
Zaslони za prhanje - Funkcionalne zahteve in preskusne metode

Shower enclosures - Functional requirements and test methods

Duschabtrennungen - Funktionsanforderungen und Prüfverfahren

Parois de douche - Prescriptions fonctionnelles et méthodes d'essai

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English Version

Shower enclosures - Functional requirements and test methods

Parois de douche - Prescriptions fonctionnelles et
méthodes d'essai

Duschabtrennungen - Funktionsanforderungen und
Prüfverfahren

This European Standard was approved by CEN on 2 September 2004 and includes Amendment 1 approved by CEN on 24 November 2007.

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

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Contents

	page
Foreword.....	4
1 Scope	5
2 Normative references	5
3 Terms and definitions	5
4 Requirements	5
4.1 General.....	5
4.2 Cleanability.....	6
4.3 Impact resistance/shatter properties.....	6
4.3.1 General.....	6
4.3.2 Thermally toughened safety glass.....	6
4.3.3 Plastics materials.....	6
4.4 Durability	6
4.4.1 General.....	6
4.4.2 Corrosion resistance.....	6
4.4.3 Resistance to chemicals and stains.....	6
4.4.4 Resistance to wet and dry cycling.....	6
4.4.5 Endurance	7
4.4.6 Stability	7
4.4.7 Water retention.....	7
4.5 Dangerous substances	7
5 Test methods.....	7
5.1 Impact resistance/shatter properties.....	7
5.1.1 General.....	7
5.1.2 Test specimens	7
5.1.3 Procedure	7
5.1.4 Assessment of fragmentation	8
5.2 Impact behaviour of plastic sheets.....	12
5.2.1 Apparatus	12
5.2.2 Procedure	12
5.3 Resistance to chemicals and stains	20
5.3.1 Reagents.....	20
5.3.2 Apparatus	21
5.3.3 Test specimens	23
5.3.4 Procedure	23
5.3.5 Expression of results	23
5.4 Resistance to wet and dry cycling.....	23
5.4.1 Test specimens	23
5.4.2 Procedure	23
5.4.3 Results	24
5.5 Endurance	24
5.6 Stability	24
5.7 Water retention.....	26
6 Ⓐ Marking, labelling and packaging.....	29
7 Evaluation of conformity.....	29
7.1 General.....	29
7.2 Initial type testing	30
7.2.1 General.....	30
7.2.2 Samples, testing and compliance criteria.....	30

7.3	Factory production control.....	30
7.3.1	General.....	30
7.3.2	Test equipment	30
7.3.3	Raw materials and components.....	31
7.3.4	Product testing and assessment	31
7.3.5	Non-conforming products	31
Annex ZA (informative)	Relationship between this European Standard and the essential Requirements of EU Directive 89/106/EEC, EU Construction Products Directive	32
ZA.1	Scope and relevant characteristics	32
ZA.2	Procedure for attestation of conformity of shower enclosures	33
ZA.2.1	System of attestation of conformity	33
ZA.2.2	Declaration of conformity	33
ZA.3	CE marking.....	34
A1	Bibliography	36

iTeh STANDARD PREVIEW (standards.iteh.ai)

SIST EN 14428:2005+A1:2008

<https://standards.iteh.ai/catalog/standards/sist/aac76c98-3fa5-4202-a8dd-2f775e98e5eb/sist-en-14428-2005a1-2008>

Foreword

This document (EN 14428:2004+A1:2008) has been prepared by Technical Committee CEN/TC 163 “Sanitary appliances”, the secretariat of which is held by UNI.

This document shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by July 2008 and conflicting national standards shall be withdrawn at the latest by October 2009.

This document includes Amendment 1 approved by CEN on 2007-11-24.

This document supersedes EN 14428:2004.

The start and finish of text introduced or altered by amendment is indicated in the text by tags **A1** **A1**.

This document is one of a series of harmonized standards for sanitary appliances which has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports Essential Characteristics 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, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

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1 Scope

This document specifies requirements for shower enclosures for domestic purposes which ensure that the product, when installed in accordance with the manufacturer's installation instructions, gives satisfactory performance when used as intended.

This document does not apply to shower cabinets or curtains and does not specify aesthetic and dimensional requirements.

NOTE For the purposes of this document the term "domestic purposes" includes use in hotels, accommodation for students, hospitals and similar buildings, except when special medical provisions are required.

