



SLOVENSKI STANDARD

SIST EN 572-1:2012

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Nadomešča:
SIST EN 572-1:2004

Steklo v gradbeništvu - Osnovni izdelki iz natrij-kalcijevega silikatnega stekla - 1. del: Definicije in splošne fizikalne in mehanske lastnosti

Glass in building - Basic soda lime silicate glass products - Part 1: Definitions and general physical and mechanical properties

Glas im Bauwesen - Basiserzeugnisse aus Kalk-Natronsilicatglas - Teil 1: Definitionen und allgemeine physikalische und mechanische Eigenschaften

Verre dans la construction - Produits de base: Verre de silicate sodo-calcique - Partie 1: Définitions et propriétés physiques et mécaniques générales

Ta slovenski standard je istoveten z: EN 572-1:2012

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 572-1

July 2012

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Supersedes EN 572-1:2004

English Version

Glass in building - Basic soda lime silicate glass products - Part 1: Definitions and general physical and mechanical properties

Verre dans la construction - Produits de base: verre de silicate sodocalcique - Partie 1: Définitions et propriétés physiques et mécaniques générales

Glas im Bauwesen - Basiserzeugnisse aus Kalk-Natronsilicatglas - Teil 1: Definitionen und allgemeine physikalische und mechanische Eigenschaften

This European Standard was approved by CEN on 11 May 2012.

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

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Foreword

This document (EN 572-1:2012) 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 2013, and conflicting national standards shall be withdrawn at the latest by January 2013.

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.

This document supersedes EN 572-1:2004.

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

This edition is a revision of EN 572-1:2004. The main changes in this edition are:

- a) a better explanation of the characteristic bending strength of glass;
- b) an extension of the minimum light transmittance value for translucent glass up to 19 mm;
- c) the bibliography has been complemented.

This European Standard “*Glass in building — Basic soda lime silicate glass products*” consists of the following parts:

- Part 1: Definitions and general physical and mechanical properties;
- Part 2: Float glass;
- Part 3: Polished wired glass;
- Part 4: Drawn sheet glass;
- Part 5: Patterned glass;
- Part 6: Wired patterned glass;
- Part 7: Wired or unwired channel shaped glass;
- Part 8: Supplied and final cut sizes;
- Part 9: Evaluation of conformity/Product standard.

According to the CEN/CENELEC Internal Regulations, the national standards organisations 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, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

EN 572-1:2012 (E)**1 Scope**

This Part of this European Standard specifies and classifies basic glass products and indicates their chemical composition, their main physical and mechanical characteristics and defines their general quality criteria.

Specific dimensions and dimensional tolerances, description of faults, quality limits and designation for each basic product type are not included in this Part, but are given in other Parts of EN 572 specific to each product type:

- EN 572-2 Float glass
- EN 572-3 Polished wired glass
- EN 572-4 Drawn sheet glass
- EN 572-5 Patterned glass
- EN 572-6 Wired patterned glass
- EN 572-7 Wired or unwired channel shaped glass
- EN 572-8 Supplied and final cut sizes
- EN 572-9 Evaluation of conformity/Product standard

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2 Normative references

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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.

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

EN 572-2, *Glass in building — Basic soda lime silicate glass products — Part 2: Float glass*

EN 572-3, *Glass in building — Basic soda lime silicate glass products — Part 3: Polished wired glass*

EN 572-4, *Glass in building — Basic soda lime silicate glass products — Part 4: Drawn sheet glass*

EN 572-5, *Glass in building — Basic soda lime silicate glass products — Part 5: Patterned glass*

EN 572-6, *Glass in building — Basic soda lime silicate glass products — Part 6: Wired patterned glass*

EN 572-7, *Glass in building — Basic soda lime silicate glass products — Part 7: Wired or unwired channel shaped glass*

EN 572-8, *Glass in building — Basic soda lime silicate glass products — Part 8: Supplied and final cut sizes*

EN 572-9, *Glass in building — Basic soda lime silicate glass products — Part 9: Evaluation of conformity/Product standard*

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

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1

float

flat, transparent, clear or tinted soda-lime silicate glass having parallel and polished faces obtained by continuous casting and floatation on a metal bath

Note 1 to entry: In French called 'glace' and in German 'Floatglas'.

3.2

drawn sheet glass

flat, transparent, clear or tinted soda-lime silicate glass obtained by continuous drawing, initially vertically, of a regular thickness and with the two surfaces fire polished

Note 1 to entry: Drawn sheet glass covers three products: new antique drawn sheet glass, drawn sheet glass for renovation and drawn sheet glass with minimum visual faults.

3.3

patterned glass

flat, translucent, clear or tinted soda-lime silicate glass obtained by continuous casting and rolling

3.4

wired patterned glass

flat, translucent, clear or tinted soda-lime silicate glass obtained by continuous casting and rolling which has a steel mesh welded at all intersections incorporated in the glass during its manufacturing process

Note 1 to entry: The surfaces can be either patterned or plain.

