



**SLOVENSKI STANDARD**  
**SIST EN 14428:2015**

**01-september-2015**

**Nadomešča:**

**SIST EN 14428:2005+A1:2008**

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**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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**ICS:**

91.140.70      Sanitarne naprave                      Sanitary installations

**SIST EN 14428:2015**

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EUROPEAN STANDARD

EN 14428

NORME EUROPÉENNE

EUROPÄISCHE NORM

May 2015

ICS 91.140.70

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English Version

## Shower enclosures - Functional requirements and test methods

Parois de douche - Prescriptions fonctionnelles et  
méthodes d'essaiDuschabtrennungen - Funktionsanforderungen und  
Prüfverfahren

This European Standard was approved by CEN on 19 March 2015.

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.

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

**CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels**

## Contents

Page

Foreword.....	4
1 Scope .....	5
2 Normative references .....	5
3 Terms and definitions .....	5
4 Requirements .....	6
4.1 General.....	6
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 Laminated safety glass .....	6
4.3.4 Plastics materials.....	6
4.4 Durability .....	6
4.4.1 General.....	6
4.4.2 Corrosion resistance.....	7
4.4.3 Resistance to chemicals and stains .....	7
4.4.4 Resistance to wet and dry cycling.....	7
4.4.5 Endurance .....	7
4.4.6 Stability .....	7
4.4.7 Water retention.....	7
4.5 Dangerous substances .....	7
5 Test methods.....	8
5.1 Impact resistance/shatter properties.....	8
5.1.1 General.....	8
5.1.2 Test specimens for curved glass .....	8
5.1.3 Procedure .....	8
5.1.4 Assessment of fragmentation .....	9
5.2 Impact behaviour of plastic sheets.....	13
5.2.1 Apparatus .....	13
5.2.2 Procedure .....	13
5.3 Resistance to chemicals and stains .....	21
5.3.1 Reagents.....	21
5.3.2 Apparatus .....	22
5.3.3 Test specimens.....	24
5.3.4 Procedure .....	24
5.3.5 Expression of results .....	24
5.4 Resistance to wet and dry cycling.....	24
5.4.1 Test specimens.....	24
5.4.2 Procedure .....	24
5.4.3 Results .....	25
5.5 Endurance .....	25
5.6 Stability .....	25
5.7 Water retention.....	27
6 Marking .....	31
7 Assessment and verification of constancy of performance - AVCP .....	32
7.1 General.....	32
7.2 Type testing.....	32
7.2.1 General.....	32

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[SIST EN 14428:2015](https://standards.iteh.ai/catalog/standards/sist/469117c5-8779-433e-a7ac-41c9528da508/sist-en-14428-2015)

<https://standards.iteh.ai/catalog/standards/sist/469117c5-8779-433e-a7ac-41c9528da508/sist-en-14428-2015>

7.2.2	Samples, testing and compliance criteria.....	33
7.3	Factory production control.....	33
7.3.1	General .....	33
7.3.2	Equipment .....	33
7.3.3	Raw materials and components .....	34
7.3.4	Product testing and assessment .....	34
7.3.5	Non-conforming products .....	34
7.3.6	Corrective action .....	34
<b>Annex ZA (informative) Clauses of this European Standard addressing the provisions of the EU</b>		
	<b>Construction Products Regulation.....</b>	<b>35</b>
ZA.1	Scope and relevant characteristics .....	35
ZA.2	Procedure for assessment and verification of constancy of performance (AVCP) of shower enclosures .....	35
ZA.2.1	System of AVCP .....	35
ZA.2.2	Declaration of performance (DoP) .....	36
ZA.2.2.1	General.....	36
ZA.2.2.2	Content.....	36
ZA.2.2.3	Example of DoP.....	37
ZA.3	CE marking and labelling.....	41
Bibliography.....		43

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[SIST EN 14428:2015](https://standards.iteh.ai/catalog/standards/sist/4b9ff7c5-8779-433e-a7ac-41c9528da508/sist-en-14428-2015)

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**EN 14428:2015 (E)****Foreword**

This document (EN 14428:2015) has been prepared by Technical Committee CEN/TC 163 "Sanitary appliances", the secretariat of which is held by UNI.

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 November 2015, and conflicting national standards shall be withdrawn at the latest by February 2017.

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 14428:2004+A1:2008.

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 the EU Construction Products Regulation.

