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

GB/T 1865-2009

**Paints and varnishes -- Artificial weathering and exposure to
artificial radiation -- Exposure to filtered xenon-arc radiation
(English Translation)**

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Table of Contents

Foreword...	3
1 Scope...	5
2 Normative references...	5
3 Terms and definitions...	6
4 Principle...	6
5 Required supplementary information...	7
6 Apparatus...	8
7 Sampling...	14
8 Preparation of test panels...	14
9 Procedure...	15
10 Evaluation of ageing behavior...	17
11 Test report...	18
Annex A (normative) Required supplementary information...	20

Foreword

This Standard identically adopted ISO 11341.2004 "Paints and varnishes - Artificial weathering and exposure to artificial radiation - Exposure to filtered xenon-arc radiation" (English version).

This Standard identically translated ISO 11341.2004.

For easy use, the editorial modifications in this Standard are as follows.

- used "this Standard" to replace "this International Standard";
- deleted the foreword of the International standard;
- for other international standards cited in ISO 11341.2004, if some were equivalently adopted as Chinese standards, used Chinese standards to replace the corresponding international standards; those that did not equivalently adopt as Chinese standards shall be directly adopted as Chinese standards;
- since most of the domestic paint aging results are evaluated according to

GB/T 1766, the content of NOTE 2 is added in Clause 10.

This Standard replaces GB/T 1865-1997 "Paints and varnishes - Artificial weathering and exposure to artificial radiation - Filtered xenon-arc radiation".

The main technical differences between this Standard and the previous edition of GB/T 1865-1997 are as follows.

- the previous edition equivalently adopted ISO 11341.1994; this revision identically adopted ISO 11341.2004;
- the previous edition only stipulated that the average irradiance of the sample plane between the wavelengths of 290nm ~ 800nm is 550W/m²; Method 1 of this Standard specifies that the average irradiance between the wavelengths of 300nm ~ 400nm is 60W/m², the irradiance at 340nm is 0.51W/m²; Method 2 stipulates that the average irradiance between the wavelengths of 300nm ~ 400nm is 50W/m², and the irradiance at 420nm is 1.1W/m²;
- this Standard added a high irradiance test. Method 1.the average irradiance between the wavelengths of 300nm ~ 400nm can be 60W/m² ~ 180W/m², and the irradiance at 340nm can be 0.51W/m² ~ 1.5W/m²; Method 2.the average irradiance between the wavelengths of 300nm ~ 400nm can be 50W/m² ~ 162W/m², and the average irradiance at 420nm can be 1.1W/m² ~ 3.6W/m²;
- this Standard added the air temperature in the box to (38±3)°C;
- the previous edition stipulated that the relative humidity during artificial weathering is 60%~80%; this Standard stipulated that the relative humidity during artificial weathering is 40%~60%.

Annex A of this Standard is normative.

Annex B of this Standard is informative.

This Standard was proposed by China Petroleum and Chemical Industry Association.

This Standard shall be under the jurisdiction of National Technical Committee on Paints and Pigments of Standardization Administration of China.

The drafting organizations of this Standard. CNOOC Changzhou Coating Chemical Research Institute, Asia-Pacific Lass Material Testing Technology Co., Ltd., Kunshan Shiming Technology Development Co., Ltd., Chery Automobile Co., Ltd.

Main drafters of this Standard. Ji Xiaopei, Zhang Ping, Cheng Ge, Du Changsen, Chen Zheng.

The historical versions replaced by this Standard are.

- GB/T 1865-1980, GB/T 1865-1997.

Paints and varnishes - Artificial weathering and
exposure to artificial radiation - Exposure to filtered
xenon-arc radiation

1 Scope

This Standard specifies a procedure for exposing paint coatings to artificial weathering in xenon-arc lamp apparatus, including the action of liquid water and water vapor. The effects of this weathering are evaluated separately by comparative determination of selected parameters before, during and after weathering.

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.

3 Terms and definitions

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

given degree of change in a selected property of the coating under test

4 Principle

Artificial weathering of coatings or exposure of coatings to filtered xenon-arc radiation is carried out in order to obtain the degree of change in a selected property after a certain radiant exposure H , and/or the radiant exposure which is required to produce a certain degree of ageing.

5 Required supplementary information

For any particular application, the test method specified in this Standard shall be completed by supplementary information.

6 Apparatus

One or more xenon-arc lamps shall be used as the optical radiation source. The radiation emitted by them shall be filtered by a system of optical radiation filters so that the relative spectral distribution of the irradiance (relative spectral energy distribution) in the plane of the test-panel holders is sufficiently similar either to global solar ultraviolet and visible radiation (method 1) or to global solar ultraviolet and visible radiation filtered by 3-mm-thick window glass (method 2).

7 Sampling

Take a representative sample of the product to be tested (or of each product in the case of a multi-coat system), as described in GB/T 3186.

Examine and prepare each sample for testing, as described in GB/T 20777.

8 Preparation of test panels

The substrate used for the preparation of the test panels shall be that usually used in practice (e.g. plasterboard, wood, metal, plastics materials) and the method of application and drying of the coating shall be that normally used in