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SPECIFICATION FOR
SEALING WAX
(FIRST REVISION)

BUREAU OF CEYLON STANDARDS

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SLS 182 : 1983

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This standard does not purport to include all the necessary provisions of a contract.

SRI LANKA STANDARD

SPECIFICATION FOR SEALING WAX
(FIRST REVISION)

FOREWORD

This Sri Lanka Standard was authorized for adoption and publication by the Council of the Bureau of Ceylon Standards on 1983-06-30, after the draft, finalized by the Drafting Committee on Sealing wax had been approved by the Chemicals Divisional Committee.

This specification was first published in 1972. In this revision, the chemical composition of sealing wax has been included as a requirement. The tentative method specified in the original specification for the determination of rosin had been deleted as it is not a satisfactory method for determining rosin in presence of shellac. The performance requirements are felt adequate to cover the compositional aspects of the product. The scheme of sampling has also been revised to cover the present batch and lot sizes of manufacture.

All standard values given in this specification are in SI units.

For the purpose of deciding whether a particular requirement of this specification is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with CS 102. The number of significant places retained in the rounded off value shall be the same as that of the specified value in this specification.

In the preparation of this specification, considerable assistance derived from the publications of the Indian Standards Institution and the South African Bureau of Standards is gratefully acknowledged.

1 SCOPE

This specification prescribes the requirements and the methods of sampling and test for sealing wax intended for application of seals on joints of material such as paper, canvas, jute hessian, wood, cork, glass and metals where embossed inscriptions are made while compositions are hot.

2 REFERENCES

CS 102 Presentation of numerical values

SLS 428 Random sampling methods.

3 DEFINITIONS

3.1 **sized paper** :Paper which has undergone sizing (see Note below).

NOTE - The addition of materials to the surface of the paper or board in order to increase its resistance to the spontaneous penetration of aqueous liquids, particularly writing ink, and the resistance to the surface spreading of such liquids.

4 TYPES

Sealing wax shall be of the following three types :

Type 1 - sealing wax intended for use on hard-sized papers ;

Type 2 - sealing wax intended for use on medium-sized papers ;

Type 3 - sealing wax for all types of paper other than those mentioned under Type 1 and Type 2, other materials and glazed tag labels.

5 REQUIREMENTS

5.1 General requirements

5.1.1 Sealing wax shall be uniform in composition and shall be in the form of sticks. It shall be free from coarse matter and any large particles of filling material when tested in accordance with 9.1.

5.1.2 Sealing wax shall generally be of the following composition.

Rosin content, per cent by mass, max.	-	35
Shellac content, per cent by mass, min.	-	5
Filler content, per cent by mass, max.	-	60.

5.2 Mass and size of sticks

The mass and size of sealing wax sticks shall conform to the requirements specified in Table 1.

TABLE 1 - Mass and size of sealing wax sticks

Type (1)	Length mm (2)	Mass per stick g (3)	Cross-section mm x mm (4)
1	150 ± 15	20 ± 1	(10.5 ± 1.0) x (10.0 ± 1.0)
2	50 ± 15	50 ± 2	(12.5 ± 1.0) x (12.5 ± 1.0)
3	150 ± 15	100 ± 5	(14.0 ± 1.0) x (24.0 ± 1.0)

5.3 Colour

Sealing wax shall be uniform in colour. The colour shall not change markedly when the wax is melted or burned.

5.4 Odour and fuming

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

5.5 Die impression

All types of sealing wax when tested in accordance with 9.3 shall take a clear impression of the brass die and no wax shall adhere to the die.

5.6 Dripping characteristics

5.6.1 Sealing wax when tested in accordance with 9.2 shall start dripping from the stick within the times specified below:

Type 1 - 6 seconds;

Type 2 - 8 seconds;

Type 3 - 12 seconds.

5.6.2 The sealing wax may catch fire before dripping and carry flame to the paper, canvas, cork, glass, tin docket or any other appropriate substrate. The flame shall not scorch the substrate and shall easily be extinguished. It is not necessary that the wax continue to burn when removed from the flame.

5.7 Adhesion

Sealing wax when tested in accordance with 9.4 shall adhere firmly to the paper, canvas, cork, glass or tin docket as the case may be.

5.8 Resistance to heat

Sealing wax when tested in accordance with 9.5 shall be considered satisfactory if the seals remain clear and legible without smudging.

