भारतीय मानक
Indian Standard

IS 10523 : 2014
(Reaffirmed 2016)

(Reaffirmed 2019)

शिशुओं हेतु स्नान साबुन की विशिष्टि

(पहला पुनरीक्षण)

Baby Toilet Soap — Specification

(First Revision)

ICS 71.100.70; 97.170

भारतीय मानक ब्यूरो
BUREAU OF INDIAN STANDARDS
मानक भवन, 9 बहादुरशाह ज़फर मार्ग, नई दिल्ली-110002
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI-110002
www.bis.org.in www.standardsbis.in

August 2014 **Price Group 4**

Soaps and Other Surface Active Agents Sectional Committee, CHD 25

FOREWORD

This Indian Standard (First 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.

Considering that baby toilet soap were being produced and consumed in good quantity, the concerned technical committee formulated this Indian Standard and the same was first published in 1983. The Sectional Committee responsible for the preparation of this standard decided to revise it in order to incorporate all the Amendments issued till date.

Normally the general requirements for a baby toilet soap are similar to those prescribed for toilet soap meant for adults. However, on account of natural difference between a baby's skin and an adult's skin due regard to toxicity and dermatological consideration is given during the manufacture of baby toilet soap. This is because the skin of babies, being much thinner and less cornified than that of an adult, is highly susceptible to irritation and resistance to bacterial attack is not fully developed in the very young ones. If superficial layers of the epidermis are damaged by any means, for example, by the use of harsh toiletries, various skin disorders may develop. It was however not practicable to prescribe all such factors. It was, therefore, emphasized that manufacturers of baby toilet soap shall take the responsibility to establish and ensure dermatological safety of the soap when evaluated as per the method prescribed in IS 13424: 2001 'Safety evaluation of bathing bars and toilet soaps—Methods of test (*first revision*)'.

In order to achieve dermatological safety of baby toilet soap the choice and selection of appropriate quality and quantity of different raw materials is very important.

In this standard, the use of rosin has not been allowed because its soap may lead to irritation of the skin. On similar consideration a higher limit for total fatty matter, low limits for free caustic alkali and free carbonated alkali and low limits for heavy metals, namely, nickel, copper and iron have been prescribed.

A scheme for labelling environment friendly products to be known as ECO Mark is being introduced at the instance of the Ministry of Environment and Forests (MEF). The ECO Mark shall be administered by the Bureau of Indian Standards (BIS) under the *BIS Act*, 1986 as per the Resolution No. 71 dated 20 February 1991 published in the Gazette of the Government of India. For a product to be eligible for ECO-Mark it shall also carry the Standard Mark of BIS for quality besides meeting additional optional environment friendly (EF) requirements. The EF requirements for baby toilet soap are included in this standard. A proposal to incorporate some more EF requirements in phases is also under consideration and would be included in due course.

This standard contains clause **5.1** which calls for agreement between the purchaser and the supplier for packing.

The Committee responsible for formulation of this standard is given in Annex F.

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

BABY TOILET SOAP — SPECIFICATION

(First Revision)

1 SCOPE

This standard prescribes requirements and methods of sampling and test for baby toilet soap.

2 REFERENCES

The standards listed in Annex A contain provisions which, through reference in this text, 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 in Annex A.

3 TERMINOLOGY

3.1 For the purpose of this standard, the definitions given in IS 286 and IS 7597 shall apply.

4 REQUIREMENTS

4.1 Description

Baby toilet soap shall be a high grade, thoroughly saponified, milled soap or homogenized soap or both, white or coloured, mildly perfumed or unperfumed, and compressed in firm smooth cakes. It shall possess good cleaning and lathering properties. It shall be free from rancidity.

4.2 Ingredients

Baby toilet soaps shall contain only the following:

a) Colouring matter, perfume, preservatives and super fatting agents;

b) All other ingredients except moisture shall be declared on the label; and

c) All these materials shall be non-injurious to skin in use with soap.

4.3 Baby toilet soap shall also comply with the requirements given in Table 1.

4.3.1 *Calculation of Results*

Baby toilet soap is liable to lose moisture on keeping. The results of analysis in respect of other characteristics shall be recalculated in relation to the minimum specified total fatty matter by means of the equations:

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

4.4 Optional Requirements for ECO Mark

4.4.1 *General Requirements*

4.4.1.1 The product shall conform to the requirements for quality, safety and performance prescribed under **4.1** to **4.3**.

