

DEAS 186:2010

FINAL DRAFT UGANDA STANDARD

Toilet soap — Specification

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Foreword

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The work of preparing Uganda Standards is carried out through Technical Committees. A Technical Committee is established to deliberate on standards in a given field or area and consists of representatives of consumers, traders, academicians, manufacturers, government and other stakeholders.

Draft Uganda Standards adopted by the Technical Committee are widely circulated to stakeholders and the general public for comments. The committee reviews the comments before recommending the draft standards for approval and declaration as Uganda Standards by the National Standards Council.

Committee membership

The following organisations were represented on the Technical Committee for Chemical and environment standards, UNBS/TC 5, during the development of this standard:

- Basere Investments Ltd
- BIDCO (U) Ltd
- Chemistry department, Kyambogo University Kampala
- CONSENT
- Government chemist, Analytical Laboratories
- Movit Products Ltd
- Mukwano Industries
- National Environment Management Authority (NEMA)
- RAA Limited
- Uganda Industrial Research Institute (UIRI)

Toilet soap — Specification

1 Scope

This Final Draft Uganda Standard specifies requirements for toilet soap. It does not apply to carbolic soap or speciality soaps such as medicated soap, transparent soap, floating soap, liquid soap or sea-water soap.

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.

US 67/ISO 684, *Analysis of soap — Determination of Total free alkali*

US 73/ISO 685, *Analysis of soap — Determination of alkali content and total fatty matter content*

US 74/ISO 1067, *Analysis of soap — Determination of unsaponifiable, unsaponified and unsaponified saponifiable matter*

US 75/ISO 457, *Analysis of soap — Determination of Chloride content — Titrimetric method*

US 76/ISO 673, *Analysis of soap — Determination of ethanol insoluble matter*

US 78/ISO 684, *Surface active agents — Determination of free caustic alkali*

3 Terms and definitions

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

3.1

soap

product formed by the saponification or neutralisation of fats, oils, waxes, rosins or their acids with organic or inorganic bases

3.2

toilet soap

soap which is intended for use in bathing

3.3

saponification

chemical reaction permitting the separation of an ester into its constituent parts, acid and alcohol, or possibly phenol, by the action of a base, with the formation of a salt from the acid. Saponification of fats produces soap.

3.4

colouring matter

any dyestuff that may be used to colour toilet soap

3.5

free caustic alkali

free (uncombined) caustic alkali present in a soap

3.6

total fatty matter

includes either the water-insoluble or ether soluble fatty matter under the specified conditions of test

3.7

total free alkali

sum of the free caustic alkali and the free carbonate alkali contents

4 Requirements

4.1 General requirements

4.1.1 Texture, colour and odour

Toilet soap shall be firm and of uniform texture and colour and shall be free from objectionable (disagreeable) odour.

4.1.2 Ingredients

It shall not cause skin irritation and shall have good lathering and cleansing properties. All ingredients used in the product shall be non-injurious to health. Perfumes and, colouring matter may be added.

4.1.3 Texture and stability

Toilet soap shall remain hard and smooth, and shall not crumble when tested in accordance with the method in Annex B.

4.2 Chemical characteristics

The toilet soap shall comply with the requirements specified in Table 1.

Table 1 — Chemical characteristics

Characteristic	Requirement	Method of test
Total free alkali content as NaOH (max)	0.3	US 67
Total fatty matter content (min)	76	US 73
Rosin acids content (max)	3	Annex A
Content of matter insoluble in ethanol (max)	3	US 76
Free caustic alkali content as NaOH (max)	0.07	US 78
Free fatty acids content as oleic acid (max)	0.3	-
Chlorides content as NaCl (max)	0.8	US 75
Unsaponified fatty matter content (max)	0.5	US 74

NOTE Allowance should be made for the loss of moisture of the soap on storage. The results for each of the above-specified methods of test shall be corrected in relation to the specified minimum total fatty matter by means of the equation:

$$\text{Corrected result} = \frac{\text{Actual result} \times \text{Minimum total fatty matter}}{\text{Actual total fatty matter}}$$

The corrected results shall be used to determine whether the product is up to standard.

5 Sampling and inspection

5.1 Sampling

In a single consignment, all packages (cartons) containing toilet 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 2.

Table 2 — Scale of sampling

Number of packages (cartons) in the lot N	Number of packages (cartons) to be selected N
4 to 15	3
16 to 40	4
41 to 65	5
66 to 110	7
111 and above	10

5.1.1 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 $N \div n$.