5.9 Resistance to heat polymerization

Sealing wax when tested in accordance with 9.6 shall not turn spongy, rubbery or become infusible.

5.10 Shelf life

Sealing wax shall not show any impairment of the essential properties within a period of 2 years from the date of manufacture.

6 PACKAGING

Sealing wax shall be packed in cardboard or any other suitable container. The number of sticks in a container shall be as given in Table 2.

TABLE 2 - Number of sealing wax sticks in a container

Type (1)	No. of sticks in a package (2)
1	25
2	10
3	5

7 MARKING

7.1 Each container shall be legibly and indelibly marked with the following information :

a) Name of material;

b) Type of sealing wax;

c) Name and address of manufacturer;

d) Net mass in grams;

e) Month and year of manufacture.

7.2 Each stick shall be marked with the type of sealing wax as 1, 2 or 3.

7.3. The containers may also be marked with the Certification Mark of the Bureau of Ceylon Standards illustrated below on permission being granted for such marking by the Bureau of Ceylon Standards.

NOTE - The use of the Bureau of Ceylon Standards Certification Mark (SLS Mark) is governed by the provisions of the Bureau of Ceylon Standards Act and regulations framed thereunder. The SLS mark on products covered by a Sri Lanka Standard is an assurance that they have been produced to comply with the requirements of that standard under a well defined system of inspection, testing and quality control which is devised and supervised by the Bureau and operated by the producer. SLS marked products are also continuously checked by the Bureau for conformity to that standard as a further safeguard. Details of conditions under which a permit for the use of the Certification Mark may be granted to manufacturers or processors may be obtained from the Bureau of Ceylon Standards.

8 SAMPLING

8.1 lot : In any consignment, all the containers of same size, containing sealing wax of same type and manufactured under essentially the same conditions shall be grouped to form a lot.

8.2 Scale of sampling

8.2.1 Samples shall be tested from each lot separately to ascertain the conformity of the material to the requirements of this specification.

8.2.2 Number of sticks to be selected from the lot shall be in accordance with Column 1 and Column 2 of Table 3.

8.2.3 The sticks shall be taken from the containers in the lot. For this purpose, the number of containers to be drawn from the lot shall be in accordance with Column 1 and Columns 3, 4 and 5 of Table 3.

8.2.4 The containers and sticks shall be selected at random. In order to ensure randomness of selection, random number tables as given in **SLS 428** shall be used.

TABLE 3 - Scale of sampling

No. of sticks in the lot (1)	No. of sticks to be selected (2)	No. of containers to be selected			Acceptance number (6)	Sub-sample (7)
		Type 1 (3)	Type 2 (4)	Type 3 (5)		
Up to 50	6	2	2	6	0	2
51 to 150	8	2	4	8	0	2
151 to 280	12	3	6	12	1	3
281 to 500	20	5	10	20	2	3
501 to 1 200	32	8	16	32	3	5
1 201 and above	50	10	25	50	5	5

8.3 Number of tests

8.3.1 Each container selected as in 8.2.3 shall be examined for packaging and marking requirements.

8.3.2 All the sticks in the sample shall be inspected for the requirements specified in 5.2.

8.3.3 Three sub-samples, each having sizes as given in Column 7 of Table 3 shall be drawn at random to test for the following requirements.

Sub-sample 1 - for the requirements specified in 5.1.1 and 5.9.

Sub-sample 2 - for the requirements specified in 5.5, 5.7 and 5.8.

Sub-sample 3 - for the requirements specified in 5.3, 5.4 and 5.6.

9 METHODS OF TEST

9.1 Uniformity of composition

Break a stick of sealing 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 and examine the melt for coarse particles.

9.2 Dripping characteristics

With a burner in a vertical position adjust the flame to a height of 150 mm and the height of the inner core of the flame to about 25 mm. Then incline the burner at an angle of 45° over a sheet of paper, canvas, on the appropriate material. Hold a stick over a flame and move the end of the stick into the flame but not actually into the inner core. Record the lapse of time before the sealing wax starts

dripping. Also note and record any fuming or emission of offensive odours.

9.3 Die impression

9.3.1 The die used for testing the impression shall be made of brass. It shall be of circular pattern 20 mm diameter with capital letters and digits of 10 point size engraved to a depth of 0.2 mm. The thickness of lines of letters and digits shall be about 0.4 mm throughout. Three letters and three digits selected from the following shall be used.

