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मानक

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“Step Out From the Old to the New”

IS 7669 (1990): Shampoo, Soap Based [PCD 19: Cosmetics]



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Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”

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Indian Standard
SHAMPOO, SOAP BASED — SPECIFICATION
(First Revision)

भारतीय मानक
शैम्पू, साबुन से बना — विशिष्ट
(पहला पुनरीक्षण)

Second Reprint MARCH 1999

UDC 665.585.5

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BUREAU OF INDIAN STANDARDS
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NEW DELHI 110002

FOREWORD

This Indian Standard was adopted by the Bureau of Indian Standards on 1 May 1990, after the draft finalized by the Cosmetic Sectional Committee had been approved by the Petroleum, Coal and Related Products Division Council.

This standard was first published in 1975. In this revision a new requirement for lather is being included for consumer's satisfaction. A shampoo that develops a dense and luxurious lather gets better consumer acceptance. Many of the surfactants which are frequently used in shampoos as cleansing agents develop abundance lacy foam in soft water but this lather drops drastically in the presence of oily soils, therefore, ingredients commonly known as foam boosters are added to shampoos to improve quality volume and characteristic of lather. Minimum foam height for a 2 percent shampoo solution has been specified to quantify this requirement.

Further, information about various attributes of an acceptable shampoo which are presently not adequate for standardization is being included as an 'Informative Annex D' to this standard so that the formulators may try to attain as many qualities as possible in their products to have consumer acceptance.

Shampoos which contain ingredients that have an effect on the physiological functions of the body, or for which therapeutic claims are made, are not included in this standard.

No stipulations have been made in this standard regarding the composition of the shampoo. However, it is necessary that the raw materials used are such that in the concentrations in which they would be present in the finished shampoo, after interaction with the other raw materials used in the formulation, are free from any harmful effects. For determining the suitability of a new formulation or of a new raw material used in an old formulation, on the skin and in respect of eye irritation, reference may be made to IS 4011 : 1982. It shall be the responsibility of the manufacturers of shampoo to satisfy themselves the dermatological safety of their formulation according to that standard before releasing the product for sale.

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 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.

**AMENDMENT NO. 3 FEBRUARY 2001
TO
IS 7669 : 1990 SHAMPOO, SOAP BASED —
SPECIFICATION**

(First Revision)

[Page 1, clause 6.2(e) (see also Amendment No. 1)] — Substitute the following for the existing:

'e) Best use before.....(Month and year to be declared by the manufacturer).

NOTE — This is exempted in case of pack sizes of 10 g/25 ml or less and if the shelf life of the product is more than 24 months.

f) List of key ingredients

NOTE — This is exempted in case of pack sizes of 30 g/60 ml or less.'

(PCD 19)

**AMENDMENT NO. 1 AUGUST 1998
TO
IS 7669 :1990 SHAMPOO, SOAP BASED —
SPECIFICATION**

(First Revision)

[*Page 1, clause 6.2(a)*] — Substitute the following for the existing:

'a) Shampoo, soap based'.

[*Page 1, clause 6.2(d)*] — Insert '(e)' after '(d)':


'e) Best use before. (Month and year to be declared
by the manufacturer)'.

(PCD 19)

Printed at Dee Kay Printers, New Delhi-110015, India.

AMENDMENT NO. 2 OCTOBER 1998
TO
IS 7669 : 1990 SHAMPOO, SOAP BASED —
SPECIFICATION
(First Revision)

(Foreword, para 4) — Insert 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 is being administered by the Bureau of Indian Standards Act, 1986 as per the Resolution No. 71 dated 21 February 1991 and No. 768 dated 24 August 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 Standard Mark of BIS besides meeting additional environment friendly requirements. For this purpose, the Standard Mark of BIS would be a single mark being a combination of the BIS monogram  and the ECO logo. Requirements for ECO friendliness will be additional, manufacturing units will be free to opt for Standard Mark alone also.

This amendment is based on the Gazette Notification No. 170 dated 18 May 1996 for shampoo, soap based as environment friendly products published in the Gazette of the government of India. This amendment is, therefore, being issued to this standard to include environment friendly requirements for shampoo, soap based.’

(Page 1, clause 3.3) — Insert the following clauses after 3.3:

3.4 Additional Requirement for ECO Mark

3.4.1 General Requirements

3.4.1.1 The product shall conform to the requirements for quality, safety and performance prescribed under 3.1 to 3.3.

3.4.1.2 All the ingredients that go into formulation of cosmetics shall comply with the provisions of IS 4707 (Part 1) and IS 4707 (Part 2) : 1993 ‘Classification for cosmetic raw materials and adjuncts : Part 2 List of raw materials generally not recognized as safe (first revision).’

