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Draft Indian Standard

SEALING WAX — SPECIFICATION

(Second Revision of IS 868)

(ICS 75.140)

Brushware, Polishes, Lac, Lac Products Sectional Committee, CHD 23	**Last Date for Comments** : **26 June 2025**

Brushware, Polishes, Lac, Lac Products Sectional Committee, CHD 23

FOREWORD

(*Formal clause shall be added later*)

The Indian Standard for sealing wax was first published in 1956. In second revision, the limits for various ingredients were specified. .

This revision has been undertaken to align the standard with the latest style and format of Indian Standards. The permissible limits of various ingredients have been consolidated and presented in Table 1. Additionally, the clauses on packing and marking, as well as references, have been updated. Sealing wax is one of the important stores purchased by Government as well as public institutions. It is used for sealing packages made up in paper or in cloth covers.

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 'Rules for rounding off numerical values (*second revision*)' . The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

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Draft Indian Standard

SEALING WAX — SPECIFICATION

(*Second Revision*)

1 SCOPE

1.1 This standard prescribes the requirements and methods of sampling and test for sealing wax which is to be used in the molten condition for putting seals on the joints of any packages made of paper, cotton cloth, hessian, cork, metal, glass or wood and on which some embossed inscriptions are to be put while the wax is in molten condition.

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 edit ions 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*
IS 2978 : 1986	By products of lac (*first revision*)
IS 6921 : 1973	Methods of sampling and test for lac and lac products

3 GRADES

3.1 There shall be 2 grades of sealing wax as follows:

a) *Grade 1* — A grade of sealing wax to give satisfactory adhesion to hard sized and medium sized papers. It shall have two types:

Type 1 — with shellac not less than 36 percent, and

Type 2 — may or may not contain shellac.

b) *Grade 2* — Low grade sealing wax to be used on all types of paper other than those mentioned above and on materials other than paper and glazed tag labels.

4 DESCRIPTION

4.1 Sealing wax shall be uniform in composition and shall be in the form of sticks, lumps or any other form as agreed to between the purchaser and the supplier. It shall be free from coarse matter and any large particles of filling material when tested by method given in Annex A.

5 REQUIREMENTS

5.1 Sealing wax shall consist of ingredients which are non-injurious to health and do not harm the surfaces on which they are used.

5.2 The common ingredients for making sealing wax are shellac, rosin, mineral fillers and pitch.

5.2.1 For Grade 1, Type I of sealing wax, the minimum shellac content shall be 36 percent. For Grade 2 of sealing wax, shellac content and pitch content should be minimum 10 percent and 30 percent, respectively. Mineral loading should be within the limits of 30 to 40 percent for Grade 1 and 40 to 50 percent for Grade 2 of sealing wax. The methods of test for determination of mineral loading rosin, shellac, and pitch content are given in Table 1.

Table 1 Limits of Common Ingredients for Sealing Wax

(*Clause* 5.2.1)

Sl No.	Characteristic	Requirement			Test Method
		Grade 1		Grade 2	
		Type 1	Type 2		
(1)	(2)	(3)	(4)	(5)	(6)
i)	Mineral loading, *percent*	30 to 40		40 to 50	Annex B
ii)	Shellac content, *percent*	min 36	—	min 10	Annex C and Annex D
iii)	Pitch content, *percent*	—	—	30	Annex E

5.3 Colour

Sealing wax shall be uniform in colour. The colour shall not change markedly when the wax is melted. It shall be as agreed to between the manufacturer and the purchaser for Grade 1.

5.4 Odour and Fuming

Sealing wax when melted or burnt shall not fume noticeably or give off an offensive odour.

5.5 Adhesion to Surface

Sealing wax shall be capable of adhering to the appropriate surfaces specified below according to grade, when tested by the method specified in Annex F.

a) *Grade I* — Heavy weight hard-surfaced kraft, bond and sulphite papers and medium sized kraft papers, light weight manilla and all medium grade wrappings and envelopes.

NOTE — Under this category would come, for example, 75 gsm MG R kraft paper, buff wovea paper used for embossed envelopes, manilla envelopes (S. E. Series, Govt of India) of 75 and 150 gsm registration and white cartridge envelopes of 100 gsm brown wrapping envelopes of 110 gsm azure laid embossed envelopes and foreign air mail service envelopes of Indian Postal Department.

b) *Grade 2* — Surfaces of other than those of hard and medium finished papers including glazed tag labels, hessian, and cloth.

NOTE — This category includes papers such as railway tag labels, 60 gsm white printing/cream woven paper.