4.4.1.2 The manufacturers shall produce to BIS environmental consent clearance from the concerned State Pollution Control Board as per the provisions of the *Water (Prevention and Control of Pollution) Act,*

Table 1 Requirements for Baby Toilet Soap

(*Clause* 4.3)

Sl No.	Characteristic	Requirements	Method of Test, Ref to		
			Cl in IS 286	Cl in IS 74	Annex of this Standard
(1)	(2)	(3)	(4)	(5)	(6)
i)	Total fatty matter, percent by mass, *Min*	78.0	15	—	—
ii)	Moisture and volatile matter (at 105°C), percent by mass, *Max*	15.0	4.2	—	—
iii)	Matter insoluble in alcohol, percent by mass, *Max*	2.0	5	—	—
iv)	Matter insoluble in water, percent by mass, *Max*	0.5	7	—	—
v)	Free caustic alkali, as sodium hydroxide (NaOH), percent by mass, *Max*	0.03	6	—	—
vi)	Chlorides, as sodium chloride (NaCl), percent by mass, *Max*	1.0	10	—	—
vii)	Free carbonated alkali, percent by mass, *Max*	0.5	2	—	—
viii)	Freedom from rosin	To pass the test	—	23	—
ix)	Freedom from grit	To pass the test	—	—	B
x)	Nickel content	Nil	—	—	C
xi)	Iron content, parts per million, *Max*	10	—	—	D
xii)	Copper (as Cu) contents, parts per million, *Max*	3	—	—	E

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.

4.4.2 *Specific Requirements*

4.4.2.1 The material shall neither contain any synthetic detergent when tested as per the method given in Annex B and Annex C of IS 4955 nor any phosphate when tested as per the method given in **20** of IS 286.

4.4.2.2 The material 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 packed 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 materials and declared by the manufacturer and may be accompanied with detailed instructions for proper use.

5.2 Marking

The packages shall be securely closed and labelled in conformity with the statutory requirements of the Government of India as applicable from time to time and the following:

a) Name of the material;
b) Manufacturer's name and address and/or his recognized trade-mark, if any;
c) Net mass when packed;
d) Total fatty matter content;
e) Batch number or lot number in code or otherwise; and
f) Month and year of manufacture.
g) The following identified critical ingredients in descending order of quantity, percent by mass, for ECO Mark:
    1) Total fatty matter (TFM), and
    2) Water insoluble matter.
h) The criteria for which the product has been labelled as ECO Mark

5.2.1 *BIS Certification Marking*

The packages may also be marked with the Standard Mark.

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

6 SAMPLING

6.1 For this purpose, 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 all the remaining characteristics 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 (**5.2.1**) the mean ($\bar{x}$) and the range (R) of the test results shall be calculated as follows:

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

Range (R) = difference between the maximum and the minimum values of the test results

The lot shall be deemed as conforming to the requirements given in **6.2.1** the expression ($\bar{x} - 0.6\,R$) is greater than or equal to minimum value given in Table 1, and ($\bar{x} + 0.6\,R$) is less than or equal the maximum value given in Table 1.

6.3.2 *For Composite Sample*

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

7 TEST METHODS

7.1 Tests shall be conducted as prescribed in IS 286, IS 74 and Annexure B, C and D. References to the relevant clauses of IS 286, IS 74 and annexes are given in cols 4, 5 and 6 of Table 1.

7.2 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

(*Clause* 2)

LIST OF REFERRED INDIAN STANDARDS

IS No.	*Title*	*IS No.*	*Title*
74 : 1979	Methods of sampling and test for drying oils for paints (*second revision*)	4955 : 2001	Household laundry detergent powders — Specification (*fourth revision*)
265 : 1993	Hydrochloric acid (*fourth revision*)	7597 : 2001	Surface active agents — Glossary of terms (*first revision*)
286 : 1978	Methods of sampling and test for soaps (*second revision*)	13424 : 2001	Safety evaluation of bathing bars and toilet soaps — Methods of test (*first revision*)
1070 : 1992	Reagent grade water — Specification (*third revision*)		

ANNEX B

[*Table* 1, *Sl No.* (ix) and *Clause* 7.1]

TEST FOR FREEDOM FROM GRIT

B-0 OUTLINE OF THE METHOD

B-0.1 Soap is rubbed with water between the hands for a specified time and examined for its gritty or rough feel, if any.