For relationship with EU Construction Products Regulation, see informative Annex ZA, which is an integral part of this document.

The main technical change is the deletion of the Impact resistance/shatter properties clause and its replacement by a reference to the new edition of EN 12150-1. The other significant change is the updating of the AVCP clause and Annex ZA to the new format.

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.

## 1 Scope

This European Standard 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 European Standard 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 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.

prEN 12150-1:2013, *Glass in building — Thermally toughened soda lime silicate safety glass — Part 1: Definition and description*

EN 14449, *Glass in building - Laminated glass and laminated safety glass - Evaluation of conformity/Product standard*

EN ISO 2409, *Paints and varnishes - Cross-cut test (ISO 2409:2013)*

EN ISO 7599, *Anodizing of aluminium and its alloys - General specifications for anodic oxidation coatings on aluminium (ISO 7599:2010)*

EN ISO 9227, *Corrosion tests in artificial atmospheres - Salt spray tests (ISO 9227:2012)*

EN ISO 12543-2, *Glass in building - Laminated glass and laminated safety glass - Part 2: Laminated safety glass (ISO 12543-2:2011)*

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

## 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) (i.e full or half-height access 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

**EN 14428:2015 (E)****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, including guidance on cleaning.

**4.2 Cleanability**

When inspected 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 or 4.3.3 and where plastics materials are used, they shall meet the requirements of 4.3.4.

**4.3.2 Thermally toughened safety glass**

[SIST EN 14428:2015](https://standards.iteh.ai/catalog/standards/sist/4b9ff7c5-8779-433e-a7ac-4c9928da508/sist-en-14428-2015)

**4.3.2.1 Thermally toughened flat safety glass**

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Thermally toughened safety glass shall meet the requirements of prEN 12150-1:2013.

**4.3.2.2 Thermally toughened curved safety glass**

Test in accordance with 5.1 to ensure that under these test conditions the glass has a particle count of 40 or greater and the length of the longest particle shall not exceed 100 mm.

**4.3.3 Laminated safety glass**

Laminated safety glass shall conform to EN 14449 and EN ISO 12543-2. Laminated safety glass shall not have holes, for example for fixings, hinges, handles or any other fittings.

NOTE Laminated safety glass is susceptible to water penetration from the edges if they are not suitably protected.

**4.3.4 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 performances shall be evaluated with test methods specified in an appropriate European or International Standard. The standard used and the results of the test shall be recorded.

Examples of minimum requirements:

- the minimum paint adhesion performance for powder-coated or wet-painted surfaces has a cross-cut value  $\leq 2$  when tested in accordance with EN ISO 2409;
- the minimum average thickness of coating on aluminium is of grade AA5 when tested in accordance with one of the methods given in EN ISO 7599. In no cases is minimum local thickness less than 80 % of the minimum average thickness.
- Compliance with the neutral salt spray (NSS) test e.g. as specified in EN ISO 9227 corrosion test in artificial atmospheres - salt spray tests with a minimum exposure time of 200 h; The defect surface area A is less than or equal to 0,1 % ( $A \leq 0,1 \%$ ). The defects do not exceed a dimension of 0,3 mm.

This list is not exhaustive.

#### 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. Uncoated and unpainted thermally toughened safety glass is deemed to be resistant to wet and dry cycling and need not be tested.

#### 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. Where shower enclosures are intended for installation in wet room environments (where watertightness is not required), water may temporarily pass outside the water retaining area as long as it is drained to the water retaining area.

### 4.5 Dangerous substances

National regulations on dangerous substances may require verification and declaration on release, and sometimes content, when construction products covered by this standard are placed on those markets.

In the absence of European harmonized test methods, verification and declaration on release/content should be done taking into account national provisions in the place of use.

## EN 14428:2015 (E)

NOTE An informative database covering European and national provisions on dangerous substances is available at the Construction website on EUROPA accessed through: <http://ec.europa.eu/enterprise/construction/cpd-ds/>.

