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**Edible full fat soya flour — Specification**



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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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## **Introduction**

Soya products are becoming a main stream part of regional dietary items. The benefit associated with the products includes among others the richness in protein supply. This is great benefit especially as an alternative protein source. However, it is important to note that soya has naturally high level of anti-nutritional properties related to trypsin inhibitor and tannins. The manufacturers advised to apply appropriate processing technologies to reduce these anti-nutrient properties to acceptable safe levels for human consumption

Edible full fat soya flour is made by using dry soya beans, ground into flour. Edible full fat soya flour being rich in protein is often mixed with other types of flour to add nutritional value to diet.

This standard is prepared to ensure safety and quality of edible full fat soya flour for human consumption.

Antinutritional Factors: In preparation of edible full fat soya flour, Good Manufacturing Practices (GMP) shall be applied to soya beans to inactivate possible antinutritional factors, such as trypsin inhibitors, to ensure safety.



## Edible full fat soybean flour — Specification

### 1 Scope

This Draft African Standard specifies the requirements, sampling and test methods for edible full fat soybean flour obtained from soybean (*Glycine max*(L.) Merr) 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.

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

ARS 56, *Prepackaged foods — Labelling*

ARS 872, *Dry soybeans — Specification*

AOAC Official Method 999.10:1999, *Determination of lead, cadmium, copper, iron and zinc in foods — Atomic absorption spectrophotometry after microwave digestion*

AOAC Official Method 999.11:1999, *Determination of lead, cadmium, copper, iron and zinc in foods — Atomic absorption spectrophotometry after dry ashing*

AOAC Official Method 2001.04, *Determination of Fumonisin B<sub>1</sub> and B<sub>2</sub> in corn and corn flakes — Liquid chromatography with immunoaffinity column cleanup*

CODEX STAN 192, *General standard for food additives*

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

ISO 3310-1, *Test sieves — Technical requirements and testing — Part 1: Test sieves of metal wire cloth*

ISO 4833, *Microbiology of food and animal feeding stuffs — Horizontal method for the enumeration of microorganisms — Colony-count technique at 30 °C*

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

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

ISO 6888 (all parts), *Microbiology of food and animal feeding stuffs — Horizontal method for the enumeration of coagulase-positive staphylococci (Staphylococcus aureus and other species)*

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 11085, *Cereals, cereals-based products and animal feeding stuffs — Determination of crude fat and total fat content by the Randall extraction method*

ISO 14902, *Animal feeding stuffs — Determination of trypsin inhibitor activity of soya products*

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ISO 20483, *Cereals and pulses — Determination of the nitrogen content and calculation of the crude protein content — Kjeldahl method*

ISO 24333, *Cereals and cereal products — Sampling*

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

## 3 Terms and definitions

For the purpose of this document, the following terms and definitions apply.

### 3.1

#### **edible full fat soya flour**

mill product obtained from whole dry soya beans

### 3.2

#### **soya bean**

whole mature dry bean of *Glycine max* (L) Merr varieties

### 3.3

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

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

### 3.4

#### **filth**

impurities of animal origin, including dead insects and rodents or their parts

### 3.5

#### **foreign matter**

all organic and inorganic material other than edible full fat soybean flour and other edible grains

#### 3.5.1

##### **inorganic matter**

stones, glass, pieces of soil and other mineral matter

#### 3.5.2

##### **organic matter**

any animal or plant matter (seed coats, straws, weeds) other than edible full fat soybean flour, inorganic extraneous matter and harmful/toxic seeds

## 4 Requirements

### 4.1 Raw materials

Edible full fat soybean flour shall be prepared from soybeans complying with ARS 872.

### 4.2 General requirements

#### 4.2.1 Edible full fat soybean flour shall be

- of a colour characteristic of the variety of the beans used;
- safe and suitable for human consumption;
- free from abnormal flavours and odours; rancid odour;
- free from extraneous and foreign matter and filth (impurities of animal origin, including dead insects and rodents or their parts);



- e) free from fungal infestation; and
- f) free from living insects.

**4.2.2** All processing of the soybean including drying milling or other treatment of the soybeans, intermediate milling products and the milled soybean flour shall be carried out in a manner that:

- a) minimizes loss of nutritive value, particularly protein quality;
- b) avoids undesirable changes in technological properties of the soybean flour; and
- c) avoids having unground grains and hull in the flour.

