SLOVENSKI STANDARD
SIST EN 1279-5:2018

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SIST EN 1279-5:2005+A2:2010

Steklo v gradbeništvu - Izolacijsko steklo - 5. del: Standard za proizvod

Glass in building - Insulating glass units - Part 5: Product standard

Glas im Bauwesen - Mehrscheiben-Isolierglas - Teil 5: Produktnorm

Verre dans la construction - Vitrage isolant - Partie 5: Norme de produit

Ta slovenski standard je istoveten z: EN 1279-5:2018

ICS:

81.040.20	Steklo v gradbeništvu	Glass in building

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EUROPEAN STANDARD

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English Version

Glass in building - Insulating glass units - Part 5: Product standard

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This European Standard was approved by CEN on 9 March 2018.

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

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

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European foreword

This document (EN 1279-5:2018) has been prepared by 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of an identical text or by endorsement, at the latest by January 2019 and conflicting national standards shall be withdrawn at the latest by April 2020.

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 1279 5:2005+A2:2010.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association.

For relationship with EU Regulation(s), see informative Annex ZA, which is an integral part of this document.

The main changes in comparison with the previous edition include:

a) The standard has been revised to fulfil the requirements of the Regulation (EU) No 305/2011 (Construction Product Regulation), modified by Regulations (EU) No 157/2014, (EU) No 568/2014 and (EU) No 574/2014;

b) Requirements for insulating glass units for use in bonded glazing systems are given;

NOTE “bonded glazing” is sometimes called “structural sealant glazing”.

c) The solar factor, g, is listed within the spectrophotometric characteristics to be declared in the Declaration of Performances (DoP);

d) The durability/conformity assessment is listed within the characteristics to be declared in the DoP;

e) The mechanical resistance shall be given in the DoP by the characteristic bending strength of the glass components.

EN 1279, *Glass in Building - Insulating glass units*, consists of the following parts:

— *Part 1: Generalities, system description, rules for substitution, tolerances and visual quality;*

— *Part 2: Long term test method and requirements for moisture penetration;*

— *Part 3: Long term test method and requirements for gas leakage rate and for gas concentration tolerances;*

— *Part 4: Methods of test for the physical attributes of edge seal components and inserts;*

— *Part 5: Product standard;*

— *Part 6: Factory production control.*

This European Standard contains other aspects of importance for trade.

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, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

1 Scope

This document covers the product standard of insulating glass units (IGU) for use in buildings.

NOTE 1 Units for which the intended use is only artistic and therefore no essential characteristics are required are not subject to CE marking and are not part of this standard.

NOTE 2 For glass products with electrical wiring or connections for, e.g. alarm or heating purposes, other directives, e.g. Low Voltage Directive, may apply.

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.

EN 356, *Glass in building - Security glazing - Testing and classification of resistance against manual attack*

EN 410, *Glass in building - Determination of luminous and solar characteristics of glazing*

EN 673, *Glass in building - Determination of thermal transmittance (U value) - Calculation method*

EN 674, *Glass in building - Determination of thermal transmittance (U value) - Guarded hot plate method*

EN 675, *Glass in building - Determination of thermal transmittance (U value) - Heat flow meter method*

EN 1063, *Glass in building - Security glazing - Testing and classification of resistance against bullet attack*

EN 1279-1:2018, *Glass in building - Insulating glass units - Part 1: Generalities, system description, rules for substitution, tolerances and visual quality*

EN 1279-2:2018, *Glass in building - Insulating glass units - Part 2: Long term test method and requirements for moisture penetration*

EN 1279-3:2018, *Glass in building - Insulating glass units - Part 3: Long term test method and requirements for gas leakage rate and for gas concentration tolerances*

EN 1279-4:2018, *Glass in building - Insulating glass units - Part 4: Methods of test for the physical attributes of edge seal components and inserts*

EN 1279-6:2018, *Glass in building - Insulating glass units - Part 6 Factory production control and periodic tests*

EN 12600, *Glass in building - Pendulum test - Impact test method and classification for flat glass*

EN 12758, *Glass in building - Glazing and airborne sound insulation - Product descriptions and determination of properties*

EN 12898, *Glass in building - Determination of the emissivity*

EN 13022-1:2014, *Glass in building - Structural sealant glazing - Part 1: Glass products for structural sealant glazing systems for supported and unsupported monolithic and multiple glazing*

EN 13501-1, *Fire classification of construction products and building elements - Part 1: Classification using data from reaction to fire tests*

EN 13501-2, *Fire classification of construction products and building elements - Part 2: Classification using data from fire resistance tests, excluding ventilation services*

