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“पुराने को छोड़ नये के तरफ”

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“Step Out From the Old to the New”

IS 101-5-4 (1988): Methods of sampling and test for paints, varnishes and related products, Part 5: Mechanical test on paint films, Section 4: Print free test [CHD 20: Paints, Varnishes and Related Products]



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Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”

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METHODS OF SAMPLING AND TEST FOR PAINTS, VARNISHES AND RELATED PRODUCTS

PART 5 MECHANICAL TESTS

Section 4 Print Free Test

(Third Revision)

1. Scope — Prescribes a method for assessing, by means of a simple empirical test, the resistance of a coat of paint, varnish or related products to imprintability by a nylon gauze under a specified force applied for a specified time.

1.1 This method may be used as a pass/fail test.

2. Terminology

2.1 The definitions given in IS : 1303-1983 'Glossary of terms relating to paints (second revision)' and the following shall be used.

2.1.1 Print-free — The state of a coating of paint or varnish, when gauze of a specified grade under a specified force during a specified time, does not leave on the surface an imprint visible under normal corrected vision.

2.1.2 Print-free state — A general term describing the state of the surface of a coating, that is, whether 'print-free' or not.

2.1.3 Print-free time — The period of time elapsing between the moment at which a coating is applied to a prepared test panel and that at which the coating is assessed as just print-free using the test procedure specified.

3. Apparatus and Materials

3.1 Squares of woven monofilament polyamide gauze, minimum size 25 × 25 mm. Unless otherwise specified, the gauze shall be of 0.120 mm thread diameter and of approximately 0.2 mm aperture. Depending upon the type of coating under test, other grades of similar construction may be used, if necessary, subject to agreement between the interested parties.

3.2 Rubber Discs — of diameter 22 mm, thickness 5 mm and hardness 50 ± 3 IRHD.

3.3 Cylindrical Weights — of mass 200 g and 1 000 g, and diameter not less than 22 mm.

Note — The diameter of the rubber discs and the mass of the weights may vary slightly from those specified in 3.2 and 3.3. The pressures on the coatings, however, shall be equal to those obtained using discs and weights of the dimensions specified in 3.2 and 3.3, that is, 5.2 kPa (200 g), 13.15 kPa (500 g) and 26.4 kPa (1 000 g).

3.4 Stopwatch or Stopclock

4. Test Panels

4.1 Material — Unless otherwise specified or agreed, the test panels shall be of glass, burnished steel, burnished tinplate or burnished aluminium.

4.2 Preparation and Coating of the Panels — Prepare the panels in accordance with IS : 101 (Part 1/Sec 3)-1986 'Methods of sampling and test for paints, varnishes and related products: Part 1 Tests on liquid paints (general and physical)', Section 3 Preparation of panels (*third revision*), unless otherwise required. The test panel shall be coated by the specified method with the appropriate primer and/or undercoat, and allowed to dry for the specified period. In case of multicoat stoving products, the primer and/or undercoat shall be stoved under the agreed stoving conditions before applying the product under test by the specified method.

4.3 Thickness of Coating — Determine the thickness, in micrometres, of the dry coating by the method specified, using one of the procedures specified in IS : 101 (Part 3/Sec 6) 'Methods of sampling and

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test for paints, varnishes and related products: Part 3 Tests on paint film formation, Section 6 Film thickness (*third revision*)' (*under preparation*).

5. Procedure

5.1 Drying the Test Panel — Allow the coated panel to dry in a vertical position in the standard atmosphere ($27 \pm 2^\circ\text{C}$ and relative humidity of 65 ± 5 percent), unless otherwise agreed. The panel shall be dried with free circulation of air but shielded from draughts and direct sunlight.

Stoving products shall be stoved and aged under the specified or agreed conditions.

5.2 Assessment of Print-Free State

5.2.1 After the completion of the specified drying time, place the test panel in horizontal position.

5.2.2 Place a square of polyamide gauze (3.1) on the surface of the coating and place a rubber disc (3.2) centrally on the square.

Place the appropriate weight (3.3) carefully on the disc so that the axes of the disc and weight are coincident, and start the stopwatch or stopclock (3.4).

5.2.3 Unless otherwise specified or agreed, remove the weight, rubber disc and gauze square after 10 min.

5.2.4 Examine the surface of the coating immediately in the test area, using normal corrected vision.

The surface is 'print-free', if no imprint can be seen. Record the result as 'print-free' or 'not print-free'.

5.3 Determination of Print-Free Time — Take a number of coated test panels. At appropriate intervals, starting shortly before the coating is expected to be print-free and using an untouched area of the same panel for each test (or a different panel, as necessary) carry out the test as specified in 5.2, until the test shows the coating to be print-free.

Record the time taken for the coating to become just print-free.

EXPLANATORY NOTE

This standard is one of a series of standards on methods of sampling and test for paints varnishes and related products. In the preparation of this standard, considerable assistance has been taken from ISO 3678-1975 Paints and Varnishes — Print-free test prepared by the International Organization for Standardization (ISO)