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DRAFT ZANZIBAR NATIONAL STANDARD

Herbal soap — Specification

ZANZIBAR BUREAU OF STANDARDS

Third edition

Foreword

This Draft Zanzibar National Standard has been prepared by the Chemical Standards Technical Committee (TCC1). In accordance with the Zanzibar Bureau of Standards general procedures, this draft Standard is hereby presented to the public in order to receive any technical comment concerns.

Technical Committee Representatives

This draft Zanzibar National Standard was prepared by the Chemical Products Standards Technical Committee which consists of representatives from the following organizations:

Chief Government Chemist Laboratory Agency (CGCLA)
Kisinga Youth and Women Foundation Centre (KYWFC)
SUMAIT University
Zanzibar Food and Drug Agency (ZFDA)
Zanzibar Environment Management Authority (ZEMA)
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Herbal soap — Specification

1 Scope

This draft Zanzibar National Standard specifies the requirements, sampling and test methods for herbal soap. It covers the following types of soaps:

a) Herbal toilet soap
b) Herbal laundry soap
c) Herbal liquid soap

This Standard does not cover neem and jatropha herbal soap.

2 Normative references

The following referenced documents are indispensable for the application of this Zanzibar National Standard. For dated references, only the cited editions apply. For undated references, the latest editions of the referenced documents (including any amendments) apply.

ISO 456, *Surface active agents — Analysis of soaps — Determination of free caustic alkali*

ISO 457, *Analysis of soap — Determination of Chloride content — Titrimetric method*

ISO 673, *Analysis of soap — Determination of ethanol insoluble matter*

ISO 684, *Analysis of soap — Determination of total free alkali*

ISO 685, *Analysis of soap — Determination of alkali content and total fatty matter content*

ISO 1067, *Analysis of soap — Determination of unsaponifiable, unsaponified and unsaponified saponifiable matter*

TZS 35, *Soaps — Sampling and test methods*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in TZS 35 and the following apply.

3.1
herbal soap
soap containing plant parts, extracts and/or oil

3.2
herbal toilet soap
soap in the form of bar or cake containing plant parts, extracts and/or oil which is intended for bathing

3.3
herbal laundry soap
soap in the form of bar or cake containing plant parts, extracts and/or oil which is intended for washing clothes

3.4
herbal liquid soap
soap in the form of liquid containing plant parts, extracts and/or oil intended for general hygiene

3.5
plant parts
fine powder obtained from herbal plants, including leaves, stems, roots, seeds, flowers, buds, twigs or barks

3.6
plant extract
concentrated preparations of liquid, solid or viscous consistency obtained from various parts of herbal plants

4 Requirements

4.1 General requirements

4.1.1 Herbal toilet soap

4.1.1.1 The herbal toilet soap shall be high graded, thoroughly saponified milled soap 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.

4.1.3 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 parts, extract and/or oil

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

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

4.2 Specific requirements

All types of herbal soaps shall comply with the requirements in Table 1 when tested in accordance with the methods specified therein.

Table 1: Specific requirements for herbal soap

S/N	Characteristic	Type of herbal soap			Test method
		Herbal toilet soap	Herbal laundry soap	Herbal liquid soap	
1	Total fatty matter, % by mass, *min*.	70	45	15	ISO 685
2	Matter insoluble in alcohol, % by mass, *max*.	2.5	20	0.5	ISO 673
3	Matter insoluble in water, % by mass, *max*.	-	5	-	TZS 35
4	Free caustic alkali as (NaOH), % by mass, *max*.	0.03	0.4	0.03	ISO 456
5	Total free alkali as Na_2O or K_2O, % bymass, *max*.	-	0.3	0.03	ISO 684
6	Chloride content, as NaCl, % by mass, *max*.	1.3	1.5	NIL	ISO 457
7	Unsaponified fatty matter, % by mass, *max*.	0.5	2	NIL	ISO 1067
8	Staining	-	To pass the test	-	Annex A
9	pH at 27 ºC	-	-	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 languageas agreed between the manufacturer and supplier with the following information:

a) name of the product, including respective herb and type;
b) name and address of the manufacturer;
c) registered trade mark if any;
d) batch or lot number;
e) net content;
f) country of origin;
g) list of ingredients;
h) date of manufacture;
i) best before date; and
j) percentage of plant parts, extracts and/or oil used in total blend.