EN 13501-5, *Fire classification of construction products and building elements - Part 5: Classification using data from external fire exposure to roofs tests*

EN 13541, *Glass in building - Security glazing - Testing and classification of resistance against explosion pressure*

EN 14449:–[1)], *Glass in building - Laminated glass and laminated safety glass - Evaluation of conformity/Product standard*

EN 15434:2006+A1:2010, *Glass in building - Product standard for structural and/or ultra-violet resistant sealant (for use with structural sealant glazing and/or insulating glass units with exposed seals)*

EN 15998, *Glass in building - Safety in case of fire, fire resistance - Glass testing methodology for the purpose of classification*

EN 16612:–[2)], *Glass in building - Determination of the lateral load resistance of glass panes by calculation*

EN ISO 52022-3, *Energy performance of buildings - Thermal, solar and daylight properties of building components and elements - Part 3: Detailed calculation method of the solar and daylight characteristics for solar protection devices combined with glazing (ISO 52022-3)*

ISO 9385, *Glass and glass-ceramics - Knoop hardness test*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 16612:–[1)] and the following apply.

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

- IEC Electropedia: available at http://www.electropedia.org/
- ISO Online browsing platform: available at http://www.iso.org/obp

3.1
factory production control
FPC
documented, permanent and internal control of production in a factory, in accordance with this standard

Note 1 to entry: See also EN 1279-6:2018, Annex A.

3.2
product-type
set of representative performance levels or classes of a construction product, in relation to its essential characteristics, produced using a given combination of raw materials or other elements in a specific production process

1) Under preparation. Stage at the time of publication: prEN 14449:2017.

2) Under preparation. Stage at the time of publication: prEN 16612:2017.

3.3
essential characteristic
characteristic of the construction product which relates to the basic requirements for construction works

Note 1 to entry: Basic requirements for construction work are given in the Regulation (EU) No 305/2011, Annex I.

3.4
performance of a construction product
performance related to the relevant essential characteristics, expressed by level or class, or in a description

3.5
level
result of the assessment of the performance of a construction product in relation to its essential characteristics, expressed as a numerical value

3.6
class
range of levels, delimited by a minimum and a maximum value, of performance of a construction product

3.7
type testing
TT
determination of the performance of a product (characteristic, durability), on the basis of either actual tests or other procedures (such as conventional, standardised, tabulated or general accepted values, standardized or recognized calculation methods, test reports when made available), in accordance with this European Standard and that demonstrates compliance with this European Standard

3.8
test report
document that covers the results of tests undertaken on a representative sample of the product from production or on a prototype design of the product

3.9
product description
document that details the relevant parameters, e.g. process conditions, structure, etc., for defining a product that complies with the standard and that includes specific references to the system and to characteristics that are modified by the production process

3.10
product family
group of products determined by the manufacturer, which is made with similar components and processes and which is tested for FPC using the same test method, linked to the same system description

3.11
system
range of insulating glass units with a common edge seal profile, edge seal materials and edge seal components as described in the system description, the range having a similar edge seal performance, e.g. moisture penetration index, gas loss rate

3.12
system description
description of components and the edge seal of the insulating glass unit in terms relevant to identification, and in terms relevant to edge seal performance, e.g. moisture penetration index, gas loss rate, (see EN 1279-1:2018, Annex A)

3.13
significant change
variation in performance beyond the permitted tolerance for the characteristic and which is not covered by the substitution rules (see EN 1279-1:2018, Annex D)

3.14
same design
insulating glass unit that conforms to the 'system description' of the manufacturer that holds the TT report

4 Requirements

4.1 Product description

For conformity purposes the insulating glass unit manufacturer is responsible for the preparation and maintenance of the product description. This description shall describe the product and/or product family.

Disclosure of the product description shall be at the discretion of the insulating glass unit manufacturer or his agent except in the case of regulatory requirements.

The product description shall contain at least the following:

— a reference to EN 1279-1:2018, EN 1279-2:2018, EN 1279-3:2018 (when relevant), EN 1279-4:2018 and EN 1279-6:2018 and all other standards with which the manufacturer claims compliance;

— the system description, see EN 1279-1:2018, Annex A.

The definition of product families shall be consistent with the product description.

The substitution of materials and/or components shall maintain the conformity with the product description. The substituting materials and/or components can be added to the product family and also the product description when compliance has been demonstrated (see EN 1279-1:2018, Annex D).

A list of coatings allowed to be sealed in direct contact with certain sealant(s) shall be established by and obtained from the coated glass manufacturer. Further coatings may be added to this list when evaluated in accordance with EN 1279-4:2018, Annex B.

