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# PROJET DE NORME CAMEROUNAISE PNC 3149 : 2026 - CT 48

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## CASSAVA FLOUR - SPECIFICATION

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**Cassava flour — Specification**



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## Foreword

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## **Introduction**

The development of this standard has been necessitated by the increasing role of cassava and cassava products for food security and commercial concerns in Africa. The standard intends to safeguard the interests of the stakeholders and also guarantee enhanced safety of the consumers.

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## Cassava flour — Specification

### 1 Scope

This African Standard specifies requirements, methods of sampling and test for cassava flour, which is obtained from the processing of cassava (*Manihot esculenta Crantz*) 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.

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

ARS 56, *Prepackaged foods — Labelling*

ARS 844, *Cassava and cassava products — Determination of total cyanogens — Enzymatic assay method*

CODEX STAN 192, *General standard for food additives*

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

ISO 712, *Cereals and cereal products — Determination of moisture content — Reference method*

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

ISO 3588, *Spices and condiments — Determination of degree of fineness of grinding — Hand sieving method (Reference method)*

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

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

ISO 6579, *Microbiology of food and animal feeding stuffs — Horizontal method for the detection of Salmonella spp.*

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 15914, *Animal feeding stuffs — Enzymatic determination of total starch content*

ISO 16050, *Foodstuffs — Determination of aflatoxin B<sub>1</sub>, and the total content of aflatoxin B<sub>1</sub>, B<sub>2</sub>, G<sub>1</sub> and G<sub>2</sub> in cereals, nuts and derived products — High performance liquid chromatographic method*

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*

ISO 24333, *Cereals and cereal products — Sampling*

### **3 Terms and definitions**

For the purpose of this standard the following terms and definitions apply.

#### **3.1**

##### **cassava flour**

the product prepared from dried cassava chips or paste by a pounding, grinding or milling process, followed by sifting to separate the fibre from the flour. In the case of cassava flour prepared from bitter cassava, detoxification is first carried out by soaking the peeled roots in water for a few days before it undergoes drying in the form of whole, chips, paste or crumbs

#### **3.2**

##### **detoxication**

process of reducing cyanide on fresh weigh basis

#### **3.3**

##### **filth**

impurities of animal origin (including dead insects)

#### **3.4**

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

material which will safeguard the hygienic, nutritional, technological and organoleptic qualities of the product

#### **3.5**

##### **foreign matter**

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

#### **3.6**

##### **practically free**

product without defects in excess of those that can be expected to result from, and be consistent with good cultural and handling practices employed in the production and marketing of the fresh cassava

### **4 Quality requirements**

#### **4.1 Raw materials**

The raw material shall be dried cassava chips, paste, crumbs or cassava roots conforming to the relevant African standards.

#### **4.2 General requirements**

Cassava flour shall be:

- (a) practically free from filth.
- (b) free of off flavours and odours,
- (c) practically free from any living insects and foreign matter
- (d) safe and suitable for human consumption.
- (e) have colour characteristic of the variety

**NOTE** The colour of cassava is usually white, creamy or yellow. The yellow coloured varieties are normally rich in carotenes.

#### **4.3 Specific requirements**

Cassava flour shall conform to the requirements in Table 1.

Table 1 — Compositional requirements for cassava flour

| S/N | Parameter                                          | Requirement | Method of test |
|-----|----------------------------------------------------|-------------|----------------|
| 1   | Crude ash content, % m/m, dry matter basis, max.   | 3.0         | ISO 2171       |
| 2   | Moisture content, % by mass, max.                  | 13.0        | ISO 712        |
| 3   | Crude fibre content, % m/m, dry matter basis, max. | 2.0         | ISO 5498       |
| 4   | Acid insoluble ash, % m/m, dry matter basis max.   | 0.60        | Annex A        |
| 5   | Starch (on dry basis), % by mass, Min              | 60.0        | ISO 15914      |
| 6   | Hydrogen cyanide                                   | 10.0        | ARS 844        |
| 7   | Total acidity, % m/m, max                          | 1.0         | Annex B        |

#### 4.4 Specific quality factors

##### 4.4.1 Particle size

Not less than 90 % shall pass through a 600 µm sieve for “fine cassava flour” and not less than 90 % shall pass through a 1200 µm sieve for “coarse cassava flour”. Testing for particle size shall be done in accordance with ISO 3588.

Cassava flour intended for baking purposes shall have particle size of which not less than 90 % shall pass through a 250 µm sieve.