5.5.1 The purchaser may supply samples of paper or other materials for test of adhesion if required by the supplier.

5.6 Capability of Taking Impressions

All grades of sealing wax shall be capable of taking a clear impression of the die with fine inscriptions when tested by the method given in Annex F.

5.7 Heat Resistance

All grades of sealing wax shall satisfy the test of heat resistance as prescribed in Annex G.

5.8 Resistance to Heat Polymerization

Sealing wax of both grades shall satisfy the test as prescribed in Annex H.

5.9 Keeping Qualities

Sealing wax shall not show any impairment of the properties given in **5.4** to **5.8** within a period of 2 years from the date of manufacture.

5.10 Size and Mass

Size and mass of the sealing wax sticks or lumps shall be as agreed to between the purchaser and the supplier.

6 PACKING AND MARKING

6.1 Packing

Sealing wax shall be packed in cardboard or any other suitable container as agreed to between the purchaser and the supplier. Number of sticks or lumps of sealing wax in each container shall also be as agreed to between the purchaser and the supplier. In case of sticks, inter-leafing paper should be used to prevent sticking on with the other.

6.2 Marking

The containers shall be marked with the following information:

a) Name and grade of the material;
b) Net mass;
c) Indication of source of manufacture;
d) Batch number or lot number in code or otherwise; and
e) Month and year of manufacture.

6.2.1 *BIS Certification Marking*

Each package of shellac may also be marked with the Standard Mark.

6.2.1.1 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.

7 SAMPLING

7.1 Representative samples of the material shall be drawn according to the method prescribed in Annex J.

ANNEX A

(*Clause* 4.1)

UNIFORMITY OF COMPOSITION

A-1 PROCEDURE

A-1.1 Break a stick or lump of seating wax in two and examine the surface of the fracture for coarse matter and large particles of filling material. Then melt one portion of the stick or lump and examine the melted material for coarse particles.

ANNEX B

[*Table* 1, *Sl. no*. (i)]

DETERMINATION OF LOADING CONTENT

B-1 PROCEDURE

B-1.1 The method for determination of matter insoluble in hot alcohol as given in IS 6921 (**6.1** and **6.2**) may be applied. Only difference to be made is that the filtrate from the washing, (*see* **6.1.4.3** of IS 6921) should be used along with 50 rat fresh spirit. After completion of extraction the total extract should be preserved for estimation of rosin and shellac.

B-1.2 Quantity of hot alcohol insoluble obtained is the loading content.

ANNEX C

[*Table* 1, *Sl. no*. (ii)]

DETERMINATION OF ROSIN

C-1 PROCEDURE

C-1.1 The extract from 'E' is made to 250 ml volume in a measuring flask. For rosin estimation 100 ml of the solution is evaporated in a round bottom evaporating basin over a water bath, and dried in an air oven at 110°C to a fixed weight.

In the residue, quantity of rosin present is deter-mined by the method as given in IS 2978 (**Annex-C**). Quantity of rosin obtained in 100 ml solution should be multiplied by **2.5** to get the total quantity of rosin in the quantity of sample taken for determination of loading.

ANNEX D

[*Table* 1, *Sl. no*. (ii)]

DETERMINATION OF SHELLAC

Percentage of shellac = 100 - (percentage of loading + percentage of rosin).

ANNEX E

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

DETERMINATION OF PITCH CONTENT

E-1 PROCEDURE

E-1.1 Powder 50 g of sample to 425 micron (40 mesh) size. Mix properly. Weigh accurately about 2 g sample and wrap it in Whatman filter paper No. 1 or its equivalent as described in the method for determination of hot alcohol insoluble (*Clause* **6** of IS 6921) and extract with Benzol (Benzene 84 percent, Xylene 13 percent, Toluene 3 percent) in Soxhlet apparatus for 2 h as mentioned in the said method of test. Collect the powder and dry in air and finally in an air oven at 55-60°C for 2 h to a constant weight. The difference between the first and second weights gives the weight of pitch content. The residual solid material is then extracted in the same apparatus with ethyl alcohol as is done for estimation of hot alcohol insoluble in shellac. The difference between second and third weight will give the quantity of shellac and rosin present. The residue is loading material.

ANNEX F

(*Clauses* 5.5 *and* 5.6)

ADHESION AND IMPRESSION TEST

F-1 OUTLINE OF THE METHOD

F-1.1 The adhesion of sealing wax is determined by making seals with a standard die (*see* **F-2**) upon appropriate specified surfaces and by testing them according to the procedure prescribed under **F-3**.