5.1.2 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.

5.2 Inspection

Inspect the cakes selected for compliance with the requirements of 3.1.

6 Preparation of test samples

6.1 Composite sample

Weigh each cake separately (including any material that may have adhered to the wrapper), and calculate the average mass. Keep one cake for the test in 3.3. 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.

6.2 Samples for testing

Immediately after, take at one time all test samples required for the tests in 3.2. Weigh out last the test sample required for determination of free alkali or acid content, and use it immediately.

7 Compliance with the standard

The lot shall be deemed to comply with the requirements of this standard if, after inspection and testing, the requirements of Clause 3 are satisfied.

8 Packing and marking

8.1 Packing

The soap cakes shall be suitably wrapped to protect them from damage.

8.2 Marking

Each wrapped cake of toilet soap shall be marked with the following:

- a) name of product, and the trade name or brand name; if any
- b) manufacturer's name and address;
- c) batch identification;
- d) net mass; and
- e) country of origin.

Annex A (normative)

Determination of rosin acids

A.1 Principle

The soap, in aqueous solution, is treated with dilute sulphuric acid and the fatty layer is separated out. Rosin and fatty acids are esterified by refluxing with naphthalene-2-sulphonic acid in methanol and then titrated with ethanolic potassium hydroxide. The rosin acids remain unesterified and the fatty acids are converted to methyl esters.

A.2 Reagents

A.2.1 The reagents used shall be of analytical standard. Distilled water shall be used.

A.2.2 Sulphuric acid, 2.5 M solution

A.2.3 Potassium hydroxide, 0.2 M ethanolic solution

A.2.4 Phenolphthalein indicator, 0.5 % (m/v) ethanolic solution

A.2.5 Naphthalene-2-sulphonic acid solution, 40 g in 100 mL pure dry methanol

A.3 Procedure

A.3.1 Dissolve about 10 g to 50 g of the soap sample in about 50 mL hot water. Add 10 mL to 50 mL of dilute sulphuric acid to split the soap, keep in a steam bath until the fatty matter separates as a clear layer, and siphon off the lower aqueous acid layer. Add 300 mL of hot water, boil gently for a few minutes and siphon off the aqueous layer. Repeat the washing with hot water several times until the wash liquor is free of mineral acid. Complete the acidification and washing in as short a period as possible, keeping the beaker covered to prevent oxidation of acids. Remove the mixture of rosin and fatty acids by means of a dry pipette, filter through one or two thickness of filter paper, and dry at $105\text{ }^{\circ}\text{C} \pm 2\text{ }^{\circ}\text{C}$ for 45 min to 60 min.

A.3.2 Weigh about 2 g of the total fatty matter (fatty matter + rosin acids) into an esterification flask, add 25 mL of the naphthalene-2-sulphonic acid solution. Boil gently under reflux for 30 min, adding a few glass beads, to ensure regular ebullition. Cool the contents of the flask and titrate immediately with the potassium hydroxide solution, using 0.5 ml of the phenolphthalein indicator. The end point is reached when the pink colour persists for 30 s.

A.3.3 Carry out a blank determination simultaneously with 20 cm^3 of the naphthalene-2-sulphonic acid solution, that is, the esterifying agent.

A.3.4 Calculation

Rosin acids, per cent, by mass of total fatty matter =
$$\frac{36.4(v - v_1) - 1}{m}$$

where

v is the volume, in millilitres, of 0.2 M potassium hydroxide solution required by the sample,

v_1 is the volume in cubic centimetres, of 0.2 M potassium hydroxide solution required by the blank, and
m is the mass, in grams, of total fatty matter taken.

Annex B (informative)
Determination of rosin acids

When immersed in 1 L of distilled water for 1 h at 25 °C – 30 °C, Toilet soap shall not show signs of disintegration, and when dried at room temperature for 25 h thereafter, it shall not crumble, crack or break

Bibliography

- [1] EAS 031:1997 East African harmonised Standard *Specification for Laundry soap*
- [2] MS 12: 1980 Mauritian Standard *Specification for toilet soap*
- [3] BS 1914: 1995 *Specification for Toilet soap*

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Products that conform to Uganda standards may be marked with Uganda National Bureau of Standards (UNBS) Certification Mark shown in the figure below.

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