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 12150-1:2000, *Glass in building — Thermally toughened soda lime silicate safety glass — Part 1: Definition and description*

EN ISO 2409, *Paints and varnishes - Cross-cut test (ISO 2409:2007)* ^(A1)

ISO 7599, *Anodizing of aluminium and its alloys — General specifications for anodic oxide coatings on aluminium*

ISO 7892:1988, *Vertical building elements — Impact resistance tests — Impact bodies and general test procedures*

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3 Terms and definitions

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

3.1

shower enclosure

arrangement of panel(s) and/or door(s) erected on or around a drained shower place, shower tray or bath in conjunction with one or more walls of the main building structure to provide a water retaining area for the purpose of showering

3.2

shower cabinet

prefabricated but not necessarily preassembled unit for the purpose of showering comprising a shower tray or bath and rigid water resistant enclosing wall(s), with or without a roof and with an entry capable of being closed to provide a fully enclosed compartment

4 Requirements

4.1 General

The manufacturer shall provide with each shower enclosure detailed instructions on installation and use, to include at least the following information:

- description of installation with special consideration of building construction and necessary tools and sealant;
- instructions for appropriate maintenance and care.

4.2 Cleanability

When tested visually, the surfaces of the components of the shower enclosures which are accessible during use and cleaning shall be free from sharp corners, edges and burrs.

When using recommended cleaning agents in accordance with the manufacturer's installation and care instructions, there shall be no reduction in safety or function of the shower enclosure.

4.3 Impact resistance/shatter properties

4.3.1 General

Shower enclosures may be glazed with various materials. Where glass is used, this shall meet the requirements of 4.3.2, and where plastics materials are used, they shall meet the requirements of 4.3.3.

4.3.2 Thermally toughened safety glass

Thermally toughened safety glass shall meet the requirements of EN 12150-1:2000, except in respect of Clause 8 which is replaced by 5.1 of this document.

When tested in accordance with 5.1, the minimum particle count shall be 40.

4.3.3 Plastics materials

When tested in accordance with 5.2, sheets shall not break or they shall break safely.

4.4 Durability

4.4.1 General

Products conforming with the requirements of 4.2 and 4.3 and the following are deemed to be durable.

4.4.2 Corrosion resistance

All components shall consist of corrosion-proof materials or shall be corrosion-protected.

All corrosion protection shall conform with the relevant requirements specified in European and International Standards. For example:

- the minimum paint adhesion performance for powder-coated or wet-painted surfaces shall comply with a cross-cut value ≤ 2 when tested in accordance with EN ISO 2409;
- the minimum average thickness of coating on aluminium shall be of grade AA 8 when tested in accordance with one of the methods given in ISO 7599. In no cases shall the minimum local thickness be less than 80 % of the minimum average thickness.

4.4.3 Resistance to chemicals and stains

When tested in accordance with 5.3 the glazing materials shall not show permanent staining or deterioration.

4.4.4 Resistance to wet and dry cycling

When tested in accordance with 5.4, the glazing materials shall not show any cracks, crazing or discoloration.

4.4.5 Endurance

When tested in accordance with 5.5, shower enclosures shall not show any functional deterioration after 20 000 closing-opening cycles.

4.4.6 Stability

When tested in accordance with 5.6, shower enclosures shall withstand an energy representing the impact of a human body on a large impact area (e.g. blow from shoulder, fall) without any functional deterioration which could result in injury to the user.

4.4.7 Water retention

When tested in accordance with 5.7, shower enclosures shall retain water. A few small drops of water on the outside of the water retaining area are acceptable.

4.5 Dangerous substances

NOTE See ZA.1 and ZA.3.

5 Test methods

5.1 Impact resistance/shatter properties

5.1.1 General

The fragmentation test determines whether the glass breaks in a safe manner for a thermally toughened soda lime silicate safety glass.

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5.1.2 Test specimens

5.1.2.1 Flat glass

The test specimen shall have an area of $(1,7 \pm 0,17) \text{ m}^2$ with a minimum length to width ration of 2:1 without holes, notches or cut-outs.

5.1.2.2 Curved glass

The test specimen shall be as designed for the product.

