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## **Malted sorghum flour — Specification**

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**Contents**

Page

Foreword .....	iv
1 Scope .....	1
2 Normative references .....	1
3 Terms and definitions .....	2
4 Requirements .....	3
4.1 Raw materials .....	3
4.2 General requirements .....	3
4.3 Specific requirements .....	3
4.4 Particle size .....	3
5 Contaminants .....	4
5.1 Pesticides residues .....	4
5.2 Heavy metals .....	4
5.3 Mycotoxins .....	4
6 Hygiene .....	4
7 Packaging .....	5
8 Labelling .....	5
9 Sampling .....	5

## **Foreword**

Rwanda Standards are prepared by Technical Committees and approved by Rwanda Standards Board (RSB) Board of Directors in accordance with the procedures of RSB, in compliance with Annex 3 of the WTO/TBT agreement on the preparation, adoption and application of standards.

The main task of technical committees is to prepare national standards. Final Draft Rwanda Standards adopted by Technical committees are ratified by members of RSB Board of Directors for publication and gazettment as Rwanda Standards.

DRS 469 was prepared by Technical Committee RSB/TC 003 on *Cereals, pulses, legumes and cereal products*.

### **Committee membership**

The following organizations were represented on the Technical Committee on *Cereals, pulses, legumes and cereal products*. (RSB/TC 003) in the preparation of this standard.

Adma International Ltd

Green Rev Ltd

Manosalwa Food Industries Ltd

Nyabihu TVET School

Nyarutarama Business Incubation Centre

Soma Gacye Ltd

UR-CAVM

Urwibutso Ese

Rwanda Standards Board (RSB) – Secretariat

# Malted sorghum flour — Specification

## 1 Scope

This Draft Rwanda Standard specifies requirements, sampling and test methods for malted sorghum flour intended for human consumption.

## 2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

AOAC 952.13, *Arsenic in food. Silver diethyldithiocarbamate method*

AOAC 965.22, *Sorting corn grits. Sieving method*

AOAC 999.10, *Lead, Cadmium, Zinc, Copper, and Iron in Foods, Atomic Absorption Spectrophotometry after Microwave Digestion*

ISO 15214, *Microbiology of food and animal feeding stuffs — Horizontal method for the enumeration of mesophilic lactic acid bacteria — Colony-count technique at 30 degrees C*

RS CAC/RCP 1, *Code of practice — General principles of food hygiene*

RS EAS 38, *Labelling of pre- packaged foods— General requirements*

RS ISO 10520, *Native starch — Determination of starch content — Ewers polarimetric method*

RS ISO 16649-2, *Microbiology of food and animal feeding stuffs — Horizontal method for the enumeration of beta-glucuronidase-positive Escherichia coli — Part 2: Colony-count technique at 44 degrees C using 5-bromo-4-chloro-3-indolyl beta-D-glucuronide*

RS 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*

RS ISO 2171, *Cereals, pulses and by-products — Determination of ash yield by incineration*

RS ISO 24333, *Cereals and cereal products — Sampling*

RS ISO 24557, *Pulses — Determination of moisture content — Air-oven method*

RS ISO 4832, *Microbiology of food and animal feeding stuffs — Horizontal method for the enumeration of coliforms — Colony-count technique*

RS ISO 5498, *Agricultural food products — Determination of crude fibre content — General method*

RS ISO 5985, *Animal feeding stuffs — Determination of ash insoluble in hydrochloric acid*

RS ISO 605, *Pulses — Determination of impurities, size, foreign odours, insects, and species and variety — Test methods*

RS ISO 6579-1, *Microbiology of the food chain — Horizontal method for the detection, enumeration and serotyping of Salmonella — Part 1: Detection of Salmonella spp. — Amendment 1: Broader range of incubation temperatures, amendment to the status of Annex D, and correction of the composition of MSR/V and SC*

RS ISO 6888-1, *Microbiology of the food chain — Horizontal method for the enumeration of coagulase-positive staphylococci (Staphylococcus aureus and other species) — Part 1: Method using Baird-Parker agar medium*

### 3 Terms and definitions

For the purposes of this standard, the following terms and definitions apply.