The product shall also meet specific requirements as given in the standard.

Amend No. 1 to IS 7669 : 1990

3.4.1.3 The product package shall display a list of ingredients in descending order of quantity present.

3.4.1.4 The product shall not be manufactured from any carcinogenic ingredients.

3.4.1.5 The manufacturer shall produce to BIS the environmental consent clearance from the concerned State Pollution Control Board as per the provisions of the *Water (Prevention and Control of Pollution) Cess Act, 1977* and the *Air (Prevention and Control of Pollution) Act, 1981* along with the authorization, if required under the *Environment (Protection) Act, 1986* and the Rules made thereunder, while applying for ECO Mark. Additionally, provisions of the *Drugs and Cosmetics Act, 1940* and the Rules thereunder shall also be complied with.

3.4.2 Specific Requirements

3.4.2.1 Product shall be dermatologically safe when tested as prescribed in IS 4011:1997 'Methods of test for safety evaluation of cosmetics (*second revision*).'

3.4.2.2 Biodegradable agents wherever used in cosmetics formulation shall be as per their limit finalized for ECO Mark by the technical committee.

3.4.2.3 Heavy metals calculated as lead (Pb) and arsenic (As₂O₃) shall not exceed 20 and 2 ppm, respectively when tested by the respective method prescribed in Indian Standards.

(*Page 1, clause 6.1*) — Insert the following clause after 6.1 and renumber the subsequent clause:

'6.2 The material for product packaging shall meet the parameters involved under the scheme of labelling environment friendly packaging/packaging materials.

[*Page 1, clause 6.2 (renumbered 6.3)*] — Insert the following clause after 6.2:

'6.4 The product package shall be suitably marked that ECO Mark label is applicable only to the contents, if the product package is not separately covered under the ECO Mark scheme.'

Indian Standard

SHAMPOO, SOAP BASED — SPECIFICATION

(First Revision)

1 SCOPE

1.1 This standard prescribes the requirements and methods of sampling and test for shampoo based on soap.

2 REFERENCES

2.1 The following Indian Standards are necessary adjuncts to this standard:

IS No.	Title
286 : 1978	Methods of sampling and test for soaps (<i>second revision</i>)
323 : 1959	Rectified spirit (<i>revised</i>)
1070 : 1977	Specification for water for general laboratory use (<i>second revision</i>)
3958 : 1984	Methods of sampling cosmetics (<i>first revision</i>)
4011 : 1982	Methods for dermatological tests for cosmetics (<i>first revision</i>)
4707 (Part 1) : 1988	Classification of cosmetic raw materials and adjuncts: Part 1 Dyes, colours and pigments
4707 (Part 2) : 1973	Classification of cosmetic raw materials and adjuncts: Part 2 Ingredients generally not recognised as safe for use in cosmetic (GNRAS)

3 REQUIREMENTS

3.1 Description

The shampoo shall be in the form of liquid. It shall be clear and free from sediment. It may be coloured and perfumed.

3.2 Ingredients

Unless specified otherwise, all the raw material used in the manufacture of shampoo shall conform to the requirements prescribed in the relevant Indian Standards where such standards exist.

3.2.1 Dyes

The dyes used, (subject to the provisions of schedule Q of the Drugs and Cosmetics Act and Rules issued by the Government of India), if any, shall comply with the provisions of IS 4707 (Part 1) : 1988.

3.2.2 Other Ingredients

Other ingredients used, if any, shall comply with the provisions of IS 4707 (Part 2) : 1973.

3.2.3 A list of ingredients conventionally used in formulation of soap-based shampoos is given, for information only, in Annex A.

3.3 The shampoo shall comply with the requirements given in Table 1.

Table 1 Requirements for Shampoo, Soap-Based

Sl No.	Characteristic	Requirement	Method of Test, Ref to
i)	Total fatty matter, percent by mass, <i>Min</i>	15.0	Clause 5 of IS 286 : 1978
ii)	Matter insoluble in alcohol, percent by mass, <i>Max</i>	2.0	Clause 5 of IS 286 : 1978
iii)	Foam height for 2 percent solution, <i>Min</i>	150 mm	Annex B
iv)	Free caustic alkali (as KOH), percent by mass, <i>Max</i>	0.01	Annex C

4 SAMPLING

4.1 Representative samples of the material shall be drawn as prescribed in IS 3958 : 1984.

4.2 Test for all the requirements shall be carried out on a composite sample.

4.3 The shampoo shall be taken to have conformed to this specification if the composite sample passes all the tests.

5 TESTS

5.1 Tests shall be carried out according to methods given in IS 286 : 1978.

6 PACKING AND MARKING

6.1 Shampoo, soap-based, shall be packed in glass or plastics containers or as agreed to between the purchaser and the supplier.

