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NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA

ICS 87.040

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GB/T 1740-2007

Replacing GB/T 1740-1979 (1989)

**Determination of resistance to heat and humidity of paint
films**

漆膜耐湿热测定法

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Determination of resistance to heat and humidity of paint films

1 Scope

This Standard specifies the test method for the resistance to high temperature and high humidity environments of paints, varnishes and related coatings.

This Standard applies to the determination of resistance to heat and humidity of paint films.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

GB/T 1765 Method of producing of paint films for testing heat and humidity resistance, salt-fog resistance and accelerated weathering

GB/T 1766 Paint and varnish - Rating schemes of degradation of coats (GB/T 1766-1995, neq ISO 4628:1980)

GB/T 3186-2006 Paints varnishes and raw materials for paints and varnishes - Sampling (ISO 15528:2000, IDT)

GB/T 6682 Water for laboratory use - Specifications (GB/T 6682-1992, neq ISO 3696:1987)

GB/T 9271 Paints and varnishes - Standard panels for testing (GB/T 9271-1988, eqv ISO 1514:1984)

GB/T 13452.2 Paints and varnishes - Determination of film thickness (GB/T 13452.2-1992, eqv ISO 2808:1974)

3 Terms and definitions

For the purpose of this document, the following terms and definitions apply.

3.1

resistance to heat and humidity

Ability of paint films to withstand high temperature and high humidity environments.

4 Reagents

The water shall meet the purity requirements of GB/T 6682 and shall be at least Grade 3 water.

5 Apparatus

A temperature and humidity chamber meeting the test conditions.

6 Sampling

In accordance with the provisions of GB/T 3186-2006, take representative samples of the test product (or each product in the composite coating system).

7 Test panels

7.1 Materials and dimensions

Unless otherwise specified, use substrates meeting the requirements of GB/T 9271, with dimensions of approximately 150 mm × 70 mm × 1 mm.

7.2 Preparation and coating of test panels

Unless otherwise specified, prepare each substrate in accordance with the provisions of GB/T 9271.

Unless otherwise specified or agreed upon, coat the product or system under test in accordance with the provisions of GB/T 1765.

Unless otherwise specified, the test panels may be edge-sealed and back-sealed with the product or system under test.

If the coating on the back and edges of the test panels is different from that of the test product, it shall exhibit better resistance to heat and humidity than the test product.

8 Test procedures

8.1 The test panels are suspended vertically on a shelf, with the fronts of the test panels not allowed to touch each other. The shelf is placed in a temperature and humidity chamber pre-set to a temperature of $(47 \pm 1) ^\circ\text{C}$ and a relative humidity of $(96 \pm 2) \%$. Other agreed-upon temperatures and humidity levels may be used. The test time will begin when the temperature and humidity reach the set values. No condensation shall form on the surface of the test panels during the test.

8.2 Inspect once after 48 h of continuous testing. After two inspections, inspect every 72 h. After each inspection, the test panels shall be changed in position.

9 Evaluation of test results

Test results are evaluated in accordance with the relevant provisions of GB/T 1766. The following two evaluation methods may be used as needed:

9.1 Evaluate the test panels for rust, blistering, discoloration, cracking, or other damage respectively.

9.2 Evaluate the comprehensive damage level according to Table 1.

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