4.2 Determination of the characteristic's performances

4.2.1 Characteristics of glass panes for use in insulating glass units

4.2.1.1 General

The characteristics of insulating glass unit, listed in Table 1, are in general expressed by those of the glass components that can be found in the appropriate product standard (see 4.2.1.2). Since they are not changed significantly by the assembly process, they shall be used for the insulating glass unit.

For panes made of glass covered by European specifications, generally accepted values, declared values, or calculated values of the characteristics listed in Table 1 shall be used.

If glass panes are used which are not covered by harmonized European Specifications (as defined in regulation EU 305/2011), it shall be demonstrated that those glasses have a chemical composition and a mechanical stability over time equivalent to the requirements of the relevant standard listed.

Table 1 — Necessary information on characteristics of glass panes for use in insulating glass units

Characteristic	Symbol	Unit
Density	ρ	kg/m³
Hardness (Knoop hardness in accordance with ISO 9385)	$HK\,0{,}1/20$	Dimensionless
Young's modulus	E	GPa
Poisson's ratio	μ	Dimensionless
Characteristic bending strength	$f_{g,k}$	MPa
Resistance against sudden temperature changes and temperature differentials	-	K
Specific heat capacity	c	J/(kg·K)
Coefficient of linear expansion	α_l	K⁻¹
Thermal conductivity	λ	W/(m·K)
Mean refractive index to visible radiation	n	Dimensionless

4.2.1.2 Glass panes used as components for the production of insulating glass units

The glass components used for the production of insulating glass units shall be selected according to EN 1279-1:2018, 5.2.

4.2.2 Determination of characteristics of insulating glass units

4.2.2.1 General

If the insulating glass manufacturer wishes to claim that any performance characteristic is independent of the production equipment used then the factory production control system shall be in accordance with EN 1279-6:2018 and with this standard, including his specific process control conditions.

In the case of variable radiation properties (e.g. electrochromic glass, integrated blinds or screens, etc), maximum and minimum values shall be given.

4.2.2.2 Safety in the case of fire - Resistance to fire

Fire resistance shall be determined and classified in accordance with EN 13501-2.

The testing methodology specified in EN 15998 shall be used for glass products that are claiming fire resistance.

4.2.2.3 Safety in the case of fire - Reaction to fire

Reaction to fire shall be determined and classified in accordance with EN 13501-1.

For classification, consideration shall be given to:

a) The following product changes require new type testing on reaction to fire:

   1) reduction of the reaction to fire classification of the glass components in the insulating glass unit;

2) reduction of the reaction to fire performance of the organic sealant in the edge seal.

The reaction to fire performance shall be evaluated by the measurement of the PCS, see EN ISO 1716 [1].

b) However, when not tested, the insulating glass unit shall be classified either by:

1) the reaction to fire classification of the glass component used in the insulating glass unit, or

2) the classification of an insulating glass unit using the same organic sealant in the edge seal.

The classification claimed shall be the lower of the two possibilities.

4.2.2.4 Safety in the case of fire - External fire performance (for roof coverings only)

Where the manufacturer wishes to declare external fire performance (e.g. when subject to regulatory requirements), the product shall be tested and classified in accordance with EN 13501-5.

For classification, consideration shall be given to:

a) The following product changes require new type testing on external fire performance:

— reduction of external fire performance of the glass component in the insulating glass unit.

b) However when not tested, the insulating glass unit shall be classified:

— by the external fire performance of the glass components used in the insulating glass unit.

The classification claimed shall be that of the glass component with least performance.

NOTE A test performed with clear float glass is regarded representative for tinted, patterned, coated, surface treated and thermally treated substrates.

4.2.2.5 Safety in use - Bullet resistance: shatter properties and resistance to attack

Bullet resistance shall be determined and classified in accordance with EN 1063.

a) In those instances when the bullet resistance property of the insulating glass unit is ensured by one component only, there is no need for testing provided that the conditions 1 and 2, or 1 and 3 are fulfilled:

1) The bullet resistant component is correctly oriented, and

2) When the bullet resistant component is classified “NS”, the additional glass component(s) are placed in front of the bullet resistant component, on the attack side, or

3) When the bullet resistant component is classified “S”, the additional glass component(s) may be placed either on the attack side or on the protected side.

NOTE 1 In that situation, the width of the gas space(s) and the nature of the gas have no influence on the result.

The classification of the insulating glass unit shall be the same as for the glass component used.

If the identification of the product is clear enough to avoid confusion, the performance of each component can be declared, in the order given by the composition.

NOTE 2 It is common practice to give the composition starting from the outer IGU component.