat composite flour – Specification

1 SCOPE

This draft proposal specifies requirements, the methods of sampling and test for cassava-wheat composite flour. It does not apply to other composite flours from non-wheat sources which may be used in different products.

2 NORMATIVE REFERENCES

The following standards contain provisions, which through reference in this text, constitute provisions of this draft proposal. 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 proposal are encouraged to take steps to ensure the use of the most recent edition of the standards indicated below. Information on current valid national and international standards can be obtained from the Malawi Bureau of Standards.

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

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

MS 30: *Fortified wheat flour – Specification;*

MS 55: *Wheat grain – Specification;*

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

MS 146: *Cereals and cereal products – Sampling.*

MS 148: *Animal feeding stuffs – Determination of fat content;*

MS 149: *Cereals, pulses and by-products – Determination of ash content;*

MS 237: *Food additives – General standard;*

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

MS 349: *Edible cassava flour – Specification;*

MS 610: *Cereals and cereal products – Determination of moisture content – Reference method;*

MS 624: *Nutrition labelling – Requirements;*

MS 625: *Nutrition Claims – Guidelines;*

MS 1300: *Spices and Condiments – Determination of Degree of Fineness of Grinding – Hand Sieving Method (Reference Method);*

MS 1386: *Cassava and cassava products – Determination of total cyanogens – Enzymatic assay method;*

MS 1786: *Milled cereal products – Determination of fat acidity;*

ARS 839: *Dried cassava chips – Specification;*

CAG/GL 23: *Guidelines for use of nutrition and health claims – Requirements*;

ISO 1871: *Food and feed products – General guidelines for the determination of nitrogen by the Kjeldahl method*

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 6888-2: *Microbiology of food and animal feeding stuffs – Horizontal method for the enumeration of coagulase-positive staphylococci (Staphylococcus aureus and other species) – Part 2: Technique using rabbit plasma fibrinogen agar medium*;

ISO 6888-3: *Microbiology of food and animal feeding stuffs – Horizontal method for the enumeration of coagulase-positive staphylococci (Staphylococcus aureus and other species) – Part 3: Detection and MPN technique for low numbers*;

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 15141-1: *Foodstuffs – Determination of ochratoxin A in cereals and cereal products – Part 1: High performance liquid chromatographic method with silica gel clean up*;

ISO 15141-2: *Foodstuffs – Determination of ochratoxin A in cereals and cereal products – Part 2: High performance liquid chromatographic method with bicarbonate clean up*;

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*; and

ISO 21527-2 *Microbiology of food and animal feeding stuffs – 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*.

3 TERMS AND DEFINITIONS

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

3.1

cassava-wheat composite flour

combination of cassava flour and wheat flour

3.2

filth

impurities of animal origin (including dead insects)

3.3

food grade material

one that will not transfer non-food chemicals into the food and contains no chemicals which would be hazardous to human health

3.4

foreign matter

all organic and inorganic materials (such as sand, soil, glass)

3.5 flour

finely ground content of wheat grains or dried peeled cassava roots

4 ESSENTIAL COMPOSITION AND QUALITY FACTORS

4.1 Raw materials

Cassava wheat composite flour shall be prepared by blending wheat flour complying with MS 30 or wheat grains complying with MS 55 and cassava flour complying with MS 349 or dried cassava chips complying with ARS 839.

4.2 General requirements

Cassava wheat composite flour shall be:

4.2.1 Homogenous in size and colour;

4.2.2 Practically free of filth and foreign matter; and

4.2.3 Free from rancid, objectionable odours or flavours.

4.3 Specific requirements

4.3.1 Testing for particle size shall be done in accordance with MS 1300. Not less than 90 % shall pass through a 0.25 mm sieve for fine flour.

4.3.2 Cassava wheat composite flour shall comply with the specific chemical compositional requirements specified in **Table 1** when tested in accordance with test methods specified therein.

Table 1 – Chemical compositional requirements for cassava wheat composite flour

1	2	3	4
S/N	Characteristic	Requirement	Method of test
1	Protein content, % m/m, min. (N x 6.25)	8.0	ISO 1871
2	Crude fat content, % m/m, on a dry weight basis, min.	2.0	MS 148
3	Crude fibre content, % m/m, on dry matter basis, max.	1.25	MS 144
4	Acid value, mg/kg	50	MS 1786
5	Acid-insoluble ash, % m/m, max.	0.35	Annex A
6	Moisture content, %, m/m, max.	13.5	MS 610
7	Hydrocyanic acid content, mg/kg, max	10	ARS 844

4.3 Microbiological limits

Cassava wheat composite flour shall be free from pathogenic organisms and shall comply with the microbiological limits indicated in **Table 2**.

