



DRAFT TANZANIA STANDARD

Groundnut Flour – Specification

Draft for stakeholders comments only

Groundnut Flour – Specification

0 Foreword

Groundnut flour is a flour made from crushed/ground raw/roasted groundnuts. Groundnuts flour is a good source of protein and it is mainly used in food industry especially in bakery industries and in domestic as an ingredient of vegetable sauces, smoothies and shakes for texture and flavour. Since it is 100 % groundnut it is gluten free which makes the flour alternative in gluten free product.

This Tanzania standard lays down specifications aiming at ensuring the safety and quality of groundnut flour produced or traded in the country for human consumption.

In preparation of this Tanzania standard considerable help was derived from Rwandan Standard RS 417:2020 *Peanut flour –specification*, published by Rwandan Standards Board and ISO 735:1977-*Oilseed Residues — Determination Of Ash Insoluble In Hydrochloric Acid* published by International Organization for Standardization.

In reporting the results of a test or analysis made in accordance with this Tanzania Standard, if the final value observed or calculated is to be rounded off, it shall be done in accordance with TZS 4.

1 Scope

This Tanzania Standard specifies the requirements, sampling and test methods for groundnut flour from the varieties of *Arachis hypogaea L* intended for human consumption.

2 Normative references

The following referenced documents are indispensable for the application of this standard. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies:

TZS 4, *Rounding off numerical values*

TZS 109, *Food processing units – Code of hygiene – General*

TZS 118-1 /ISO 4833-2, Microbiology of the food chain - Horizontal method for the enumeration of microorganisms - Part 2 Colony count at 30 °C by pour plate technique

TZS 122-1 /ISO 6579-1, Microbiology of the food chain — Horizontal method for the detection, enumeration and serotyping of Salmonella- Part 1: Detection of Salmonella spp.

TZS 538, *Packaging and labeling of foods*

TZS 730-2 /ISO 16649-2, Microbiology of food and animal feeding stuffs – Horizontal method for the enumeration of -b-glucuronidase-positive Escherichia coli – Part 2 – Colony-count technique at 44 0C using 5-bromo-4-chloro-3-indolyl-b-D-glucuronide

TZS 2426-2/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

TZS 740, *Raw and roasted groundnuts – Specification*

TZS 742, *Oleaginous seeds – Sampling*

TZS 799/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

TZS 1314 – 2, *Oilseeds – Determination of moisture and volatile matter content*

TZS 1314 – 4, *Oilseeds – Determination of acidity of oils*

TZS 2624, *Oilseeds Residues - Determination of total ash*

TZS 3242, *General standard for contaminants and food additives*

AFDC (291) CD3, *Sampling procedures for analysis of aflatoxin in groundnuts and groundnuts products*

3 Terms and definitions

For the purposes of this Tanzania Standard, the following terms and definitions shall apply:

3.1 groundnut flour

product obtained from coarse milling whole raw/roasted groundnuts kernels.

3.2 raw groundnuts

groundnuts with their shells removed and which have not been subjected to roasting and/or various forms of chemical treatment

3.3 roasted groundnuts

groundnuts with or without seed coats which have been subjected to heat

3.4 foreign matter

all organic or inorganic matter other than groundnut flour.

3.5 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.

4.0 Requirements

4.1 General requirements

4.1.1 The groundnut flour shall be obtained from groundnut kernels complying with TZS 740.

4.1.2 Groundnut flour shall be free from:

- a) foreign matter;
- b) foreign odours and undesirable flavour and/or taste; and
- c) rancid odours.

4.2 Specific requirements

Groundnut flour shall comply with specific requirements given in Table 1 when tested in accordance with the methods specified therein;

Table 1- Specific requirements for groundnut flour

S/N	Characteristic	Requirement	Test methods
i)	Moisture content, % (m/m) max.	5.0	TZS 1314 - 2
ii)	Acidity of extracted fat, mg KOH/g, max.	4.0	TZS 1314 - 4
iii)	Total ash%, max.	4.5	TZS 2624
iv)	Acid -insoluble ash (on dry basis) % m/m, max.	0.35	Annex A

5 Food Additives

The use of food additives in groundnut flour shall comply with the latest CODEX STAN 192.