#### 3.1

##### **malted sorghum grains**

germinated and dried sorghum grains

#### 3.2

##### **malted sorghum flour**

communitied flour produced by milling malted sorghum grains

#### 3.3

##### **extraneous matter**

inorganic materials other than the malted sorghum flour, other grains and filth

#### 3.4

##### **food grade packaging material**

packaging material, made of substances which are safe and suitable for their intended use and which will not impart any toxic substance or undesirable odour or flavour to the product

#### 3.5

##### **foreign matter**

organic and inorganic materials other than malted sorghum flour

## 4 Requirements

### 4.1 Raw materials

Malted sorghum grains complying with DRS 468 shall be used in manufacturing malted sorghum flour

### 4.2 General requirements

Malted sorghum flour shall:

- a) have characteristic colour;
- b) be free from any objectionable flavours;
- c) be free from insects, worms, fungal infestation, rodent contaminations;
- d) not contain flour from other cereals; and
- e) be practically free from any foreign matter and filth;

### 4.3 Specific requirements

Malted sorghum flour shall comply with the specific requirements given in Table 1 when tested in accordance with test methods specified therein

**Table 1 — Specific requirements for Malted sorghum flour**

S/N	Characteristic	Requirement	Test method
i.	Moisture %, m/m, max.	13.5	RS ISO 24557
ii.	Foreign matter, %m/m, max.	2.0	RS ISO 605
iii.	Total ash (on dry basis), % m/m max.	4.0	RS ISO 2171
iv.	Crude fiber, % m/m max.	2.5	RS ISO 5498
v.	Carbohydrates % m/m min.	60	ISO 10520
vi.	Tannin content, % m/m, max.	0.5	ISO 9648
vii.	Acid insoluble acid	0.40	RS ISO 5985
viii.	Particle size:		EAS 901 (Clause 4)
	Medium flour, min	85 % shall pass through a 1-mm sieve	
	Fine flour, min.	85 % shall pass through a 0.5- mm sieve	

### 4.4 Particle size

Referring to AOAC 965.22, 95 % or more of the malted sorghum flour shall pass through a 1.70-mm sieve.

## 5 Contaminants

### 5.1 Pesticides residues

Malted sorghum flour shall comply with those maximum residue limits for pesticides established by the Codex Alimentarius Commission.

### 5.2 Heavy metals

Malted sorghum flour shall comply with the maximum limits for heavy metals given in Table 2 when tested in accordance with the test method specified therein.

**Table 2 — Maximum limits for heavy metal contaminants in Malted sorghum flour**

S/N	Heavy metal	Maximum limit (mg/kg)	Test method
i.	Arsenic (As)	0.1	AOAC 952.13
ii.	Lead (Pb)	0.2	AOAC 999.10
iii.	Cadmium (Cd)	0.1	

### 5.3 Mycotoxins

Malted sorghum flour shall not exceed aflatoxin limits in Table 3 when tested in accordance with test method specified therein.

**Table 3 — Aflatoxin limits for malted sorghum flour**

S/N	Type of aflatoxin	Maximum limit ( $\mu\text{g}/\text{kg}$ )	Test method
i.	Total aflatoxin	10	EAS 901
ii.	Aflatoxin B <sub>1</sub>	5	Clause 9 or 10
iii.	Fumonisin	2 000	EAS 901 Clause 11 or 12

## 6 Hygiene

6.1 Malted sorghum flour shall be produced, prepared and handled in accordance with RS CAC/RCP 1

6.2 Malted sorghum flour shall not exceed the microbiological limits in Table 2 when tested in accordance with test methods specified therein.



Table 2 —Microbiological limits for malted sorghum flour

S/N	Microorganism	Maximum limit	Test method
i.	Total Plate Count, cfu/g	10 <sup>3</sup>	RS ISO 4832
i.	<i>Salmonella spp</i> , per 25 g	Absent	RS ISO 6579-1
ii.	<i>Escherichia coli</i> , cfu/g	Absent	RS ISO 16649-2
iii.	<i>Staphylococcus aureus</i> per 25 g	Absent	RS ISO 6888-1
iv.	Yeast and moulds, cfu/g	10 <sup>2</sup>	RS ISO 21527-2
v.	Lactic Acid Bacteria, cfu/g	Absent	ISO 15214

## 7 Packaging

Malted sorghum flour shall be packed in new suitable bags made of paper, jute, polypropylene or any other suitable food grade packaging material capable of protecting quality and safety of the product. The mouth of each package shall be properly sealed.

## 8 Labelling

In addition to the requirements of RS EAS 38, the following specific labelling requirements shall be legibly and indelibly marked

- a) name of product as “Malted sorghum flour”;
- b) name and address of manufacturer;
- c) date of manufacture;
- d) date of expiry;
- e) instruction for use;
- f) batch number;
- g) storage conditions; and
- h) country of origin.

## 9 Sampling

Sampling of malted sorghum flour shall be in accordance with RS ISO 24333.



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