SRI LANKA STANDARD 1256 : PART 11: 2005
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METHODS OF TEST FOR
PAINTS AND VARNISHES
PART 11 : SECTION 1: PREPARATION OF STANDARD PANELS FOR TESTING
SECTION 2: APPLICATION OF PAINTS ON PANEL

SRI LANKA STANDARDS INSTITUTION

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SLS 1256 : Part 11 : 2005
(Superseding SLS 535:Part 3:Section 3.1, Section 3.2 and Section 3.3 : 1981)

Gr. 6

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SRI LANKA.

Sri Lanka Standards are subject to periodical revision in order to accommodate the progress made by industry. Suggestions for improvement will be recorded and brought to the notice of the Committees to which the revisions are entrusted.

SRI LANKA STANDARD
METHODS OF TEST FOR PAINTS AND VARNISHES
PART 11:SECTION 1:PREPARATION OF STANDARD PANELS FOR TESTING

FOREWORD

This standard was approved by the Sectoral Committee on Chemical & Polymer Technology and was authorized for adoption and publication as a Sri Lanka Standard by the Council of the Sri Lanka Standards Institution on 2005-02-10.

This standard was published in 1981 which superseded **CS 70 : 1969**. In this revision each test method is given as a separate part to facilitate updating. This standard supersedes **SLS 535 : Part 3** Tests associated with film formation – Section 3:1 Introduction and Section 3.2 - Standard panels for testing and Section 3.3 – Application of paints on panels.

For many of the widely used test methods, the type of panel used and the particular way in which it is prepared for use affect the test results to a significant degree. It is thus important to standardize as carefully as possible both the panels and the preparation procedure employed for these tests. It is equally desirable to reduce to a minium the number of different standard panels required for use in a paint testing laboratory.

To enable the panel to be suspended during painting or subsequent testing, a hole may be drilled in each of the upper corners of a metal panel and a screw or hook may be fixed at the end of a wood panel, if necessary.

In case where a paint has to be tested for a particular industrial application, it may be convenient to prepare a panel which corresponds closely (in material, gauge, cleaning procedure or pre-treatment procedure) with the actual production process involved. In such cases, the details of preparation of the panels shall be agreed between parties to the test and referred to in the test report.

1 SCOPE

This part of the standard specifies methods for the preparation of standard panels for testing of paints, varnishes and allied products and application of paints on panels.

2 REFERENCES

CS 9 Asbestos cement corrugated and flat sheets
SLS 489 Glossary of terms for paints
SLS 523 Methods of sampling paints
SLS 1256 Methods of test for paints
Part 1 Determination and preparation of samples for testing

3 DEFINITIONS

For the purpose of this part, the terms defined in **SLS 489** shall apply.

4 PRINCIPLE

4.1 Standard panels are obtained by preparing panels of recommended materials using specific methods.

4.2 The recommended panels are as follows :

4.2.1 Burnished steel panels,
4.2.2 Glass panels
4.2.3 Wood panels; and
4.2.4 Asbestos panels.

5 SAMPLING

Test samples for use in the test specified in this part shall be in accordance with **SLS 523**.

6 PREPARATION OF SAMPLES

The samples obtained as in 5 shall be prepared for testing as described **SLS 1256 : Part 1**.

7 PREPARATION OF STANDARD PANELS

7.1 Burnished steel panels

7.1.1 *Material*

7.1.1.1 The panels shall be of 0.630-mm to 0.800-mm thick mild steel plate or 0.315-mm tinned mild steel plate. The plates shall be free from surface imperfections, such as rolling marks, scores, surface flows and other defects. As a guide it is recommended that the surface roughness of steel as received should not exceed 1.5-mm.

7.1.1.2 The plates shall be of flattened quality.

7.1.2 *Size*

7.1.2.1 The panels shall be 150-mm x 100-mm in size unless otherwise specified in a material specification.

7.1.3 *Storage*

7.1.3.1 The panel shall be stored, totally immersed in a light neutral mineral oil or hydrocarbon solvent, free from additives.

*7.1.***4** *Preparation for painting*

7.1.4.1 The panels shall be wiped free of excess oil and washed with white spirit, xylene or any other suitable solvent. The panels shall then be burnished with grade 0 emery cloth. The burnishing shall be done lightly so as to avoid emery embedding in the surface.

A suitable sequence of burnishing operations is as follows :

a) Straight across the panels in a direction parallel to any one side,
b) At right angles to the first direction, and until all signs of the original burnishing have been obliterated, and
c) With a circular motion, of diameter approximately 75-mm, until a pattern consisting only of circular burnishing marks superimposed one upon another is produced.

