Plastics - Methods of exposure to laboratory light sources - Part 1: General guidance

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EESTI STANDARDI EESSÕNA **NATIONAL FOREWORD**

Käesolev Eesti standard EVS-EN ISO 4892-1:2001 sisaldab Euroopa standardi EN ISO 4892-1:2000 ingliskeelset teksti. Käesolev dokument on jõustatud 16.02.2001 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes. Standard on kättesaadav Eesti standardiorganisatsioonist.	This Estonian standard EVS-EN ISO 4892-1:2001 consists of the English text of the European standard EN ISO 4892-1:2000. This document is endorsed on 16.02.2001 with the notification being published in the official publication of the Estonian national standardisation organisation. The standard is available from Estonian standardisation organisation.

Käsitlusala: This part of EN 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 and recommends procedures for determining irradiance and radiant exposure. Requirements for devices used to monitor chamber air temperature and surface temperature of dark and light materials are also described.	**Scope:** This part of EN 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 and recommends procedures for determining irradiance and radiant exposure. Requirements for devices used to monitor chamber air temperature and surface temperature of dark and light materials are also described.

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EUROPEAN STANDARD
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EN ISO 4892-1

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English version

Plastics – Methods of exposure to laboratory light sources

Part 1: General guidance
(ISO 4892-1 : 1999)

Plastiques – Méthodes d'exposition à des sources lumineuses de laboratoire – Partie 1: Guide général (ISO 4892-1 : 1999)

Kunststoffe – Künstliches Bestrahlen oder Bewittern in Geräten – Teil 1: Allgemeine Anleitung (ISO 4892-1 : 1999)

This European Standard was approved by CEN on 2000-09-08.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Management Centre or to any CEN member.

The European Standards exist in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Management Centre has the same status as the official versions.

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CEN

European Committee for Standardization
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Foreword

International Standard

ISO 4892-1 : 1999 Plastics – Methods of exposure to laboratory light sources – Part 1: General guidance,

which was prepared by ISO/TC 61 'Plastics' of the International Organization for Standardization, has been adopted by Technical Committee CEN/TC 249 'Plastics', the Secretariat of which is held by IBN, as a European Standard.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, and conflicting national standards withdrawn, by March 2001 at the latest.

In accordance with the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard:

Austria, Belgium, the Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and the United Kingdom.

Endorsement notice

The text of the International Standard ISO 4892-1 : 1999 was approved by CEN as a European Standard without any modification.

NOTE: Normative references to international publications are listed in Annex ZA (normative).

Contents

Introduction

Plastics are often used outdoors or in indoor locations where they are exposed to daylight or to daylight behind glass for long periods. It is therefore very important to determine the effects of daylight, heat, moisture and other climatic stresses on the colour and other properties of plastics. Outdoor exposures to daylight and to daylight filtered by window glass are described in ISO 877:1994, *Plastics — Methods of exposure to direct weathering, to weathering using glass-filtered daylight, and to intensified weathering by daylight using Fresnel mirrors.* However, it is often necessary to determine more rapidly the effects of light, heat and moisture on the physical, chemical and optical properties of plastics with accelerated laboratory exposure tests that use specific laboratory light sources. Exposures in these laboratory devices are conducted under more controlled conditions than found in natural environments and are designed to accelerate polymer degradation and product failures.

Relating results from accelerated laboratory 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 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 a specific accelerated laboratory test 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.

1 Scope

1.1 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 and recommends procedures for determining irradiance and radiant exposure. Requirements for devices used to monitor chamber air temperature and surface temperature of dark and light materials are also described.

1.2 This part of ISO 4892 also provides information on the interpretation of data from accelerated exposure tests. More specific information about methods for determining the change in plastic properties after exposure and reporting these results is described in ISO 4582.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of ISO 4892. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this part of ISO 4892 are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

ISO 291:1997, *Plastics — Standard atmospheres for conditioning and testing.*

ISO 293:1986, *Plastics — Compression moulding test specimens of thermoplastic materials.*

ISO 294-1:1996, *Plastics — Injection moulding of test specimens of thermoplastic materials — Part 1: General principles, and moulding of multipurpose and bar test specimens.*

ISO 294-2:1996, *Plastics — Injection moulding of test specimens of thermoplastic materials — Part 2: Small tensile bars.*

ISO 294-3:1996, *Plastics — Injection moulding of test specimens of thermoplastic materials — Part 3: Small plates.*

ISO 295:1991, *Plastics — Compression moulding of test specimens of thermosetting materials.*

ISO 2557-1:1989, *Plastics — Amorphous plastics — Preparation of test specimens with a specified maximum reversion — Part 1: Bars.*

ISO 2818:1994, *Plastics — Preparation of test specimens by machining.*

ISO 3167:1993, *Plastics — Multipurpose test specimens.*

ISO 4582:1998, *Plastics — Determination of changes in colour and variations in properties after exposure to daylight under glass, natural weathering or laboratory light sources.*

ISO 4892-2:1994, *Plastics — Methods of exposure to laboratory light sources — Part 2: Xenon-arc sources.*

ISO 4892-3:1994, *Plastics — Methods of exposure to laboratory light sources — Part 3: Fluorescent UV lamps.*