SLOVENSKI STANDARD

SIST EN 572-1:2004

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Steklo v stavbah - Osnovni proizvodi 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 572-1:2004

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EUROPEAN STANDARD

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English version

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This European Standard was approved by CEN on 1 April 2004.

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Contents

Foreword

This document (EN 572-1:2004) has been prepared by Technical Committee CEN/TC 129 "Glass in building", the secretariat of which is held by IBN.

This document supersedes EN 572-1:1994.

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of an identical text or by endorsement, at the latest by December 2004, and conflicting national standards shall be withdrawn at the latest by December 2004.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

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

1 Scope

This Part of this European Standard specifies and classifies basic glass products, 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 this standard 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

2 Normative references

The following referenced documents are indispensable for the application 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 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*

prEN 13474, *Glass in building — Design of glass panes*

3 Terms and definitions

For the purposes of this European Standard, 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 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 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. The surfaces may be either patterned or plain

NOTE 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 standard are all manufactured from soda-lime silicate glass.

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

Silicon dioxide (SiO_2)	69 % to 74 %
Calcium oxide (CaO)	5 % to 14 %
Sodium oxide (Na_2O)	10 % to 16 %
Magnesium oxide (MgO)	0 % to 6 %
Aluminium oxide (Al_2O_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 glass products 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

Characteristic	Symbol	Numerical value and unit
Density (at 18 °C)	ρ	2 500 kg/m^3
Hardness (Knoop)	$HK_{0,1/20}$	6Gpa
Young's modulus (modulus of elasticity)	E	7×10^{10} Pa
Poisson's ratio	μ	0,2
Characteristic bending strength	$f_{g,k}$	45 x 10^6 Pa [a]
Specific heat capacity	C	$0{,}72 \times 10^3$ J/(kg·K)
Average coefficient of linear expansion between 20 °C and 300 °C	α	9×10^{-6} K^{-1}
Resistance against temperature differential and sudden temperature change		40 K [b]
Thermal conductivity	λ	1 W/(m·K)
Mean refractive index to visible radiation (380 nm to 780 nm)	N	1,5
Emissivity (corrected)	ϵ	0,837

[a] The characteristic bending strength shall be used in conjunction with the design method given in prEN 13474.

[b] Generally accepted value that is influenced by edge quality and glass type.

6.2 Designation of clear glass

6.2.1 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 5.2.2 and 5.2.3.

In order to measure the light transmittance characteristics of glass, to determine whether it can be designated as a clear glass, it is necessary, in some cases, to carry out a pretreatment:

— coatings on smooth surfaces have to be eliminated, without modifying the thickness of the glass substrate;

— rough surfaces, with or without coatings, have to 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 5.2.2 and 5.2.3 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.

6.2.2 Clear transparent glass

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

— after any necessary pretreatment;

— measured according to EN 410; and