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# मानक

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IS 101-7-1 (1989): Methods of Sampling and Test for Paints, Varnishes and Related Products, Part 7: Environmental Tests on Paint Films, Section 1: Resistance to water [CHD 20: Paints, Varnishes and Related Products]



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*Indian Standard*

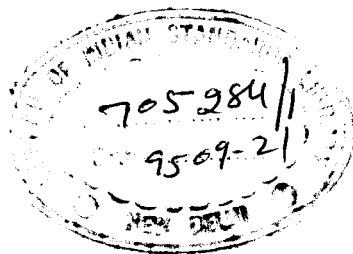
# METHODS OF SAMPLING AND TEST FOR PAINTS, VARNISHES AND RELATED PRODUCTS

## PART 7 ENVIRONMENTAL TESTS ON PAINT FILMS

### Section 1 Resistance to Water

*( Third Revision )*

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## FOREWORD

This Indian Standard ( Part 7/Sec 1 ) ( Third Revision ) was adopted by the Bureau of Indian Standards on 25 July 1989, after the draft finalized by the Paints and Allied Products Sectional Committee had been approved by the Chemical Division Council.

This standard ( Part 7/Sec 1 ) is one of a series dealing with sampling and test of paints, varnishes and related products.

In the preparation of this standard, considerable assistance has been derived from ISO 1521-1973 'Paints and varnishes — Determination of resistance to water — Water immersion method' published by the International Organization for Standardization ( ISO ). This standard supersedes clause 23 of IS 101 : 1964 'Methods of test for ready mixed paints and enamels ( second revision )'.

# Indian Standard

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

### PART 7 ENVIRONMENTAL TESTS ON PAINT FILMS

#### Section 1 Resistance to Water

#### ( Third Revision )

#### 1 SCOPE

**1.1** This standard ( Part 7/Sec 1 ) prescribes a method for determination of the resistance to water of a paint.

**1.2** This method gives an indication of the results likely to be obtained when painted articles are stored under conditions where prolonged condensation may be produced but not an extremely corrosive atmosphere.

#### 2 SAMPLING

**2.1** A representative sample of the material shall be drawn as prescribed in IS 101 ( Part 1/Sec 1 ) : 1986 'Methods of sampling and test for paints, varnishes and related products: Part 1 Tests on liquid, paints ( general and physical ), Section 1 Sampling ( *third revision* )'.

#### 3 APPARATUS

**3.1 Tank**, 700 mm × 400 mm × 400 mm fitted with a cover, a heater and thermostatic control.

**3.2 System for Aeration of Water**, or a means for stirring used in conjunction with a source of dry, oil free, pressurized air to ensure uniform agitation/aeration of contents of the tank.

NOTE — If a pump is used, it shall be of suitable capacity to agitate the whole contents of the tank.

#### 3.3 Panels

These should be made from non-conductive material and arranged in such a way that the panels shall be at least 30 mm apart, at least 30 mm from the bottom of the tank and at least 50 mm from the walls of the tank. Their positions shall be interchanged periodically, either mechanically or by hand.

NOTE — All parts of the apparatus in contact with water shall be made from inert materials.

#### 4 TEST PANELS

**4.1** Unless otherwise specified or agreed, the

test panel shall be burnished steel of approximate dimensions 150 mm × 100 mm × 1.25 mm. The test panel shall be prepared 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 specified, and shall then be coated by the specified method with the product or system under test.

**4.1.1** The back and the edges of the panel shall be coated with a good quality protective paint not containing zinc chromate or any similar water-soluble pigment.

#### 4.2 Thickness of Coating

The thickness of dry coating shall be determined by the method prescribed in IS 101 ( Part 3/Sec 2 ) : 1989 'Methods of sampling and test for paints, varnishes and related products: Part 3 Tests on paint film formation, Section 2 Film thickness ( *third revision* )'.

#### 5 PROCEDURE

**5.1** The coated test panels shall be dried ( or stoved and aged ) for the specified time and under the specified conditions and, unless otherwise specified, shall be conditioned at a temperature of  $27 \pm 2^{\circ}\text{C}$  and relative humidity of  $65 \pm 5$  percent for a minimum of 16 hours, with free circulation of air and not exposed to direct sunlight. The test shall then be carried out as soon as possible.

**5.2** Add to the tank, sufficient distilled water [ see IS 1070 : 1977 'Specification for water for general laboratory use ( *second revision* )' ] such that the test panels, when placed in position, are immersed for three-quarters of their length. Commence the circulation and aeration of water in the tank. Adjust the temperature of water to  $40 \pm 1^{\circ}\text{C}$  and maintain this temperature throughout the test.

**5.2.1** Place the test panels in the tank for the

specified period, rearranging their positions at regular intervals of not more than 3 days. The water shall be replaced every 72 hours or earlier, if at any time during the test, the water becomes turbid or coloured.

**5.3** At the end of the specified test period, remove the panels from the tank, blot them with absorbent paper and immediately examine the whole test surface of each panel for blistering or other signs of deterioration. Allow the panels to stand at room temperature for 24 hours and examine the test surface again for loss of adhesion, rust staining, change of colour,

embrittlement or other characteristics against the approved sample.

**NOTE** — For interim inspections during the test period, if specified, the panels shall be removed from the tank, blotted with absorbent paper, examined for blistering or other signs of deterioration and immediately returned to the tank.

**5.3.1** Carefully remove 150 mm × 50 mm strip from the test surface with a non-corrosive paint remover and examine the exposed metal for signs of corrosion. For reference purposes, the exposed area shall be protected by a suitable transparent lacquer.

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