##### 4.4.2 Hydrocyanic acid content

When tested in accordance with ARS 844, the total hydrocyanic acid content of cassava flour shall not exceed 10 mg/kg.

### 5 Food additives

Food additives may be used in the preparation of cassava flour in accordance with CODEX Stan 192. Cassava flour may be fortified with vitamins or micronutrients if so permitted.

### 6 Contaminants

#### 6.1 Pesticide residues

Cassava flour shall conform to maximum residue limits for pesticide residues established by the Codex Alimentarius Commission for this commodity.

#### 6.2 Heavy metals

Cassava flour shall comply with those maximum levels for heavy metal contaminants established by the Codex Alimentarius Commission for this commodity.

#### 6.3 Other contaminants

**6.3.1** Cassava flour shall comply with the maximum levels of the Codex General Standard for Contaminants and Toxins in Food and Feed (CODEX STAN 193).

**6.3.2** The product shall be free from objectionable extraneous matter.

**6.3.3** The product shall not contain more than 10 microgram per kilogram aflatoxin of which not more than 5 micrograms per kilogram may be aflatoxin B<sub>1</sub> when tested in accordance with ISO 16050.

**6.3.4** The product shall be free from microorganisms which present a hazard to health (Table 2).

## **7 Hygiene**

Cassava flour shall be prepared and handled in a hygienic manner in accordance with ARS 53 and shall conform to microbiological limits specified in Table 2.

**Table 2 — Microbiological limits for cassava flour**

| <b>S/N</b> | <b>Micro-organism(s)</b>              | <b>Requirements</b> | <b>Method of test</b> |
|------------|---------------------------------------|---------------------|-----------------------|
| 1          | Total viable count, cfu/g, max        | 10 <sup>5</sup>     | ISO 4833              |
| 2          | <i>Escherichia coli</i> , cfu/g, max. | absent              | ISO 7251              |
| 4          | <i>Salmonella</i> , 25g, max.         | absent              | ISO 6579              |
| 5          | Yeasts and moulds, cfu/g, max.        | 10 <sup>3</sup>     | ISO 21527-2           |

## **8 Packaging**

**8.1** Cassava flour shall be packaged in food grade material.

**8.2** The net weight of the packages for cassava flour may be required to meet the relevant regulations of the destination country.

## **9 Marking and labelling**

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

- The common name of the food shall be “Cassava flour” and the terms “Fine” or “Coarse”, in accordance with 4.4, shall appear in close proximity to the name of the food.
- Name, location and address of the manufacturer shall be declared and/or brand name / trade name.
- Date of manufacture.
- Lot identification.
- Best before date.
- Country of origin shall be declared.
- Net contents shall be declared by weight in metric (‘Système International’) units.
- The statement ‘food for human consumption’
- Storage instructions.
- Instructions on disposal of used package.

**9.2** 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.

## **10 Sampling**

Sampling shall be done in accordance with ISO 24333.

## Annex A (normative)

### Determination of acid insoluble ash

#### A.1 Reagent

**A.1.1 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. Complete the Ignition by keeping in a muffle furnace at 500 °C to 570 °C until grey ash results.

Cool and filter through whatman filter paper No. 42 or its equivalent. 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. Keep it in an electric air oven maintained at  $135 \pm 2$  °C for about 3 hrs. Ignite the dish again for about 30 minutes, cool and weigh. Repeat this process till the difference between two successive weighings is less than 1 mg. Note the lowest weight.

#### A.3 Calculation

**A.3.1** Acid insoluble ash, per cent by weight

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

where,

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

$M$  = weight, in g, of the empty dish; and

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

**Annex B**  
(normative)

**Determination of total acidity (water extract method)**

Shake 18 g of the sample with 200 ml of CO<sub>2</sub> free water in a conical flask and place in a water bath at 40 C for 1 hour (with the flask loosely stoppered). Filter and titrate 100 ml of the clear filtrate with 0.05 M NaOH solution with phenolphthalein indicator. The acidity of the water extract increases during storage. 1 ml of 0.1 M NaOH = 0.009 g CH<sub>2</sub>H<sub>6</sub>O<sub>3</sub> (lactic acid).

### Bibliography

CODEX STAN 176:1989 (Rev. 1995), *Standard for Edible Cassava Flour*

EAS 740:2010, *Cassava flour — Specification*

Nigerian Industrial Standard, NIS 344:2004, *Standard for edible cassava flour*

Malawi Standard, MS 349:2002, *Edible cassava flour*

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