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IS 285 (1992): Laundry Soaps [CHD 25: Soaps and other Surface Active Agents]



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Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”

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भारतीय मानक

कपड़े धोने का साबुन — विशिष्ट

(तीसरा पुनरीक्षण)

Indian Standard

LAUNDRY SOAPS — SPECIFICATION

(Third Revision)

Third Reprint MAY 2007
(Including Amendment Nos. 1, 2 & 3)

UDC 661.187.86

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

FOREWORD

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

Modern soap making industry in India may be traced back only to the beginning of twentieth century when the production of laundry soap started. Unlike toilet soaps which are produced only in organized factories, laundry soaps are made in organized factories as well as in non-power small-units and cooperative village centres.

This standard was first published in 1951 and subsequently revised in 1964 and 1974. Based on the experience gained over the years and in view of the current trend to reduce oil consumption due to shortage of oils and fats and consequent efforts to develop newer manufacturing technologies involving the use of non-soapy detergents (NSD) and lime soap dispensing agents (LSD), the technical committee responsible for the formulation of this standard decided to revise it again.

To overcome the phenomenon of sweating and to avoid coalescing and lumping of laundry soap (Type 1) bars on storage, requirements for titre and glycerol content were introduced. Even though so far no conclusive evidence has been established to prove the correlation between glycerol content and sweating of soap bars, presence of glycerol has been mentioned to be one of the reasons for sweating. The experience of the Ministry of Defence had been that laundry soaps having glycerol content more than 10 percent by mass exhibit sweating on storage. The concerned technical committee after considering all aspects has decided to introduce the requirement for glycerol content of 1.0 percent maximum for Type 1 of laundry soap in general.

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 value (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.

AMENDMENT NO. 4 SEPTEMBER 2008
TO
IS 285 : 1992 LAUNDRY SOAPS — SPECIFICATION

(Third Revision)

(Page 2, clause 5.5, read with Amendment No. 1) — Substitute '**Additional Requirements for ECO Mark**' for '**Optional Requirements for ECO Mark**'.

(Page 2, clause 6.2) — Insert the following at the end:

'6.2.1 BIS Certification Mark

The packages may also be marked with the Standard Mark.

6.2.1.1 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 Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.'

(CHD 25)

AMENDMENT NO. 3 MARCH 2002
TO
IS 285 : 1992 LAUNDRY SOAPS — SPECIFICATION
(*Third Revision*)

[*Page 2, Table 1, Sl No. (v), col 3*] — Substitute '5.0' for '2.5'.

[*Page 2, clause 6.2(c)*] — Insert the following after(e):

- '(f) Critical ingredients mentioning the actual compound in descending order upto a limit of 0.5 percent by mass, as identified under Eco-Mark Scheme.'

(CHD 25)

AMENDMENT NO. 2 SEPTEMBER 1999
TO
IS 285 : 1992 LAUNDRY SOAP — SPECIFICATION
(Third Revision)

(*Amendment 1, page 2, clause 5.5.4*) — Substitute the following for the existing text:




'The non soapy detergent (NSD), if used, in the manufacture of laundry soap shall be readily biodegradable when tested by modified sturm test as prescribed in IS 13933 :1995*.

*Method of test for ready biodegradability of surface active agents (modified sturm test).'

(CHD 25)

AMENDMENT NO. 1 AUGUST 1994
TO
IS 285 : 1992 LAUNDRY SOAPS — SPECIFICATION
(Third Revision)

(*Cover page, Foreword, para 4*) — Add the following after para 4:

'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 Resolution 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  Mark of BIS besides meeting additional optional environment friendly (EF) requirements. For this purpose, the Standard Mark of BIS would be a single mark being a combination of the  Mark and ECO Logo. Requirements to be satisfied for a product to qualify for the BIS Standard Mark for ECO friendliness will be included in the relevant published Indian Standards through an amendment. These requirements will be optional; manufacturing units will be free to opt for the  Mark alone also.

This amendment is based on the Gazette Notification No. 4 dated 5 January 1994 for laundry soaps as environment friendly products published in the Gazette of India. This amendment is, therefore, being issued to this standard to include environment friendly requirements for laundry soaps.'

(*Page 2, clause 5.4.2*) — Add the following after 5.4.2:

'5.5 Optional Requirements for ECO Mark

5.5.1 The product shall conform to the requirements for quality, safety and performance prescribed under clauses 5.1 to 5.4.