## 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.

#### 5.1.2 Test specimens for 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).

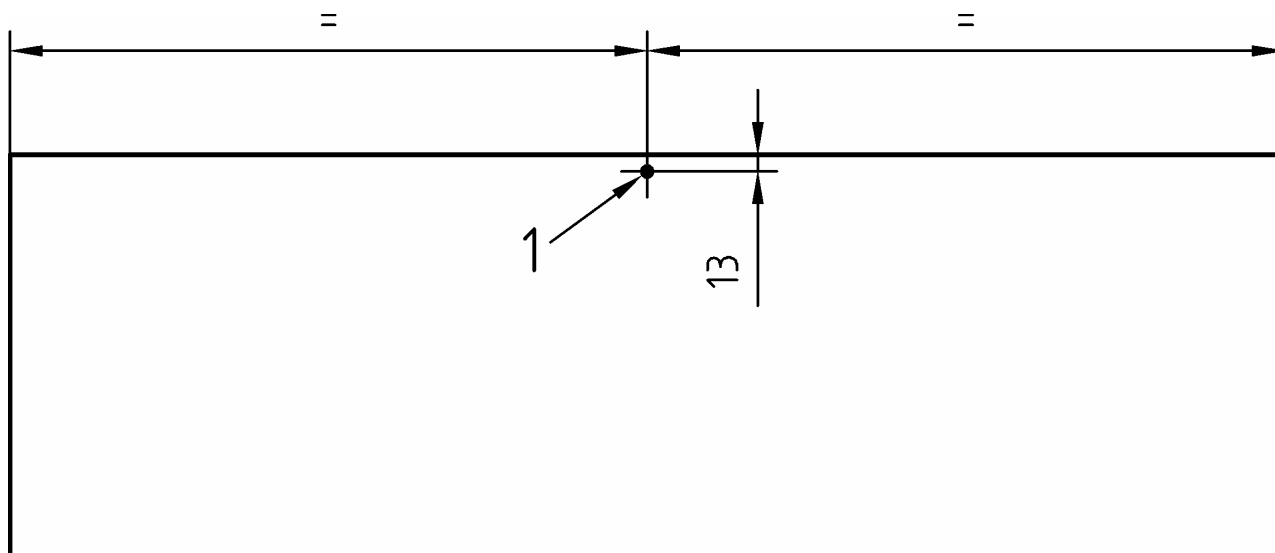
NOTE The fragmentation characteristics of glass are unaffected by temperatures between - 50 °C and + 100 °C.

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 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.

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Dimensions in millimetres



#### Key

1 impact point

Figure 1 — Position of impact point

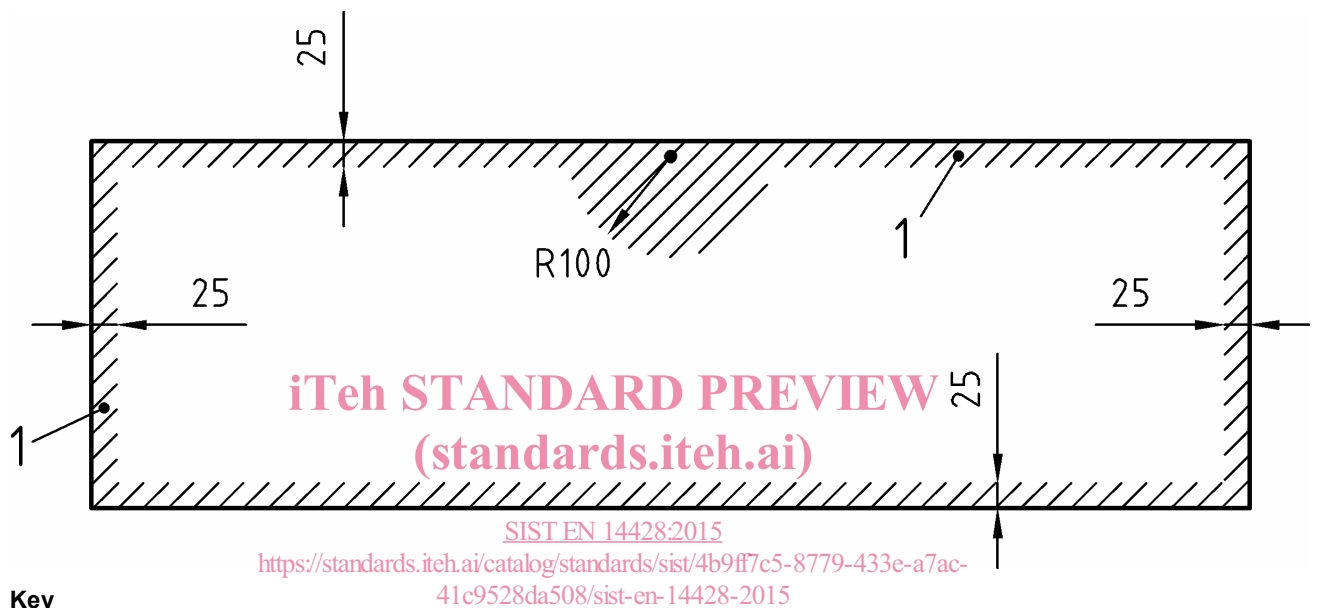
For thermally toughened soda lime silicate safety glass manufactured by vertical toughening, the impact point shall not be on the tong mark edge.

