

DRAF TANZANIA STANDARD

BROWN SUGAR – SPECIFICATION

FOR PUBLIC COMMENTS ONLY

TANZANIA BUREAU OF STANDARDS

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The Tanzania Bureau of Standards (TBS) is the statutory national standards body for Tanzania, established under the Standards Act No. 3 of 1975, repealed and replaced by the Standards Act No. 2 of 2009.

The Agriculture and Food Divisional Standards Committee under whose supervision this Tanzania Standard was prepared, consists of representatives from the following organizations:

Ministry of Agriculture, Food Security and Cooperatives
Government Chemist Laboratory Agency
Sokoine University of Agriculture (SUA)
Tanzania Food and Nutrition Centre (TFNC)
Tanzania Consumers Protection Association
*Tanzania Food and Drugs Authority (TFDA)
Biashara Consumer Services Limited
Small Industries Development Organisation
Tanzania Revenue Authority (Customs)

The organization marked with an asterisk (*) in the above list, together with the following, were directly represented on the Technical Committee entrusted with the preparation of this Tanzania Standard.

Sugar Board of Tanzania
Kilombero Sugar Company Limited
Coca Cola Kwanza Limited
Mtibwa Sugar Company Limited
Ministry of Natural Resources and Tourism
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0 FOREWORD

Traditionally raw sugar in the sugar industry has been used as raw material for the production of refined sugar. Nonetheless, with improved industrial processing capability, raw sugar can now be upgraded characteristically and be used for direct human consumption as a brown sugar.

Consumption of brown sugar is quite common in Tanzania and other countries. This trend has been a result of higher consumer acceptance and low production cost of the commodity, compared to refined sugar. Acceptance of this Tanzania brown sugar has been due to the improved quality of the raw sugar in terms of purity, keeping quality and free flowing characteristics.

This Tanzania Standard has been developed in order to ensure wholesomeness, safety and quality of the product traded in the country

In the preparation of this Tanzania Standard, considerable assistance was derived from: local sugar industries and from:

ICUMSA Methods Book, 1994; Published by the International Commission for Uniform Methods of Sugar Analysis – United Kingdom

EAS16:2010 – *Brown sugar – Specification*, published by the East African commission

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 prescribes the requirements and the methods of sampling and test for light brown and brown sugar intended for human consumption.

2 REFERENCE

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: 2009, *Rounding off numerical values*

TZS 59: 1980, *Water – Distilled quality – Specification*

TZS 109: 1981, *Code of hygiene for food processing units – General*

TZS 119 *Microbiology of food and animal feeding stuffs – Horizontal method for detection and enumeration of coliforms – Most probable number technique*

TZS 122 *Microbiology of food and feeding stuffs – Horizontal method for the detection of salmonella spp*

ICUMSA Methods Book

CODEX 192 General Standard for Food Additives

3 TERMS AND DEFINITIONS

For the purpose of this Tanzania Standard, the following definitions shall apply:

3.1 sugar

the crystalline and purified sucrose (saccharose), as a product of sugarcane or sugar beet.

3.2 brown sugar

shall be the sugar derived from sugar cane or sugar beet by partial purification of raw sugar cane/beet juice or spraying of refined sugar with sugar syrup or molasses followed by subsequent drying to achieve free flowing sugar intended for direct human consumption.

3.4 ICUMSA unit

an international unit developed by International Commission for Universal Methods of Sugar Analysis (ICUMSA) for expressing the purity of sugar and is directly related to the colour of sugar.

3.5 polarization(Z)

an estimate of the sucrose content of sugar

4 REQUIREMENTS

4.1 General requirements

Brown sugar shall be in form of fine free flowing crystals, practically free from dirt, foreign and extraneous matter; and free from fermented, musty or undesirable odours.

4.2 Specific requirements

Brown sugar shall also comply with the compositional requirements given in table 1.

Table 1 — Physical and chemical requirements for brown sugars

S No	Characteristic	Requirement/limits		Methods of test
i.		Light brown	brown	
ii.	Polarisation, °Z, min.	99.2	>99.0	ICUMSA Method GS 1/2/3/9-1,
	Invert sugar content, % m/m, max.	0.2	0.2	ICUMSA Method GS 2/3/9-5, ICUMSA Method GS 2/9-6,
iii.	Conductivity ashes, % m/m, max.	0.3	0.3	ICUMSA Method GS 1/3/4/7/8-13
iv.	Moisture content percent m m (loss on drying for 3h at 105 °C ± 2 °C), max.	0.15	0.2	ICUMSA Method GS 2/1/3/9-15
v.	Colour, in ICUMSA units, max	700	1300	ICUMSA Method GS 9/1/2/3-8

vi	Sulphur dioxide, mg/kg, max.	20	20	ICUMSA GS 2/3-35
Vii	Water insoluble matter, mg/kg, max.	250	250	ICUMSA Method GS 2/3/9-19

4.3. Food additives

Brown sugars may contain only those food additives permitted by Codex Alimentarius Commission as prescribed in Codex Stan 192

5 CONTAMINANTS

5.1 Pesticide residues

Brown sugar shall conform to those maximum pesticide residue limits established by the Codex Alimentarius Commission

5.2 Heavy metals

Brown sugar shall conform to those maximum heavy metal contaminant limits established by the Codex Alimentarius Commission

6 METHODS OF SAMPLING AND TEST

6.1 Sampling;

The method of drawing representative samples of the product and criteria for conformity shall be as prescribed in annex A of this Tanzania Standard.