B-1 PROCEDURE

B-1.1 Hold a bar of soap in running tap water and rub between both hands for about 3 min. No gritty or rough feel should be perceived while rubbing the soap surface. Examine the surface of the bar which shall not be rough and shall feel smooth when the fingers are moved across the surface. Set the bar on and let it dry for 24 h at room temperature and examine its surface.

B-1.2 The soap shall be taken to have passed the test if there is no gritty or rough feel on the surface.

ANNEX C

[*Table* 1, *Sl No.* (x) and *Clause* 7.1]

DETERMINATION OF NICKEL

C-0 OUTLINE OF THE METHOD

C-0.1 The method is based on the isolation of metal from the soap and reaction between nickel in the oxidized form with dimethyl glyoxime forming a pink colour.

C-1 REAGENTS

C-1.1 Sodium Hydroxide — AR grade.

C-1.2 Concentrated Hydrochloric Acid— Conforming to IS 265.

C-1.3 Dimethyl Glyoxime Solution — 0.1 percent (*v*/*v*) in 95 percent ethyl alcohol.

C-1.4 Saturated Bromine Water

C-1.5 Liquor Ammonia — Relative density 0.9.

C-2 PROCEDURE

C-2.1 Isolation of Metals from Soap

Weigh 50 g of soap in a beaker and dissolve in hot water. Add to this soap solution 40 ml of concentrated

hydrochloric acid, stir and keep on steam bath until fatty acid layer separates. Add 20 g of paraffin wax, stir at intervals and allow it to settle until phases are clear. Cool to room temperature.

C-2.1.1 Remove wax cake with rod, rinse with water and add rinsings to aqueous phase. Evaporate, aqueous phase to about 60 ml by gentle boiling. Add 100 ml of water and filter through paper washed previously with hydrochloric acid. Evaporate filtrate and washings to about 60 ml. Cool and transfer to volumetric flask. Make up the volume to 100 ml. Take aliquot portions for metal estimation.

C-2.2 Determination of Nickel Content

Take 50 ml aliquot of the aqueous solution from the test solution in a 250-ml beaker. Evaporate the solution to about 15 ml by heating. Transfer the solution to a 50-ml glass stoppered volumetric flask using a small quantity of water for rinsing the solution from the beaker into the volumetric flask. Add to the flask 3 ml of saturated bromine water and allow to stand for 1 min. Add liquor ammonia dropwise until excess bromine is destroyed as indicated by the disappearance of brown colour. Then add 5 ml of liquor ammonia in excess. If a precipitation occurs, filter the solution and wash the precipitate with distilled water; combine the filtrate and the washings and concentrate to a volume of a few millilitres and transfer to a 50-ml volumetric flask. Add 10 ml of dimetyl glyoxime solution, followed by 15-20 ml of 95 percent ethyl alcohol. Mix thoroughly and make up the volume and again mix thoroughly. Allow the solution to stand for 5 min to permit full development of colour. The sample shall be considered to have passed the test if no pink colour develops.

ANNEX D

[*Table* 1, *Sl No.* (xi) and *Clause* 7.1]

DETERMINATION OF IRON

D-0 OUTLINE OF THE METHOD

D-0.1 The method is based on the isolation of metal from the soap by dissolving in hot water. The aqueous extract is treated with citric acid to sequester aluminium and then thioglycolic acid in ammoniacal solution is added and colour measured spectrophoto-metrically.

D-1 APPARATUS

D-1.1 Spectrophotometer

D-2 REAGENTS

D-2.1 Liquor Ammonia — Relative density 0.9.

D-2.2 Sulphuric Acid — 50 percent (*v*/*v*).

D-2.3 Citric Acid (Aqueous Solution) — 50 percent (*v*/*v*).

D-2.4 Thioglycolic Acid (Aqueous Solution)

D-2.5 Standard Iron Solution — Containing 10 µg of iron per ml prepared from ferric ammonium sulphate [$Fe_2 (SO_4)_3 . (NH_4)_2 SO_4 . 12H_2O$] in acid solution.

D-2.6 Methyl Red Indicator — 0.1 percent aqueous solution.

