भारतीय मानक मसौदा

साबुन नूडल्स — विशिष्टि

(आईएस 10513 का पहला पुनरीक्षण)

Draft Indian Standard

Soap Noodles — Specification

(*First Revision of IS* 10513)

ICS 71.100.40

Soaps and Other Surface Active Agents Sectional Committee, CHD 25	**Last date of comments: 31 August 2023**

FOREWORD

(*Formal clauses to be added later*)

The saponification of the oil is a relatively simple step and is frequently combined with the subsequent steps of finishing to create a marketable product when soap is created from traditional basic materials. After incorporating additives like colour, optical brighteners, scents, etc., the finishing stage transforms the saponified mass, which is the sodium salt of fatty acids, into a form that is ready for consumer usage.

Due to the shortage of traditional soap making oils and the concomitant necessity for glycerine recovery, the process of soap making has become labour- and resource-intensive. As a result, there is a tendency to carry out the expensive glycerine recovery process at one plant and sell the intermediate saponified mass to another facility for further processing into consumer-acceptable soap.

Sodium oleostearate, technical (stabilised) contains sodium salts of fatty acids, primarily C8-C18 unsaturated and saturated acids, along with additional preservatives and essential electrolytes, either constructed or unbuilt, and in a form unfit for direct domestic usage, like soap noodles.

This standard was originally published in 1983. This revision includes the name change from “Sodium oleostearate noodles” to “Soap noodles” since with the latest technology development

and trends, soap noodles are made from different blends of oils and benefit ingredients. In this revision, three types of soap noodles are defined. The first type refers to "Pure soap noodles", which comprise of pure soap and can be used for personal care and laundry use. The second type is specific for laundry use. The third type is "other soap noodles" which covers different combinations of soap and other beneficial ingredients as agreed between the manufacturer and supplier. This specification is for the "soap noodles", which is a raw material in principle or intermediate, while the finished product made using such noodles, may need to be guided further by the requirements of the relevant BIS standard as and if applicable.

This standard contains clauses **5.2** and **6.1** which call for agreement between the purchaser and the supplier.

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 : 2022. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1 SCOPE

1.1 This standard covers requirement for "soap noodles" used as an intermediate product for subsequent conversion into a marketable soap.

2 REFERENCES

2.1 The standards listed below 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 below:

IS No.	*Title*
1070 : 1992	Reagent grade water — Specification (*third revision*)
265 : 2021	Hydrochloric acid — Specification (*fifth revision*)
286 : 2018	Methods of sampling and test for soaps (*second revision*)
1070 : 1992	Reagent grade water — Specification (*third revision*)
4707 Part 1 : 2020	Classification for cosmetic raw materials and adjuncts part 1 colourants (*fourth revision*)
7597 : 2001	Surface active agents — Glossary of terms (*first revision*)

3 TERMINOLOGY

3.1 For the purpose of this standard, the definitions given in **3** of IS 286 and IS 7597 shall apply.

4 TYPES

4.1 Soap Noodles, is an unfinished soap, shall be classified into the following 3 types:

a) *Type 1* **—** Pure Soap noodles

b) *Type 2* **—** Soap noodles for laundry use

c) *Type 3* **—** Other Soaps

NOTE - These soap noodles may be used for personal care products, as well as laundry products as relevant and applicable.

5 REQUIREMENTS

5.1 Ingredients

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

The ingredients, when used in Cosmetic products, shall comply with the requirements as per IS 4707 Part 1 and Part 2, as per Drugs and Cosmetics Act 1940 & Rules 1945, as per Cosmetic Rules, 2020

5.2 The material shall be of acceptable colour, as agreed to between the purchaser and the supplier and in the form of chips or powder or flakes or noodles.

5.3 Odour and Lathering Properties

The material shall have no objectionable odour including fishy or any other disagreeable odour and shall possess good lathering and cleaning properties.

5.4 The material shall also comply with the requirements given in Table 1.

6 PACKING

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

Table 1 Requirements for Soap Noodles
(*Clauses* 5.4, 9.1 *and* 9.3)

Sl No.	**Characteristic**	**Requirement For**			**Method of Test, Ref to**	
		Type 1	Type 2	Type 3	Annex in this Standard	Cl No. in IS 286
(1)	(2)	(3)	(4)	(5)	(6)	(7)
i)	Total fatty matter, percent by mass, *Min*	76.0	62.0	35.0	**—**	**16**
ii)	Free caustic alkali as sodium hydroxide (NaOH), percent by mass, *Max*	0.05	0.1	0.1	**—**	**7.2**
iii)	Matter insoluble in alcohol, percent by mass, *Max*	2.5	2.5	*	**—**	**6**
iv)	Titre of total fatty acids, ^{o}C, *Min*	37	33	*	**—**	**17**
v)	Chlorides (as sodium chloride), percent by mass, *Max*	1.5	2	*	**—**	**11**
vi)	Free carbonated alkali, percent by mass, *Max*	1.0	1.0	*	**—**	**28**
vii)	Nickel content (as Ni), ppm, *Max*	0.2	**—**	0.2	**A**	**—**

viii)	Iron (as Fe) content, ppm, *Max*	30	—	30	**B**	—
ix)	Copper (as Cu) content, ppm, *Max*	3	—	3	**C**	—

*Value range to be as agreed between supplier (manufacturer) and buyer (purchaser).