6.2 Tests

6.2.2 Tests shall be carried out in accordance with the methods prescribed in Table 1 and table 2.

6.3 Quality of reagents

Unless specified otherwise, pure chemicals shall be employed in tests and distilled water shall be used where the use of water as a reagent is intended (TZS 59, see clause 2).

NOTE: 'Pure chemicals' shall mean chemicals that do not contain impurities which affect the results of analysis (Chemicals of Analytical Grade)

7 Hygiene

7.1 In order to ensure the safety and quality of Tanzania brown sugar, the product shall also be manufactured, handled, stored and transported in accordance with the requirements given in TZS 109 (see clause 2).

7.2 When tested using appropriate methods provided in table 2 the products:

- be free from microorganisms in amounts which may represent a hazard to health and shall not exceed the limits stipulated in table 2;

- be free from parasites which may represent a hazard to health; and
- not contain any substance originating from microorganisms in amounts which may represent a hazard to health.

Table 2 — Microbiological requirement for brown sugars

Microbiological parameter	Requirements	Method of test
Total Plate Count (mesophylic), cfu/10g max	10 ³	ICUMSA GS2/3-41
Yeast and moulds, cfu/10 g, max	50	ICUMSA GS2/3-47
<i>Escherichia coli</i> , cfu,/10g	Absent	TZS 119
<i>Salmonella</i> , per 25g	Absent	TZS 122

8 Packaging, marking and labelling

8.1 Packaging

Brown sugar shall be packed in a clean and sound food grade materials that will afford its adequate protection during storage, transportation, distribution and use.

8.2 Marking and labelling

Each bag shall be legibly and indelibly marked with the following information:

- a) name of the product (brown sugar);
- b) net contents by mass in SI units;as per weight and measure regulations
- c) name and address of the manufacturer of the product and/or the packer, distributor, importer, exporter or vendor of the product shall be declared; and
- d) country of origin;

NOTE: The words, "Produce of Tanzania" shall be declared on the label.

- e) manufacturer's registered trade mark, if any;
- f) date of manufacture in the form 'month and year',

8.3 Certification marking

Each bag shall also be marked with TBS Standards Mark of Quality

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

Annex A

Sampling of brown sugar

A.1 General requirements for sampling

In drawing, preparing, storing and handling of samples, the following precautions and directions shall be observed:

A.1.1 Samples shall be taken in a protected place not exposed to damp air, dust or soot.

A.1.2 The sampling instruments shall be clean and dry when used.

A.1.3 When sampling for microbiological purposes, the sampling instruments and containers for samples shall be sterilized preferably by dry heat at 170 °C for one hour before use.

A.1.4 Precautions shall be taken to protect the samples, the material being sampled, the sampling instruments and the containers for samples from adventitious contamination.

A.1.5 The samples shall be placed in clean, dry, and moisture-proof containers.

A.1.6 The sample containers shall be sealed air-tight after filling and marked with name of material, date of sampling, name of the manufacturer, name of the person sampling and such other particulars of the consignments.

A.1.7 Samples shall be protected from light as far as practicable and shall be stored in a cool, dry place.

A.2 Scale of sampling

A.2.1 Lot

All the bags in a single consignment declared to contain Tanzania brown sugar shall constitute a lot.

Samples shall be tested separately for each lot for ascertaining the conformity of the Tanzania brown sugar.

A.2.2 The number of bags to be selected (n) from the lot shall depend on the size (N) of the lot and shall be in accordance with the formula:

$$n = \sqrt{N}$$

A.2.2.1 These bags shall be selected at random from the lot; to ensure the randomness of selection a random number table, as agreed to between the purchaser and the supplier shall be used. In case such a table is not available, the following procedure shall be used:

Starting from any bag, count them as 1, 2, 3... up to r and so on in one order, where r is equal to the integral part of N/n , N being the total number of bags in the lot and n the number of bags to be selected. Every r^{th} bag thus counted shall be separated until the requisite number of bags is obtained from the lot to give samples for test.

A.2.2.2 In case of bags stacked in a pyramidal shape, approximately equal number of bags shall be selected from all exposed sides of the lot, so as to give the required number of sample bags.

A.3 Preparation of sample

A.3.1 From the top, middle and bottom portions of each of the selected bags (see A.2), approximately equal quantity of sugar shall be taken with the help of a suitable sampling instrument. The sample collected from each of the bags shall be thoroughly mixed so as to give a composite sample of 600 g. The composite sample thus prepared shall be divided approximately into three equal parts; one for the purchaser, one for the supplier, and the third for the referee and sealed air tight with particulars as given in A.1.6.

A.3.2 Number of tests

The composite sample prepared as under A.3.1 shall be tested for the characteristics as prescribed in table 1.

A.3.3 Criteria for conformity

The lot shall be declared as conforming to this specification, when the test results on various characteristics obtained on the composite sample satisfy the corresponding requirements.