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Food grade cassava starch — Specification



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National foreword

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Draft Uganda Standards adopted by the Technical Committee are widely circulated to stakeholders and the general public for comments. The committee reviews the comments before recommending the draft standards for approval and declaration as Uganda Standards by the National Standards Council.

This Draft Uganda Standard, DUS DARS 846: 2024, *Food grade cassava starch — Specification*, is identical with and has been reproduced from a Draft African Standard, DARS 846: 2024, *Food grade cassava starch — Specification*, and adopted as a Uganda Standard.

The committee responsible for this document is Technical Committee UNBS/TC 204, *Fruits, vegetables, tubers and processed products*.

This standard will cancel and replace US EAS 742:2022, *Food grade cassava starch — Specification*.

Wherever the words, "African Standard" appear, they should be replaced by "Uganda Standard".

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Foreword

The African Organization for Standardization (ARS) is an African intergovernmental organization made up of the United Nations Economic Commission for Africa (UNECA) and the Organization of African Unity (AU). One of the fundamental mandates of ARSO is to develop and harmonize African Standards (ARS) for the purpose of enhancing Africa's internal trading capacity, increase Africa's product and service competitiveness globally and uplift the welfare of African communities. The work of preparing African Standards is normally carried out through ARSO technical committees. Each Member State interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, Regional Economic Communities (RECs), governmental and non-governmental organizations, in liaison with ARSO, also take part in the work.

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This African Standard was prepared by the ARSO Technical Committee on, Cassava value chain products (ARSO/PC 02).

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Introduction

Starch is one of the most abundant substances in nature, and is a renewable and almost unlimited resource. Starch is produced from grain or root crops. It is mainly used as food, but is also readily converted chemically, physically, and biologically into many useful products. To date, starch is used to produce such diverse products as food, paper, textiles, adhesives, beverages, confectionery, pharmaceuticals, and building materials.

Cassava starch has many remarkable characteristics, including high paste viscosity, high paste clarity, and high freeze-thaw stability, which are advantageous to many industries.

Cassava starch is produced primarily by the wet milling of fresh cassava roots but it can also be produced from dry cassava chips.

The process of starch extraction from cassava is relatively simple because there are only small amounts of secondary substances, such as protein, in the roots. When cassava roots are harvested or selected for starch extraction, age and root quality are critical factors. Cassava roots need to be processed almost immediately after harvest, as the roots are highly perishable and enzymatic processes accelerate deterioration within one to two days. The food industry constitutes one of the largest consumers of starch and starch products. In addition, large quantities of starch are sold in the form of products sold in small packages for household use. The production of cassava starch has increased considerably in recent years.

Food grade cassava starch — Specification

1 Scope

This African Standard specifies the requirements, sampling and test methods for food grade cassava starch intended for human consumption.

2 Normative references

The following referenced documents 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*

AOAC 942.15, *Acidity (titrable) of fruit products*

CXS 192, *General standard for food additives*

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

ISO 1666, *Starch — Determination of moisture content — Oven-drying method*

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

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

ISO 5809, *Starches and derived products — Determination of sulphated ash*

ISO 1842, *Fruit and vegetable products — Determination of pH*

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

ISO 10520, *Native starch — Determination of starch content — Ewers polarimetric method*

ISO 24333, *Cereals and cereal products — Sampling*

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

3 Terms and definitions

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

3.1

food grade cassava starch

white granular glucose polymer obtained by wet extraction process from mature cassava (*Manihot esculenta* Crantz) storage root or cassava chips or cassava flour that is free from substances hazardous to human health'

3.2

food grade material

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

3.3

foreign matter

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

4 Requirements

4.1 General requirements

Food grade cassava starch shall be:

- a) Tasteless;
- b) Odourless;
- c) free from foreign matter; and
- d) have colour characteristic of the variety.

4.2 Specific requirements

4.2.1 Physical properties

Not less than 95 % of mass of food grade cassava starch shall pass through a sieve of 100 – 140 µm (0.1 – 0.12 mm) mesh screen.

- a) The food grade cassava starch shall be insoluble in cold water; and
- b) Food grade cassava starch shall be insoluble in 96 % ethanol.

4.2.2 Chemical properties

4.2.2.1 Food grade cassava starch shall give a blue-black colouration when tested with iodine.

4.2.2.2 Food grade cassava starch shall comply with the compositional requirements given in Table 1 when tested in accordance with the test methods specified therein.

Table 1 — Compositional requirements for edible cassava starch

S/N	Characteristic	Requirement	Test method
i.	Total acidity, %, by mass, max.	1.0	AOAC 942.15
ii.	pH	5 - 7	ISO 1842
iii.	Cyanide content, mg/kg, max.	10.0	ARS 844
iv.	Starch content, %, by mass,	95.0	ISO 10520

	min.		
v.	Moisture, % by mass, max.	12.0	ISO 1666
vi.	Crude fibre, % by mass on dry weight basis, max.	0.2	ISO 5498
vii.	Sulphated ash, % by mass, max.	0.6	ISO 5809
viii.	Acid insoluble ash, % m/m, max.	0.2	ISO 5985

5 Food additives

Food-grade cassava starch may contain food additives in accordance with CXS 192.

6 Contaminants

6.1 Pesticide residues

Food grade cassava starch shall conform to maximum residue limits for pesticide residues established by the Codex Alimentarius Commission for this commodity.

6.2 Other contaminants

Food grade cassava starch shall comply with the maximum levels given in CXS 193.

7 Hygiene

Food grade cassava starch shall be prepared and handled in accordance with ARS 53 and shall comply with the microbiological limits given in Table 2 when tested in accordance with the test methods specified therein.

Table 2 — Microbiological limits for food grade cassava starch

S/N	Micro-organism	Requirement	Test method
i.	Total viable count, cfu/g, max.	10 ⁴	ISO 4833
ii.	<i>Escherichia coli</i> , cfu/ 10 g	Absent	ISO 7251
iii.	Salmonella, cfu/ 25g	Absent	ISO 6579
iv.	Yeasts and moulds, cfu/g, max.	10 ³	ISO 21527-2

8 Packaging

8.1 Food grade cassava starch shall be packaged in food grade material.

8.2 The net weight of the packages for food grade cassava starch may be required to meet the relevant regulations of the destination country.

9 Labelling

9.1 In addition to the requirements of ARS 56, food grade cassava starch shall be legibly and indelibly labelled with the following information:

- (a) common name of the product 'Food grade cassava starch';
- (b) name, and physical address of the manufacturer/ distributor and /or trade name/ brand name;
- (c) date of manufacture;

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- (d) the statement “Human Food” shall appear on the package;
- (e) lot identification;
- (f) best before date;
- (g) country of origin;
- (h) the net weight in metric units;
- (i) storage conditions as “store in a cool dry place away from contaminants”; and
- (j) 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.

Bibliography

East African Standard, EAS 742:2022, *Food grade cassava starch — Specification*

Nigerian Industrial Standard, NIS 386:2020, *Standard for cassava starch (food and industrial grade)*

