

**Paints and varnishes - Methods of exposure to
laboratory light sources - Part 1: General guidance (ISO
16474-1:2013)**

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English Version

Paints and varnishes - Methods of exposure to laboratory light sources - Part 1: General guidance (ISO 16474-1:2013)

Peintures et vernis - Méthodes d'exposition à des sources lumineuses de laboratoire - Partie 1: Lignes directrices générales (ISO 16474-1:2013)

Beschichtungsstoffe - Künstliches Bestrahlen oder Bewittern in Geräten - Teil 1: Allgemeine Anleitung (ISO 16474-1:2013)

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Foreword

This document (EN ISO 16474-1:2013) has been prepared by Technical Committee ISO/TC 35 "Paints and varnishes" in collaboration with Technical Committee CEN/TC 139 "Paints and varnishes" the secretariat of which is held by DIN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by May 2014, and conflicting national standards shall be withdrawn at the latest by May 2014.

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Endorsement notice

The text of ISO 16474-1:2013 has been approved by CEN as EN ISO 16474-1:2013 without any modification.

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Introduction

Coatings from paints, varnishes and similar materials are often used outdoors or in indoor locations where they are exposed to solar radiation or to solar radiation behind glass for long periods. It is therefore very important to determine the effects of solar radiation, heat, moisture and other climatic stresses on the colour and other properties of polymers. Outdoor exposures to solar radiation and to solar radiation filtered by window glass are described in ISO 2810[9]. However, it is often necessary to determine more rapidly the effects of light, heat and moisture on the physical, chemical and optical properties of coatings with artificial accelerated weathering or artificial accelerated irradiation exposures that use specific laboratory light sources. Exposures in these laboratory devices are conducted under more controlled conditions than found in natural environments and are intended to accelerate polymer degradation and product failures. Relating results from accelerated weathering or artificial accelerated irradiation exposures to those obtained in actual-use conditions is difficult because of variability in both types of exposure and because laboratory tests often do not reproduce all the exposure stresses experienced by coatings exposed in actual-use conditions. In addition, the increase in rate of degradation by the accelerated test compared with natural exposure conditions varies with the type of material and its formulation. No single laboratory exposure test can be specified as a total simulation of actual-use exposures. The relative durability of materials in actual-use exposures can be very different depending on the location of the exposure because of differences in solar radiation, time of wetness, temperature, pollutants and other factors. Therefore, even if results from specific accelerated weathering or artificial accelerated irradiation exposures are found to be useful for comparing the relative durability of materials exposed in a particular outdoor location or in particular actual-use conditions, it cannot be assumed that they will be useful for determining the relative durability of materials exposed in a different outdoor location or in different actual-use conditions.

Paints and varnishes — Methods of exposure to laboratory light sources —

Part 1: General guidance

1 Scope

1.1 This part of ISO 16474 provides information and general guidance relevant to the selection and operation of the methods of exposure described in detail in subsequent parts. It also describes general performance requirements for devices used for exposing paints and varnishes to laboratory light sources. Information about such performance requirements is provided for producers of artificial accelerated weathering or artificial accelerated irradiation devices.

1.2 This part of ISO 16474 also provides information on the interpretation of data from artificial accelerated weathering or artificial accelerated irradiation exposures.

2 Normative references

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

ISO 1513, *Paints and varnishes — Examination and preparation of test samples*

ISO 1514, *Paints and varnishes — Standard panels for testing*

ISO 2808, *Paints and varnishes — Determination of film thickness*

ISO 3270, *Paints and varnishes and their raw materials — Temperatures and humidities for conditioning and testing*

ISO 4618, *Paints and varnishes — Terms and definitions*

ISO 9370, *Plastics — Instrumental determination of radiant exposure in weathering tests — General guidance and basic test method*

ISO 15528, *Paints, varnishes and raw materials for paints and varnishes — Sampling*

ISO 16474-2, *Paints and varnishes — Methods of exposure to laboratory light sources — Part 2: Xenon-arc lamps*

ISO 16474-3, *Paints and varnishes — Methods of exposure to laboratory light sources — Part 3: Fluorescent UV lamps*

ISO 16474-4, *Paints and varnishes — Methods of exposure to laboratory light sources — Part 4: Open-flame carbon-arc lamps*

3 Terms and definitions

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