SLOVENSKI STANDARD
SIST EN 12337-2:2005

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Steklo v stavbah - Kemiļ no utrjeno natrij-kalcijevo silikatno steklo - 2. del: Ovrednotenje skladnosti/standard za izdelek

Glass in building - Chemically strengthened soda lime silicate glass - Part 2: Evaluation of conformity/Product standard

Glas im Bauwesen - Chemisch vorgespanntes Kalknatronglas - Teil 2: Konformitätsbewertung/Produktnorm

Verre dans la construction - Verre de silicate sodo-calcique trempé chimiquement - Partie 2: Evaluation de la conformité

Ta slovenski standard je istoveten z: **EN 12337-2:2004**

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81.040.20	Steklo v gradbeništvu	Glass in building

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EUROPEAN STANDARD

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This European Standard was approved by CEN on 27 May 2004.

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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 Central Secretariat has the same status as the official versions.

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Foreword

This document (EN 12337-2:2004) has been prepared by Technical Committee CEN/TC TC 129 “Glass in building”, the secretariat of which is held by IBN.

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of an identical text or by endorsement, at the latest by April 2005, and conflicting national standards shall be withdrawn at the latest by July 2006.

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).

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

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.

No existing document is superseded

This part of the document does not stand-alone; it is a part of one document:

— EN 12337-1: *Glass in building – Chemically strengthened soda lime silicate glass – Part 1: Definition and description*

— EN 12337-2: *Glass in building - Chemically strengthened soda lime silicate glass – Part 2: Evaluation of conformity/Product standard*

This document contains other aspects of importance of trade.

1 Scope

This document covers the evaluation of conformity and the factory production control of flat chemically strengthened soda lime silicate glass for use in buildings.

Note: 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 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 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 572 – 1, *Glass in building - Basic soda lime silicate glass products – Part 1: Definition and general physical and mechanical properties*

EN 572 – 2, *Glass in building - Basic soda lime silicate glass products – Part 2: -Float 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 673, *Glass in building – Determination of thermal transmittance (U value) – Calculation method*

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

EN 12337-1:2000, *Glass in building – Chemically strengthened soda lime silicate glass – Part 1: Definition and description*

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*

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

EN 13501-1, *Fire classification of construction products and building elements – Part 1: Classification using test 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*

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

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

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 12337-1:2000 and the following apply.

3.1
initial type testing
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, standardised or recognised calculation methods, test reports when made available, …), in accordance with this document that demonstrates compliance with this document

3.2
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

3.3
product description
document that details the relevant parameters, e.g. process conditions, structure, etc., for defining a product that complies with the standard. It includes specific reference(s) to characteristics that are modified by the production process

3.4
significant change
variation in performance beyond the permitted tolerance for the characteristic

4 Requirements

4.1 Product description

For conformity purposes the chemically strengthened glass manufacturer is responsible for the preparation and maintenance of the product description. This description shall describe the product and/or product families.

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

The description shall contain at least a normative part. The description may also contain an informative part, when the manufacturer foresees further development of the product.

The normative part of the description shall contain the following minimum information:

- a reference to EN 12337 parts 1 and 2 and all other standards with which the manufacturer claims compliance.

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

The substitution of materials shall maintain the conformity with the product description. The substituting material can be added to the product family and also the product description when compliance has been demonstrated .

4.2 Conformity with the definition of chemically strengthened soda lime silicate glass

Products shall conform to the definition and fulfill the requirements of chemically strengthened soda lime silicate glass as defined in EN 12337-1

4.3 Determination of the characteristic's performances

4.3.1 Characteristics of chemically strengthened soda lime silicate safety glass

4.3.1.1 General

The characteristics of chemically strengthened soda lime silicate safety glass are in general those of the glass substrate (see 4.3.1.2).

4.3.1.2 Characteristics of the soda lime silicate glass panes used for the production of chemically strengthened soda lime silicate glass

Panes shall be made of soda lime silicate glass according to EN 572-1, EN 572-2, EN 572-4, EN 572-5.

For the characteristics listed in Table 1, for the soda lime silicate glass panes, generally accepted values or calculated values may be used.

Since the majority of the characteristics of Table 1 are not changed significantly by the chemical strengthening process they shall be used for chemically strengthened soda lime silicate glass. The exceptions being the characteristic bending strength ($f_{g,k)}$ and the resistance against sudden temperature changes and temperature differentials.

