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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 1735-2009

**Paints and varnishes -- Determination of heat resistance
(English Translation)**

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1 Scope

This Standard is one of a series of standards for sampling and testing of paints, varnishes and related products.

This Standard specifies a general method to determine the changes in the color and gloss of the coating film of a single coating or a composite coating system of a paint, varnish or related products at a specified temperature, the properties of blistering, cracking or peeling from substrates.

2 Normative references

The provisions in following documents become the provisions of this Standard through reference in this Standard. For dated references, the subsequent amendments (excluding corrigendum) or revisions do not apply to this Standard, however, parties who reach an agreement based on this Standard are encouraged to study if the latest versions of these documents are applicable. For undated references, the latest edition of the referenced document applies.

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

GB/T 6742, Paints and varnishes - Bend test (cylindrical mandrel) (GB/T 6742-2007, ISO 1519:2002, IDT)

GB/T 9271, Paints and varnishes standard panels for testing (GB/T 9271-2008, ISO 1514:2004, MOD)

GB/T 9279, Paints and varnishes - Scratch test (GB/T 9279-2007, ISO 1518:1992, IDT)

GB/T 9753, Paints and varnishes - Cupping test (GB/T 9753-2007, ISO 1520:2006, IDT)

GB/T 13452.2, Paints and varnishes - Determination of film thickness (GB/T 13452.2-2008, ISO 2808:2007, IDT)

GB/T 20624.1, Paints and varnishes - Rapid-deformation (impact resistance) tests - Part 1: Falling-weight test, large-area indenter (GB/T 20624.1-2006, ISO 6272-1:2002, IDT) in μm .

6.1 Test temperature and time

The test is carried out at a specified or agreed temperature and time.

6.2 Determination

Put the three test panels into a blast oven or high temperature furnace at the specified temperature. If the test is carried out in an oven, the distance between the test panel and each side of the oven shall not be less than 100mm. The space between the test panels is not less than 20mm. If the test is carried out in a high temperature furnace, try to place the test panel in the middle of the high temperature furnace. Place the test panel at the specified temperature for the specified time. The best way to ensure that the painted panels are evenly heated is to hang the panels with fine wire. It is also possible to place the test panel on a panel holder that is made of a suitable heat resistant material or place the panel painted side up on a panel made of heat resistant material on a support.

After the specified time, the panel is removed from the oven or high temperature furnace and allowed to cool to room temperature. Check the panels and compare with unheated panels prepared under the same conditions. Check whether the color of the coating film has changed or whether there is any other damage to the coating film. Take at least two test panels as the same phenomenon as the test result.

NOTE: By agreement, the test panel can also be placed in a blast oven or high temperature furnace and heated to the specified temperature with it and start timing. After the specified time, turn off the blast oven or high temperature furnace. Allow the test panel to cool to room temperature together with it and then take it out for observation. If so, note it in the report.

If specified, in not less than 16h after the end of the heating time, the heated and unheated test panels are tested according to a test method specified in GB/T 6742, GB/T

9279, GB/T 9753, GB/T 20624.1 or GB/T 20624.2, or by other agreed test methods.

Check the compliance with specified requirements.

7 Test report

The test report shall include at least the following:

- a) All details necessary to identify the product under test;
- b) Indicate the standard number (GB/T 1735);

Annex A (normative)

Supplementary information needed

For this method to work properly, supplementary information on the items listed in this appendix shall be provided as appropriate.

The required information is best agreed upon by the parties concerned. It may be taken in whole or in part from international standards, national standards or other documents related to the product under test.

- a) The nature, thickness and surface treatment of the substrate.
- b) The method by which the test product is applied to the substrate, including drying conditions and times between coats in a multicoat system.
- c) The time and conditions for coating drying (or baking) and curing (if applicable) prior to testing.
- d) The thickness of the dry coating (in μm) and the measurement method specified in GB/T 13452.2 and whether it is a single coating or a multi-coating system.
- e) The properties of the tested coating to be considered when evaluating the thermal resistance of the coating.

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