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भारतीय मानक

नहाने का द्रव साबुन – विशिष्टि

(तीसरा पुनरीक्षण)

Indian Standard

TOILET SOAP, LIQUID — SPECIFICATION

(Third Revision)

ICS 71.100.40

BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

December 2001

Price Group 3

FOREWORD

This Indian Standard (Third Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Soaps and other Surface Active Agents Sectional Committee had been approved by the Chemical Division Council.

This standard was first published in 1967 and subsequently revised in 1974 for the first time when the use of caustic soda was permitted in production of liquid soap in view of the change in the manufacturing technology, the requirement for free caustic alkali was aligned with corresponding British Standard and a limit for phenolic substances such as cresylic acid was also prescribed for carbolic liquid soap. The standard was revised for second time in 1990 during which a modified method of test for determination of free caustic alkali was stipulated.

In the present (third) revision the four amendments issued to this standard have been incorporated. The declaration of ingredients used in the manufacture of liquid toilet soap has been incorporated in the marking clause.

A scheme for labelling environment friendly products known as ECO Mark has been introduced at the instance of the Ministry of Environment and Forests (MEF), Government of India. The ECO Mark would be administered by the Bureau of Indian Standards (BIS) under the *BIS Act*, 1986 as per the Resolutions No. 71 dated 21 February 1991 and No. 425 dated 28 October 1992 published in the Gazette of the Government of India. For a product to be eligible for marking with ECO logo, it shall also carry the ISI Mark of BIS besides meeting additional environment friendly requirements. The requirements to be satisfied for a product to qualify for the BIS Standard Mark for ECO friendliness, has been included in this revision. These requirements will be optional; manufacturing units will be free to opt for the ISI mark alone also.

The Composition of the Committee responsible for formulation of this standard is given in Annex B.

For the purpose of deciding whether a particular requirement of this standard is complied with the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

TOILET SOAP, LIQUID — SPECIFICATION

(Third Revision)

1 SCOPE

1.1 This standard prescribes requirements and methods of sampling and test for toilet soap, liquid.

1.1.1 It does not cover shampoos and products intended for specific purposes such as those for industrial and surgical uses.

2 REFERENCES

The following standards contain provisions which through reference in this test, constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below:

IS No.	*Title*
286 : 1978	Methods of sampling and test for soaps *(second revision)*
321 : 1964	Specification for absolute alcohol *(revised)*
323 : 1959	Specification for rectified spirit *(revised)*
1070 : 1992	Reagent grade water *(third revision)*
4707 (Part 1) : 1988	Classification for cosmetics raw materials and adjuncts: Part 1 dyes, colours and pigments *(first revision)*
4955 : 2001	Household laundry detergent powders *(fourth revision)*
7597 : 1974	Glossary of terms relating to surface active agents
13424 : 2001	Safety evaluation of bathing bars and toilet soap — Methods of test *(first revision)*
13498 : 1997	Bathing bar *(first revision)*

3 TERMINOLOGY

For the purpose of this standard, the definitions given in IS 7597 shall apply.

4 REQUIREMENTS

4.1 Description

The material shall consist essentially of an aqueous solution of potassium soaps, sodium soaps, or both, made from oils, fatty acids or their mixture. It shall be a homogeneous stable liquid with good lathering and cleaning properties. It may contain permissible synthetic detergents (*see* **4.2.1** of IS 13498) perfumes suitably.

4.2 The material shall quickly form a satisfactory lather while in use and shall show no sign of any deterioration on storage in original sealed containers under normal conditions for a period of six months.

4.3 The material shall remain a homogeneous stable pourable liquid and shall show no sign of separation or sedimentation when kept at 5°C for 24 h.

4.4 The material may be suitably perfumed as agreed to between the purchaser and the supplier and if unperfumed, it shall have no disagreeable odour.

4.5 In addition to perfume, the material may contain permitted colours as given in Table 4 of IS 4707 (Part 1).

4.5.1 The phenolic substances such as cresylic acid, if added to liquid soap, shall be between 0.25 to 0.75 percent by mass when tested as prescribed in **26** of IS 286.