D-3 PROCEDURE

D-3.1 Isolation of Metals from Soap

Weigh 50 g of the soap sample in a beaker and dissolve it with hot water. To this soap solution add 40 ml of concentrated hydrochloric acid with constant stirring and keep the beaker on steam bath until fatty acid layer separates. Add 20 g of paraffin wax to this solution while hot. Stir the solution at intervals and allow it to settle until phases are clear. Cool the mass to room temperature. Remove the wax cake with rod, rinse with water and add the rinsings to aqueous phase. Evaporate the aqueous phase to above 60 ml by gentle boiling. Add 100 ml of water and filter through paper washed previously with hydrochloric acid. Evaporate the filtrate and washings to about 60 ml. Cool and transfer the solution to a volumetric flask and make up the volume to 100 ml. Take aliquot portion of the solution for metal estimation.

D-3.2 Determination of Iron

Take 5 ml aliquot of the aqueous solution from the test solution in a 25-ml volumetric flask. To this add 4 ml citric acid solution and 0.02 ml methyl red indicator

and liquor ammonia till the colour of the solution turns yellow. Then add 3 ml liquor ammonia in excess. Cool the solution and add 3 ml thioglycolic acid. Make up the volume to 25 ml and mix the solution thoroughly. Filter the solution through acid washed and dried filter paper. Measure absorbance of the clear solution at 540 nm in the spectrophotometer using water as reference. Prepare a calibration curve with standard iron solution and determine the iron content of the soap sample from it.

ANNEX E

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

DETERMINATION OF COPPER

E-0 OUTLINE OF THE METHOD

E-0.1 The method is based on the isolation of metal from the soap and to make a copper complex using zinc dibenzyl dithiocarbamate in carbon tetrachloride solution and measure the colour of the solution spectrophotometrically.

E-1 APPARATUS

E-1.1 Spectrophotometer

E-2 REAGENT

E-2.1 Zinc Dibenzyl Dithiocarbamate Solution — 0.05 percent (*v*/*v*) in carbon tetrachloride.

E-2.2 Standard Copper Solution — Containing 1 µg of copper per ml (prepared from a stock solution of 100 times the concentration).

E-3 PROCEDURE

E-3.1 Isolation of Metal from Soap

Weigh 50 g of soap sample in a beaker and dissolve it with hot water. To this soap solution add 40 ml of concentrated hydrochloric acid with constant stirring and keep the beaker on steam bath until fatty acid layer separates. Add 20 g of paraffin wax to this solution while hot. Stir the solution at intervals and allow it to settle until phases are clear. Cool the mass to room temperature. Remove the wax cake with rod, rinse with water and add the rinsing to aqueous phase. Evaporate the aqueous phase to about 60 ml by gentle boiling. Add 100 ml of water and filter through filter paper washed previously with hydrochloric acid.Evaporate the filtrate and washings to about 60 ml. Cool and transfer the solution to a volumetric flask and made up the volume to 100 ml. Take aliquot portion of the solution for metal estimation.

E-3.2 Determination of Copper

Take 20 ml aliquot of the aqueous solution and to it add 10 ml of zinc dibenzyl dithiocarbamate solution followed by 25 ml sulphuric acid in a separating funnel. Shake the solution for 1 min and allow it to settle. Run the lower carbon tetrachloride layer in to a 25 ml volumetric flask. Wash the aqueous layer with carbon tetrachloride and transfer through glass wool to volumetric flask. Make up the volume and mix well. Measure absorption of the clear solution at 435 nm in the spectrophotometer. Prepare a calibration curve with standard copper solution and determine the copper content of the soap sample from the curve.

NOTE — The standard solution shall also be extracted with carbon tetrachloride before estimation of colour.

ANNEX F

(*Foreword*)