7.1.4.2 After burnishing, the traces of emery left shall be removed by wiping with a suitable linen or cotton cloth or tack rags, and then the panels shall be degreased by swabbing two or three times with a linen or cotton cloth soaked in white spirit or xylene. The last swabbing shall be carried out with a clean piece of linen or cotton cloth soaked with clean white spirit, xylene or petroleum spirit b. p. 60 ºC to 80 ºC.

7.1.4.3 The panels shall then be lightly dried with a clean linen or cotton cloth, and slightly warmed if necessary, in order to remove traces of condensed moisture. The panels shall be painted as soon as they return to 27 ° ± 2 ºC.

7.1.4.4 The panels shall not be touched by hand or otherwise contaminated at any time between degreasing and painting.

7.2 Glass panels

3.2.1 *Material*

7.2.1.1 The glass shall be reasonably plain and free from surface irregularities.

7.2.2 *Size*

7.2.2.1 The panels shall be 150-mm x 100-mm in size unless otherwise specified in a material specification

7.2.3 Preparation for painting

7.2.3.1 All oil or grease shall be removed from the panel by dipping it in white spirit, xylene or any other suitable solvent and rubbing with a soft clean rag. The panels shall be rinsed thoroughly with water and well washed with soap and water, until the wetted panel shows no water breaks when held in a vertical position. The panel shall then be rinsed thoroughly with alcohol and allowed to dry in air, in a dust-free chamber. Care shall be taken to ensure that the surface of the finally cleaned panel is not touched by hand or otherwise contaminated.

7.3 Wood panels

7.3.1 *Material*

7.3.1.1 The following timber shall be used for the preparation of panels, unless otherwise specified in a material specification.

a) Seasoned teak (*Tectona grandis*),
b) Seasoned satin wood (*Chloroxylon swietenia*)
c) Seasoned nadun (*Pericopis mooniana*); and
d) Seasoned jak (*Artocarpus heterophyllus*).

7.3.1.2 The wood used for the panel shall be unused, flat grained and of even texture and shall be free from knots, shakes, cracks and blemishes. The wood shall be well seasoned and its moisture content shall not exceed 12 per cent.

7.3.2 *Size*

7.3.2.1 The panels shall be 10-mm in thickness and 150-mm x 100-mm in size unless otherwise specified in a material specification.

7.3.3 *Preparation for painting*

7.3.3.1 The panels shall be planed and rubbed smooth along the grain and the edges of the panel shall be rounded. The surface dust shall then be removed and the panels allowed to stand for at least 7 days, in a position where each panel is exposed to free circulation of air, at 27 ° ± 2 ºC.

7.3.3.2 The panel shall be painted, after the above preparation without any undue delay.

7.4 Asbestos panels

7.4.1 *Material*

7.4.1.1 The asbestos panels shall comply with **CS 9** for flat asbestos cement sheets. The smooth surface shall be used for testing the paint or allied product.

7.4.2 *Size*

7.4.2.1 The panels shall be 300-mm x 300-mm in size.

7.4.3 *Preparation for painting*

7.4.3.1 Special care shall be taken when cutting and smoothening asbestos cement sheets to ensure that the operator is protected from inhalation of any dust produced by this operation. Wearing of suitable masks and wet methods (see NOTE) are recommended. All panels must be rendered free from dust after their preparation.

NOTE : *Wet method will give an initial high moisture content to panels.*

7.4.3.2 The panels cut and smoothened to the required size shall be stored for a period not less than 1 week and not greater than 6 weeks in a position where each panel is exposed to free circulation of air, at 27 ° ± 2 ºC.

7.4.3.3 The panels shall be painted, after the above preparation without any undue delay.

SECTION 2 – APPLICATION OF PAINTS ON PANEL

1 PRINCIPLE

1.1 The application of paints, varnishes or allied products for laboratory examination purposes is carried out by the methods described below.

2 APPLICATION BY BRUSHING

2.1 General

2.1.1 The brushes used shall be clean, flat and having a minimum bristle length of 30-mm and shall be of suitable size. For panels 150-mm x 100-mm in size, the use of 25-mm wide brushes is recommended.

2.1.2 The bristles shall have good softness and flexibility and shall be carefully cleaned after each day's use. The brushes shall be free from loose bristles.

2.1.3 For the preparation of test panels, the use of brushes which have been thoroughly Conditioned, rather than brand new brushes is recommended.

