



DRAFT TANZANIA STANDARD

Dried tomatoes - specification

FOR STAKEHOLDERS' COMMENTS ONLY

TANZANIA BUREAU OF STANDARDS

FOREWORD

Dried tomatoes are commonly used vegetables in food to add flavour, colour, and nutrients. They are Prepared by different recognized methods of dehydration.

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

In the preparation of this standard assistance was sought from UNECE STANDARD DDP-19 Dried tomatoes - specification

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 prescribes requirements, methods of sampling and test for dried tomatoes of varieties *Solanum lycopersicum* L. Intended for human consumption

2 NORMATIVE 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 109 - Food processing units – Code of hygiene

TZS 118, Microbiology of food and animal feeding stuffs – Horizontal method for the enumeration of microorganisms – Colony-count technique at 30°C

TZS 131/ISO 7954, Microbiology of food and animal feeding stuff – General guidance for enumeration of yeasts and moulds – Colony count technique at 25°C

TZS 131 / 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

Codex Stan 192, General standard for food additives

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

TZS 538/EAS 38, Labelling of pre-packaged foods — General requirements

TZS 730 (Part 2)/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 789/EAS 12, Potable water-Specification

TZS 963-3, Starch and derived products – Heavy metals content – Part 3 – Determination of lead content by atomic absorption spectrometry with electro-thermal atomization

TZS 1502, Fruits and Vegetables – Determination of Arsenic content

TZS 1581-1 Determination of cadmium content – Method graphite furnace atomic absorption spectrometry

TZS 1581-2, Determination of cadmium content – Method flame atomic absorption spectrometry

3 TERMS AND DEFINITIONS

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

3.1: dried tomatoes

prepared from ripe tomatoes by different recognized methods of dehydration

4 REQUIREMENTS

4.1 General requirements

4.1.1 Tomatoes to be used shall be ripe, fresh and clean conforming to the characteristics of the tomatoes and of a quality suitable for human consumption.

4.1.2 Presentation

Dried tomatoes may be presented as follows:

- whole; sliced or powdered

The contents of each package shall be uniform and contain only dried tomatoes of the same origin, quality and size (if sized). The visible part of the contents of the package shall be representative of its entire contents.

4.1.3 Physical appearance

When examined visually dried tomatoes shall be

- a) free from damage caused by pests,
- b) intact (only for wholes and slices); except for edges that are slightly torn, slight superficial damage and slight scratches,
- c) free from rot or deterioration that may make it unfit for consumption,
- d) free from blemishes, areas of discoloration or spread stains in pronounced contrast with the rest of the produce affecting an aggregate not more than 5 % of the surface of the produce, and
- e) free of abnormal external moisture.

4.1.4 Colour, odour and flavour

Dried tomatoes shall have their characteristics colour, odour and flavour. They shall be free from off-odour, off-flavour and foreign taste including rancidity and mustiness. Dried tomatoes shall be free of fermentation.

4.1.5 Moulds and insects

Dried tomatoes shall be free from mould filaments and insect infestation, including the presence of dead insects and/or mites, their debris or excreta, when examined visually.

4.1.6 Extraneous matter

Dried tomatoes shall be practically free from extraneous matter including soil particles, loose stalks and rodent excreta when examined visually.

4.2 Specific requirements

When examined in accordance with the method in Annex A, the dried tomatoes shall have different moisture contents as indicated in Table 1. The texture of the dried tomatoes shall vary according to the moisture content as indicated in Table 1.

Table 1 — Moisture content limits for dried tomatoes

Type	Moisture of dried tomatoes (%m/m,max)	Test method
Whole/sliced	15	ANNEX A
Powdered	6	ANNEX A

5 Contaminants.

5.1 Dried tomatoes shall not contain metal contaminants in excess of quantities specified in Table 2.

Table 2: Limits for metal contaminants in dried tomato

Heavy metals	Maximum limit mg/kg	Test method
Arsenic (As)	0.2	TZS 1502
Lead (Pb)	0.03	TZS 963-3
Cadmium (Cd)	0.05	TZS 1581-1/2

5.2 The maximum allowable pesticide residue limits in dried tomatoes shall be as prescribed in the relevant Codex Stan 193

6 Hygiene

Dried tomatoes shall be produced and handled in accordance with TZS 109. The products shall conform to the requirements for microbiological limits in Table 2.

Table 2—Microbiological limits in dried tomato`

Microbiological parameter, <i>cfu/g</i>	limit	Method of test
Total plate count, max	10 ³	TZS 118
<i>Escherichia coli</i>	absent	TZS 730 - 2
Yeasts and moulds, max.	10 ²	TZS 131

7. Methods of sampling and test

Dried tomatoes shall be sampled in accordance with ANNEX B and tested for compliance with the requirements of this standard as described in table 1 and 2.

