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**Banana flour — Specification**

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## 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 470 was prepared by Technical Committee RSB/TC 38 on *Processed fruits and vegetables*.

### Committee membership

The following organizations were represented on the Technical Committee on *Processed fruits and vegetables* (RSB/TC 38) in the preparation of this standard.

CATAM

Green Revolution Ltd

Ishyo Food Ltd

Kinazi Cassava Plant Ltd

National Industrial Research and Development Agency (NIRDA)

Nyabihu TVET School

Rwanda Food and Drug Authority

Sorwatom Co.Ltd

Tuzamurane Cooperative

Urwibutso Ese

Rwanda Standards Board (RSB) – Secretariat

# Banana flour — Specification

## 1 Scope

This Draft Rwanda Standard specifies requirements, sampling and test methods for green/unripe banana flour intended for human consumption or for other use in the food industry.

## 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 923.03, *Ash of Flour (Direct Method)*

AOAC 965.22, *Sorting corn grits. Sieving method*

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

RS CODEX STAN 192, *General standard for food additives*

RS CODEX STAN 193, *Codex general standard for contaminants and toxins in food and feed*

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

RS 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*

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 24333, *Cereals and cereal products — Sampling*

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

RS ISO 4833-1, *Microbiology of the food chain — Horizontal method for the enumeration of micro-organisms — Part 1: Colony-count at 30 degrees C — Pour plate technique*

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

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 and SC*

### 3 Terms and definitions

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

#### 3.1

##### **banana flour**

flour produced by grinding dried banana and plantain into fine powder

#### 3.2

##### **dried banana**

dried banana fruit of the species scientifically known as *Musa spp* of Musaceae family

### 4 Requirements

#### 4.1 General requirements

##### 4.1.1 Ingredients

4.1.1.1 Banana flour shall be prepared from plantain complying with relevant national standards

4.1.1.2 Banana complying with RS EAS 892: 2017

##### 4.1.2 Organoleptic properties

Banana flour shall:

- a) have characteristic colour, odour and taste of banana variety used;
- b) be clean, safe, of good quality and free from signs of spoilage; and
- c) be free from insects, larvae, fungal infestation, rodent contaminations, dirt and other extraneous matter.

#### 4.2 Specific requirements

Banana 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 Banana flour

S/N	Characteristic	Requirement	Test method
i.	Moisture %, m/m, max.	10	RS ISO 24557
ii.	Total ash %, m/m, max.	4	AOAC 923.03
iii.	Acid insoluble %, m/m, max.	0.1	RS ISO 5985
iv.	Residues through 1000 micron sieve %, m/m, max.	0.5	AOAC 965.22

## 5 Food additives

The use of food additives in banana flour shall be in accordance with RS CODEX STAN 192

## 6 Hygiene

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

6.2 Banana flour shall be free from objectionable matter and shall be free from pathogenic microorganisms; substances originating from microorganisms or any other deleterious substances in amounts which may constitute a health hazard.

## 7 Microbiological limits

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

Table 2— Microbiological limits for Banana flour

S/N	Microorganism	Maximum Limit	Test method
i.	Total plate count cfu/g	10 <sup>5</sup>	RS ISO 4833-1
ii.	<i>E.coli</i> cfu/g	Absent	RS ISO 16649-2
iii.	<i>Salmonella spp</i> per 25 g	Absent	RS ISO 6579-1
iv.	Yeast and moulds cfu/g	10 <sup>3</sup>	RS ISO 21527-2

## 8 Contaminants

### 8.1 Pesticides residues

Banana flour shall comply with the maximum residue limits for pesticides established by the Codex Alimentarius Commission

## 8.2 Heavy metals

Banana flour shall not contain any metal contaminants in excess of the levels established in RS CODEX STAN 193

## 8.3 Mycotoxins

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

**Table 3 — Aflatoxin limits for green banana flour**

S/N	Type of aflatoxin	Maximum limit (µg/kg)	Test method
i.	Total aflatoxin	10	RS ISO 16050
ii.	Aflatoxin B <sub>1</sub>	5	

## 9 Packaging

Banana 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. Each package shall be properly sealed.

## 10 Labelling

**10.1** 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 “Banana flour”;
- b) name and address of manufacturer;
- c) date of manufacture;
- d) list of ingredients;
- e) date of expiry;
- f) instruction for use;
- g) batch number;
- h) net weight;
- i) storage conditions; and



j) country of origin.

**10.2** 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

## 11 Sampling

Sampling of banana flour shall be done in accordance with RS ISO 24333.

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