AFDC13 (531) P3/Rev.TZS 1654:2013
ICS: 67.160.10

DRAFT TANZANIA STANDARD

LIQUEURS — SPECIFICATION

TANZANIA BUREAU OF STANDARDS

LIQUEURS — SPECIFICATION

0 FOREWORD

A liqueur is an alcoholic beverage that has been flavoured with fruit, herbs, nuts, spices, flowers or cream and bottled with added sugar. There are different types of liqueur such as chocolate liqueurs, coffee liqueurs, cream liqueurs, fruit liqueurs, crème liqueurs, Berry liqueurs, flower liqueurs, herbal liqueurs and nut-flavored liqueurs.

This Tanzania Standard was prepared to ensure the safety and quality of liqueurs produced and/ or traded in the country. 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*

1 SCOPE

This Tanzania Standard specifies requirements, methods of sampling and testing for liqueurs.

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 documents (including any amendments) applies;

TZS 4 Rounding off numerical values

TZS 59 Water — Distilled quality — Specification

TZS 76 Methods for determination of arsenic

TZS 109 Food processing units — Code of hygiene

TZS 118 Microbiology of food and animal feeding stuffs — Horizontal method for enumeration of micro-organisms — Colony count technique at 30 ºC

TZS 119 Microbiology of food and animal feeding stuff horizontal method for the detection and enumeration of coliforms-most probable number technique

CODEX STAN 192, Codex general standard for food additives

TZS 268 General atomic absorption — Spectrophotometric method for determination of lead in food stuffs

TZS 471 Methods of sampling and test for alcoholic beverages

TZS 538 Labelling of pre-packaged foods — General requirements

TZS 1018 Neutral (fine) spirit — Specification

TZS 1495:2016/ ISO 7952-1994 Fruits, vegetables and derived products Sampling and methods of test – Part 9: Determination of copper content – Method

TZS 1502:2016/ ISO 6634-1982 Fruits, vegetables and derived products – Sampling and methods of test Part 14: Determination of arsenic content - Silver diethyldithocarbamate spectrophotometric method

3 TERMS AND DEFINITIONS

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

3.1 liqueurs

alcoholic beverage produced by mixing or redistilling neutral spirit with permitted food additives, produced by distillation, infusion, percolation or maceration, which may be sweetened with permitted sweeterners and colored with permitted colorants and may contain aromatic materials/from extracts derived from animal or plant origin.

3.2 neutral spirit

the alcoholic distillate obtained from fermented wort or wash of mash of cereals and other carbohydrates, saccharified by diastase of malt or other permitted enzymes; or it may be a distillation product from sugarcane or honey; fermented by the action of *Saccharomyces cerevisiae*, from which a distilled liquor conforming to TZS 1018 (see clause 2) is obtained after a series of concentration by distillation process.

3.3 alcohol

ethyl alcohol (ethanol). C_2H_5OH

4 REQUIREMENTS

4.1 GENERAL REQUIREMENTS

4.1.1 Description

4.1.1.1 A liqueur shall be the product obtained by mixing or redistilling neutral spirits with, or over flavouring materials and containing any of the permitted sweeteners, or a combination of these.

4.1.1.2 The product shall be free from any extraneous and foreign matter substances injurious to health

4.1.1.3 The flavouring extracts materials may include:
a) fruits, flowers, plants or pure juices;
b) other natural flavouring materials; and
c) permitted artificial or synthetic flavourants

4.1.1.4 Blending materials such as egg, milk, cream, fat or vegetable oil products may be added.

4.1.1.5 The product shall be free from sediments.

4.1.1.6 The water used to dilute liqueurs to bottling strength shall be distilled, in accordance with TZS 59 (see clause 2) or demineralized or deionized.

4.1.1.7 Food additives

The product may contain food additives as prescribed in Codex Stan 192 (see clause 2).

4.2 Specific requirements

Liqueurs shall comply with the chemical requirements given in Table 1.

Table 1 — Chemical requirements for liqueurs

Characteristics	**Requirements**	**Methods of test TZS 471 (see clause 2)**
Ethyl Alcohol content % v/v	15 - 45	Clause 6
Volatile acidity as acetic acid, g/L, max as absolute alcohol	2.5	Clause 10
Total esters as ethyl acetate, mg/L, as absolute alcohol, max	2000	Clause 11
Aldehydes as acetaldehyde, mg/L, as absolute alcohol, max	500	Clause 12
Higher alcohols (amyl alcohol or isoamyl alcohol) mg/L as absolute alcohol, max	1000	Clause 16
Methanol, mg/L, as absolute alcohol, max fruit/potato- based liqueurs cereal or other sources-based liqueurs	 500 300	Clause 14
Total sugars %, min	2.5	Annex A or Refractometer

5 METAL CONTAMINANTS

The level of metal contaminants shall conform to the limits specified in Table 2.