8 Packing, marking and labeling

8.1 Packing

Dried tomatoes shall be packaged in suitable food grade containers, made of a material which does not affect the products and which protects it from moisture, and from loss of volatile matter.

The container shall protect the product from any form of contamination.

8.2 Marking and Labelling

In addition to TZS 538 the following particulars shall legibly and indelibly be marked or labeled on each container.

- a) Name of the product
- b) Brand name if any;
- c) Name, physical and postal address of manufacturer and/or packer;
- d) Batch or code number;
- e) Date of production/packing
- f) Net weight;
- g) Best before date;
- h) Country of origin;

i) Storage condition

NOTE: The TBS standards mark of quality may be used by manufactures only under licence from TBS. Particulars of conditions under which the licence is granted can be obtained from TBS.

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Annex A
(normative)

Determination of the moisture content for dried tomatoes

NOTE this method is the same as that prescribed by the AOAC: Official Methods of Analysis, XIIIth edition, 1980, 22.013 - Moisture in Dried fruits and vegetables, Official Final Action.

A.1 Definition

The moisture content of dried tomatoes is defined as being the loss of mass determined under the experimental conditions described in this annex.

A.2 Principle

The principle of the method is the heating and drying of a sample of dried fruit at a temperature of 70 °C + 1 °C at a pressure not exceeding 100 mm Hg.

A.3 Apparatus

Usual laboratory apparatus is used together with the following items:

- a) Electrically heated constant-temperature oven, capable of being controlled at 70 °C + 1 °C at a pressure of 100 mm Hg
- b) Dishes with lids, of corrosion-resistant metal of about 8.5 cm in diameter
Mincer, either hand or mechanically operated
- d) Desiccator, containing an effective desiccant
- e) Precision balance

A.4 Procedure

A.4.1 Preparation of the sample

Take approximately 50 g of dried fruit from the laboratory sample, and mince it twice with the mincer.

A.4.2 Test portion

Place 2 g of finely divided asbestos into the dish, tare the dish with its lid and the asbestos, dried beforehand.

Weigh, to the nearest 0.01 g about 5 g of prepared sample.

NOTE Dried sand which has previously been washed in hydrochloric acid and then rinsed thoroughly with water may

be used in the place of the asbestos. Analysts using this technique should note that it is a deviation from the AOAC

procedure, and should mention this in their report.

A.4.3 Determination

Moisten the sample and the asbestos thoroughly with a few millilitres of hot water. Mix the sample and the asbestos together with a spatula. Wash the spatula with hot water to remove the sample residues from it, letting the residues and the water fall into the dish.

Heat the open dish on a boiling-water bath (Bain-marie) to evaporate the water to dryness. Then place the

dish, with the lid alongside it, in the oven and continue drying for six hours at 70 °C under a pressure not exceeding 100 mm Hg, during which time the oven should not be opened. During drying admit a slow current

of air (about two bubbles per second) to the oven, the air having been dried by passing through H₂SO₄. The

metal dish must be placed in direct contact with the metal shelf of the oven. After drying, remove the dish, cover it immediately with its lid and place it in the desiccator. After cooling to ambient temperature, weigh the

covered dish to the nearest 0.01 g.

A.5 Calculation and expression of results

The moisture content of the sample, as percentage by mass is calculated as follows:

$$\text{Moisture content} = 100 \times (M1 - M2) / (M1 - M0)$$

where

M0 is the mass, in grams, of the empty dish with its lid and containing the asbestos,

M1 is the mass, in grams, of the dish with its lid, asbestos and test portion before drying, and

M2 is the mass, in grams, of the dish with its lid after drying.

The results are expressed to one decimal place.

Duplicate determinations should agree to 0.2 % moisture.

Annex B
(informative)
Sampling of tomatoes

B.1 Definitions

B.1.1

package

individually packaged part of a lot, including contents so as to facilitate handling and transport of a number of

sales units or of products loose or arranged, in order to prevent damage by physical handling and transport.

Road, rail, ship and air containers are not considered as packages.

B.1.2

sales package

individually packaged part of a lot, including contents, which is so as to constitute a sales unit to the final user

or consumer at the point of purchase

B.1.3

pre-packages

sales packages such as the packaging encloses the foodstuff completely or only partially, but in such a way

that the contents cannot be altered without opening or changing the packaging. Protective films covering single product are not considered as a pre-package.

B.1.4

consignment

quantity of product to be sold by a given trader found at the time of inspection and defined by a document. A

consignment may consist of one or several types of product; it may contain one or several lots of dried fruit.

B.1.5

lot

quantity of product which, at the time of inspection at one place, has similar characteristics with regard to:

- a) packer and/or dispatcher;
- b) country of origin;

- c) nature of product;
- d) class of product;
- e) size (if the product is graded according to size);
- f) variety or commercial type (according to the relevant provisions of the standard); and
- g) type of packaging and presentation.

