

DRAFT TANZANIA STANDARD

TBS/CDC-2(5413) P3 Herbal soap – Specification
(Revision of TZS 1009:2008)

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TANZANIA BUREAU OF STANDARDS

Foreword

This Draft Tanzania Standard was developed by the Soap and Detergents Technical Committee under supervision of the Chemicals Divisional Standards Committee and it is in accordance with the procedures of the Bureau.

This Draft Tanzania Standard is the first revision of TZS 1009:2008 Herbal soap – Specification, unlike the previous, this edition covers the following types;

- a) herbal toilet soap
- b) herbal laundry soap and
- c) herbal liquid soap

Soaps containing neem or jatropha oils are covered by separate standards, TZS 883, *Neem herbal soap – Specification* and TZS 894, *Jatropha herbal soap – Specification* respectively.

In reporting the results of analysis of a test if the final value is to be rounded off, it shall be done in accordance with TZS 4 *Rounding off numerical values*

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Herbal soap – Specification

1 Scope

This Draft Tanzania Standard prescribes requirements, sampling and test methods for herbal soap. It covers the following type of soaps;

- a) herbal toilet soap
- b) herbal laundry soap
- c) herbal liquid soap

2 Normative references

The following referenced documents are indispensable for the application of this document. The latest edition of the referenced document (including any amendments) applies.

TZS 1396-8.2/ISO 457, *Analysis of soap — Determination of Chloride content — Titrimetric method*

TZS 1396-4/ISO 456, *Surface active agents — Analysis of soaps— Determination of free caustic alkali*

TZS 1396-12/ISO 684, *Analysis of soap — Determination of Total free alkali*

TZS 1396-6/ISO 685, *Analysis of soap — Determination of alkali content and total fatty matter content*

TZS 1396-3/ISO 673, *Analysis of soap — Determination of ethanol insoluble matter*

TZS 35, *Soaps – Sampling and test methods*

TZS 1396-9/ISO 1067, *Analysis of soap — Determination of unsaponifiable, unsaponified and unsaponified saponifiable matter*

3 Terms and definitions

For the purposes of this standard terms and definitions specified under TZS 35 and the following shall apply.

3.1

herbal soap

soap containing plant extracts

3.2

herbal toilet soap

soap in the form of bar or cake containing plant extracts and/or oil which is intended for use in bathing

3.3

herbal laundry soap

soap in the form of bar or cake containing plant extracts and/or oil which is intended for use in washing clothes

3.4

herbal liquid soap

soap in the form of liquid containing plant extracts and/or oil intended for general hygienic purpose

4 Requirements

4.1 General requirements

4.1.1 Herbal toilet soaps

4.1.1.1 The herbal toilet soap shall be high graded, thoroughly saponified milled soaps or homogenized soap or both, white or coloured with good cleaning and lathering properties.

4.1.1.2 In addition to perfumes and moisture, herbal toilet soap may contain colouring matter, preservatives, and super fatting agents and such additional substances shall be declared on the label. All the foreign materials shall be non-injurious in use with soap.

4.1.2 Herbal laundry soap

4.1.2.1 The herbal laundry soap shall be of firm texture, free from objectionable odour even on clothes after washing and thoroughly rinsing with water, and shall possess good lathering and cleaning properties.

4.1.2.2 When coloured herbal laundry soap is used in washing any white fabric, it shall not leave any visible stains on the fabrics after washing and thorough rinsing with water when tested in accordance with Annex A.

4.1.3 Herbal liquid soap

4.1.3.1 The herbal liquid soap shall be in a form of a liquid or emulsion, opaque or transparent, coloured or colourless and perfumed or unperfumed. It shall be of uniform consistency, free from sediments and suspended particles, be easily spreadable, have good lathering and rinsing properties, non-toxic and non-irritant.

4.1.3.2 Herbal liquid soap may contain up to 2% appropriate synthetic detergents

4.1.4 Plant extract and/or oil

The manufacturer shall use quantity of plant oil processed in such a manner to ensure the intended application. The standard requires up to 15% of plant extract and/or oil in the blend. Objective evidence shall be made available to the inspector conducting the inspection work.