6 Hygiene

6.1 Groundnut flour shall be produced, processed, handled and stored in accordance with TZS 109.

6.2 Groundnut flour shall comply with microbiological limits given in Table 2 when tested in accordance with the methods specified therein;

Table 2 - Microbiological limits for groundnut flour

S/N	Microorganism	Limit	Test method
i	Total Plate Count (TPC), cfu/g max.	10 ⁴	TZS 118-1
ii	<i>Salmonella</i> spp per 25 g	absent	TZS 122-1
iii	<i>Escherichia coli</i> cfu/g	absent	TZS 730-2
iv	Yeast and moulds, cfu/g, max.	10 ³	TZS 2426-2

7 Contaminants

7.1 Heavy Metal contaminants

Groundnut flour shall comply with those maximum heavy metal contaminants limits stipulated in TZS 3242.

7.2 Pesticide residues

Groundnut flour shall comply with those maximum residue limits as established by Codex Alimentarius Commission online database for pesticide residues for this commodity.

7.3 Aflatoxin

Groundnut flour shall not exceed maximum limits for aflatoxins given in Table 3 when tested in accordance with test method specified therein:

Table3: Maximum limits for aflatoxins in groundnut flour

S/N	Aflatoxin	Maximum Limit (µg/kg)	Test method
i	Total Aflatoxin (B1,B2,G1,G2)	10	TZS 799
ii	Aflatoxin B1	5	

8 Packaging, Marking and Labeling

8.1 Packaging

Groundnut flour shall be packaged in containers made from food grade packaging material and sealed in a manner that will safeguard the hygienic, safety, nutritional and organoleptic properties of the product.

8.2 Marking and labeling

8.2.1 In addition to the labelling requirements given in TZS 538, packages/containers of groundnut flour shall be labelled legibly and indelibly with the following information:

- a) Name of the product as 'Groundnut flour';
- b) Trade name or brand, if any;
- c) Name, physical address of the manufacturer and/or packer;
- d) Batch or code number;
- e) Date of manufacturer;
- f) Expiry date;
- g) Net weight;
- h) Country of origin;
- i) Storage conditions;
- j) List of ingredients in descending order, including the specific name of additives;
- k) Language on the label shall be in Kiswahili and/or English. A second language may be used depending on the designated market; and
- l) Disposal of used packages.

8.2.2 The containers may also be marked with the TBS Standards Mark of Quality.

NOTE – The TBS Standards Mark of Quality shall be used by the manufacturers only under licence from TBS. Particulars of conditions under which the licences are granted, may be obtained from TBS.

9 Sampling and test methods

9.1 Sampling

Sampling of groundnut flour shall be done in accordance with TZS 742. For aflatoxin analysis sampling shall be done in accordance with AFDC 19(291)CD3.

9.2 Test Methods

Groundnut flour shall be tested in accordance with the test methods given in this standard.

Annex A

(normative)

Determination of acid insoluble ash

A.1 Reagent

Dilute hydrochloric acid, approximately 5 N (prepared from concentrated hydrochloric acid)

A.2 Procedure

A.2.1 Weigh accurately 5 g of the prepared sample in a tared, clean and dry porcelain dish. Ignite the material in the dish on hotplate for about one hour. Complete the ignition by keeping in the sample material in a muffle furnace at $600\text{ }^{\circ}\text{C} \pm 20\text{ }^{\circ}\text{C}$ until grey ash results.

A.2.2 Cool in a desiccator. Add 25 mL of this dilute hydrochloric acid to the ash, cover with a watch-glass and boil on hot plate. Allow to cool and filter the content of the dish through a ashless filter paper until the washings are free from chlorides. Return the filter and the residue to the dish. Keep it in an air-oven maintained at $105\text{ }^{\circ}\text{C} \pm 2\text{ }^{\circ}\text{C}$ for 3 h. Ignite in the muffle furnace at $600\text{ }^{\circ}\text{C} \pm 20\text{ }^{\circ}\text{C}$ for 30 min in the muffle furnace, cool and weigh. Repeat this process of heating for 30 min, cooling and weighing till the difference between two successive weighing is less than one milligram. Record the lowest mass.

A.3 Calculation

Acid insoluble ash content shall be expressed as follows:

$$\text{Acid insoluble ash, percent by mass (on dry basis)} = \frac{100(M_2 - M)}{M_1} \times \frac{100}{100 - MC}$$

where,

*M*₂ is the mass, in grams of the porcelain dish with the acid insoluble ash;

M is the mass, in grams of the empty porcelain dish; and

*M*₁ is the mass, in grams of sample taken for the test

MC is the moisture content