A	F	G	I	S	Q	R	X
2	3	4	8	9			

9.3.2 The substrate for affixing the test seals shall be as follows:

Type 1 - Hard-sized papers such as ledger paper, printing paper or glazed kraft paper.

Type 2 - Medium-sized papers such as unglazed kraft paper.

Type 3 - All types of papers other than those mentioned above such as mail bag canvas, tin docket or any other material.

9.3.3 Condition the appropriate substrate by keeping it at normal atmospheric conditions for at least one hour. Heat the stick of sealing wax as described in 9.2 and spread sufficient wax on the surface of the substrate. Press the die on molten wax and remove almost immediately. For Type 1 wax, the die shall be at room temperature and shall not be moistened with water. For the other types of wax, the die shall be pressed on a water moistened pad at room temperature everytime before use.

9.3.4 Three seals shall be made; one of which shall be kept at atmospheric conditions for 15 days. The wax shall be considered satisfactory if the hot wax does not stick to the die and all the engraved lines on the die appear distinctly on the seal. At the end of 15 days, the seal shall not develop spontaneous cracks.

9.4 Adhesion

9.4.1 Prepare seals as described in 9.3. Allow the seals to cool for at least 6 hours, and then bend the material with seal uppermost three times over a cylinder of approximately 60 mm diameter ensuring that the material and seal are turned through an angle of approximately 60° between successive bendings. (Seals made on substrates which are not flexible shall be tested as described in 9.4.2). The wax shall be considered satisfactory if the fractured pieces of the seal adhere firmly to the paper or canvas and cannot be removed from the paper or canvas without pulling off a considerable number of fibres from the paper or canvas.

9.4.2 Prepare three seals as described in 9.3. Allow the seals to cool for at least 6 hours. The wax shall be considered satisfactory if the seal adhere firmly to the surface of the substrate.

9.5 Resistance to heat

9.5.1 The test is carried out by heating seals affixed on paper, canvas, cork, glass, tin docket or any other surface as the case may be for 5 hours in a hot air oven at

a) $55 \pm 0.5^{\circ}C$ for Type 1

b) $57 \pm 0.5^{\circ}C$ for Type 2

c) $60 \pm 0.5^{\circ}C$ for Type 3.

9.5.2 Make 5 seals of the wax under test on the appropriate material and cool for 2 hours at room temperature. Keep 3 seals in a hot air oven maintained at the appropriate temperature for 5 hours. Cool to room temperature for at least 30 minutes and compare the impressions with those that have not been subjected to the test. The sealing wax shall be considered satisfactory if the seals remain clear and legible without smudging.

9.6 Test for resistance to polymerization

Place about 10 g of sealing wax in a dry test tube and dip the latter in an oil bath maintained at $130 \pm 5^{\circ}C$. Stir the molten mass from time to time with a glass rod. The sealing wax shall be considered to have satisfied the test if at the end of 2½ hours, the material does not become spongy, rubbery or infusible.

10 CONFORMITY TO STANDARD

A lot shall be declared as conforming to the requirements of this specification, if the following conditions are satisfied:

10.1 All the containers examined as in 8.3.1 satisfy the packaging and marking requirements.

10.2 The number of sticks not conforming to one or more requirments when inspected as in 8.3.2 is less than or equal to the corresponding acceptance number given in Column 6 of Table 3.

10.3 Each sub-sample tested as in 8.3.3 satisfies the relevant requirements separately.

SLS CERTIFICATION MARK

The Sri Lanka Standards Institution is the owner of the registered certification mark shown below. Beneath the mark, the number of the Sri Lanka Standard relevant to the product is indicated. This mark may be used only by those who have obtained permits under the SLS certification marks scheme. The presence of this mark on or in relation to a product conveys the assurance that they have been produced to comply with the requirements of the relevant Sri Lanka Standard under a well designed system of quality control inspection and testing operated by the manufacturer and supervised by the SLSI *which includes surveillance inspection of the factory, testing of both factory and market samples.*

Further particulars of the terms and conditions of the permit may be obtained from the Sri *Lanka Standards Institution, 17, Victoria Place, Elvitigala Mawatha, Colombo 08.*

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SRI LANKA STANDARDS INSTITUTION

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The principal objects of the Institution as set out in the Act are to prepare standards and promote their adoption, to provide facilities for examination and testing of products, to operate a Certification Marks Scheme, to certify the quality of products meant for local consumption or exports and to promote standardization and quality control by educational, consultancy and research activity.

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