Note 2 to entry: In German, wired patterned glass with plain surfaces is called 'Drahtglas'.

3.5

polished wired glass

flat, transparent, clear soda-lime silicate glass having parallel and polished faces obtained by grinding and polishing the faces of wired patterned glass

3.6

wired or unwired channel-shaped glass

translucent, clear or tinted soda-lime silicate glass, wired or unwired, obtained by continuous casting and rolling, which is formed into a U shape during the manufacturing process

4 General principles

EN 572-1 shall be read in conjunction with Parts 2 to 9 of this European Standard.

5 Chemical composition

5.1 General

The basic glass products covered by this European Standard are all manufactured from soda-lime silicate glass.

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The magnitude of the proportions by mass of the principal constituents of soda-lime silicate glass covered by this European Standard is as follows:

Silicon dioxide (SiO ₂)	69 % to 74 %
Calcium oxide (CaO)	5 % to 14 %
Sodium oxide (Na ₂ O)	10 % to 16 %
Magnesium oxide (MgO)	0 % to 6 %
Aluminium oxide (Al ₂ O ₃)	0 % to 3 %
Others	0 % to 5 %

In addition to the above general composition, these glasses may also contain small quantities of other substances.

5.2 Tint

Body tinted glass is obtained by the addition of suitable materials.

6 Physical and mechanical characteristics

6.1 General characteristics

Conventional numerical values for the physical and mechanical characteristics of basic soda lime silicate glass products excluding 'Characteristic bending strength' ($f_{g,kk}$) are given in Table 1. These values, for normal annealed glass without any further toughening, are not precise requirements with which the glass shall strictly comply, but are the generally accepted figures for use in calculations where a high degree of accuracy is not required.

Table 1 — General characteristic values of basic soda lime silicate glass

Characteristic	Symbol	Value and unit
Density (at 18 °C)	ρ	2 500 kg/m ³
Hardness (Knoop)	HK _{0,1/20}	6 GPa ^a
Young's modulus (modulus of elasticity)	E	7 × 10 ¹⁰ Pa
Poisson's ratio	μ	0,2
Specific heat capacity	c_p	0,72 × 10 ³ J/(kg · K)
Nominal value of average coefficient of linear expansion between 20 °C and 300 °C	α	9 × 10 ⁻⁶ /K
Resistance against temperature differential and sudden temperature change		40 K ^b
Thermal conductivity	λ	1 W/(m · K)
Mean refractive index to visible radiation (at 589,3 nm)	n	1,5
Emissivity (corrected)	ε	0,837
^a Knoop Hardness in accordance with ISO 9385. ^b Generally accepted value that is influenced by edge quality and glass type.		

6.2 Characteristic bending strength ($f_{g,kk}$)

The characteristic bending strength value applies to quasi-static loading over a short time (e.g. wind loading) and relate to a 5 % probability of breakage at the lower limit of the 95 % confidence interval.

The value of the characteristic bending strength, $f_{g,kk}$, for soda lime silicate glass is 45 N/mm².

NOTE Methods for the determination of the bending strength of glass are given in EN 1288 Parts 1 to 5 (see [1]). Design of glass panes is covered by prEN 13474 (see [6]).

6.3 Designation of clear glass

6.3.1 General

A glass product is designated as clear glass when it is not tinted and when the light transmittance of the glass material, unmodified by the possible presence of a coating or surface roughness of, for example, a patterned glass, complies with 6.3.3.

In order to measure the light transmittance characteristics of glass and to determine whether it can be designated as a clear glass, it is necessary, in some cases, to carry out a pre-treatment such as the following.

- Coatings on smooth surfaces shall be eliminated, without modifying the thickness of the glass substrate.
- Rough surfaces, with or without coatings, shall be eliminated by smoothing and polishing. The thickness of the glass will be modified by this process.

The light transmittance of the glass substrate shall be measured with its surfaces in a polished condition.

NOTE The light transmittance values given in 6.3.2 and 6.3.3 are not suitable for design. They are values used only for the designation of clear glass and exclude the effects of coatings and of surface roughness. The values of light transmittance used for design can be obtained from the glass manufacturer. They are determined in accordance with EN 410.

6.3.2 Clear transparent glass

A transparent glass product shall be designated as clear glass when it is not tinted and when its light transmittance

- after any necessary pre-treatment,
- measured according to EN 410, and
- rounded to the nearest 0,01,

is greater than or equal to the value given in Table 2 for the nominal thickness of the glass product.

NOTE The limiting value given in Table 2 is appropriate, provided that the measured thickness of the glass product is within the allowable tolerances for the nominal thickness of that glass product.