If it is difficult to distinguish between different lots and/or presentation of individual lots, all lots of a specific

consignment may be treated as one lot if they are similar in regard to type of product, dispatcher, country of

origin, class and variety or commercial type, if this is provided for in the relevant marketing standard.

B.1.6

sampling

collective samples taken temporarily from a lot during conformity check

B.1.6.1

primary sample

package taken at random from the lot, in case of packed product or, in case of bulk product (direct loading into

a transport vehicle or compartment thereof), a quantity taken at random from a point in the lot.

B.1.6.2

bulk sample

several primary samples supposed to be representative for the lot so that the total quantity is sufficient to allow the assessment of the lot with regard to all criteria

B.1.6.3

secondary sample

equal quantity of product taken at random from the primary sample

The secondary sample shall comprise 30 units, in case the net weight of the package is 25 kg or less and the

package does not contain any sales packages. In certain cases this means that the whole content of the package has to be checked, if the primary sample contains not more than 30 units.

B.1.6.4

composite sample

mix, weighing at least 3 kg, of all the secondary samples taken from the bulk sample. Product in the composite sample shall be evenly mixed.

B.1.6.5

reduced sample

quantity of product taken at random from the bulk or composite sample whose size is restricted to the minimum quantity necessary but sufficient to allow the assessment of certain individual criteria.

If the inspection method would destroy the product, the size of the reduced sample shall not exceed 10 % of

the bulk sample. In the case of small dry or dried products (that is, 100 g include more than 100 units) the reduced sample shall not exceed 300 g.

Several reduced samples may be taken from a bulk or composite sample in order to check the conformity of

the lot against different criteria.

B.2 Sampling method

B.2.1 Identification of lots and/or getting a general impression of the consignment

The identification of lots shall be carried out on the basis of their marking or other criteria. In the case of consignments which are made up of several lots it is necessary for the inspector to get a general impression

of the consignment with the aid of accompanying documents or declarations concerning the consignments.

The inspector shall then determine how far the lots presented comply with the information in these documents.

If the product is to be or has been loaded onto a means of transport, the registration number of the latter shall

be used for identification of the consignment.

B.2.2 Presentation of product

The inspector shall decide which packages are to be checked. The presentation shall be made by the operator and shall include the presentation of the bulk sample as well as the supply of all information necessary for the identification of the consignment or lot.

If reduced or secondary samples are required, these shall be identified by the inspector from the bulk sample

The inspector shall determine the size of the bulk sample in such way as to be able to assess the lot. The inspector selects at random the packages to be inspected or in the case of bulk product the points of the lot

from which individual samples shall be taken.

Care shall be taken to ensure that the removal of samples does not adversely affect the quality of the product.

Damaged packages shall not be used as part of the bulk sample. They shall be set aside and may, if necessary, be subject to a separate examination and report.

The bulk sample shall comprise the following minimum quantities whenever a lot is declared unsatisfactory or

the risk of a product not conforming to the standard has to be examined:

Number of packages in the lot	Number of packages to be taken (primary samples)
Packaged products	5
Up to 100	5
From 101 to 300	7
From 301 to 500	9
From 501 to 1 000	10
More than 1 000	15 (minimum)
Product in bulk	
Quantity of lot in kg or number of bundles in the lot	Quantity of primary samples in kg or number of bundles
Up to 200	10
From 201 to 500	20
From 501 to 1 000	30
From 1 001 to 5 000	60
More than 5 000	100(minimum)

In the case of bulky dried fruit and vegetables (over 2 kg per unit), the primary samples shall be made up of at least five units. In the case of lots comprising fewer than five packages or weighing less than 10 kg, the check shall cover the entire lot.

If the inspector discovers, after an inspection, that a decision cannot be reached, another physical check shall be undertaken and the overall result reported as an average of the two checks.

B.2.3 Control of product

In case of packed product, the primary samples shall be used to check the general appearance of the product, the presentation, the cleanliness of the packages and the labelling. In all other cases, these checks shall be done on basis of the lot or transport vehicle.

The product shall be removed entirely from its packaging for the conformity check. The inspector may only dispense with this where the sampling is based on composite samples.

The inspection of uniformity, minimum requirements, quality classes and size shall be carried out on the basis of the bulk sample, or on the basis of the composite sample.

When defects are detected, the inspector shall ascertain the respective percentage of the product not in conformity with the standard by number or weight.

External defects shall be checked on the basis of the bulk or composite sample. Certain criteria on the degree of development and/or ripeness or on the presence or absence of internal defects may be checked on the basis of reduced samples. The check based on the reduced sample applies in particular to checks which destroy the trade value of the product

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