DRAFT TANZANIA STANDARD

Cinnamon — Specification

TANZANIA BUREAU OF STANDARDS
Cinnamon — Specification

0 Foreword

Cinnamon is a spice obtained from the inner bark of an evergreen tree (*Cinnamomum zeylanicum* Blume) that is used in both sweet and savoury foods. This type of cinnamon is also known as real or true cinnamon.

This Tanzania Standard was prepared to ensure the safety and quality of cinnamon produced for local and export market.

In the preparation of this Tanzania Standard considerable help was derived from ISO 6539:2014 *Spices and condiments*.

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 (see clause 2)

1 Scope

This Tanzania Standard specifies the requirements, sampling and test methods for whole or ground (powdered) cinnamon which is the bark of the tree or shrub *Cinnamomum zeylanicum* Blume intended for human consumption.

2 Nomative 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;

- TZS 4, *Rounding off numerical values*
- TZS 29, *Spices and condiments — Nomenclature*
- TZS 33, *Spices and condiments — Sampling*
- TZS 109, *Code of hygiene for food processing units — General*
- TZS 118, *Microbiology of food and animal feeding stuffs — Horizontal method for enumeration of micro-organisms - Colony count technique at 30 °C*
- TZS 119, *Microbiology — General guidance for the enumeration of coliforms — Most probable number technique*
- TZS 131: 2006, *Microbiology — General guidance for the enumeration of yeast and mould - Colony count technique at 25 °C*
3 Terms and definitions

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

3.1 whole cinnamon

all commercial forms of cinnamon except cinnamon powder.

3.2 cinnamon quills (full tubes)

scraped peel of the inner bark of mature plantation cinnamon shoots joined together by overlaps, the hollow of which has been filled with small pieces of the same peel and thereafter dried in the sun after air curing.

3.3 cinnamon chips

dried pieces of the bark of plantation cinnamon, inclusive of the outer bark, which has been obtained by beating or scraping the shoots.

3.4 ground cinnamon

powder obtained by grinding cinnamon of the types considered in this Standard without adding additives.
3.6 extraneous matter

This includes foreign matter like chaff, dried leaves, stones, soil particles dust, dirt or any matter other than cinnamon.

4 Requirements

4.1 General requirements

4.1.1 Forms and appearance

Cinnamon shall be produced in three forms

4.1.1.1 Quills as defined in 3.2 shall be uniform in length.

4.1.1.2 Chips refer as defined in 3.3 shall be of small pieces.

4.1.1.3 Ground cinnamon: shall be ground to such fineness that all of it passes through a sieve of 500 micron (0.500 mm).

4.1.2 Taste and odour

The odour and taste shall be fresh and characteristic of cinnamon of the origin concerned. It shall be free from foreign flavours, including mustiness.

4.1.3 Colour

Cinnamon shall be yellowish to reddish-brown in colour.

(see clause 2).

4.2 Specific requirements

Cinnamon in all forms shall comply with requirements given in Table 1

Table 1 — Physical-Chemical requirements for whole and ground cinnamon

<table>
<thead>
<tr>
<th>S/No</th>
<th>Characteristics</th>
<th>Requirements</th>
<th>Test method (see clause 2)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>whole</td>
<td>Ground</td>
</tr>
<tr>
<td>i</td>
<td>Moisture % m/m, (max.)</td>
<td>14</td>
<td>12</td>
</tr>
<tr>
<td>ii</td>
<td>Volatile oil ml/100 g % m/m(min.)</td>
<td>1.0</td>
<td>0.7</td>
</tr>
<tr>
<td>iii</td>
<td>Total ash % m/m, max</td>
<td></td>
<td>7</td>
</tr>
<tr>
<td>iv</td>
<td>Acid insoluble ash % m/m, (max)</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>v</td>
<td>Non volatile ether extract % m/m, max</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>vi</td>
<td>Extraneous matter % m/m, max</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

NOTE — Requirements from ii to v are on dry basis.