COMMITTEE COMPOSITION

Soaps and Other Surface Active Agents Sectional Committee, CHD 25

Organization	*Representative(s)*
Drugs Controller General of India, Directorate General of Health Services, New Delhi	Dr Surinder Singh (*Chairman*)
Association for Consumer's Action on Safety and Health, Mumbai	Shri Yogesh Kamdar Shri Satyadev Pandey (*Alternate*)
Central Pollution Control Board, New Delhi	Dr M. Q. Ansari Dr Rekha L. Sitasawad (*Alternate*)
Central Revenue Control Laboratory, New Delhi	Dr T. K. Roy Shri R P Singh (*Alternate*)
Colgate-Palmolive (India) Ltd, Mumbai	Dr Shanshank Potnis Shri Vilas Tulle (*Alternate*)
Consumer Education & Research Centre, Ahmedabad	Ms Anindita Metha Ms Dolly A. Jani (*Alternate*)
Consumer Guidance Society of India, Mumbai	Dr Sitaram Dixit Shri B. N. Desai (*Alternate*)
Department of Industrial Policy and Promotion, New Delhi	Shri Shaish Kumar Shri N. C. Tiwari (*Alternate*)
Directorate General of Health Services, New Delhi	Shri M. Mitra
Directorate General of Supplies & Disposals, New Delhi	Shri N. K. Kaushal Shri A.K.M. Kashyap (*Alternate*)
FASSSDMI, Delhi	Shri Santosh Kumar Shri Ashok Kumar Popat Lal Shah
Godrej Consumers Products Ltd, Mumbai	Shri Jimmy Dordi Shri N. M. Sunder (*Alternate*)
Harcourt Butler Technological Institute, Kanpur	Dr R. P. Singh Dr V. K. Tyagi (*Alternate*)
Hindustan Unilever Limited, Mumbai	Dr A. Sivakumar Shri Niraj Mistry (*Alternate*)
ITC Limited, Bangalore	Dr V. Krishnan Dr Suresh Ramamurthi (*Alternate*)
K.S. Krishnan Associates (P) Ltd, Noida	Shri S. Krishnan Shri R. Krishna Murthy (*Alternate*)
Khadi & Village Industries Commission, Mumbai	Dr Gulam Hussain
Ministry of Defence (DGQA), Kanpur	Shri A. K. Shukla Shri S. K. Pandey (*Alternate*)
Ministry of Micro, Small & Medium Enterprises (MSME), New Delhi	Dr Izzatullah
National Test House, Ghaziabad	Shri M. Chakrabarty Dr (Shrimati) M. Misra (*Alternate*)
Nirma Limited, Ahmedabad	Shri Hiren K. Patel Shri Ashish K. Desai (*Alternate*)
Oil Technologist Association of India, Mumbai	Dr B. R Gaikwad Shri H. P. Saxena (*Alternate*)
Procter & Gamble India, Mumbai	Ms Priyanka Bhat Shri Gaurav Nandrajog (*Alternate*)

Organization	*Representative(s)*
Reckitt Benckiser India Limited, Gurgaon	REPRESENTATIVE
BIS Directorate General	SHRI E. DEVENDAR Scientist 'F' and Head (CHD) [Representing Director General (*Ex-officio*)]

Member Secretary
SHRI K. K. PAUL
Scientist 'E' (CHD), BIS

Bureau of Indian Standards

BIS is a statutory institution established under the *Bureau of Indian Standards Act*, 1986 to promote harmonious development of the activities of standardization, marking and quality certification of goods and attending to connected matters in the country.

Copyright

Review of Indian Standards

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 Catalogue' and 'Standards : Monthly Additions'.

This Indian Standard has been developed from Doc No.: CHD 25 (1861).

Amendments Issued Since Publication

Amend No.	Date of Issue	Text Affected

BUREAU OF INDIAN STANDARDS

Headquarters:

Manak Bhavan, 9 Bahadur Shah Zafar Marg, New Delhi 110002
Telephones : 2323 0131, 2323 3375, 2323 9402 *Website*: www.bis.org.in

Regional Offices: *Telephones*

Central : Manak Bhavan, 9 Bahadur Shah Zafar Marg, NEW DELHI 110002 — 2323 7617, 2323 3841

Eastern : 1/14 C.I.T. Scheme VII M, V. I. P. Road, Kankurgachi, KOLKATA 700054 — 2337 8499, 2337 8561, 2337 8626, 2337 9120

Northern : SCO 335-336, Sector 34-A, CHANDIGARH 160022 — 260 3843, 260 9285

Southern : C.I.T. Campus, IV Cross Road, CHENNAI 600113 — 2254 1216, 2254 1442, 2254 2519, 2254 2315

Western : Manakalaya, E9 MIDC, Marol, Andheri (East), MUMBAI 400093 — 2832 9295, 2832 7858, 2832 7891, 2832 7892

Branches: AHMEDABAD. BANGALORE. BHOPAL. BHUBANESHWAR. COIMBATORE. DEHRADUN. FARIDABAD. GHAZIABAD. GUWAHATI. HYDERABAD. JAIPUR. KOCHI. LUCKNOW. NAGPUR. PARWANOO. PATNA. PUNE. RAJKOT. VISAKHAPATNAM.

Published by BIS, New Delhi