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

- a) Name of the material;
- b) Net contents in volume;
- c) Indication of the source of manufacture; and
- d) Code number or batch number of production.

ANNEX A

(Clause 3.2.3)

LIST OF RAW MATERIALS CONVENTIONALLY USED IN FORMULATION OF SOAP BASED SHAMPOOS

- | | |
|--|---|
| <p>1 Soap — Sodium and/or potassium soaps</p> <p>2 <i>Chelating Agents</i>:</p> <p style="padding-left: 20px;">a) Sodium polyphosphates</p> <p style="padding-left: 20px;">b) Sodium salt of ethylenediamine tetra-acetic acid</p> <p>3 <i>Preservatives</i>:</p> <p style="padding-left: 20px;">a) Alcohols</p> <p style="padding-left: 20px;">b) Formaldehyde</p> <p style="padding-left: 20px;">c) Esters of <i>p</i>-hydroxybenzoic acid</p> <p style="padding-left: 20px;">d) Sorbic acid</p> <p style="padding-left: 20px;">e) Imidazolidinyl urea</p> | <p>4 <i>Emollients</i>:</p> <p style="padding-left: 20px;">a) Lanolin and its derivatives</p> <p>5 <i>Thickening Agents</i>:</p> <p style="padding-left: 20px;">a) Sodium carboxymethyl cellulose</p> <p style="padding-left: 20px;">b) Methyl cellulose</p> <p style="padding-left: 20px;">c) Methyl isopropyl cellulose</p> <p style="padding-left: 20px;">d) Guar gum</p> <p>6 <i>Other Groups of Ingredients</i>:</p> <p style="padding-left: 20px;">a) Perfumes</p> <p style="padding-left: 20px;">b) Dyes</p> <p style="padding-left: 20px;">c) Conditioning agents</p> |
|--|---|

ANNEX B

[Clause 3.3 and Table 1, Sl No. (iii)]

METHODS OF TEST FOR SHAMPOO, SOAP BASED

B-1 QUALITY OF REAGENTS

B-1.1 Unless specified otherwise, pure chemicals and distilled water (see IS 1070 : 1977) shall be used in tests.

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

B-2 DETERMINATION OF FOAM HEIGHT

B-2.1 Outline of the Method

In order to check the ability of a shampoo to produce lather, the volume of foam obtained under specific experimental conditions is determined.

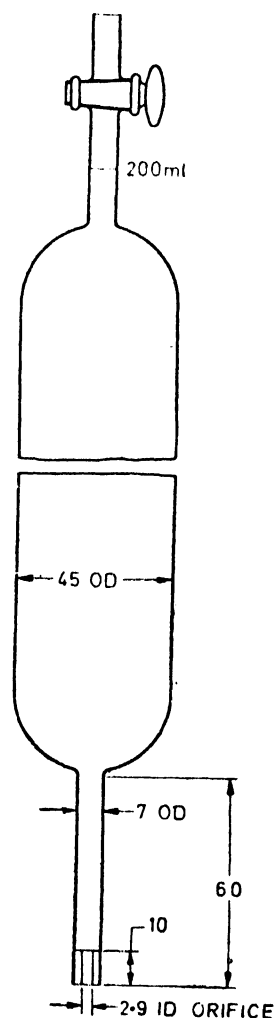
B-3 APPARATUS

B-3.1 Pipette

The pipette shown in Fig. 1 shall be constructed from standard-wall, chemically resistant glass tubing having the following dimensions:

- a) For the bulb, 45.0 ± 1.5 mm outside diameter; and
- b) For the lower stem, 7.0 ± 0.5 mm outside diameter.