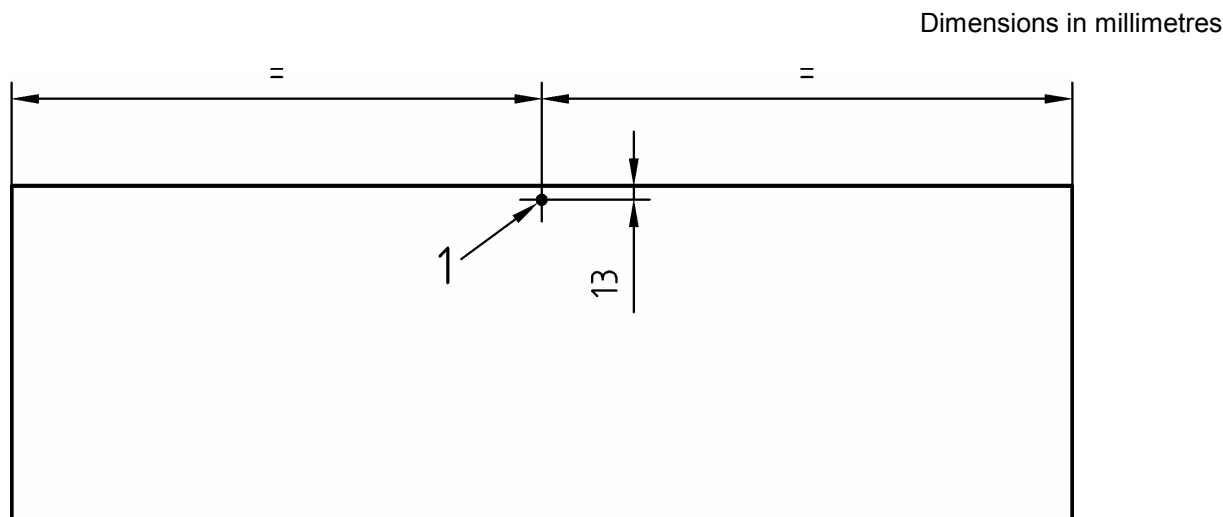
5.1.3 Procedure

The test specimen shall be impacted, using a pointed steel tool, at a position 13 mm from the longest edge of the specimen at the mid-point of that edge, until breakage occurs (see Figure 1).

NOTE The fragmentation characteristics of glass are unaffected by temperatures between - 50 °C and + 100 °C.

Examples of steel tools are a hammer of approximately 75 g mass, a spring loaded centre punch, or other similar appliance with a hardened point. The radius of curvature of the point should be approximately 0,2 mm.

The test specimen shall be laid with the impact point flat on a table without any mechanical constraint. In order to prevent scattering of the fragments, the flat specimen shall be held at the edges, e. g. by a small frame, adhesive tape etc., the curved specimen shall be covered on its convex surface with an adhesive film so that the fragments remain interlocked after breakage yet extension of the specimen is not hindered.

**Key**

1 Impact point

Figure 1 — Position of impact point

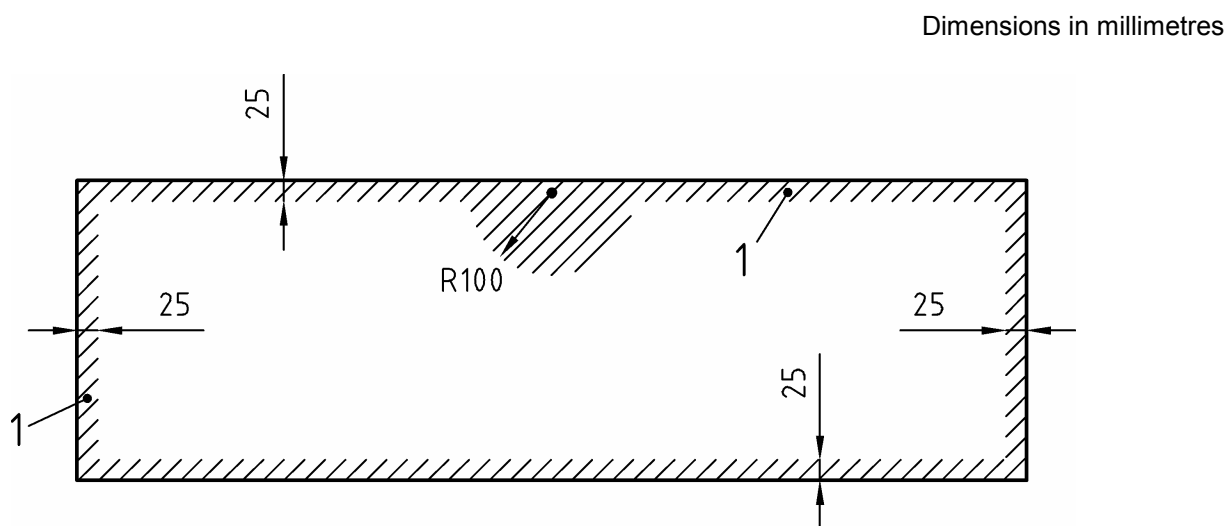
For thermally toughened soda lime silicate safety glass manufactured by vertical toughening, the impact point shall not be on the tong mark edge.