4.1.5 Herbal soap shall contain non harmful non-toxic and non-irritant to substance to human being.

4.2 Specific requirements

All types of herbal soaps shall comply with requirements specified in Table 1.

Table 1 – Requirements for herbal soap

S/No:	Characteristic	Type of herbal soap			Test methods
		herbal toilet soap	herbal laundry soap	herbal liquid soap	
i.	Total fatty matter, % by mass, min	70	45	15	TZS 1396-6/ISO 685
ii.	Matter insoluble in alcohol, % by mass, max	2.5	20	0.5	TZS 1396-3/ISO 673
iii.	Matter insoluble in water, % by mass, max	-	5	-	TZS 35
iv.	Free caustic alkali as (NaOH), % by mass, max	0.03	0.4	0.03	TZS 1396-12/ISO 684
v.	Total free alkali as Na ₂ O or K ₂ O, % by mass, max	-	0.3	0.03	TZS 1396-4/ISO 456
vi.	Chloride content, as NaCl, % by mass, max	1.3	1.5	NIL	TZS 1396-8.2/ISO 457
vii.	*Unsaponified fatty matter, % by mass, max	0.5	2	nil	TZS 1396-9/ISO 1067
viii.	pH at 27 °C	-	-	7.5 – 9.5	Annex B

5 Packaging and labelling

5.1 Packaging

All herbal soaps shall be packed in suitable materials that will not allow loss of important active ingredients, damage of the product or its contamination.

5.2 Labelling

The packages shall be securely closed, legibly and indelibly labelled in Kiswahili and English, and other language as agreed between the manufacturer and supplier with the following information:

- name of the product including respective herb and type;
- name and address of the manufacturer;
- registered trade mark if any;
- batch or lot number in code or otherwise;
- Nominal weight/volume of the product at the time of packaging;
- Country of origin and
- Percentage of plant oil used in total oil blend.

6 Sampling and Criteria for conformity

For the purpose of this Draft Standard, sampling and criteria for conformity shall be done as Annex C.

Annex A
(normative)

Determination of staining test of herbal laundry soap

A.1 Dissolved herbal laundry soap (2.5 % product concentration)

A.1. Principle

The method involves subjecting fabrics to prolonged soaking in a highly concentrated herbal laundry soap solution.

A.2 Materials

Pieces of white cotton, nylon and Crimplene C cloth of dimension 15 cm x 7.5 cm

A.3 Procedure

A.3.1 Weight 10 g of herbal laundry soap in a honey jar and then add 200 ml of hot water at a temperature of approximately 60 °C, shake until when the soap is thoroughly dissolved.

A.3.2 Place a test swatch A 15 cm x 7.5 cm in the soap solution (A.2.3.1) and allow to stand overnight.

A.3.3 Transfer the test swatch in a bowl containing one litre of water and then agitate vigorously by hand for 10 s.

A.3.4 Rinse the test swatches in 5 l of water by hand. The times should be fixed for all washes, and then dry swatches.

NOTE: The staining test should be conducted in triplicate for all cloth types.

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Annex B
(normative)

Determination of pH

B.1 Methods

The determination shall be carried out by the electrometric method or by the indicator method in case of dispute the electrometric method shall be adopted.

B.1.1 Electrometric method

Determination shall be made by using a pH meter

Procedure

Prepare a 1% solution (*m/v*) of the material by weighing accurately about 5 g of the material and transfer it to a 150 ml beaker. Add about 50 ml of freshly boiled and cooled distilled water to the beaker and put the beaker on a hot-plate for dissolving the material soluble in water. Continue stir with a glass rod to ensure dissolution. Filter through a filter paper into a 100-ml flask. Wash the filter paper with hot water at least four times collection the washings into the filtrate. Cool the solution under a water tap and then add distilled water up to the 100 ml mark. Determine the pH of the solution using a pH meter.

B.1.2 Indicator method

B.1.2.1 Reagents

Alizarin yellow R- pH range 10.1 to 12.0 and colour change yellow to orange.