#### 5.1.4 Assessment of fragmentation

##### 5.1.4.1 Particle count and measuring the largest particle

The particle count and measuring of the dimensions of the largest particle shall be made between 3 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.

Dimensions in millimetres



#### 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  $(50 \pm 1)$  mm x  $(50 \pm 1)$  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).

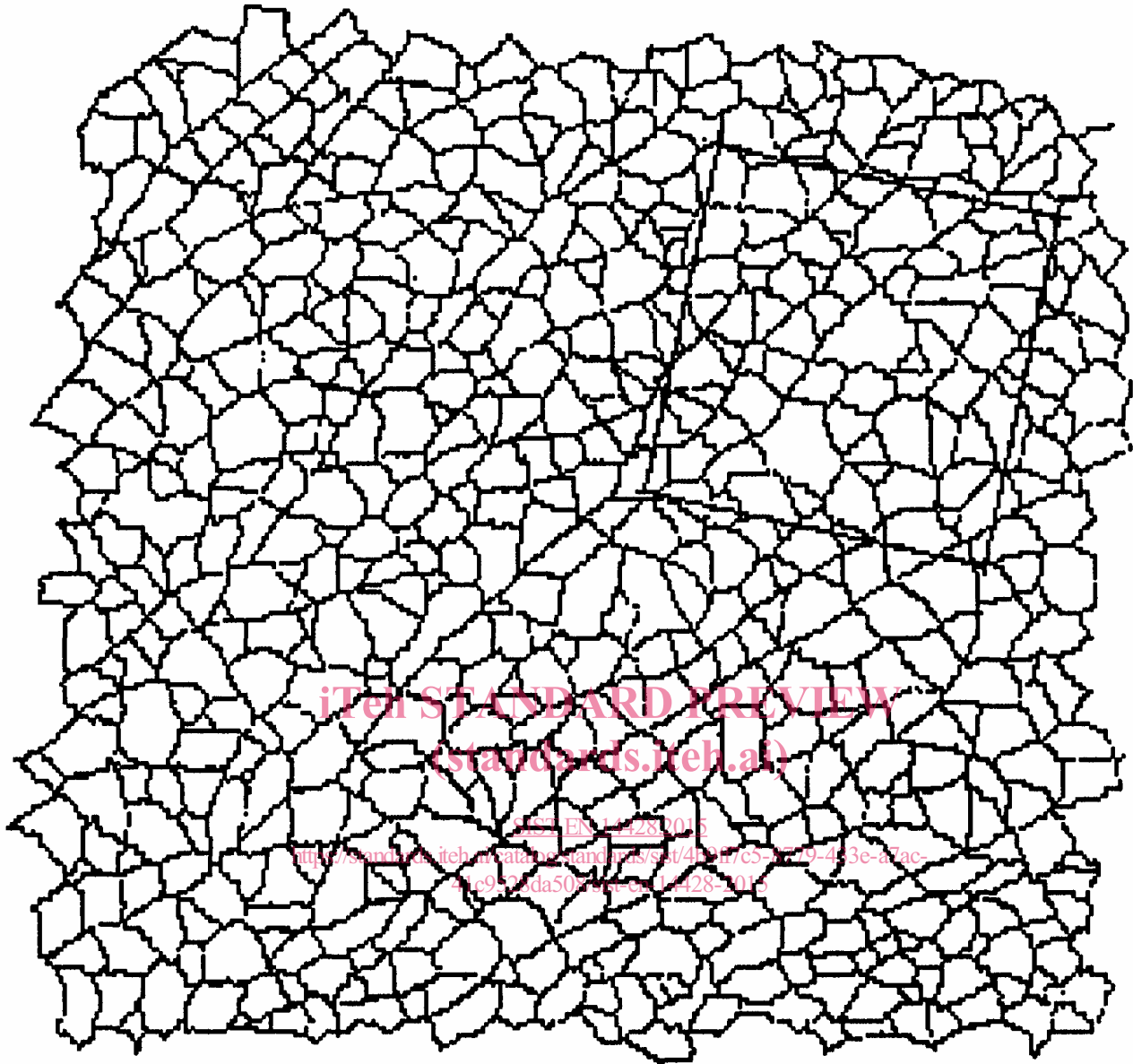
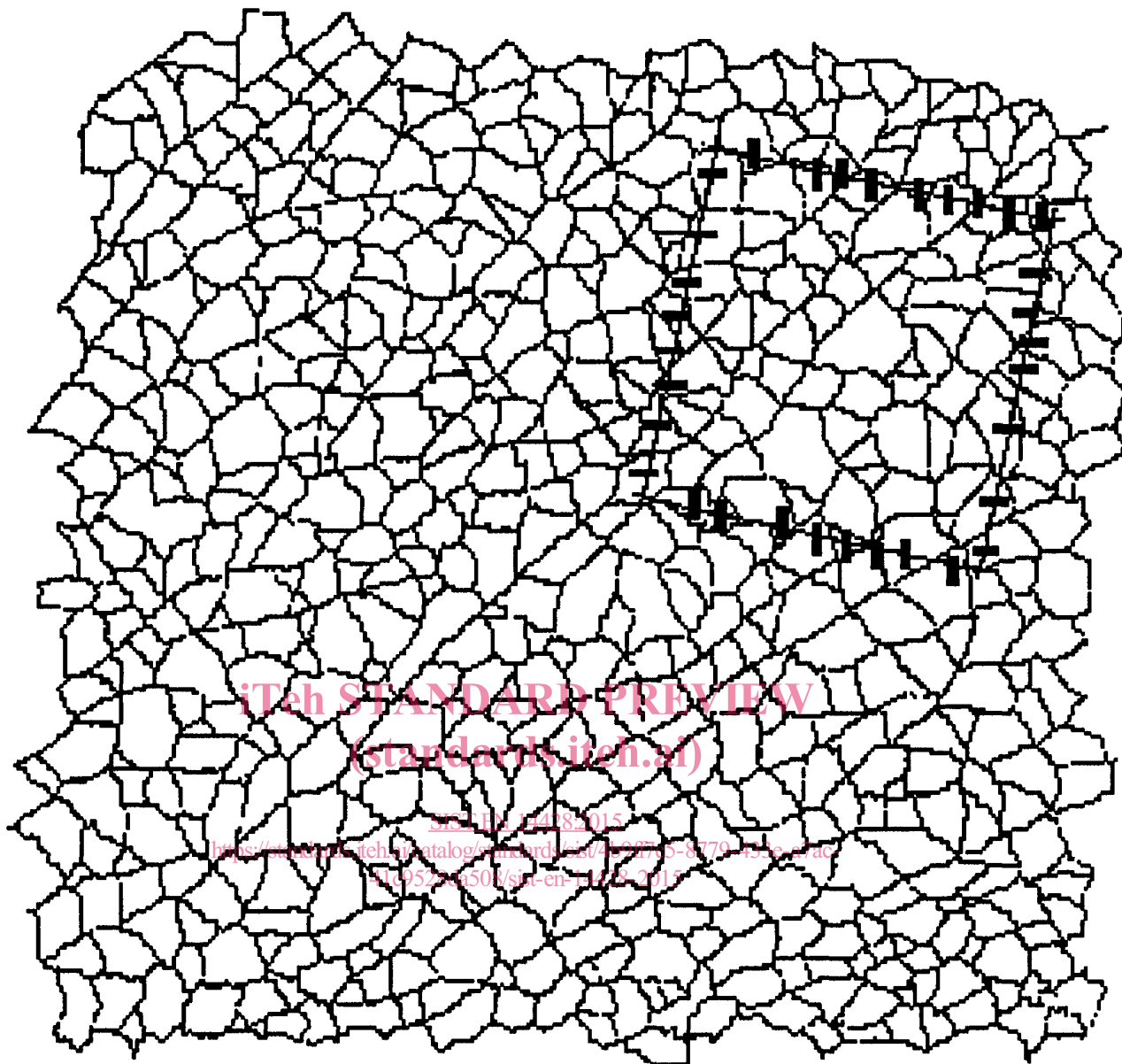


Figure 3 — Select the area of coarsest fracture, place the template on the test specimen and draw round the template



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

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