5 Contaminants

5.1 metals contaminants

Cinnamon shall not contain any metallic contaminants in excess of levels specified in Table 2.
Table 2 — Limit for metallic contaminants for Cinnamon

<table>
<thead>
<tr>
<th>S/No</th>
<th>Characteristics</th>
<th>Maximum (mg/kg)</th>
<th>Method of test (see clause 2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>i</td>
<td>Arsenic (as As)</td>
<td>0.2</td>
<td>TZS 1502</td>
</tr>
<tr>
<td>ii</td>
<td>Tin (as Sn)</td>
<td>250</td>
<td>TZS 1492</td>
</tr>
<tr>
<td>iii</td>
<td>Lead (as Pb)</td>
<td>0.3</td>
<td>TZS 268</td>
</tr>
<tr>
<td>iv</td>
<td>Cadmium</td>
<td>0.1</td>
<td>TZS 1581-Part 1</td>
</tr>
<tr>
<td>v</td>
<td>Mercury</td>
<td>0.1</td>
<td>TZS 1501</td>
</tr>
</tbody>
</table>

5.2 Pesticides Residues

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

5.3 Mycotoxins

Aflatoxin – 5 ppb
Total Aflatoxin – 10 ppb

6 Hygiene

6.1 Cinnamon in all forms shall be prepared under Good Hygienic Practices as stipulated in TZS 109 and as per TZS 457 (see clause 2).

Table 3 — Microbiological requirements for whole and ground cinnamon

Include Salmonella, Staphylococcus aureus - Absent

6.2 Cinnamon whole and ground shall comply with the microbiological limits given in Table 3. (Shift to below 6.1)

7 Sampling and test methods

Sampling shall be carried out as prescribed in TZS 33 (see clause 2) and tests according to methods specified in this Tanzania Standard.

<table>
<thead>
<tr>
<th>S/No</th>
<th>Characteristic</th>
<th>Requirements</th>
<th>Test method (see clause 2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>i</td>
<td>Total plate count cfu/g, max</td>
<td>$1 \times 10^5$</td>
<td>TZS 118</td>
</tr>
<tr>
<td>ii</td>
<td>Yeast and mould cfu/g, max</td>
<td>$1 \times 10^2$</td>
<td>TZS 131</td>
</tr>
<tr>
<td>iii</td>
<td>Total Coliforms MPN, max</td>
<td>$1 \times 10^2$</td>
<td>TZS 119</td>
</tr>
<tr>
<td>iv</td>
<td><em>E. coli</em> CFU per 25g, max</td>
<td>Absent</td>
<td>TZS 730 (Part 2)</td>
</tr>
</tbody>
</table>

8 Storage and transport of cinnamon
8.1 Storage

Cinnamon shall be stored in premises well protected from the sun, rain, excessive heat and contamination.

The store room shall be dry, free from objectionable odours and proofed against entry of insects and other vermin. The ventilation should be controlled so as to give good air circulation under dry conditions and to be fully closed under damp conditions. In a storage warehouse, suitable facilities shall be available for fumigation.

8.2 Transport

The containers shall be transported in such a way that they are protected from the rain, sun or other source of excessive heat, objectionable odours and cross infestation, especially in the holds of ships.

9 Packaging, marking and labelling

9.1 Packaging

9.1.1 Whole and ground cinnamon 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 and which protects it from the ingress of moisture and loss of volatile matter.

9.1.2 The packaging shall be of food grade and must protect the product safety and quality during transportation and storage.

9.2 Marking and labelling

9.2.1 In addition to TZS 538 the following particulars shall legibly and indebibly be marked or labelled on each container:

   a) name of the product;
   b) trade name or brand name if any;
   c) name and physical and postal address of manufacturer and/or packer;
   d) batch or code number;
   e) net weight;
   f) manufacturing or packing date;
   g) best before date;
   h) country of origin; and
   i) storage condition.

9.3 The packages may also be marked with TBS Certification Mark of Quality.

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.