4.6 The material shall also comply with the requirements specified in Table 1 when tested by methods specified in col 4 of Table 1.

Table 1 Requirements for Toilet Soap, Liquid

(*Clauses* 4.6 *and* 6.3.1)

Sl No.	Characteristic	Requirement	Method of Test, Ref to		
			Cl No. of IS 286	Annex of IS 4955	Annex of This Standard
(1)	(2)	(3)	(4)	(5)	(6)
i)	Total fatty matter, percent by mass, *Min*	15.0	15	—	—
ii)	Matter insoluble in alcohol, percent by mass, *Max*	5.0	5	—	—
iii)	Free caustic alkali, (as K_2O), percent by mass, *Max*	0.03	—	—	A-5.1
iv)	Synthetic detergent, percent by mass, *Max*	2	—	B	—

4.7 Additional Requirements for ECO Mark

4.7.1 *General Requirements*

4.7.1.1 The product shall conform to the requirements for quality, safety and performance prescribed under **4.1** to **4.6**.

4.7.1.2 The manufacturer shall produce to BIS environmental consent clearance from the concerned State Pollution Control Board as per the provisions of *Water (Prevention and Control of Pollution) Act*, 1974 and *Air (Prevention and Control of Pollution) Act*, 1981 along with the authorization, if required, under the *Environment (Protection) Act*, 1986 while applying for ECO Mark.

4.7.2 *Specific Requirements*

4.7.2.1 The toilet soap, liquid shall neither contain any synthetic detergent when as per the method given in Annexes B and C of IS 4955 nor any phosphate when tested as per the method prescribed in **20** of IS 286.

4.7.2.2 The toilet soap, liquid shall pass the test for dermatological safety when evaluated as per the method prescribed in IS 13424.

5 PACKING AND MARKING

5.1 Packing

The material shall be supplied in suitable, well closed containers made of glass or plastics, or any other packaging as agreed to between the purchaser and the supplier.

5.1.1 For ECO Mark the product shall be packed in such packages which are made from recyclable/reusable or biodegradable material and declared by the manufacturer and may be accompanied with detailed instructions for proper use.

5.2 Marking

The containers shall be legibly and indelibly marked with the following information:

a) Indication of the source of manufacture;
b) Volume of the material;
c) Batch No. or Lot No. in code or otherwise;
d) Year and month of manufacture; and
e) The following identified critical ingredients in descending order of quality, percent by mass:
   1) Total fatty matter (TFM), and
   2) Matter insoluble in alcohol.

5.2.1 *Additional Marking Requirements for ECO Mark*

The package shall also be marked with the particulars as given below:

The criteria for which the product has been labelled as ECO Mark.

5.2.2 *BIS Standard Mark*

The packages may also be marked with the Standard Mark.

5.2.2.1 The use of the Standard Mark is governed by the provisions of the *Bureau of Indian Standards Act*, 1986 and the Rules and Regulations made thereunder. The details of conditions under which the licence for the use of the Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

6 SAMPLING

6.1 For the purpose of general precautions, scale of sampling and preparation of test samples shall be as prescribed in **3.1, 3.2** and **3.3** respectively of IS 286.

6.2 Number of Tests

6.2.1 Tests for the determination of total fatty matter and free caustic alkali shall be conducted on each of the individual samples separately.

6.2.2 Tests for determination of matter insoluble in alcohol and synthetic detergent shall be conducted on the composite sample.

6.3 Criteria for Conformity

6.3.1 *For Individual Samples*

For each of the characteristics which has been determined on the individual samples (**6.2.1**) the mean (X) and the range (R) of the test results shall be calculated as follows :

$$\text{Mean}(X) = \frac{\text{The sum of the test results}}{\text{Number of the test results}}$$

Range $\overline{R}$ = The difference between the maximum and the minimum value of the test results

The lot shall be deemed as conforming to the requirements, if the expression (X–0.4 R) is greater than or equal to minimum value given in Table 1, and (X + 0.4 R) is less than or equal to maximum value given in Table 1.