The upper stem shall be constructed to contain a solid stopper straight bore No. 2, standard taper stopcock having a 2 mm bore and stems 8 mm in outside diameter. Both the upper and lower seals of the bulb to the stems shall be hemispherical in shape. The lower stem shall be 60 ± 2 mm in length from the point of attachment to the bulb and shall contain an orifice sealed into the lower end. The orifice shall be constructed from precision bore tubing having an inside diameter of 2.90 ± 0.02 mm and a length of 10.00 ± 0.05 mm, with both



All dimensions in millimetres.
FIG. 1 FOAM PIPETTE

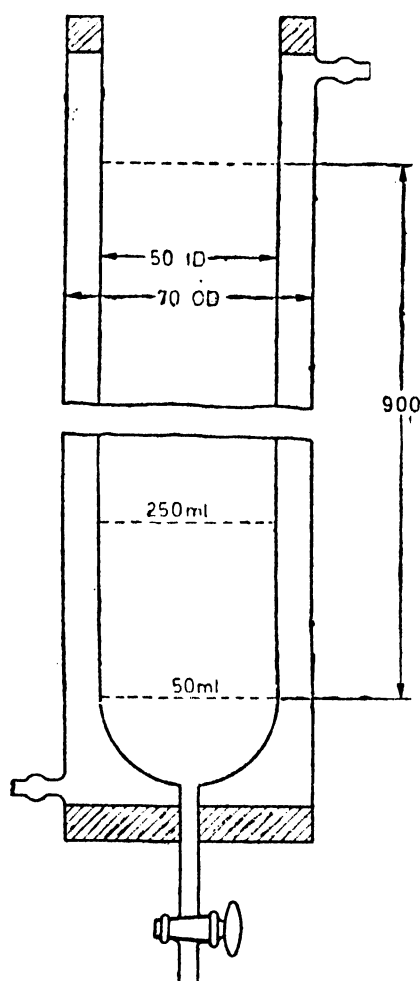
ends ground square. The orifice shall have an outside diameter so as to fit snugly into the lower stem and form a secure seal to the stem when heated with a sharp pointed flame in the blow torch. The pipette shall be calibrated to contain 200.0 ± 0.2 ml at 20°C . The calibration mark shall be on the upper stem at least 15 mm below the barrel of the stopcock and shall completely encircle the stem.

B-3.2 Receiver

The receiver shown in Fig. 2 shall be constructed from standard-wall, chemically resistant glass tubing having an internal diameter of 50.0 ± 0.8 mm with one end constricted and sealed to a straight-bore, solid-plug, standard-taper No. 6 stopcock having a 6 mm bore and 12 mm stems. The receiver shall have three calibration marks which shall completely encircle the tube. The first mark shall be at the 50 ml point, shall be measured with the stopcock closed and shall not be on any curved portion of the constriction. The second mark shall be at the 250 ml point and the third mark at a distance of 90.0 ± 0.5 cm above the 50 ml mark. The receiver tube shall be mounted in a standard-wall tubular water jacket, having an external diameter of not less than 70 mm fitted with inlet and outlet connections. The jacket may be attached to the receiver with rubber stoppers or may be sealed at the top and bottom. The seal at the bottom shall be as close to the barrel of the stopcock as practicable. The assembled receiver and jacket shall be mounted securely in a plumb position and the jacket connected to a source of water thermostatically maintained at $48.0 \pm 0.5^\circ\text{C}$ for circulating through the jacket. At the top of the receiver there shall be a platform, flush with the top of the assembly, having a metal plate in which is drilled three indexing holes circumferentially placed around the receiver and having an angular displacement of 120° from each other. A clamp which may be securely attached to the upper part of the pipette shall fit into the holes. The clamp shall have three levelling screws and lock nuts and when properly mounted shall exactly centre the pipette in the receiver and bring the lower tip of the pipette level with the upper calibration mark on the receiver. A metre stick shall be fastened to the side or behind the receiver with the zero point level with the 250 ml calibration point on the receiver.

B-4 PREPARATION OF SAMPLE SOLUTION

Distilled water or water of hardness 100 expressed in terms of parts per million of calcium carbonate shall be taken for test. Preheat the water to a temperature of $30 \pm 2^\circ\text{C}$. Add 500 ml of water to 10 g of shampoo solution while stirring vigorously. Continue stirring in such a manner until miscibility of shampoo with water is complete. Age the solution at a temperature of $30 \pm 2^\circ\text{C}$ for a total period of



All dimensions in millimetres.

FIG. 2 FOAM RECEIVER

30 minutes counting the time when the shampoo is first added to the water.

B-5 PROCEDURE

While the shampoo solution is aging, circulate water at $30 \pm 2^\circ\text{C}$ through the water jacket of the receiver so as to bring it to the proper temperature. Rinse down the walls of the receiver with distilled water and as an indication of cleanliness observe whether the water drains down the walls in an unbroken film. At the completion of the aging period close the stopcock at the bottom of the receiver. Rinse the walls of the receiver with 50 ml of the solution, using a pipette and after draining to the bottom of the receiver, adjust the stopcock so that the level of the solution in the receiver is exactly at the 50 ml mark. Fill the pipette with the solution to the 200 ml mark using a slight suction for the purpose. Immediately place it in position at the top of the receiver and open the stopcock. When all of the solution has run out of the pipette, start a stop-watch take a reading of the foam height and take a second reading at the

end of 5 minutes. Take the reading by measuring the foam production at the top of the foam column at the highest average height to which the rim of the foam has reached. This height is proportional to the volume of air remaining in the foam.