2.2 Application

2.2.1 The material shall be applied using a brush and shall not be poured or spilled upon the panel. The spreading rate or the wet film thickness shall be normal for the material being tested, or shall be as specified in the material specification. The paint shall be applied along the length of the panel, then across the width, followed by laying off along the length of the panel.

2.2.2 The brush-out panels shall be placed immediately in a horizontal position for drying unless specified otherwise.

3 APPLICATION BY SPRAYING

3.1 Reduction of material

3.1.1 When dilution is necessary, the material shall be reduced with the specified thinner to the required solids content or viscosity.

3.2 Application

3.2.1 The application shall be carried out by using a well cleaned spray gun fitted with a nozzle of correct size and an air cap. The air pressure shall be adjusted in accordance with the viscosity of the material to be sprayed and shall be kept constant. The air line shall be provided with a moisture trap.

3.2.2 The flow, gun distance from the test panel and spray pattern shall be so adjusted that the deposited film is smooth, level and wet.

3.2.3 The material shall be applied to the thickness and / or the number of coats specified in the material specification.

4 APPLICATION BY FLOW

4.1 Application

4.1.1 The panel shall be prepared by pouring approximately 15-ml of the material under test across the panel uniformly near the upper edge, while the panel is kept flat. The panel is then inclined so as to allow the material to spread over all but the upper edge of the panel. The panel is then placed in an almost vertical position and allowed to drain.

5 APPLICATION BY DIPPING

5.1 Application

5.1.1 The panel shall be immersed in a tank of paint and withdrawn at a pre-determined rate, allowing the surface paint to drain out. The thickness of the film, its uniformity and freedom from sags, depend on the viscosity of the material used and the rate of withdrawal.

6 APPLICATION USING FILM APPLICATOR

6.1 Bar applicator

6.1.1 A suitable device for spreading paint, as shown in Figure **1**. It is made from a block of hard steel approximately 121-mm x 19-mm, one face of which is ground to the profile shown in the section A-A. This face is further ground over a length of 89-mm to form a recessed flat surface 0.10-mm lower than the flat shoulders left at the ends of the face. This surface should have polished finish.

6.2 Application

6.2.1 The panel shall be coated with about 2-ml to 4-ml of the material according to the film thickness required in a line across one end of the panel and spread immediately by drawing down a suitable applicator (see Figure **2**) at a steady velocity to give uniform layer.