7 MARKING

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

a) Name of the manufacturer;
b) Name of material, type and its recognized trade-mark, if any;
c) Batch number or lot number in code or otherwise; and
d) Month and year of manufacture.

7.1.1 The packages may also be marked with the ISI Certification Mark.

7.1.1.1 The product(s) conforming to the requirements of this standard may be certified as per the conformity assessment schemes under the provisions of the *Bureau of Indian Standards Act*, 2016 and the Rules and Regulations framed thereunder, and the products may be marked with the standard mark.

8 SCALE OF SAMPLING AND CRITERIA FOR CONFORMITY

8.1 For this purpose, general precautions, scale of sampling, preparation of test samples and criteria for conformity shall be as prescribed in **4** of IS 286.

9 TESTS

9.1 Tests for the determination of characteristics given at Sl No. (i) and (ii) in Table 1 shall be conducted on each of the individual samples separately.

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

9.3 Tests to evaluate the characteristics specified in Table 1 shall be conducted as prescribed in IS 286 , Annex A, B and C. References to the relevant clauses of IS 286 and Annex A to C, are given in co1 **6** and **7** of Table 1.

9.4 Quality of Reagents

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

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

ANNEX A

[*Table* 1, (*Item* vii)]

DETERMINATION OF NICKEL

A-1 OUTLINE OF THE METHOD

A-1.1 The method is based on the isolation of metal from the soap and reaction between nickel in the oxidised form with dimethyl glyoxime forming a red colour, the intensity of which is proportional to the amount of nickel present in the sample.

A-2 APPARATUS

A-2.1 UV Spectrophotometer

A-3 REAGENTS

A-3.1 Sodium Hydroxide — Solid.

A-3.2 Concentrated Hydrochloric Acid — *See* IS 265.

A-3.3 Dimethyl Glyoxime Solution — 0.1 percent (*v*/*v*) in 95 percent ethyl alcohol.

A-3.4 Saturated Bromine Water

A-3.5 Standard Nickel Sulphate Solution — Containing 1000 µg of nickel (Ni) per ml.

A-3.6 Liquor Ammonia — Relative density 0.9.

A-4 PROCEDURE

A-4.1 Isolation of Metals

Weigh 50 g of the sample 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.

A-4.1.1 Remove wax cake with rod; rinse with water; 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 the filtrate and washings to about 60 ml. Cool and transfer to volumetric flask. Make up the volume to about 100 ml. Take aliquot portions for metal estimation.

A-4.2 Determination of Nickel Content

Take 50 ml aliquot of the aqueous solution from the test solution in a 250 ml breaker. 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 one minute. 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 water, combine the filtrate and the washings and concentrate to a volume of a few millilitre and transfer to a 50 ml volumetric flask. Add 10 ml of dimethyl 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 and take the absorption/ transmittance reading at 445 nm.

Prepare and conduct blank determination simultaneously and similar in all respects. The transmittance of the blank should be (98 ± 1) percent. Determine the nickel content of the sample by reference to a concentration-transmittance graph prepared as follows.

A-4.3 Preparation of Concentration-Transmittance Graph

Weigh accurately 2.2617 g of nickel sulphate (99 percent $NiSO_4.6H_2O$) and dissolve in distilled water in a 500 ml volumetric flask. Add 30 ml of concentrated hydrochloric acid and bring to volume. This solution contains 1000 fig of nickel per ml. Make appropriate dilutions of this solution and process this solution as in sample above. The dilutions should cover a range 0-100 μg. Finally plot a curve relating transmittance to micrograms of nickel.

A-4.4 Calculation

Nickel content, parts per million = $\frac{M_1 - M_2}{m}$

where

M_1 = micrograms of nickel present in sample,
M_2 = micrograms of nickel present in blank, and
m = mass in gram of the sample taken for the test.

ANNEX B
[*Table* 1, (*Item* viii)]
DETERMINATION OF IRON

B-1 OUTLINE OF THE METHOD

B-1.1 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 spectrophotometrically.

B-2 APPARATUS

B-2.1 Spectrophotometer

B-3 REAGENTS

B-3.1 Liquor Ammonia — Relative density 0.9.

B-3.2 Dilute Sulphuric Acid — 50 percent (*v*/*v*).

B-3.3 Citric Acid (Aqueous Solution) — 50 percent (*v*/*v*).

B-3.4 Thioglycolic Acid (Aqueous Solution)

B-3.5 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.

B-3.6 Methyl Red Indicator — 0.l percent aqueous solution.

B-4 PROCEDURE

B-4.1 Isolation of Metals from Sodium Oleostearate

Weigh 50 g of the 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 the aqueous phase. Evaporate the aqueous phase to about 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.

B-4.2 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 C
[*Table* 1, (*Item* ix)]
DETERMINATION OF COPPER

C-1 OUTLINE OF THE METHOD

C-1.1 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.

C-2 APPARATUS

C-2.1 Spectrophotometer

C-3 REAGENT

C-3.1 Zinc Dibenzyl Dithiocarbamate Solution — 0.05 percent in carbon tetrachloride.

C-3.2 Standard Copper Solution

Containing 1 μg of copper per ml (prepared from a stock solution of 100 times the concentration).

C-4 PROCEDURE

C-4.1 Isolation of Metal from Sodium Oleostearate

Weigh 50 g of the 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 the aqueous phase. Evaporate the aqueous phase to about 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.

C-4.2 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 of sulphuric acid in a separating funnel. Shake the solution for one minute and allow it to settle. Run the lower carbon tetrachloride layer into 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.