



# SLOVENSKI STANDARD SIST EN ISO 4892-1:2024

01-december-2024

---

## Polimerni materiali - Metode izpostavljanja laboratorijskim virom svetlobe - 1. del: Splošna navodila (ISO 4892-1:2024)

Plastics - Methods of exposure to laboratory light sources - Part 1: General guidance  
(ISO 4892-1:2024)

Kunststoffe - Künstliches Bestrahlen oder Bewittern in Geräten - Teil 1: Allgemeine  
Anleitung (ISO 4892-1:2024)

Plastiques - Méthodes d'exposition à des sources lumineuses de laboratoire - Partie 1:  
Lignes directrices générales (ISO 4892-1:2024)

**Ta slovenski standard je istoveten z: EN ISO 4892-1:2024**

[SIST EN ISO 4892-1:2024](https://standards.iteh.ai/catalog/standards/sist/0718387d-9787-46c0-819d-07125a161024/sist-en-iso-4892-1-2024)

### ICS:

83.080.01	Polimerni materiali na splošno	Plastics in general
-----------	-----------------------------------	---------------------

**SIST EN ISO 4892-1:2024**

**en,fr,de**



EUROPEAN STANDARD

EN ISO 4892-1

NORME EUROPÉENNE

EUROPÄISCHE NORM

October 2024

ICS 83.080.01

Supersedes EN ISO 4892-1:2016

English Version

## Plastics - Methods of exposure to laboratory light sources - Part 1: General guidance and requirements (ISO 4892- 1:2024)

Plastiques - Méthodes d'exposition à des sources  
lumineuses de laboratoire - Partie 1: Lignes directrices  
générales et exigences (ISO 4892-1:2024)

Kunststoffe - Künstliches Bestrahlen oder Bewittern in  
Geräten - Teil 1: Allgemeine Anleitung und  
Anforderungen (ISO 4892-1:2024)

This European Standard was approved by CEN on 17 October 2024.

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 CEN-CENELEC Management Centre or to any CEN member.

This European Standard exists 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 CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and United Kingdom.

[SIST EN ISO 4892-1:2024](https://standards.iteh.ai/catalog/standards/sist/89fbd04d-9181-46c0-819a-89725a4fd4c2/sist-en-iso-4892-1-2024)

<https://standards.iteh.ai/catalog/standards/sist/89fbd04d-9181-46c0-819a-89725a4fd4c2/sist-en-iso-4892-1-2024>



EUROPEAN COMMITTEE FOR STANDARDIZATION  
COMITÉ EUROPÉEN DE NORMALISATION  
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

Contents	Page
European foreword.....	3

**iTeh Standards**  
**(<https://standards.itih.ai>)**  
**Document Preview**

[SIST EN ISO 4892-1:2024](https://standards.itih.ai/catalog/standards/sist/89fbd04d-9181-46c0-819a-89725a4fd4c2/sist-en-iso-4892-1-2024)

<https://standards.itih.ai/catalog/standards/sist/89fbd04d-9181-46c0-819a-89725a4fd4c2/sist-en-iso-4892-1-2024>

## European foreword

This document (EN ISO 4892-1:2024) 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 SIS.

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 April 2025, and conflicting national standards shall be withdrawn at the latest by April 2025.

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

This document supersedes EN ISO 4892-1:2016.

Any feedback and questions on this document should be directed to the users' national standards body/national committee. A complete listing of these bodies can be found on the CEN website.

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and the United Kingdom.

### Endorsement notice

The text of ISO 4892-1:2024 has been approved by CEN as EN ISO 4892-1:2024 without any modification.

[SIST EN ISO 4892-1:2024](https://standards.iteh.ai/catalog/standards/sist/89fbd04d-9181-46c0-819a-89725a4fd4c2/sist-en-iso-4892-1-2024)

<https://standards.iteh.ai/catalog/standards/sist/89fbd04d-9181-46c0-819a-89725a4fd4c2/sist-en-iso-4892-1-2024>





# International Standard

**ISO 4892-1**

## Plastics — Methods of exposure to laboratory light sources —

### Part 1: General guidance and requirements

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

*Partie 1: Lignes directrices générales et exigences*

**Fourth edition  
2024-10**

[SIST EN ISO 4892-1:2024](https://standards.iteh.ai/catalog/standards/sist/89fbd04d-9181-46c0-b19a-89725a4fd4c2/sist-en-iso-4892-1-2024)

<https://standards.iteh.ai/catalog/standards/sist/89fbd04d-9181-46c0-b19a-89725a4fd4c2/sist-en-iso-4892-1-2024>

**ISO 4892-1:2024(en)**

**iTeh Standards**  
**(<https://standards.iteh.ai>)**  
**Document Preview**

[SIST EN ISO 4892-1:2024](https://standards.iteh.ai/catalog/standards/sist/89fbd04d-9181-46c0-819a-89725a4fd4c2/sist-en-iso-4892-1-2024)

<https://standards.iteh.ai/catalog/standards/sist/89fbd04d-9181-46c0-819a-89725a4fd4c2/sist-en-iso-4892-1-2024>

**COPYRIGHT PROTECTED DOCUMENT**

© ISO 2024

All rights reserved. Unless otherwise specified, or required in the context of its implementation, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office  
CP 401 • Ch. de Blandonnet 8  
CH-1214 Vernier, Geneva  
Phone: +41 22 749 01 11  
Email: [copyright@iso.org](mailto:copyright@iso.org)  
Website: [www.iso.org](http://www.iso.org)