5.5.2 The manufacturers shall produce the consent clearance as per the provisions of Water (Prevention and Control of Pollution) Act, 1974, Water (Prevention and Control of Pollution) Cess Act, 1977 and Air (Prevention and Control of Pollution) Act, 1981, along with the authorization, if required under the Environment (Protection) Act, 1986 to BIS while applying for ECO Mark.

5.5.3 Product formulated or manufactured shall not contain phosphates when tested as per the method prescribed in Annex D of IS 4955 : 1993*.

*Specification for household laundry detergent powders (*third revision*).

5.5.4 The non soapy detergent (NSD) if used in the manufacture of laundry soap shall have a biodegradability of minimum 97 percent when tested as per method prescribed in IS 12795 : 1989*.

5.5.5 The material shall pass the test when evaluated for irritant potential as per the method prescribed in IS 11601 (Part 1) : 1986† and skin sensitization potential when evaluated as per the method prescribed in IS 11601 (Part 2) : 1992††.'

(Page 2, clause 6.1) — Add the following clause **6.1.1** after **6.1**:

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

(Page 2, clause 6.2) — Add the following clauses after **6.2**:

6.2.1 The product shall display a list of identified critical ingredients in descending order of quantity, percent by mass for ECO Mark.

6.2.2 The brief criteria for which the product has been labelled as ECO Mark shall be indicated.'

(Page 3, clause 7.3.1, para 2) — Substitute the following for the existing:

'The lot shall be deemed as conforming to the requirement if the expression $\bar{X} - 0.4R$ is greater than or equal to minimum value given in Table 1, and $\bar{X} + 0.4R$ is less than or equal to maximum value given in Table 1.'

*Specification for linear alkyl benzene.

†Methods of safety evaluation of synthetic detergents : Part 1 Method of test for irritant potential of synthetic detergents.

††Methods of safety evaluation of synthetic detergents : Part 2 Method of test for skin sensitization potential of synthetic detergents (Guinea pig maximization test).

Indian Standard

LAUNDRY SOAPS — SPECIFICATION

(*Third Revision*)

1 SCOPE

This standard prescribes requirements and methods of sampling and test for laundry soaps.

2 REFERENCES

The Indian Standards listed below are the necessary adjuncts to this standard:

<i>IS No.</i>	<i>Title</i>
286 : 1978	Methods of sampling and test for soaps (<i>second revision</i>)
1070 : 1992	Reagent grade water — Specification (<i>third revision</i>)

3 TERMINOLOGY

3.0 For the purpose of this standard, the following definitions shall apply in addition to those given under 2 of IS 286 : 1978.

3.1 Pure Soaps

These shall be well-saponified soaps which, in addition to moisture, may contain amounts of substances, such as colouring matter, perfume, preservative, opacifiers and optical brightening agents.

3.2 Built Soaps

These shall be well-saponified soaps which, in addition to moisture and moderate quantities of builders, may contain small amounts of substances, such as colouring matter, perfume, preservatives, opacifiers and optical brightening agents.

3.3 Builder

A complementary component of a soap, usually inorganic, which, with reference to the washing action, adds its characteristic properties to those of the essential constituents.

3.3.1 Builders are added to soap to improve its effectiveness under the conditions of use. The action of builders is mostly physico-chemical and comprise a series of effects which results in more economic usage and better cleansing action of soap, especially in hard water areas. Substances commonly used as builders are

soda ash, sodium silicates, sodium phosphates, borax and cellulose derivatives.

4 TYPES

4.1 The material shall be of the following two types:

- Type 1 (Pure soaps), and
- Type 2 (Built soaps).

4.2 Grades

The material of Type 2 shall have the following two grades:

- Grade 1 — Without synthetic detergents, and
- Grade 2 — With synthetic detergents.

5 REQUIREMENTS

5.1 All the ingredients used in the product shall be non-injurious to health and fabrics, and the optical brightening agents, if used, shall be biologically safe.

5.1.1 The phenolic substances, such as cresylic acids, if added, shall not exceed 2.5 percent by mass when tested as prescribed in 26 of IS 286 : 1978.

5.2 Laundry soaps shall be well-saponified soaps in the form of firm cakes or bars of uniform colour. The colour shall not be black, dark brown or otherwise objectionable to the purchaser. If any colouring matter is added, it shall be by agreement with the purchaser.

5.2.1 Uniformity or colour shall not be obligatory in the case of properly made genuine mottled soaps.

5.3 Odour and Lathering Properties

Laundry soaps shall not have fishy or any other disagreeable odour. They shall possess good lathering and cleaning properties.