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5.1.4 Assessment of fragmentation

The particle count and measuring of the dimensions of the largest particle shall be made between 4 min to 5 min after fracture. An area of radius 100 mm, centred on the impact point, and a border of 25 mm, round the edge of the test specimen (see Figure 2), shall be excluded from the assessment.

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**Key**

1 Excluded area

Figure 2 — Area to be excluded from the particle count determination and largest particle measurement

The particle count shall be made in the region of coarsest fracture (the aim being to obtain the minimum value). The particle count shall be made by placing a mask of (50 ± 1) mm x (50 ± 1) mm on the test piece (see Figures 3,

4 and 5). The number of crack-free particles within the mask shall be counted. A particle is 'crack-free', if it does not contain any cracks which run from one edge to another (see Figure 6).

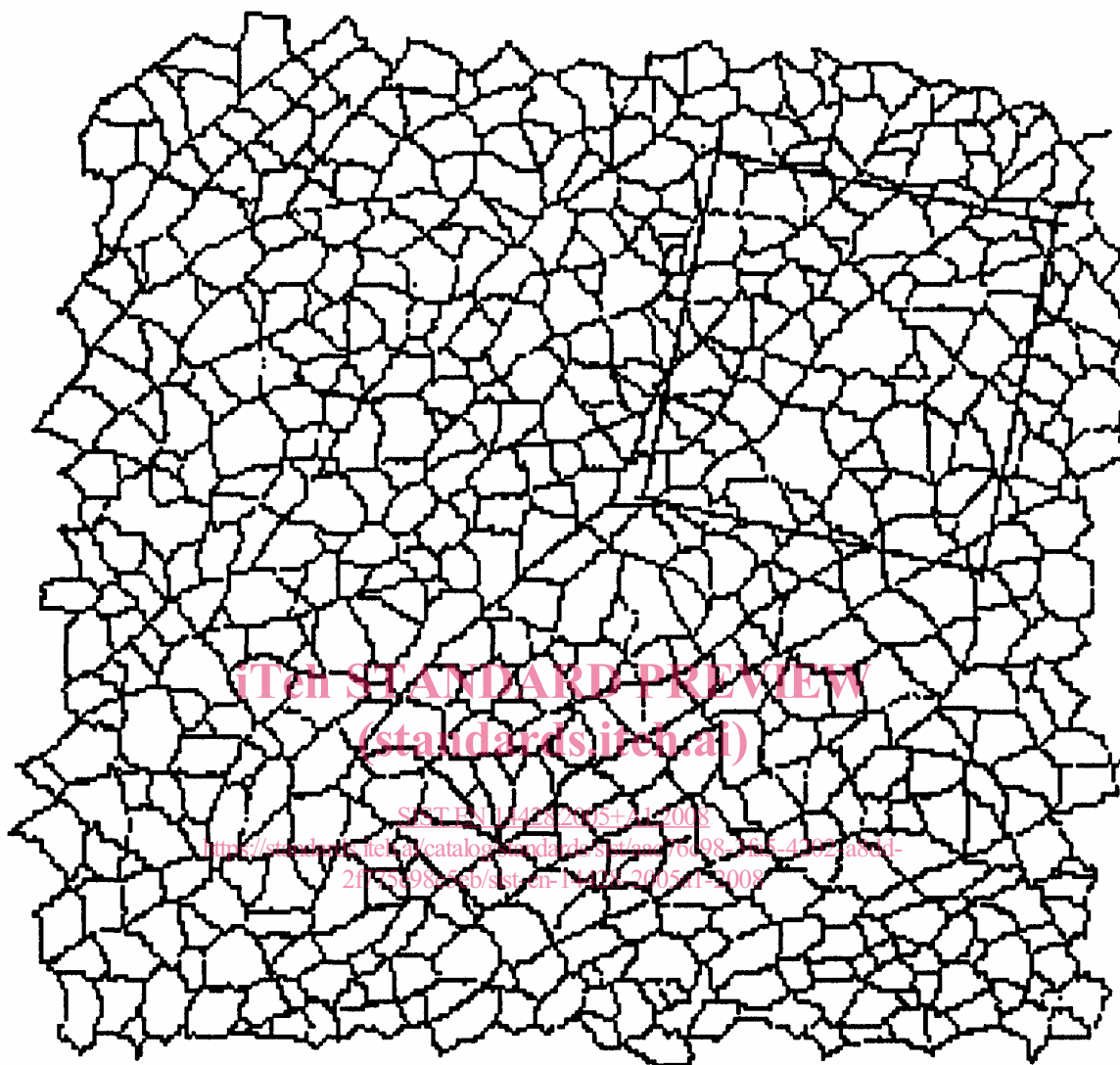
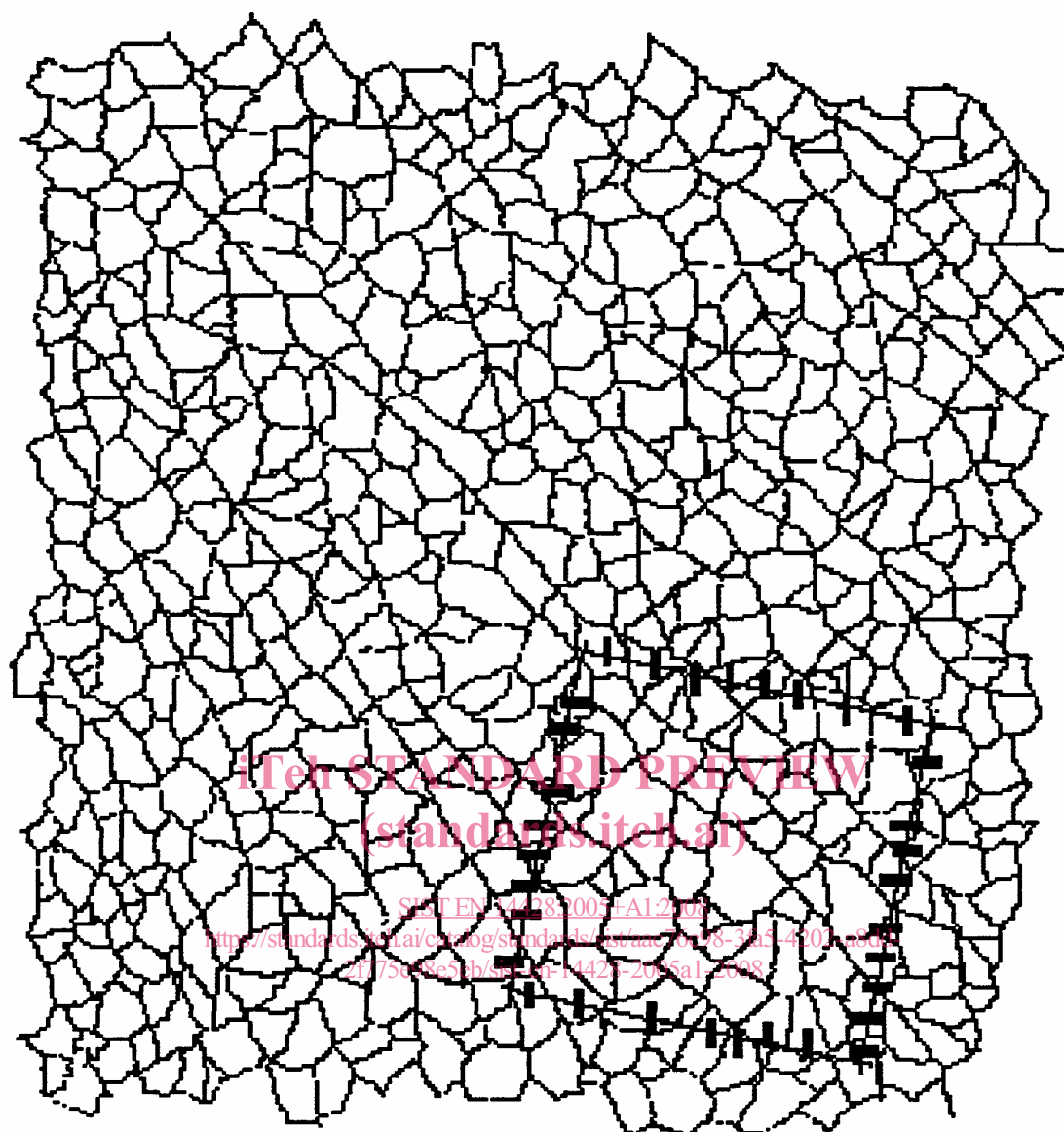


Figure 3 — Select the area of coarsest fracture, place the template on the test specimen and draw round the template



NOTE Number of perimeter particles = $32/2 = 16$

Figure 4 — Mark and count the perimeter fragments as 1/2 particle each