## 4.3 Specific requirements

### 4.3.1 Particle size

Using a standard method of sifting, not less than 90 % of the flour shall pass through a sieve of mesh diameter 0.60 mm for 'fine' flour and 1.20 mm for 'coarse' flour. The sieve shall comply with ISO 3310-1.

**4.3.2** Edible full fat soybean flour shall comply with the limits given in Table 1 when tested in accordance with the test methods specified therein.

**Table 1 — Specific requirements for edible full fat soybean flour**

| S/N  | Characteristic                                  | Requirement | Test method |
|------|-------------------------------------------------|-------------|-------------|
| i.   | Moisture content, % m/m, max.                   | 10.0        | ISO 24557   |
| ii.  | Protein content, % (N %x6.25), min.             | 35.0        | ISO 20483   |
| iii. | Soya oil (on moisture free basis), %, m/m, min. | 16.0        | ISO 11085   |
| iv.  | Acid insoluble ash, %, max.                     | 0.40        | ISO 5985    |
| v.   | Trypsin inhibitor activity, ml/g, max.          | 5.0         | ISO 14902   |

## 5 Food additives

Edible full fat soybean flour may contain only permitted food additives complying with CODEX STAN 192.

## 6 Contaminants

### 6.1 Heavy metals

Edible full fat soybean flour shall comply with those maximum limits for metal contaminants specified in CODEX STAN 193 and in particular those listed in Table 2 when tested in accordance with the test methods specified therein.

**Table 2 — Heavy metal contaminants limits for edible full fat soybean flour**

| S/N | Parameter    | Limit<br>ppm max. | Test method                |
|-----|--------------|-------------------|----------------------------|
| i.  | Lead (Pb)    | 0.2               | AOAC 999.11 or AOAC 999.10 |
| ii. | Cadmium (Cd) | 0.1               | AOAC 999.11 or AOAC 999.10 |

### 6.2 Pesticide residues

Edible full fat soybean flour shall comply with those maximum residue limits established by the Codex Alimentarius Commission for this commodity.

## **7 Hygiene**

**7.1** Edible full fat soybean flour shall be produced, prepared and handled in accordance with the provisions of appropriate sections of ARS 53.

**7.3** Edible full fat soya flour shall be free from pathogenic micro-organisms and shall comply with microbiological limits in Table 3 when tested in accordance with the test methods specified therein.

**Table 3 — Microbiological limits for edible full fat soya flour**

| S/N  | Micro-organism(s)                          | Requirement     | Test method |
|------|--------------------------------------------|-----------------|-------------|
| i.   | Total plate count, cfu/g                   | 10 <sup>5</sup> | ISO 4833    |
| ii.  | <i>Staphylococcus aureus</i> cfu/10 g max. | 100             | ISO 6888    |
| iii. | <i>Escherichia coli</i> , MPN, max.        | Absent          | ISO 7251    |
| iv.  | <i>Salmonella</i> , per 25 g, max.         | Absent          | ISO 6579    |

## **8 Packaging**

Edible full fat soybean flour shall be packed in suitable food grade packaging materials. When the product is packaged in sacks, these shall be clean, sturdy and strongly sewn or sealed.

## **9 Labelling**

### **9.1 Labelling of retail packages**

In addition to the requirements in ARS 56, each package shall be legibly and indelibly marked with the following:

- product name as “Edible Full Fat Soy Flour” and the terms ‘Fine’ or ‘Coarse’, in accordance with 4.3.1, shall appear in close proximity to the name of the food;
- brand name/trade name;
- name, address and physical location of the manufacturer/ packer/importer;
- lot/batch/code number;
- list of additives, if used;
- net weight, in SI units;
- the declaration “Food for Human Consumption”;
- storage instruction as “Store in a cool dry place away from any contaminants”;
- Date of manufacture;
- ‘best before’ date;
- instructions on disposal of used package;
- country of origin; and

- m) a declaration on whether the Edible full fat soybean flour were produced from genetically modified soybean or not'.

## **9.2     Labelling of non-retail containers**

Information for non-retail containers shall either be given 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.

## **10     Sampling**

Sampling shall be done in accordance with ISO 24333.

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- [1] EAS CD/T/95/2012, *Edible full fat soya flour — Specification*
- [2] Indian Standard, IS 7837:1999, *Specification for edible full-fat soya flour*
- [3] *Gandhi, A. P. 2009. Review Article: Quality of soybean and its food products. International Food Research Journal 16: 11-19 (2009)*

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