B-6 REPORTING

- a) Concentration in grams per litre

- b) The temperature of the test
c) Degree of hardness of water
d) Initial foam height
e) Foam height after 5 minutes

The foam height of two percent shampoo solution shall not be less than the specified limit in Table 1.

ANNEX C

[Table 1, Sl No. (iv)]

DETERMINATION OF FREE CAUSTIC ALKALI

C-0 GENERAL

Two methods are specified namely ethanol method and barium chloride method. The ethanol method is suitable for sodium soaps whereas the barium chloride method is suitable for potassium soaps or mixed sodium and potassium soaps.

C-1 REAGENTS

C-1.1 Phenolphthalein Indicator

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

C-1.2 Ethyl Alcohol

Conforming to IS 323 : 1959 freshly boiled and neutral to phenolphthalein.

C-1.3 Standard Sulphuric Acid or Standard Hydrochloric Acid, approximately 0.1 N.

C-1.4 Standard Sodium Hydroxide Solution, approximately 0.1 N.

C-1.5 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 indicator (indicator mixture, phenolphthalein, thymol blue, ethanolic solution). Dissolve 1 g of phenolphthalein and 0.5 g of thymol blue in 100 ml of hot ethanol filter) until a violet colour appears.

C-2 METHOD A (ETHANOL METHOD)

C-2.1 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 filter flask through a tared, dried and counter-poised 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 ethanol still neutral to phenolphthalein. Heat the filtrate to boiling. Add about 0.5 ml of phenolphthalein indicator and titrate with standard sulphuric or hydrochloric acid.

C-3 METHOD B (BARIUM CHLORIDE METHOD)

C-3.1 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.

C-4 CALCULATION

$$\begin{aligned} \text{Free caustic alkali (as } K_2O \text{),} \\ \text{percent by mass} &= \frac{4.71 V N}{M} \end{aligned}$$

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 of material taken for test

ANNEX D

(Foreword)

IDEAL PROPERTIES OF A SHAMPOO

D-1 EASE OF APPLICATION

The shampoo should be viscous enough to stay in the hand before application to the hair and scalp, yet during application the shampoo must spread easily and disperse quickly over the head and hair.

D-2 RINSING

The shampoo should rinse out easily and should not leave a residual tackiness or stickiness. It should not precipitate in hard water since insoluble calcium and magnesium salts form a dulling film on the hair.

D-3 EASY WET COMBING

After rinsing the hair should comb through easily without tangling.

D-4 MANAGEABILITY

The hair should be left in a manageable condition when combed dry. There should be no 'fly away' or frizziness.

D-5 LUSTER

The hair should be left in a lustrous condition.

D-6 BODY

The hair should have 'body' when dry, that is, the hair should not be limp or over conditioned.

D-7 FRAGRANCE

A fragrance should be used that not only covers any objectionable odour due to components used to formulate the shampoo but which develops a clean refreshing scent during shampooing and leaves a clean residual scent on the hair. This could be a major factor in consumer acceptance of the product.

D-8 LOW LEVEL OF IRRITATION

The formulator should try to accomplish all of the above qualities while keeping the irritation level as low as possible.

D-9 WELL PRESERVED

The product must be properly preserved against microbial and fungal contamination.

D-10 GOOD STABILITY

The product should have good stability for at least two or three years at room temperature as well as when stored in daylight or in warehouses with low or high ambient temperatures.

D-11 ECONOMICAL

The product should not be 'over-formulated'. The formulation should be as simple as possible using only those raw materials that are necessary to accomplish the desired goal.

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Amendments are issued to standards as the need arises on the basis of comments. Standards are also reviewed periodically; a standard along with amendments is reaffirmed when such review indicates that no changes are needed; if the review indicates that changes are needed, it is taken up for revision. Users of Indian Standards should ascertain that they are in possession of the latest amendments or edition by referring to the latest issue of 'BIS Handbook' and 'Standards Monthly Additions'

This Indian Standard has been developed from Doc: No. PCD 19 (993)

Amendments Issued Since Publication

Amend No.	Date of Issue	Text Affected

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