B.1.2.2 Procedure

Prepared a solution as in B.1.1; take 10 ml of this solution in a glass test tube and add 0.5 ml of the indicator. Compare the colour produced with a series of buffer tubes on known pH in the range 10.0 to 12.0. Report as pH, the pH of the buffer solution which gives the closest match with the colour produced by the sample.

B.2 Standard calibrated glass discs may also be used for determination of pH.

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Annex C
(normative)

Sampling and Criteria for conformity

C.1 Sampling for herbal toilet and laundry soap

C.1.1 Procedure

C.1.1.1 In a single consignment, all packages (cartons) containing herbal soap cakes drawn from the same batch of production shall constitute a lot. For ascertaining the conformity of the lot to the requirements of this standard, tests shall be carried out on each lot separately. The number of packages to be selected for drawing the sample shall be in accordance with Table C.1.

Table C.1 — Scale of sampling

Number of packages (cartons) in the lot <i>N</i>	Number of packages (cartons) to be selected <i>n</i>	Number of samples
4 to 15	3	3
16 to 40	4	4
41 to 65	5	2
66 to 110	7	2
111 and above	10	1

C.1.1.2 The packages shall be selected at random, using tables of random numbers. If these are not available, the following procedure shall be applied:

Starting from any package, count all the packages in one order as 1, 2, 3.... *N*, selecting every k^{th} package, where k is the integral part of N/n .

B.1.1.3 From each package thus selected, draw at random an equal number of cakes so as to obtain a total mass of at least 2 kg.

C.1.2 Preparation of test samples

C.1.2.1 Composite sample

Weigh each cake separately (including any material that may have adhered to the wrapper), and calculate the average mass. Cut each of the remaining cakes into eight parts by means of three cuts at right angles to each other through the middle. Grate finely the whole of two diagonally opposite eighths of each specimen. Mix the gratings and place in a clean, dry, airtight glass container.

C.1.2.2 Samples for testing

Immediately after preparation of composite sample (C.1.2.1), take at one time all test samples required for the tests in 4. Weigh out the test sample required for determination of free alkali or acid content, and use it immediately.

C.2 Sampling for herbal liquid soap

C.2.1 General requirements

C.2.1.1 In drawing preparing, storing and handling samples, the precautions in C.2.1.2 – C.2.1.7 shall be observed.

C.2.1.2 Samples shall not be taken from places exposed to damp air, dust or soot.

C.2.1.3 The sampling instruments shall be clean and dry when used.

C.2.1.4 The samples, the material being sampled, the sampling instruments and the containers for samples shall be protected from adventitious contamination.

C.2.1.5 The samples shall be placed in clean and dry glass containers. The sample containers shall be of such a size that they are almost completely filled by the sample.

C.2.1.6 Each container shall be sealed airtight after filling, and marked with full details of sampling which include, date of sampling, batch or code number, name of manufacturer, and other important particulars of the consignment.

C.2.1.7 The samples shall be stored in such a manner that the temperature of the material does not vary unduly from the normal temperature, and that they are protected from light.

C.2.2 Scale of sampling

C.2.2.1 In a single consignment, all the packages containing non-soapy detergents of the same type and form, and drawn from the same batch of manufacture, shall constitute a lot. If the consignment consists of packages containing non-soapy detergents of different types and forms, then the packages containing non-soapy detergents of the same type form and batch of manufacture shall be grouped together, and such group shall constitute a separate lot.

C.2.2.2 For ascertaining the conformity of the lot to the requirements prescribed in this standard, tests shall be carried out on each lot separately. The number (n) of packages to be selected for drawing the samples shall depend upon the size (N) of the lot and shall be in accordance with Table C.2.

Table C.2 — Scale of sampling

No. of packages in the lot (N)	No. of packages to be selected (n)
4 to 15	3
16 to 40	4
41 to 65	5
66 to 110	7
111 and above	10

NOTE: When the size of the lot is 3 packages or less, the number of containers to be selected and the criteria for judging the conformity of the lot to the specifications should be as agreed on between the purchaser/inspector and the supplier.

C.2.2.3 The packages shall be selected at random and to ensure randomness of selection, a random number table shall be used. In case such tables are not available, the procedure given below may be adopted.

