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

GB/T 9276-1996

**Methods of exposure to natural weathering of coating
(English Translation)**

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1 Scope

This Standard specifies the exposure site, exposure rack, test templet, and test procedures for the test methods of exposure to natural weathering of coating.

This Standard applies to test of open-air exposure to natural weathering and is used to evaluate the weather resistance of coatings when exposed to outdoor natural conditions.

2 Normative References

The following standards contain provisions which, through reference in this Standard, constitute provisions of this Standard. At the time of publication, the editions indicated are valid. All standards are subject to revision. The parties who are using this Standard shall explore the possibility of using the latest version of the following standards.

GB/T 1766-1995 Paint and varnish - Rating schemes of degradation of coats (neq ISO 4628-1.1982)

GB 3186-82(88) Sampling paint products (neq ISO 1512.1974, etc.)

GB/T 9271-88 Paints and varnishes - Standard panels for testing (eqv ISO 1514.1984)

GB 9278-88 Temperatures and humidities for conditioning and testing of paint specimens (eqv ISO 3270.1984)

GB/T 9754-88 Paints and varnishes - Measurement of specular gloss of non-metallic paint films at 20°, 60° and 85° (eqv ISO 2813.1978)

GB/T 9761-88 Paints and varnishes -Visual comparison of the color of paints (eqv ISO 3668.1976)

GB/T 11186.2-89 Methods for measuring the color of paint films - Part 2.Color measurement (eqv ISO 7724.2.1984)

GB/T 13452.2-92 Paints and varnishes - Determination of film thickness (eqv ISO 2808.1974E)

3 Definitions

For the purposes of this Standard, the following definitions apply.

3.1 Weathering resistance

Durability of the coating under various natural weathering factors.

3.2 Exposure to natural weathering

The test that coating is placed in a natural environment and subjected to the combined effects of various weathering factors, and observes the change in its performance over time.

3.3 Open-air exposure

An exposure form that the templet is placed in a well-ventilated atmosphere without a cover or padding, allowing it to fully experience the effects of atmospheric factors.

4 Exposure Test Site

4.1

The exposure test site shall be located in an area representing the most severe weather types or under the actual usage environment of the test product.

4.2

The exposure site shall be flat, open, free of water accumulation, and the grass height shall not exceed 0.3 m.

4.3

There shall be no factory chimneys or facilities that emit large amounts of corrosive chemical gases near the exposure site to avoid the impact of severe local pollution.

4.4

Industrial weathering exposure sites shall be located within factory areas. Salt spray

weathering exposure sites shall be located on the coast or islands.

4.5

Meteorological observation instruments shall be installed within the exposure test site.

Exposure sites located near national meteorological stations can directly utilize the station's observation data. Meteorological data mainly includes. temperature, humidity, sunshine duration, solar radiation, rainfall, wind speed, and wind direction, etc.

The weather of the exposure test site is detailed in Appendix A.

5 Exposure Test Rack and Placement Method

5.1

The exposure rack is the one placed in the exposure site for exposing specimens. It shall be made of inert materials that do not affect the test results, such as wood, reinforced concrete, aluminum alloy, or steel coated with anti-corrosion paint. The structure shall be robust enough

5.4

The placement of exposure racks shall ensure free ventilation within the rack space, avoid mutual shading of sunlight, and facilitate to work. The row spacing shall generally be no less than 1 m.

5.5

The bottom of the exposure rack shall be no less than 0.5 m above the ground.

5.6

The exposure rack shall face the equator and the exposure templet shall be positioned at a 45° angle to the horizon. To maximize the amount of solar radiation received by the templet surface, the exposure rack shall be placed at the local latitude angle to the horizon.

6.1 Specimen

The specimen for tests of exposure to natural weathering shall be sampled according to the provisions of GB 3186.

6.2 Substrate

The substrate used for testing shall be the actual substrate in use; and its treatment method shall be in accordance with the requirements in GB/T 9271. Other substrates and treatment methods can also be used upon agreement.

6.3 Dimension of templet

Unless otherwise agreed, the area of the templet shall be no less than 0.03 m², and the side length shall be no less than 100 mm. Generally, 250 mm x 150 mm is specified.

6.4 Preparation and thickness of templet

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