F-2 STANDARD DIE

F-2.1 A suitable standard die made of brass shall be used. The die shall have the following characteristics:

a) Round pattern of about 20 mm diameter;
b) Capital letters and digits of 10 point size, and small letters of 12 point size engraved to a depth of about 0.2 mm (*see* **F-2.1.1**).

F-2.1.1 Recommended letters and digits are A F G 1 Q R S X a e f g i m p r and 2 3 4 8 9.

F-3 PROCEDURE

F-3.1 Condition the paper or the appropriate material on which the seals are to be made by keeping at room atmosphere for at least 1 h before the test. Affix the seals under the approximate temperature conditions at which the sealing wax is to be used.

F-3.1.1 Heat up the stick on a flame so as to make it flow freely, or melt the material in a pot at (130 ± 5)° C.

F-3.2 Spread the material while still hot over the surface to which the seal is to be applied, press the polished brass die and remove almost immediately. Make three separate impressions.

F-3.2.1 For Grade 1 the die shall be brought at room temperature prior to its use and shall not be moistened with water. For Grade 2 the die shall be moistened with water at room temperature before pressing.

F-3.3 Allow the seal to cool at least 6 h at room temperature. Bend the seal together with surface on which it has been applied over a cylinder of about 60 mm diameter.

F-3.4 Keep one of the seals under ordinary atmospheric conditions for 15 days.

F-4 CRITERION FOR JUDGEMENT

F-4.1 There shall be no appreciable deviation in colour of the seal from the original.

F-4.2 The wax shall not stick to the die and the lines engraved thereon shall appear distinctly on the seal.

F-4.3 Embossed, particularly raised, letters shall be distinct and unbroken, and no grit or lump shall appear on the surface of the seal.

F-4.4 In the bending test (*see* **F-3.3**), for seals of Grade 1, all the fragments into which the seal may break shall remain firmly adhered to the paper or other surface used. For seals of Grade 2, a few pieces round the edge of the seal may break off, but no portion of the essential part of the seal shall come off and it should only be possible to remove fragments adhering to the surface by actually tearing off the fibres of the surface used for the test.

F-4.5 The seal shall develop no spontaneous cracks when tested as prescribed under **F-3.4**.

ANNEX G

(*Clause* 5.7)

HEAT RESISTANCE TEST

G-1 OUTLINE OF THE METHOD

G-**1.1** The test is carried out by heating the seals affixed on a glass plate or paper for 5 h in a hot air-oven at (55 ± 0.5) °C for Grade 1 and at (60 ± 0.5) °C for Grade 2.

G-2 PROCEDURE

G-2.1 Make 4 or 5 seals of the wax under test on glass plates or paper using the die and the method prescribed under **F-3.1** and **F-3.2**. Allow the seals to cool for not less than 2 h at room temperature. Keep 3 seals in an air-oven maintained at the appropriate temperature (*see* **G-1.1**) for 5 h. Cool to room temperature for at least 30 min and compare the impressions with those that have not been subjected to the test.

G-2.2 The sealing wax shall be taken to have satisfied the requirements of the test, if the embossing on the seals remains clear and legible without smudge after the test.

ANNEX H

(*Clause* 5.8)

RESISTANCE TO HEAT POLYMERIZATION

H-1 OUTLINE OF METHOD

H-1.1 The test is carried out by heating the sealing wax of Grade 1 and Grade 2 at (130 ± 5) °C for 21 h.

H-2 PROCEDURE

H-2.1 Place 10 g of the material in a dry test tube and dip the later in an oil-bath maintained at (130 ± 5) °C. Stir the molten mass from time to time with a glass rod.

H-2.2 The material shall be taken to have satisfied the requirement of the test if, at the end of 21 h, the sealing wax does not turn spongy or rubbery or become infusible.

ANNEX J

(*Clause* 7.1)

SAMPLING OF SEALING WAX

J-1 DRAWING OF SAMPLES

J-1.1 Only original, unopened packages of sealing wax shall be sampled.

J-1.2 Five to ten percent of the packages selected at random from each lot shall be sampled. For this purpose, a lot shall not exceed 100 packages.

J-1.3 Total quantity of sample shall be not less than 1 kg.

J-1.4 The samples shall be stored in screw-cap jars of glass.

J-1.5 The date of sampling, the number of packages sampled and the name and trade mark, if any, of the vendor and month and year of manufacture shall be given on a label attached to each sample.

J-1.6 Half the quantity of sample shall be bottled as stated above, sealed and treated as 'reserve' sample for future reference. A part of the ‘reserve’ sample shall be handed over to the supplier under seal.