6 Sampling and criteria for conformity

For the purpose of this Zanzibar National Standard, sampling and criteria for conformity shall be done as specified in Annex C.

Annex A
(Normative)
Determination of staining test of laundry bar soap

A.1 Method 1: Undissolved powder (5.0 % product concentration)

A.1.1 Principle

Test pieces of cloth of defined area are rubbed with soap, then dipped in water overnight, scrubbed and rinsed in running water.

A.1.2 Materials

Pieces of white cotton, nylon and Crimplene C cloth

A.1.3 Procedure

A.1.3.1 Rub evenly about 10 g of soap over a 15 cm x 7.5 cm test swatch placed on a China plate.

A.1.3.2 Pour gently 50-ml of hot water (approximately 55 °C) into the plate so that the test swatch is covered and left overnight (16 h).

A.1.3.3 Hand rub the swatch 10 times, rinse each of the three test swatches twice in about two litres of water and then dry in the drier.

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

A.1.3.4 The test shall be considered as passed if there is no any visible stain on the fabric after rinsing with water

A.2 Method 2: Pre-dissolved soap (2.5 % product concentration)

A.2.1 Principle

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

A.2.2 Materials

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

A.2.3 Procedure

A.2.3.1 Weight 10 g of soap in a honey jar, and then add 200 ml of hot water at a temperature of approximately 60 °C. Shake until the soap is thoroughly dissolved.

A.2.3.2 Place a test swatch of 15 cm x 7.5 cm in the soap solution (**A.2.3.1**) and allow it to stand overnight.

A.2.3.3 Transfer the test swatch in a bowl containing one litre of water, and then agitate vigorously by hand for 10 s.

A.2.3.4 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.

A.2.3.5 The test shall be considered as passed if there is no any visible stain on the fabric after rinsing with water

Annex B
(Normative)
Determination of pH

B.1 Methods

The determination shall be carried out by the electrometric method or by the indicator. In case of a 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 about 1 g 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 stirring with a glass rod to ensure dissolution. Filter it through a filter paper into a 100-ml flask. Wash the filter paper with hot water, at least four times, and collect 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 changes from yellow to orange

B.1.2.2 *Procedure*

Prepare a solution as in **B.1.1**; take 10 ml of the 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 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.

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 production batch 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 ***N***	Number of packages (cartons) to be selected ***n***	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 randomly selected using tables of random numbers. If the tables 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*.

C.1.1.3 From each package selected, randomly draw 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 all test samples required for the tests in **4.2**. Weigh out the 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 When using, the sampling instruments shall be clean and dry.

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, 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 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 randomly selected, 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 counted shall be withdrawn to give a sample for the test.

C.2.3 Preparation of gross, test and reference samples

C.2.3.1 Gross sample

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

The powder from the selected containers 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 herbal soap shall be divided into three equal parts, one for the purchaser/inspector, another for the supplier, and the third for the reference.

C.2.3.2.2 The remaining portion of the material in each of the gross samples shall be divided into three equal parts, 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 by 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 (X) and the range (R) of test results shall be calculated as follows:

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

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 ($\overline{X}$ - 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 ($\overline{X}$+ KR) shall be calculated from the relevant test results (see also **C.4.1.5**). If the value 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 ($\overline{X}$ ± KR) shall be calculated from the relevant test results (see also **C.4.1.5**). If the value 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 of the characteristics shall conform to the relevant requirements in Table 1.