Irish Standard
I.S. EN ISO 4892-1:2016

Plastics - Methods of exposure to laboratory light sources - Part 1: General guidance (ISO 4892-1:2016)

I.S. EN ISO 4892-1:2016

Incorporating amendments/corrigenda/National Annexes issued since publication:

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National Foreword

I.S. EN ISO 4892-1:2016 is the adopted Irish version of the European Document EN ISO 4892-1:2016, Plastics - Methods of exposure to laboratory light sources - Part 1: General guidance (ISO 4892-1:2016)

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN ISO 4892-1

May 2016

ICS 83.080.01

Supersedes EN ISO 4892-1:2000

English Version

Plastics - Methods of exposure to laboratory light sources - Part 1: General guidance (ISO 4892-1:2016)

Plastiques - Méthodes d'exposition à des sources lumineuses de laboratoire - Partie 1: Lignes directrices générales (ISO 4892-1:2016)

Kunststoffe - Künstliches Bestrahlen oder Bewittern in Geräten - Teil 1: Allgemeine Anleitung (ISO 4892-1:2016)

This European Standard was approved by CEN on 15 April 2016.

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European foreword

This document (EN ISO 4892-1:2016) has been prepared by Technical Committee ISO/TC 61 “Plastics” in collaboration with Technical Committee CEN/TC 249 “Plastics” the secretariat of which is held by NBN.

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of an identical text or by endorsement, at the latest by November 2016, and conflicting national standards shall be withdrawn at the latest by November 2016.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

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Endorsement notice

The text of ISO 4892-1:2016 has been approved by CEN as EN ISO 4892-1:2016 without any modification.

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INTERNATIONAL STANDARD

ISO 4892-1

Third edition
2016-05-01

Plastics — Methods of exposure to laboratory light sources —

Part 1: General guidance

Plastiques — Méthodes d'exposition à des sources lumineuses de laboratoire —

Partie 1: Lignes directrices générales

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

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The committee responsible for this document is ISO/TC 61, *Plastics*, Subcommittee SC 6, *Ageing, chemical and environmental resistance*.

This third edition cancels and replaces the second edition (ISO 4892-1:1999), which has been technically revised.

ISO 4892 consists of the following parts, under the general title *Plastics — Methods of exposure to laboratory light sources*:

— *Part 1: General guidance*

— *Part 2: Xenon-arc lamps*

— *Part 3: Fluorescent UV lamps*

— *Part 4: Open-flame carbon-arc lamps*

Introduction

Plastics 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 plastics. Outdoor exposures to solar radiation and to solar radiation filtered by window glass are described in ISO 877 (all parts).[1] However, it is often necessary to determine more rapidly the effects of radiation, heat and moisture on the physical, chemical and optical properties of plastics 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 eventual 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 never reproduce exactly all the exposure stresses experienced by plastics exposed in actual-use conditions. 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 UV 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.

Plastics — Methods of exposure to laboratory light sources —

Part 1: General guidance

1 Scope

This part of ISO 4892 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 plastics to laboratory light sources. Information regarding performance requirements is for producers of artificial accelerated weathering or artificial accelerated irradiation devices.

NOTE In this part of ISO 4892, the term "light source" refers to radiation sources that emit UV radiation, visible radiation, infrared radiation or any combination of these types of radiation.

This part of ISO 4892 also provides information on the interpretation of data from artificial accelerated weathering or artificial accelerated irradiation exposures. More specific information about methods for determining the change in the properties of plastics after exposure and reporting these results is given in ISO 4582.

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 291, *Plastics — Standard atmospheres for conditioning and testing*

ISO 293, *Plastics — Compression moulding of test specimens of thermoplastic materials*

ISO 294-1, *Plastics — Injection moulding of test specimens of thermoplastic materials — Part 1: General principles, and moulding of multipurpose and bar test specimens*

ISO 294-2, *Plastics — Injection moulding of test specimens of thermoplastic materials — Part 2: Small tensile bars*

ISO 294-3, *Plastics — Injection moulding of test specimens of thermoplastic materials — Part 3: Small plates*

ISO 295, *Plastics — Compression moulding of test specimens of thermosetting materials*

ISO 2818, *Plastics — Preparation of test specimens by machining*

ISO 3167, *Plastics — Multipurpose test specimens*

ISO 4582, *Plastics — Determination of changes in colour and variations in properties after exposure to daylight under glass, natural weathering or laboratory light sources*

ISO 4892-2, *Plastics — Methods of exposure to laboratory light sources — Part 2: Xenon-arc lamps*

ISO 4892-3, *Plastics — Methods of exposure to laboratory light sources — Part 3: Fluorescent UV lamps*

ISO 4892-4, *Plastics — Methods of exposure to laboratory light sources — Part 4: Open-flame carbon-arc lamps*