



SLOVENSKI STANDARD

SIST EN 572-1:1999

01-november-1999

**Steklo v stavbah - Osnovni proizvodi iz natrijevo-kalcijevo-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-Natronglas - 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

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ICS:

81.040.20 Steklo v gradbeništvu Glass in building

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EUROPEAN STANDARD

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NORME EUROPÉENNE

EUROPÄISCHE NORM

November 1994

ICS 81.040.20

Descriptors: Construction, glass, glassware, plate glass, wired glass, window glass, translucent glasses, definitions, chemical composition, physical properties, mechanical properties, quality, appearance

English version

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

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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-Natronglas - Teil 1: Definitionen und
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Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

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CEN

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

Central Secretariat: rue de Stassart, 36 B-1050 Brussels

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Foreword

This European Standard has been prepared by the Technical Committee CEN/TC 129 "Glass in Building", the secretariat of which is held by IBN.

CEN/TC 129/WG1 "Basic glass products" prepared a working draft based on the document ISO/TC 160 N56 "Glass in buildings - Basic Product - Part 1 : Classification and general physical and mechanical properties".

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 May 1995, and conflicting national standards shall be withdrawn at the latest by May 1995.

According to the CEN/CENELEC Internal Regulations, the following countries are bound to implement this European Standard: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, United Kingdom.

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1 Scope

This European Standard defines 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.

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. The normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

prEN 410: Glass in Building - Determination of light transmittance, solar direct transmittance, total solar energy transmittance and ultraviolet transmittance, and related glazing characteristics (October 1990).

3 Definitions

For the purpose of this European Standard, the following definitions apply:-

3.1 Float glass

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.

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.

iTeh STANDARD PREVIEW**4 Chemical composition (standards.iteh.ai)**

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	12%
Sodium oxide (Na ₂ O)	12%	to	16%
Magnesium oxide (MgO)	0%	to	6%
Aluminium oxide (Al ₂ O ₃)	0%	to	3%

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

4.1 Tint

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

5 Physical and mechanical characteristics

5.1 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	Sym bol	Numerical value and unit
- Density (at 18°C)	ρ	2500 kg/m ³
- Hardness		6 units (Mohs's scale)
- Young's modulus (modulus of elasticity)	E	7×10^{10} Pa
- Poisson's ratio	μ	0,2
- 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
- Thermal conductivity	λ	1 W/(m.K)
- Mean refractive index to visible radiation (380 to 780 nm)	n	1,5

5.2 Designation of clear glass

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 5.2.1 and 5.2.2.

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 5.2.1 and 5.2.2 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 could be obtained from the glass manufacturer. They are determined in accordance with EN 410.

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5.2.1 Clear transparent glass (standards.iteh.ai)

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
- 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.