EHITUSKLAAS. LAMINEERITUD KLAAS JA LAMINEERITUD TURVAKLAAS. OSA 4: VASTUPIDAVUSE KATSEMEETODID

Glass in building - Laminated glass and laminated safety glass - Part 4: Test methods for durability (ISO 12543-4:2021)



#### EESTI STANDARDI EESSÕNA

#### NATIONAL FOREWORD

See Eesti standard EVS-EN ISO 12543-4:2022 sisaldab Euroopa standardi EN ISO 12543-4:2021 ingliskeelset teksti.

This Estonian standard EVS-EN ISO 12543-4:2022 consists of the English text of the European standard EN ISO 12543-4:2021.

Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas

This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation and Accreditation.

Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 22.12.2021.

Date of Availability of the European standard is 22.12.2021.

Standard on kättesaadav Eesti Standardimis- ja Akrediteerimiskeskusest.

The standard is available from the Estonian Centre for Standardisation and Accreditation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile <u>standardiosakond@evs.ee</u>.

ICS 81.040.20

#### Standardite reprodutseerimise ja levitamise õigus kuulub Eesti Standardimis- ja Akrediteerimiskeskusele

Andmete paljundamine, taastekitamine, kopeerimine, salvestamine elektroonsesse süsteemi või edastamine ükskõik millises vormis või millisel teel ilma Eesti Standardimis- ja Akrediteerimiskeskuse kirjaliku loata on keelatud.

Kui Teil on küsimusi standardite autoriõiguse kaitse kohta, võtke palun ühendust Eesti Standardimis- ja Akrediteerimiskeskusega: Koduleht www.evs.ee; telefon 605 5050; e-post info@evs.ee

#### The right to reproduce and distribute standards belongs to the Estonian Centre for Standardisation and Accreditation

No part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying, without a written permission from the Estonian Centre for Standardisation and Accreditation.

If you have any questions about standards copyright protection, please contact the Estonian Centre for Standardisation and Accreditation: Homepage www.evs.ee; phone +372 605 5050; e-mail info@evs.ee

# EUROPEAN STANDARD

NORME EUROPÉENNE

## **EN ISO 12543-4**

EUROPÄISCHE NORM

December 2021

ICS 81.040.20

Supersedes EN ISO 12543-4:2011

#### **English Version**

# Glass in building - Laminated glass and laminated safety glass - Part 4: Test methods for durability (ISO 12543-4:2021)

Verre dans la construction - Verre feuilleté et verre feuilleté de sécurité - Partie 4: Méthodes d'essai concernant la durabilité (ISO 12543-4:2021) Glas im Bauwesen - Verbundglas und Verbund-Sicherheitsglas - Teil 4: Verfahren zur Prüfung der Beständigkeit (ISO 12543-4:2021)

This European Standard was approved by CEN on 25 October 2021.

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, Turkey and United Kingdom.



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

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

#### **European foreword**

This document (EN ISO 12543-4:2021) has been prepared by Technical Committee ISO/TC 160 "Glass in building" in collaboration with Technical Committee CEN/TC 129 "Glass in building" 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 June 2022, and conflicting national standards shall be withdrawn at the latest by June 2022.

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 12543-4:2011.

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, Turkey and the United Kingdom.

#### **Endorsement notice**

The text of ISO 12543-4:2021 has been approved by CEN as EN ISO 12543-4:2021 without any modification.

Foreword			Page
			iv
1	Scop	e	1
2	) , 1	native references	
3	Terms and definitions		
4	Test specimens		
5	_	-temperature test	
	5.1	Principle	
	5.2	Size and number of test specimens	
	5.3	Procedures 5.3.1 General	
		5.3.2 Procedure A (short high temperature test)	
		5.3.3 Procedure B (long high temperature test)	ム
	5.4	Expression of results	2 2
	5.5	Test report	
_			
6		idity test	
	6.1	Principle	
	6.2	Size and number of test specimens	
	6.3	Procedures	
		6.3.1 Test with condensation	
	<i>C</i> 1	6.3.2 Test without condensation	
	6.4 6.5	Expression of results Test Report	
7	Radi	ation tests	
	7.1	Principle	
	7.2	Size and number of test specimens	5
	7.3	Simulated solar radiation methods	
		7.3.1 Method A: Radiation wall	
		7.3.2 Method B: Mercury vapour arc lamp	6
		7.3.3 Method C: Xenon arc source	6
	7.4	Procedure	
	7.5	Expression of results	
		7.5.1 Laminated glass and laminated safety glass	/
	76	7.5.2 Fire-resistant laminated glass and fire-resistant laminated safety glass	
	7.6	Test report	8
Anne		ormative) Retesting guidelines for durability testing of laminated glass and nated safety glass	9
Anne		nformative) Possible arrangement of the test apparatus for the radiation test ribed in 7.3.1	10
Dibli	norank		12

#### **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 <a href="https://www.iso.org/directives">www.iso.org/directives</a>).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see <a href="https://www.iso.org/patents">www.iso.org/patents</a>).

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 <a href="https://www.iso.org/iso/foreword.html">www.iso.org/iso/foreword.html</a>.

This document was prepared by Technical Committee ISO/TC 160, *Glass in building*, Subcommittee SC 1, *Product considerations*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 129, *Glass in building*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This third edition cancels and replaces the second edition (ISO 12543-4:2011), which has been technically revised.

The main changes compared to the previous edition are as follows:

- editorial changes have been made;
- the clause on radiation tests has been revised and a new type of lamp has been added;
- the expression of the results of the radiation tests has been modified.

A list of all parts in the ISO 12543 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 <a href="https://www.iso.org/members.html">www.iso.org/members.html</a>.

# Glass in building — Laminated glass and laminated safety glass —

### Part 4:

## Test methods for durability

#### 1 Scope

This document specifies test methods relating to resistance to high temperature, humidity and radiation for laminated glass and laminated safety glass for use in building.

#### 2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

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

ISO 9050, Glass in building — Determination of light transmittance, solar direct transmittance, total solar energy transmittance, ultraviolet transmittance and related glazing factors

ISO 12543-1, Glass in building — Laminated glass and laminated safety glass — Part 1: Definitions and description of component parts

#### 3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 12543-1 apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <a href="https://www.iso.org/obp">https://www.iso.org/obp</a>
- IEC Electropedia: available at <a href="https://www.electropedia.org/">https://www.electropedia.org/</a>

#### 4 Test specimens

Test specimens should be representative of standard production. Test specimens shall either be specially manufactured to the test size or be cut from larger panes. Test specimens with cut edges shall contain at least one edge from the original pane from which it was cut.

The original edge should be marked.

If the final product as produced by the fabricator has all its edges sealed or protected, the test specimen shall also have all its edges sealed or protected.

The method of supporting the test specimen shall not cover two edges of the test specimen. If the test specimen is cut from a larger pane, at least one original edge shall not be covered.

Retesting guidelines for durability testing of laminated glass and laminated safety glass given in Annex A shall be considered.