Published in Switzerland



## ISO 4892-1:2024(en)

## Contents

	Page
<b>Foreword</b> .....	<b>iv</b>
<b>Introduction</b> .....	<b>vi</b>
<b>1 Scope</b> .....	<b>1</b>
<b>2 Normative references</b> .....	<b>1</b>
<b>3 Terms and definitions</b> .....	<b>1</b>
<b>4 Principle</b> .....	<b>3</b>
4.1 General.....	3
4.2 Significance.....	3
4.3 Use of accelerated tests with laboratory light sources.....	5
<b>5 Requirements for laboratory exposure devices</b> .....	<b>6</b>
5.1 Irradiance.....	6
5.2 Temperature.....	7
5.3 Humidity and wetting.....	10
5.4 Other requirements for the exposure device.....	11
<b>6 Test specimens</b> .....	<b>11</b>
6.1 Form, shape and preparation.....	11
6.2 Number of test specimens.....	12
6.3 Storage and conditioning.....	12
<b>7 Test conditions and procedure</b> .....	<b>13</b>
7.1 Set points for exposure conditions.....	13
7.2 Property measurements on test specimens.....	14
7.3 Sampling for intermediate and final evaluation.....	14
<b>8 Periods of exposure and evaluation of test results</b> .....	<b>14</b>
8.1 General.....	14
8.2 Use of control materials.....	14
8.3 Use of results in specifications.....	15
<b>9 Test report</b> .....	<b>15</b>
<b>Annex A (normative) Procedures for measuring the irradiance uniformity in the specimen exposure area</b> .....	<b>18</b>
<b>Annex B (informative) Factors that decrease the degree of correlation between artificial accelerated weathering or artificial accelerated irradiation exposures and actual-use exposures</b> .....	<b>21</b>
<b>Annex C (informative) Solar spectral irradiance standards</b> .....	<b>24</b>
<b>Bibliography</b> .....	<b>27</b>

# ISO 4892-1:2024(en)

## 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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see [www.iso.org/directives](http://www.iso.org/directives)).

ISO draws attention to the possibility that the implementation of this document may involve the use of (a) patent(s). ISO takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, ISO had not received notice of (a) patent(s) which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at [www.iso.org/patents](http://www.iso.org/patents). ISO shall not be held responsible for identifying any or all such patent rights.

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see [www.iso.org/iso/foreword.html](http://www.iso.org/iso/foreword.html).

This document was prepared by Technical Committee ISO/TC 61, *Plastics*, Subcommittee SC 6, *Ageing, chemical and environmental resistance*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 249, *Plastics*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This fourth edition cancels and replaces the third edition (ISO 4892-1:2016), which has been technically revised.

The main changes are as follows:

- the definition of file specimen (see [3.2](#)) and weathering reference material (see [3.5](#)) have been clarified and Notes to entry have been added;
- definition and Notes to entry of artificial accelerated weathering (see [3.3](#)) and artificial accelerated irradiation (see [3.4](#)) have been clarified;
- new terms, definitions and Notes to entry have been added for black-panel thermometer (see [3.7](#)), black-standard thermometer (see [3.8](#)), white-panel thermometer (see [3.9](#)), and white-standard thermometer (see [3.10](#));
- reference to ISO/TR 18486 has been added under [4.2.4](#);
- calibration requirements have been clarified in [5.1.7](#), [5.2.8](#), [5.2.9](#), [5.3.6](#);
- requirements regarding black-panel thermometer, black-standard thermometer, white-panel thermometer, and white-standard thermometer in [5.2](#) and [Table 2](#) have been clarified;
- reference to ISO 23741 has been added in [5.3.1](#);
- new [subclause 7.3](#) “Sampling for intermediate and final evaluation” has been added;
- requirements for the test report have been updated;
- reference to CIE 85 in [Annex C](#) has been updated to CIE 241.

**ISO 4892-1:2024(en)**

A list of all parts in the ISO 4892 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at [www.iso.org/members.html](http://www.iso.org/members.html).

**iTeh Standards**  
**(<https://standards.itih.ai>)**  
**Document Preview**

[SIST EN ISO 4892-1:2024](https://standards.itih.ai/catalog/standards/sist/89fbd04d-9181-46c0-819a-89725a4fd4c2/sist-en-iso-4892-1-2024)

<https://standards.itih.ai/catalog/standards/sist/89fbd04d-9181-46c0-819a-89725a4fd4c2/sist-en-iso-4892-1-2024>

## ISO 4892-1:2024(en)

### Introduction

Plastics are often used outdoors or in indoor locations where they are exposed to solar radiation or to window-glass-filtered solar radiation 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)<sup>[1]</sup>. However, it is often necessary to rapidly determine 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.

iTeh Standards  
(<https://standards.iteh.ai>)  
Document Preview

[SIST EN ISO 4892-1:2024](https://standards.iteh.ai/catalog/standards/sist/89fbd04d-9181-46c0-819a-89725a4fd4c2/sist-en-iso-4892-1-2024)

<https://standards.iteh.ai/catalog/standards/sist/89fbd04d-9181-46c0-819a-89725a4fd4c2/sist-en-iso-4892-1-2024>