Table 1: Information on the characteristics of soda lime silicate glass panes, according to EN 572-1, used for the production of chemically strengthened soda lime silicate glass

Characteristic	Symbol	Unit
- density	ρ	kg/m³
- hardness	$HK_{0,1/20}$	GPa
- Young's modulus	E	Pa
- Poisson's ratio	μ	Dimensionless
- Characteristic bending strength	$f_{g,k}$	Pa
- Resistance against sudden temperature changes and temperature differentials		K
- Specific heat capacity	c	J/(kg.K)
- Coefficient of linear expansion	α	K^{-1}
- Thermal conductivity (for *U*-value)	λ	W/(m.K)
- Mean refractive index to visible radiation	n	Dimensionless
- Emissivity	ε	Dimensionless
- Light transmittance	τ_v	Dimensionless
- Solar direct transmittance	τ_e	Dimensionless
- Total energy transmittance	g	Dimensionless

4.3.2 Determination of characteristics of chemically strengthened soda lime silicate glass products

If the chemically strengthened 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 this document including his specific process control conditions

4.3.2.1 Safety in the case of fire - Resistance to fire

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

Note: EN 357 may be used as a classification reference specific to fire resistant glazed elements.

4.3.2.2 Safety in the case of fire - Reaction to fire

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

Chemically strengthened soda lime silicate glass products are products/materials that do not require to be tested for reaction to fire (e.g. Products/materials of Classes A1* according to Commission Decision 96/603/EC, as amended 2000/605/EC)

4.3.2.3 Safety in the case of fire - External fire behaviour

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 prEN 13501-5.

Note: Compliance with this requirement is not possible until a version of prEN 13501-5 later than 2002 becomes available.

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

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

4.3.2.5 Safety in use - Explosion resistance: impact behaviour and resistance to impact

Explosion resistance shall be determined and classified in accordance with EN 13541.

4.3.2.6 Safety in use - Burglar resistance: shatter properties and resistance to attack

Burglar resistance shall be determined and classified in accordance with EN 356.

4.3.2.7 Safety in use - Pendulum body impact resistance: shatter properties (safe breakablity) and resistance to impact

Pendulum body impact resistance shall be determined and classified in accordance with EN 12600.

4.3.2.8 Safety in use - Mechanical resistance: Resistance against sudden temperature changes and temperature differentials

The resistance against sudden temperature changes and temperature differentials is a generally accepted value that is given in EN 12337-1 and shall be ensured by compliance with this document.

4.3.2.9 Safety in use - Mechanical resistance: Resistance against wind, snow, permanent load and/or imposed loads of the glass unit

The mechanical resistance of chemically strengthened soda lime silicate glass is a characteristic value that is given in EN 12337-1 and shall be ensured by compliance with this document.

As long as on the concerned construction or building site no part of prEN 13474 is applicable then the current method of determining mechanical resistance in the country of destination shall be applied.

The manufactured or supplied thickness of chemically strengthened soda lime silicate glass shall conform to the ordered thickness.

4.3.2.10 Protection against noise - Direct airborne sound reduction

The sound reduction indexes shall be determined in accordance with EN 12758. However, the information supplied with the incoming glass may be used as the chemical strengthening process does not alter the values.

4.3.2.11 Energy conservation and heat retention - Thermal properties

The thermal transmittance value (*U*-value) shall be determined by calculation in accordance with EN 673 with:

— emissivity ε: the declared value of the glass manufacturer. If the information is not available, the emissivity shall be determined in accordance with EN 12898.

— nominal thickness of the glass panes

Subject to 5.2.1 the information supplied about the thermal properties of the incoming glass may be used if the chemical strengthening process does not alter the values.

4.3.2.12 Energy conservation and heat retention - Radiation properties: Light transmittance and reflectance

The light transmittance and reflectance shall be determined in accordance with EN 410. Subject to 5.2.1 the information supplied about the radiation properties of the incoming glass may be used if the chemical strengthening process does not alter the values.

4.3.2.13 Energy conservation and heat retention - Radiation properties: Solar energy characteristics

The solar energy transmittance and reflectance shall be determined in accordance with EN 410. Subject to 5.2.1 the information supplied about the radiation properties of the incoming glass may be used if the chemical strengthening process does not alter the values.

4.4 Durability

When products conform to the definition of chemically strengthened soda lime silicate glass as 4.2 then the characteristics' performances in 4.3.2 are ensured during an economically reasonable working life.

The durability of glass products, including their characteristics, shall be ensured by the following:

— Compliance with this document

— Compliance with instructions from the glass product manufacturer or supplier

The manufacturer shall supply specific installation instructions or make reference to appropriate

Note : The durability of glass products depends on:

— building and construction movements due to various actions;

— building and construction vibrations due to various actions;

— deflection and racking of the glass support due to various actions;

— glass support design (e.g. drainage of infiltrated water in the rebate, prevention of direct contact between glass support members and glass);

— accuracy of glass support and glass support member dimensions;

— quality of the assembling of glass support members up to a glass support;

— quality of installation of the glass support into or onto the buildings or constructions;

— glass support expansion due to adsorbed moisture from the air or other sources;

— the quality of installation of the glass product into or onto its support.