Starting from any package, count all the packages in one order as 1, 2, 3, ..., up to r and so on, where r is the integral part of N/n , (N being the lot size and n the number of packages to be selected). Every r^{th} package thus counted shall be withdrawn to give a sample for the purposes of test.

C.2.3 Preparation of gross samples, test sample and reference sample

C.2.3.1 Gross sample

From each one of the packages selected as in C.2, draw at random one or more containers. The material in the containers so chosen shall be nearly thrice the quantity required for purpose of test as indicated in C.4.

The powder from the containers selected shall be disintegrated, if aggregated, and mixed thoroughly to give the gross sample for the package.

C.2.3.2 Test sample

C.2.3.2.1 Segregate carefully the gross samples of powders. From the gross representing each form of synthetic detergent take a small but equal quantity of material and mix thoroughly into a composite sample which should be of a size sufficient to carry out triplicate testing for all the characteristics specified under C.4. The composite samples representing each form and type of synthetic detergent shall be divided into three equal parts, one for the purchaser/inspector, another for the supplier, and the third for the referee.

C.2.3.2.2 The remaining portion of the material in each of the gross samples shall be divided into three equal pans, each forming an individual sample. One set of individual samples, representing the n selected packages shall be for the purchaser/inspector, another for the supplier, and the third for reference.

C.2.3.2.3 All the composite and individual samples shall be transferred to separate containers. These containers shall then be sealed airtight with stoppers, and labelled with full particulars of identification given in C.2.1.6.

C.2.3.3 Reference samples

C.2.3.3.1 The reference samples shall consist of a composite sample and a set of individual samples. All the containers shall bear the seals of both the purchaser/inspector and the supplier, and shall be kept at a place agreed to between the two parties.

C.2.3.3.2 Reference samples shall be used in case of any dispute between the purchaser/inspector and the supplier.

C.3 Number of tests

C.3.1 Tests for the determination of active ingredient shall be performed on each of the individual samples.

C.3.2 Tests for the determination of other requirements specified in Table 1 shall be conducted on the composite sample.

C.4 Criteria for conformity

C.4.1 For individual samples

C.4.1.1 For the characteristic, which has been determined on the individual sample, the mean (\bar{X}) and the range (R) of test results shall be calculated as follows:

$$\text{Mean}(\bar{X}) = \frac{\text{Sum of test results}}{\text{Number of test results}}$$

Range (R) is the difference between the maximum and the minimum value of test results.

C.4.1.2 If the specification limit for the characteristic is given as a minimum, the value of the expression ($\bar{X} - KR$) shall be calculated from the relevant test results (see also C.4.1.5). If the value so obtained is greater than or equal to the minimum limit, the lot shall be declared as conforming to the requirement for the characteristic.

C.4.1.3 If the specification limit for the characteristic is given as a maximum, the value of the expression ($\bar{X} + KR$) shall be calculated from the relevant test results (see also C.4.1.5). If the value so obtained is less than or equal to the maximum limit, the lot shall be declared as conforming to the requirement for the characteristic.

C.4.1.4 If the characteristic has two-sided specification limits, then the values of the expression ($\bar{X} \pm KR$) shall be calculated from the relevant test results (see also C.4.1.5). If the value so obtained lies between the two specification limits, the lot shall be declared as conforming to the requirement for the characteristic.

C.4.1.5 The value of the factor K referred to in C.4.1.2 –C.4.1.4 shall be chosen in accordance with Table C.3, depending upon the acceptable quality level, that is, the percentage, of non-conforming packages that may be tolerated reasonably.

Table C.3 — Value of 'K' for achieving different acceptable quality levels

Acceptable quality level	Value of 'K'
Not more than 3.0 % defectives	0.4
Not more than 1.5 % defectives	0.5
Not more than 0.5 % defectives	0.6

C.4.2 *For composite sample*

For declaring the conformity of the lot to the requirements of all the remaining characteristics determined on the composite sample, the test results for each one of the characteristics shall satisfy the relevant requirement given in Table 1 of this standard.

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