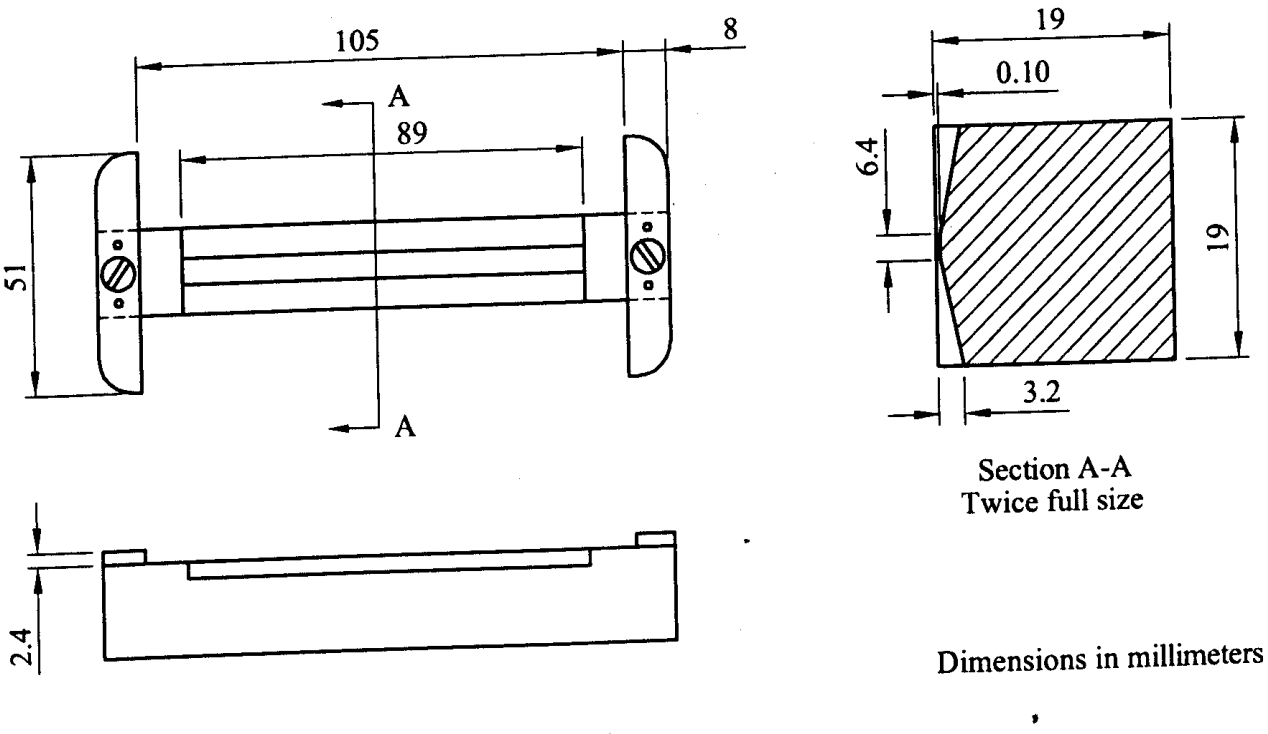

FIGURE 1 – Bar applicator

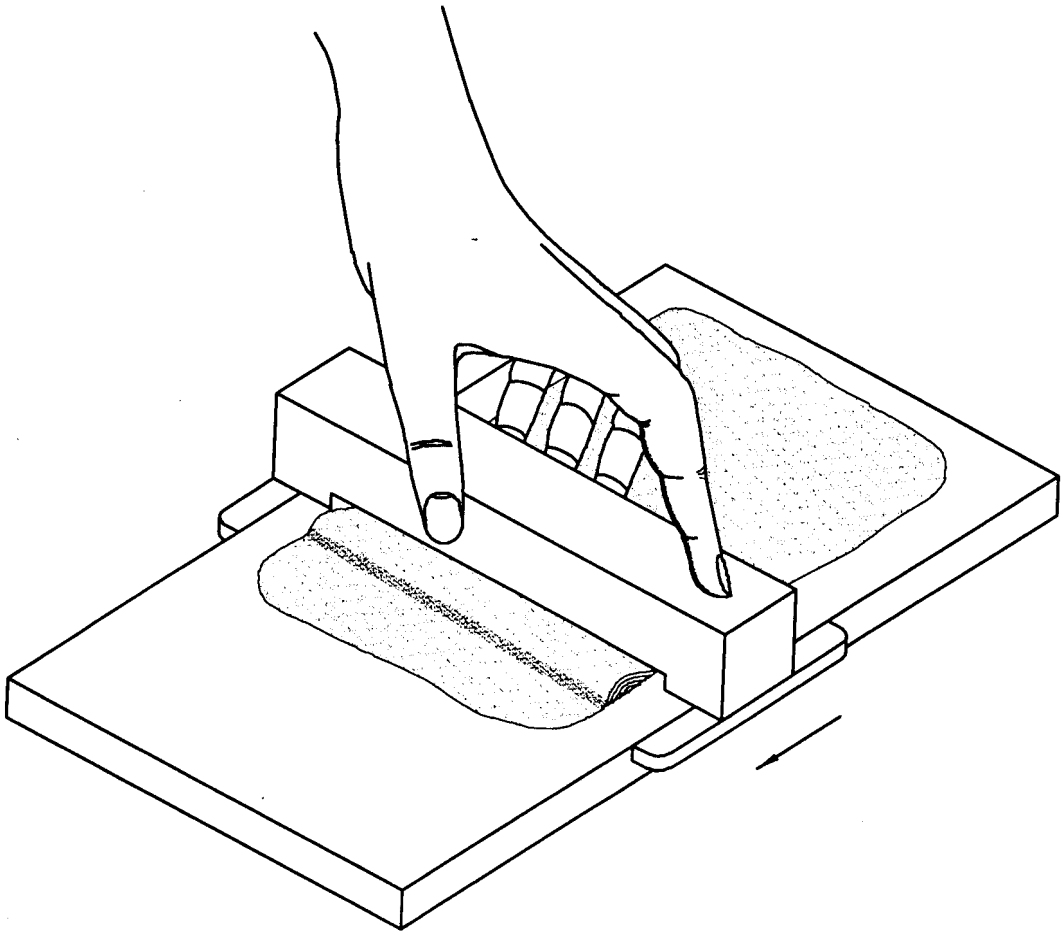

FIGURE 2 – Bar applicator in use

SRI LANKA STANDARDS INSTITUTION

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