6.3.2 *For Composite Sample*

For declaring the conformity of a lot to the requirements of other characteristics determined on the composite sample, the test results for each of the characteristics shall be satisfy the relevant requirement.

7 QUALITY OF REAGENTS

Unless specified otherwise, pure chemicals and distilled water (*see* IS 1070) shall be employed in the tests.

NOTE — 'Pure chemicals' shall mean chemicals that do not contain impurities which affect the results of analysis.

ANNEX A

[*Table* 1, *Sl No.* (iii)]

DETERMINATION OF FREE CAUSTIC ALKALI

A-1 GENERAL

Two methods are specified, namely, ethanol method (Method A) and barium chloride method (Method B). The ethanol method is suitable for sodium soaps whereas the barium chloride methods is suitable for potassium soaps or mixed sodium and potassium soaps.

A-2 REAGENTS

A-2.1 Phenolphthalein Indicator

Dissolve 1 g in 100 ml of 95 percent rectified spirit.

A-2.2 Thymol Blue Indicator

A-2.3 Mixed Indicator

Dissolve 1 g of phenolphthalein and 0.5 g of thymol blue in 100 ml of hot ethanol and filter.

A-2.4 Ethyl Alcohol

Conforming to IS 321 or rectified spirit conforming to IS 323 freshly boiled, and neutral to phenolphthalein.

A-2.5 Standard Sulphuric Acid or Standard Hydrochloric Acid

Approximately 0.1 N.

A-2.6 Standard Sodium Hydroxide Solution

Approximately 0.1 N.

A-2.7 Barium Chloride Solution

10 percent (*m/v*).

Dissolve 10 g of barium chloride dihydrate in 90 ml of distilled water free from carbon dioxide. Neutralize with potassium or sodium hydroxide in presence of the mixed indicator until a violet colour appears.

A-3 METHOD A (ETHANOL METHOD)

A-3.1 Procedure

Weigh accurately 2 to 10 g of the sample and digest with 200 ml of freshly boiled ethanol in a covered vessel on a steam bath until the soap is dissolved. Filter into a flask through a tared dried and counter-point filter paper or through a tared and dried Gooch or sintered glass crucible with suction, protecting the solution from carbon dioxide and other acid fumes during the operation by covering with a watch glass. Wash several times with hot (atleast 60 °C) ethanol till neutral to phenolphthalein. Heat the filtrate to boiling. Add about 0.5 ml of phenolphthalein indicator and titrate with standard sulphuric or hydrochloric acid.

A-4 METHOD B (BARIUM CHLORIDE METHOD)

A-4.1 Procedure

Weigh accurately about 10 g of the sample into a 250-ml flask, add about 100 ml of ethyl alcohol, insert a cork provided with a long tube to act as a reflux condenser and immerse into a boiling water-bath, shaking frequently until the soap is dissolved. Add about 5 ml of barium chloride solution to eliminate traces of carbonates which are usually present. Add a few drops of phenolphthalein indicator and titrate with standard sulphuric acid or hydrochloric acid.

A-5 CALCULATION

Free caustic alkali (as K_2O),

$$\text{percent by mass} = \frac{4.71\ VN}{M}$$

where

V = volume in ml of standard sulphuric acid or hydrochloric acid used,

N = normality of standard sulphuric acid or hydrochloric acid, and

M = mass in grams of material taken for test.

ANNEX B

(Foreword)

COMMITTEE COMPOSITION

Soaps and Other Surface Active Agents Sectional Committee, CHD 25

Organization	*Representative(s)*
Drugs Controller General of India, New Delhi	DR P. DASGUPTA (***Chairman***) SHRI B. R. WADHAWAN (*Alternate*)
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The Non-Power Soap Manufacturers Association, Mumbai	SHRI R. C. DOSHI SHRI Y. R. DOSHI (*Alternate*)
Tata Chemicals, Pithampur	REPRESENTATIVE
BIS Directorate General	SHRI LAJINDER SINGH, Director & Head (Chem) [Representing Director General (*Ex-officio Member*)]

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Deputy Director (Chem), BIS

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