Table 2 – Microbiological limits for cassava wheat composite

1	2	3	4
S/N	Micro-organism(s)	Limit	Method of test
1	<i>Escherichia coli</i> , cfu/g,	absent	ISO 7251
2	<i>Salmonella</i> , cfu/25 g,	absent	ISO 6579
3	Yeasts and moulds, cfu/g, max.	10 ⁴	ISO 21527-2
4	<i>Staphylococcus aureus</i> , cfu/g max.	10 ²	ISO 6888-1, 2 & 3

5 FOOD ADDITIVES

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

6 CONTAMINANTS

6.1 Heavy metals

Cassava wheat composite flour shall comply with maximum levels of heavy metals permitted in MS 302.

6.2 Pesticide residues

The product shall conform to the maximum residue limits established by the Codex Alimentarius Commission.

6.3 Mycotoxins

Cassava wheat composite flour shall comply with mycotoxin limits specified in **Table 3** when tested in accordance with test methods specified therein.

Table 3 – Mycotoxin limits for cassava wheat composite flour

1	2	3	4
S/N	Mycotoxin	Limit	Method of test
1	Total Aflatoxin (AFB ₁ +AFB ₂ +AFG ₁ +AFG ₂), µg/kg, max	10	ISO 16050
2	Aflatoxin B ₁ only, µg/kg, max	5	
3	Ochratoxin A, µg/kg, max	5	ISO 15141-1 & -2

NOTE: For baby foods and young children and dietary foods for special purposes intended for infants, both the Aflatoxin B₁ and Ochratoxin A are restricted to 0.50 µg/kg, max.

7 HYGIENE

Cassava wheat composite flour shall be manufactured in premises complying with the hygienic practices stipulated in MS 21.

8 PACKAGING AND LABELLING

8.1 Packaging

8.1.1 Cassava wheat composite flour shall be packaged in food grade materials.

8.1.2 When the product is packaged in sacks, these shall be clean, sturdy and strongly sewn or sealed.

8.2 Labelling

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

8.2.1.1 Common name of the product “Cassava wheat composite flour”;

8.2.1.2 Percentage composition of cassava wheat flour shall be declared.

8.2.1.3 Name, and physical address of the manufacturer/ distributor and /or trade name/ brand name;

8.2.1.4 List of ingredients in descending order;

8.2.1.5 Date of manufacture;

8.2.1.6 Storage instructions;

8.2.1.7 Lot / batch identification in code or clear;

8.2.1.8 Best before date;

8.2.1.9 Country of origin;

8.2.1.10 The net weight in metric units; and

8.2.1.11 Instructions on disposal of used package.

8.2.2 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.

8.2.3 Nutrition labelling

The amount of nutrients in the cassava wheat composite flour shall be declared on the label in accordance with MS 624.

8.2.3 Nutrition and health claims

Cassava wheat composite flour may have claims on nutrition and health. Such claims when declared shall be in compliance with MS 625 and CAG /GL 23.

9 SAMPLING

Sampling shall be done in accordance with MS 146.

ANNEX A
(Normative)

DETERMINATION OF ACID-INSOLUBLE ASH

A.1 REAGENT

Dilute hydrochloric acid – 1:1, prepared from concentrated hydrochloric acid.

A.2 PROCEDURE

A.2.1 Weigh accurately about 2 g of the dried material in a tared porcelain, silica or platinum dish. Ignite with a meker burner for about 1 hour.

A.2.2 Complete the Ignition by keeping in a muffle furnace at 500 °C to 570 °C until grey ash results.

A.2.3 Cool and filter through whatman filter paper No. 42 or its equivalent.

A.2.4 Wash the residue with hot water until the washings are free from chlorides as tested with silver nitrate solution and return the filter paper and residue to the dish.

A.2.5 Keep it in an electric air oven maintained at 135 ± 2 °C for about 3 hrs. Ignite the dish again for about 30 minutes, cool and weigh.

A.2.6 Repeat this process till the difference between two successive weighings is less than 1 mg. Note the lowest weight.

A.3 CALCULATION

Acid-insoluble ash, per cent by weight

$$= \frac{100(M_2 - M)}{M_1 - M}$$

Where,

M_2 is the lowest weight, in g, of the dish with the acid insoluble ash;

M is weight, in g, of the empty dish; and

M_1 is weight, in g, of the dish with the dried product taken for the test.

THE MALAWI BUREAU OF STANDARDS

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

