



DRAFT TANZANIA STANDARD

Garlic paste – Specification

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TANZANIA BUREAU OF STANDARDS

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0. Foreword

Garlic is a species in the onion genus, from *Allium sativum* (L.) with an intense flavor and is an essential ingredient in cooking. Garlic paste is obtained from garlic and is one of the commonly used products in food to add flavor.

This Tanzania standard was prepared to ensure the safety and quality of garlic paste produced for local consumption and export market.

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 *Rounding off numerical values* (see clause 2).

1 Scope

This Tanzania Standard specifies requirements, sampling and test methods for garlic paste prepared from *Allium sativum* (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 33, *Spices and condiments- Sampling*

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

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 125, *Microbiology of food and animal feeding stuffs – Horizontal method for enumeration of coagulase – Positive staphylococci (Staphylococcus aureus and other species)*

TZS 268, *General atomic absorption spectrophotometric method for determination of lead in food stuffs*

TZS 445, *Dehydrated garlic - Determination of volatile organic sulphur compounds.*

TZS 538 (EAS 38:2014) - *Labelling of pre-packaged foods — General requirements*

TZS 730- 2: (1st Ed) ISO 16649 (Part 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 799 (3rd Ed)/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 1316, *Spices and condiments- Determination of total ash*

TZS 1491 - *Fruits and Vegetables – Determination of pH*

TZS 1496/ ISO 2173, *Fruits, vegetables and derived products – Sampling and methods of test – Part 10: Determination of soluble solids*

TZS 1501/ ISO 6637, *Fruits, vegetables and derived products – Sampling and methods of test – Part 16: Determination of mercury content – Flameless atomic absorption method*

TZS 1502, *Fruits and Vegetables – Determination of Arsenic content*

TZS 1503, *Fruits and Vegetables – Determination of Ash Insoluble in Hydrochloric Acid*

TZS 2426 (ISO 21527-1), *Microbiology of food and animal feeding stuffs — Horizontal method for the enumeration of yeasts and moulds — Part 1: Colony count technique in products with water activity greater than 0,95*

Codex Stan 192, *General Standard for Food Additives*

3 Terms and definitions

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

3.1 garlic paste:

product obtained by grinding fresh individual segments of garlic head (cloves)

3.2 extraneous matters

foreign matters such as roots, soil, skins, stems, leaves, dirt or any material other than garlic paste.

4 Requirements

4.1 General requirements

4.1.1 Description

Garlic paste shall be a product produced by grinding fresh cloves/portion of garlic to obtain a uniform paste in which salt and citric acid may be added and pasteurized.

4.1.2 Colour

The colour of the garlic paste shall be characteristic of the cultivar used, that is, between white and pale cream. The product shall be practically free from scorched and toasted particles. No green coloration is allowed

4.1.3 Odour

Garlic paste shall have a characteristic pungent odour of garlic, free from foreign odours and off odours, such as those coming from mouldy, rancid or fermented garlic.

4.1.4 Flavour

The flavour of the garlic paste shall be characteristic of garlic, and free from foreign flavours and off flavours, such as those coming from mouldy, rancid, fermented or burnt particles.

4.1.5 Freedom from insects, moulds and extraneous matter

Garlic paste shall be free from extraneous matter, live insects, and practically free from moulds, dead insects, insect fragments and rodent contamination.

4.2 Specific requirements

Garlic paste shall comply with the requirements specified in Table 1, when tested by the specified method.

Table 1 – Specific requirements for garlic paste

S/No	Characteristic	Limit	Test method
1	Total ash, % (m/m), on dry basis, max.	5.5	TZS 1316
2	Total soluble solids, % (mass/mass), min	30	TZS 1496
3	Acid-insoluble ash, % (m/m), on dry basis, max.	0.5	TZS 1503
4	Volatile organic sulfur compounds content, % (m/m), on dry basis, min.	0.3	TZS 445
5	pH	4 – 5	TZS 1491

5. Food additives

The use of food additives in garlic paste shall be in accordance with Codex Stan 192.

6. Hygiene

Garlic paste shall be prepared under Good Hygienic Practices as stipulated in TZS 109, and shall be complied to the requirements specified in Table 2.

Table 2: Microbiological requirement for garlic paste

S/No	Characteristic	Maximum limit	Test method
1	<i>Escherichia coli</i> , cfu/g,	Absent	TZS 730 (Part 2)
2	Yeasts and moulds at 25 °C, cfu/g,	10 ²	TZS 131
3	<i>Staphylococcus aureus</i> cfu/g	10 ²	TZS 125
4	<i>Salmonella, spp</i> per 25 g	Absent	TZS 122

7. Contaminants

7.1 Heavy metals

Garlic paste shall not contain heavy metal contaminants in excess of levels specified in Table 3.

Table 3– Limits for heavy metal contaminants for garlic paste

S/No	Characteristic	Maximum limit (mg/kg)	Method of test
1	Arsenic	0.2	TZS 1502
2	Lead	0.3	TZS 268
3	Mercury	0.1	TZS 1501

7.2 Pesticides Residues

Garlic paste shall comply with those maximum pesticide residue limits established by the Codex Committee on Pesticide Residues for this commodity.

7.3 Aflatoxin

Garlic paste shall not have more than 5 ppb for Aflatoxin B1 and 10 ppb for total aflatoxin when tested according to TZS 799.

8 Packing, marking and labelling

8.1 Packing

Garlic paste shall be packed in clean, sound and dry food grade containers made of a material which does not affect the safety and quality of the product but protects it from light and from the entrance of moisture.

8.2 Marking and labelling

8.2.3 Garlic paste shall also be packed and labeled in accordance to the requirements prescribed in TZS 538 (see clause 2).

8.2.1 The following particulars shall legibly and indelibly be marked or labeled on each bag/container:

- a) Name of the product, 'Garlic Paste'
- b) Trade name or brand name, if any
- c) Name and address of the manufacturer and/or packer.
- d) Batch or code number
- e) Date of packing/manufacturing
- f) Net weight
- g) Country of origin
- h) Expiry date
- i) Storage condition
- j) List of ingredients
- k) Instruction for use

8.2.2 The language on the label shall be Kiswahili and/or English. A second language may be used depending on the designated market.

8.3 The containers may also be marked with TBS certification mark.

9. Sampling and test

9.1 Sampling

Garlic paste shall be sampled in accordance with TZS 33.

9.2 Test methods

Samples of garlic paste shall be tested for conformity with the requirements of this Standard by following the methods of physical, organoleptic, microbiological and chemical analysis.

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