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**Quinoa 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 600 was prepared by Technical Committee RSB/TC 3 on *Cereals, pulses, legumes and derived products*

In the preparation of this standard, reference was made to the following standard:

- 1) CXS 333: 2019 Standard for quinoa

The assistance derived from the above source is hereby acknowledged with thanks.

## **Committee membership**

The following organizations were represented on the Technical Committee on Cereals, pulses, legumes and derived products (RSB/TC 3) in the preparation of this standard.

ADMA International Ltd

Enix CT Co Ltd

GATSIBO Rice Company Ltd

Inyange Industries Ltd- Milk Powder Plant

ISHYO Foods Ltd

J1 Ambia Company Ltd

Lenz Family Ltd

MINIMEX Ltd

Mount Meru Soyco Ltd

Mukunguri Rice Promotion and Investment Company Ltd

Norbert Business Group Ltd

RWABUYE Rice Ltd

Rwanda Agriculture Board (RAB)

Rwanda Consumer's Rights Protection Organization (ADECOR)

SOSOMA Industries Ltd

University of Rwanda, College of Agriculture, Animal sciences and Veterinary Medicine (UR-CAVM)

University of Rwanda, College of Medicine and Health Sciences (UR-CMHS)

Rwanda Standards Board (RSB) – Secretariat

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# Quinoa flour — Specification

## 1 Scope

This Draft Rwanda Standard specifies requirements, sampling and test methods for quinoa flour processed from quinoa grains (*Chenopodium quinoa* Willd.) intended for human consumption.

## 2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 999.11, *Determination of Lead, Cadmium, Copper, Iron, and Zinc in foods. Atomic absorption spectrophotometry after dry ashing*

EAS 901, *Cereals, pulses and their products — Test methods*

RS CXC 1, *General principles of food hygiene*

RS CXS 192, *General standard for food additives*

RS CXS 193, *General standard for contaminants and toxins in food and feed*

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

RS EAS 803, *Nutrition labelling — Requirements*

RS EAS 804, *Claims on foods — General requirements*

RS EAS 805, *Use of nutrition and health claims — Requirements*

RS ISO 1026, *Fruit and vegetable products — Determination of dry matter content by drying under reduced pressure and of water content by azeotropic distillation*

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

RS ISO 4833-1, *Microbiology of the food chain — Horizontal method for the enumeration of microorganisms Part 1: Colony count at 30 °C by the pour plate 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 6579-1, *Microbiology of the food chain — Horizontal method for the detection, enumeration and serotyping of Salmonella — Part 1: Detection of Salmonella spp.*

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**

##### **quinoa flour**

product in powder form prepared from dried quinoa grains (*Chenopodium quinoa* Willd) by grinding or milling processes

#### **3.2**

##### **quinoa grains**

grains obtained from varieties of *Chenopodium quinoa* Willd

#### **3.3**

##### **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

#### **3.4**

##### **foreign matter**

organic or inorganic material other than quinoa flour



## 4 Requirements

### 4.1 Raw materials

Quinoa flour shall be made from quinoa grains complying with DRS 599.

### 4.2 General requirements

Quinoa flour shall:

- a) be free of off flavours and odours;
- b) be free from foreign matter
- c) be of characteristic colour of the milled quinoa grains from which they were prepared
- d) be safe and suitable for human consumption.

### 4.3 Specific requirements

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

**Table 1 —Specific requirements for quinoa flour**

S/N	Characteristic	Requirement	Test method
1.	Moisture content, % m/m max.	13.0	RS ISO 1026
2.	Acid insoluble ash, % m/m, max.	0.4	RS ISO 5985
3.	Crude fibre, %, max.	3.0	RS ISO 5498
4.	Total ash, % m/m, max.	1.0	RS ISO 2171
5.	Protein content, % on a dry matter basis, min	10	EAS 901

## 5 Food additives

Food additives when used shall comply with RS CXS 192

## 6 Hygiene

**6.1** Quinoa flour shall be produced, prepared and handled in accordance with RS CXC 1.

**6.2** Quinoa flour shall comply with the microbiological limits in Table 2 when tested in accordance with test methods specified therein.

**Table 2—Microbiological limits in Quinoa flour**

S/N	Microorganism	Maximum Limit	Test method
1.	Total Viable Count , CFU/g max	10 <sup>5</sup>	RS ISO 4833-1
2.	<i>Salmonella</i> spp in 25g	Absent	RS ISO 6579-1
3.	<i>Escherichia coli</i> , CFU/g	Absent	RS ISO 16649-2
4.	<i>Staphylococcus aureus</i> , CFU/g	Absent	RS ISO 6888-1
5.	Yeast and moulds, CFU/g, max	10 <sup>4</sup>	RS ISO 21527-2

## 7 Contaminants

### 7.1 Pesticides residues

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

### 7.2 Heavy metals

Quinoa flour shall not exceed maximum levels for heavy metals when tested in accordance with test methods specified therein.

**Table 3—Heavy metal limits in Quinoa flour**

S/N	Heavy metal	Maximum Limit (mg/kg)	Test method
1.	Cadmium	0.1	AOAC 999.11
2.	Lead	0.2	

### 7.3 Aflatoxin

Total Aflatoxin shall not exceed 10 µg/kg while aflatoxin B1 content shall not exceed 5 µg/kg when tested in accordance with RS ISO 16050.

### 7.4 Other contaminants

Quinoa flour shall comply with the maximum levels of Contaminants and Toxins specified in RS CXS 193.

## 8 Packaging

**8.1** Quinoa flour shall be packaged in food grade packaging materials that will safeguard the hygienic, nutritional and organoleptic qualities of the product.

**8.2** When sacks are used for packaging, they shall be clean, sturdy and securely sewn or sealed.

## 9 Labelling

### 9.1 General

In addition to the requirements in RS EAS 38, each package shall be legibly and indelibly labelled with the following:

- a) name of product as "Quinoa flour";
- b) name and address of the manufacturer/packer/importer;
- c) batch number/lot number;
- d) net content in SI units;
- e) list of ingredients
- f) food additives if used
- g) storage instructions
- h) the statement "Food for human consumption";
- i) country of origin;
- j) date of manufacture;
- k) best before date; and
- l) instructions for disposal of used package.

### 9.2 Labelling of non-retail containers

Information for non-retail containers shall be given either on the container 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 container. However, lot identification, and the name and address of the manufacturer or packer may be replaced by an identification mark, provided that such a mark is clearly identifiable with the accompanying documents.

### 9.3 Nutrition and health claims

**9.3.1** The declaration of nutrition information shall be in accordance with RS EAS 803

**9.3.2** The product may have claims on nutrition and health. Such claims when declared shall comply with RS EAS 804 and RS EAS 805.

## 10 Sampling

Sampling shall be done in accordance with RS ISO 24333

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## Bibliography

[1] RS 448: 2021, Vegetable powder — Specification

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