
Amaranth flour — Specification

African Standard under Review



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This African Standard was prepared by the *ARSO Technical Committee on Cereals, Pulses and Derived Products* (ARSO/TC 12).

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Amaranth flour — Specification

1 Scope

This African standard specifies the requirements and methods of sampling and test for flour prepared from dried grain obtained from amaranth plant (*Amaranthus caudatus*, *A. hypochondaricus*, *A. cruentus* and any other variety duly approved as a grain amaranth species) 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.

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

ARS 56, *Prepackaged foods — Labelling*

ARS 53, *General principles of food hygiene — Code of practice*

ARS 1349, *Amaranth grain — Specification*

ISO 24333, *Cereals and cereal products—Sampling*

ISO 712, *Determination of Moisture content in cereals and cereals product.*

ISO 21527-2, *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,*

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

ISO 4833-1, *Horizontal method for the enumeration of microorganisms — Part 1: Colony count at 30 degrees C by the pour plate technique*

ISO 7251, *Horizontal method for the detection and enumeration of presumptive Escherichia coli — Most probable number technique*

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

ISO 1871, *Agricultural food products — General directions for the determination of nitrogen by the Kjeldahl method*

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

CXS 192, *Codex general standard for food additives*

CXS 193, *Codex general standard for contaminants and toxins in food and feed*

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

3 Terms and definitions

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

3.1

amaranth grains

grains obtained from species of Amaranth (*Amaranthus. hypochondaricus* or *Amaranthus. cruentus*) and any other variety duly approved as a grain amaranth species

3.2

amaranth flour

product in powder form prepared from dried amaranth grains by grinding or milling processes

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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

filth

impurities of animal origin, including dead insects

4 Requirements

4.1 Raw material

The Amaranth grain from which the flour is milled shall be in accordance with ARS 1349.

4.2 General requirements

Amaranth flour shall:

- a) be practically free from filth in amounts that may represent a hazard to human health;
- b) be free of off flavours and odours;
- c) be practically free from any living insects and foreign matter;
- d) have a colour characteristic of the variety.

4.3 Specific requirements

Amaranth flour shall conform to the compositional requirements in Table 1.

Table 1 — Specific requirements for amaranth flour

Characteristic	Limit	Method of test
Ash content, % m/m on a dry matter basis, max.	5.0	ISO 2171
Protein content, % m/m on a dry matter basis, min.	12	ISO 1871
Moisture content, % m/m, on a dry matter basis, max.	10	ISO 712
Acid insoluble ash, % m/m, on a dry matter basis, max.	0.5	ISO 5985
Crude fibre content, % m/m on a dry matter basis, max.	1.8	ISO 5498

4.4 Particle size

Not less than 90 % shall pass through a 0.60 mm sieve for fine flour and not less than 90 % shall pass through a 1.20 mm sieve for coarse flour.

5 Food additives

Amaranth flour shall contain only permitted additives complying with CODEX STAN 192.

6 Contaminants

Amaranth flour shall comply with those maximum limits for metal contaminants specified in CODEX STAN 193.

6.1 Aflatoxins

Amaranth flour shall comply with levels for aflatoxins given in Table 2 when tested in accordance with the test methods specified therein.

Table 3 — Mycotoxin limits for Amaranth flour

S/N	Aflatoxin	Maximum limit (µg/kg)	Test method
i.	Total aflatoxins (AFB1+AFB2+AFG1 +AFG2)	10	ISO 16050
ii.	Aflatoxin B1	5	

7 Hygiene

Amaranth flour shall be produced and handled under hygienic conditions in accordance with ARS 53.

When tested by appropriate test method, the product shall be free from microorganisms in amounts which may represent a hazard to health and shall not exceed the limits specified in Table 2.

Table 2 — Microbiological limits for amaranth flour

S/No	Type of micro-organism	Limits	Test method
i)	Yeasts and moulds, per g, max.	10 ³	ISO 21527-2
ii)	<i>S.aureus</i> per 25 g	Absent	ISO 6888
iii)	<i>E. coli</i> , cfu per g, max.	Absent	ISO 7251
iv)	Total aerobic count, cfu per g	10 ⁵	ISO 4833

8 Packaging

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

9 Labelling

In addition to the requirements of ARS 56, the following labelling requirements shall apply and shall be legibly and indelibly marked:

- common name of the food to be declared on the label shall be 'Amaranth flour';
- net contents by weight in metric (Systeme International') units;
- name and physical address of the manufacturer/distributor;
- country of origin;

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- e) lot identification;
- f) date of manufacture and best before date;
- g) the statement “Human Food’ shall appear on the package”;
- h) storage conditions as “Store in a cool dry place away from contaminants”; and
- i) instructions on disposal of used package.

10 Method of sampling

Sampling shall be done in accordance with ISO 24333.

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