5.4 Laundry soaps shall also comply with the requirements given in Table 1.

Table 1 Requirements for Laundry Soaps

(Clauses 5.4, 7.2.1 and 8.1)

SI No.	Characteristic	Requirement for			Method of Test, Ref to	
		Type 1 (Pure Soaps)	Type 2 (Built Soaps)		CI No. of IS 286 :	Annex of IS 4955 :
			Gr 1	Gr 2		
(1)	(2)	(3)	(4)	(5)	1978	1992
i)	Total fatty matter, percent by mass, <i>Min</i>	62.0	45.0	35.0	(6)	(7)
ii)	Rosin acids, percent by mass of total fatty matter, <i>Max</i>	15.0	15.0	15.0	15	—
iii)	Unsaponified fatty matter, percent by mass, <i>Max</i>	0.5	0.5	0.5	14	—
iv)	Free caustic alkali, as sodium hydroxide (NaOH), percent by mass, <i>Max</i>	0.1	0.2	0.2	13	—
v)	Matter insoluble in alcohol, percent by mass, <i>Max</i>	2.5	20.0	—	6	—
vi)	Titre of total fatty acids, °C, <i>Min</i>	33	—	—	5	—
vii)	Glycerol, percent by mass, <i>Max</i>	1.0	—	—	16	—
viii)	Chloride (as sodium chloride), percent by mass, <i>Max</i>	2.0	3.0	3.0	22	—
ix)	LSD/NSD content, percent by mass, <i>Min</i>	—	—	4.0	10	—

NOTE — For the purpose of calculation, the molecular mass of LSD/NSD shall be taken as declared by the manufacturer.

5.4.1 Calculation of Results

As laundry soap is liable to lose moisture on storage, the results of analyses in respect of free caustic alkali, unsaponified fatty matter, glycerol and matter insoluble in alcohol shall be recalculated on the basis of the minimum specified total fatty matter by means of the equation.

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

Example:

The minimum content of total fatty matter is specified as 62.0 percent by mass for Type 1 laundry soap. If the actual content of total fatty matter in a sample is found to be 70.0 percent and the value for unsaponified matter is 0.56 percent, then the recalculated figure for unsaponified matter is:

$$\frac{0.56 \times 62.0}{70.0} \text{ or } 0.496$$

5.4.2 Calculation of Mass

As mass of the laundry soap (bars, cubes, etc) is also liable to diminish owing to loss of moisture in the soaps, the mass of the soap

bars as agreed to between the purchaser and the supplier shall be recalculated on the basis of the minimum total fatty matter specified.

Example:

In the example given under 5.4.1 if the soap bar weighs 496 g when analysed, the recalculated mass of the soap bar before drying is:

$$\frac{496 \times 70.0}{62.0} = 560 \text{ g}$$

6 PACKING AND MARKING

6.1 Packing

The material shall be packed as agreed to between the purchaser and the supplier.

6.2 Marking

The packages shall be securely closed and marked with the following particulars:

- Source of manufacture;
- Brand name of the material, type, grade and recognized trade-mark, if any;
- Year and month of manufacture;
- Net mass when packed; and
- Batch number or lot number in code or otherwise.

7 SAMPLING

7.1 General

7.1.1 For this purpose 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 : 1978.

7.2 Number of Tests

7.2.1 Tests for the determination of characteristics given at Sl No. (i), (iii), (iv) and (v) in Table 1 shall be conducted on each of the individual samples separately.

7.2.2 Tests for determination of all the remaining characteristics shall be conducted on the composite sample.

7.3 Criteria for Conformity

7.3.1 For Individual Samples

For each of the characteristics which have determined on individual samples (**7.2.1**) the mean (\bar{X}) and the range (R) of the test results shall be calculated as follows:

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

Range (R) = Difference between the maximum and the minimum value of the test results

The lot shall be deemed as conforming to the requirement if the expression ($\bar{X} - 0.4 R$) is less than or equal to maximum value given in Table 1.

7.3.2 For Composite Sample

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

8 TESTS

8.1 Tests to evaluate the characteristics specified in Table 1 shall be conducted as prescribed in IS 286 : 1978. Reference to the relevant clauses of that standard are given in col 6 and 7 of Table 1.

8.2 Quality of Reagents

Unless specified otherwise, pure chemicals and distilled water (*see* IS 1070 : 1992) shall be employed in the tests.

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

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