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

GB/T 23987.3-2025

Replacing GB/T 23987-2009

**Paints and varnishes - Methods of exposure to laboratory light
sources - Part 3: Fluorescent UV lamps
(English Translation)**

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Foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for standardization work Part 1: Structure and drafting rules for standardization documents" Drafting.

This document is Part 3 of GB/T 23987 "Paints and varnishes laboratory light source exposure methods". GB/T 23987 has been published.

The following sections.

--- Part 3: Fluorescent UV lamps.

This document replaces GB/T 23987-2009 "Artificial weathering of paints and varnishes by exposure to fluorescent ultraviolet and Compared with GB/T 23987-2009, in addition to structural adjustments and editorial changes, the main technical changes are as follows.

- a) The scope has been changed (see Chapter 1, Chapter 1 of the 2009 edition);
- b) The terms "aging index", "aging condition", "irradiance (E)" and their definitions (see 3.1, 3.2 and 3.3 of the 2009 edition) have been deleted;

"Radiation energy of exposure" was changed to "radiation dose", and the corresponding content was modified (see 3.1, 3.4 of the 2009 edition);

- c) The principles have been changed (see Chapter 4, Chapter 4 of the 2009 edition);

- d) The equipment has been changed (see Chapter 5, Chapter 5 of the 2009 edition);

- e) "Sampling" was deleted (see Chapter 6 of the 2009 edition);

- f) Changed "test plate" to "specimen (test plate)" and modified the corresponding content (see Chapter 6, Chapter 7 of the 2009 edition);

- g) Added "Test Conditions" (see Chapter 7);

- h) Changed "Operation steps" to "Steps and placement of specimens" and modified the

corresponding content (see Chapter 8, 2009 edition).

Chapter 8);

i) "Calibration" has been deleted (see Chapter 9 of the 2009 edition);

j) Deleted "Inspection of test panels (aging indicators)" (see Chapter 10 of the 2009 edition);

k) "Precision" has been deleted (see Chapter 11 of the 2009 edition);

l) Deleted "Supplementary test conditions" (see Chapter 12 of the 2009 edition);

m) "Test report" has been changed (see Chapter 9, Chapter 13 of the 2009 edition).

This document is equivalent to ISO 16474-3:2021 "Paints and varnishes - Laboratory light source exposure methods - Part 3: Fluorescent UV lamps".

Introduction

In order to more quickly determine the effects of light radiation, heat, and humidity on the physical and chemical properties of coatings, specific laboratory light sources and conditions are often used.

Artificial accelerated weathering and artificial accelerated radiation exposure tests. Coatings exposed in laboratory equipment are more controlled than in the natural environment.

Conditions designed to accelerate possible material degradation and product performance failure.

GB/T 23987 "Paints and varnishes laboratory light source exposure method" provides a test method for coatings in a specific environment and set exposure cycle.

The law is intended to consist of four parts.

--- Part 1: General. The purpose is to guide the selection and implementation of relevant exposure test methods, describing the exposure of paints and varnishes in the actual General requirements for devices used under laboratory light sources.

--- Part 2: Xenon arc lamps. The purpose is to standardize the controlled environmental conditions (temperature, humidity and/or water) and filtered Xenon arc lamps can meet different test requirements by combining different types of xenon arc lamps and filters.

--- Part 3: Fluorescent UV lamps. The purpose is to standardize the controlled environmental conditions (temperature, humidity and/or water) to which materials are exposed and the fluorescent UV lamp types to meet different test requirements.

--- Part 4: Open carbon arc lamps. The purpose is to standardize the controlled environmental conditions (temperature, humidity and/or water) to which materials are

exposed and the Filtered carbon arc lamp, through the combination of carbon arc lamp and filter to meet different test requirements.

The laboratory light source in this document uses fluorescent UV lamps. In order to simulate the UV radiation in solar radiation under different conditions, fluorescent UV lamps the types of UV lamps include UVA-340 lamps, UVA-351 lamps, UVB-313 lamps, and combination lamps composed of four types of UV lamps.

The conditions of the light source exposure test are controllable, but they still cannot fully simulate the exposure conditions in actual use.

Paints and varnishes - Exposure methods to laboratory light sources Part 3: Fluorescent UV lamps

1 Scope

This document describes the method for exposing coatings to UV light in a test apparatus equipped with fluorescent UV lamps, heat, and water to simulate the the weathering effect of materials after exposure to sunlight or sunlight through window glass in the actual final application environment.

The coating is exposed to different types of fluorescent UV lamps under controlled environmental conditions (temperature, humidity and/or water). Different types of Different fluorescent UV lamps are used to meet the testing requirements of different test materials.

For sample preparation and evaluation of results for specific materials, refer to other documents.

General principles are given in ISO 16474-1.

NOTE: For exposure of plastics to fluorescent UV light, see ISO 4892-3.

2 Normative references

The contents of the following documents constitute the essential clauses of this document through normative references in this document.

For referenced documents without a date, only the version corresponding to that date applies to this document; for referenced documents without a date, the latest version (including all amendments) applies to this document.

Note: GB/T 9271-2008 Paints and varnishes standard test panels (ISO 1514:2004, MOD) ness)
Note. GB/T 13452.2-2008 Paints and varnishes - Determination of film thickness (ISO 2808:2007, IDT) ISO 4618 Paints and varnishes-Terms and definitions Note. GB/T 5206-2015 Paints and varnishes - Terms and definitions (ISO 4618:2014, IDT) ISO 9370 Plastics - Instrumental determination of radiation exposure in weathering tests - General principles and basic test methods ISO 16474-1:2013 Paints and varnishes - Exposure methods to laboratory light sources - Part 1:

General

3 Terms and Definitions

For the purposes of this document, the terms and definitions defined in ISO 4618 and the following apply.

ISO and IEC maintain terminology databases used for standardization at the following addresses.

radiantexposure

The total amount of radiant energy to which the test panel is exposed.