Table 2 — the level of metal contaminants

Metal	**Limit**	**Methods of test (see clause 2)**
Lead mg/L , *max*	0.1	TZS 268
Coper mg/Kg, max	2	TZS 1495
Arsenic mg/Kg, max	0.1	TZS 1502

6 HYGIENE

6.1 Liqueurs shall be prepared under Good Hygienic Practices as stipulated in TZS 109 (see clause 2).

7 Sampling and tests methods

7.1 Sampling

The product shall be sampled as prescribed in TZS 471 (see clause 2).

7.2 Test methods

7.2.1 Testing shall be done in accordance with TZS 471 (see clause 2) and as provided in the respective Tables of this Tanzania Standard.

8 PACKING, MARKING AND LABELING

8.1 Packing

8.1.1 The product shall be packed in suitable and hygienic food grade packaging materials and the volume of the package shall be not less than 200 mL

8.2 Marking and labeling

8.2.1 The product shall be marked and labeled either in English and/or swahili in accordance with TZS 538 (see clause 2).

8.2.2 In addition each container/packet of product shall be legibly and indelibly marked with the following information:

a) Name of the product shall be “Liqueur”
b) Ethyl Alcohol content i.e v/v
c) Batch or code number
d) Date of packing
e) Name, postal and physical address of the manufacturer
f) Net volume
g) Manufacturer registered product brand name and/or trade mark, if any
h) Country of origin
i) List of Ingredients
j) Declaration of statutory warning
k) Storage condition

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

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

Annex A

HPLC method for determination of sugar in liqueurs

A.1 Apparatus

A.1.1 Liquid Chromatograph with:

a) solvent delivery system and injector;
b) differential refractometer detector (10 MV full scale deflection);
c) recorder with variable chart speed.

A.1.2 HPLC column 30 cm × 4 mm stainless steel tube packed with *μ* Bondapak/carbohydrate.

A.1.3 Sample clarification kit (0.45 *μ*m-pore diameter)

A.2 Reagents

A.2.1 Reference sugars. D-glucose, D-fructose, sucrose, lactose, and maltose

A.2.2 Mobile phase. Acetonitrile and water (80 + 20)

A.3 operating conditions

flow rate	2.0 mL/min (approx. 600 psi)
Mode	isocratic
Temperature	ambient
Attenuation	8
chart speed	5 mm/min

A.4 Preparation

A.4.1 Sample preparation

Dilute sample to known volume containing 10 mg to 15 mg of each sugar/mL. Filter about 2 mL sample solution through 0.45 *μ*m-pore diameter membrane (Sample Clarification Kit) to remove particulate matter.

A.4.2 Standard preparation

Mixed sugar standard solution. Accurately weigh 1.0 g to 1.5 g of each reference sugar, transfer to 100-mL volumetric flask, and dilute to volume with water. Filter about 2 mL through to 0.45 *μ*m-pore diameter membrane (Sample Clarification Kit).

A.5 Determination

A.5.1 Chromatography

Inject 20 μL mixed sugar standard solution filtrate into liquid Chromatograph. Under these conditions the retention times (min) of reference sugars are:

Fructose	4.55 (min)
Glucose	5.30 (min)
Sucrose	7.88(min)
Lactose	10.84(min)
Maltose	11.40(min)

Measure peak height of each reference sugar. Inject 20 μL sample solution filtrate into liquid Chromatograph. Measure height of peak corresponding to each sugar.

A.5.2 Calculation

Calculate amount of each sugar in 100 g sample as follows;

$$W = \frac{C \times PH' \times V \times I \times 100}{PH \times V' \times S \times 1\,000}$$

Where by:

W = weight of sugar (g)
C = concentration of sugar (mg/mL) in mixed sugar standard solution
PH′ & PH = peak heights of sugar in sample and standard, respectively
V & V′ volume (μL) of mixed sugar standard solution and sample solution injected, respectively
I = volume (mL) of sample assay solution
S = Weight of sample (g) taken for assay.