
Toplotnoizolacijski proizvodi za uporabo v gradbeništvu – Ugotavljanje odpornosti proti udarcem kontaktnih fasadnih toplotnoizolacijskih sistemov (ETICS)

Thermal insulation products for building applications - Determination of the resistance to impact of external thermal insulation composite systems (ETICS)

Wärmedämmstoffe für das Bauwesen - Bestimmung der Schlagfestigkeit von außenseitigen Wärmedämm- Verbundsystemen (WDVS)

Produits isolants thermiques destinés aux applications du bâtiment - Détermination de la résistance au choc des systemes composites d'isolation thermique par l'extérieur (systemes I.T.E.)

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Ta slovenski standard je istoveten z: EN 13497:2002

ICS:

91.100.60 Thermal and sound insulating materials

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EUROPEAN STANDARD

EN 13497

NORME EUROPÉENNE

EUROPÄISCHE NORM

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ICS 91.100.60

English version

Thermal insulation products for building applications - Determination of the resistance to impact of external thermal insulation composite systems (ETICS)

Produits isolants thermiques destinés aux applications du
bâtiment - Détermination de la résistance au choc des
systèmes composites d'isolation thermique par l'extérieur
(systèmes I.T.E.)

Wärmedämmstoffe für das Bauwesen - Bestimmung der
Schlagfestigkeit von außenseitigen Wärmedämm-
Verbundsystemen (WDVS)

This European Standard was approved by CEN on 19 August 2002.

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 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 Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.



EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
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Foreword

This document (EN 13497:2002) has been prepared by Technical Committee CEN /TC 88, "Thermal insulating materials and products" the secretariat of which is held by DIN.

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 2003, and conflicting national standards shall be withdrawn at the latest by April 2003.

This European Standard is one of a series of standards which specify test methods for determining dimensions and properties of thermal insulating materials and products. It supports a series of product standards for thermal insulating materials and products which derive from the Council Directive of 21 December 1988 on the approximation of laws, regulations and administrative provisions of the Member States relating to construction products (Directive 89/106/EEC) through the consideration of the essential requirements.

This European Standard has been drafted for applications in buildings but may also be used in other areas where it is relevant.

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

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EN 13497:2002 (E)**1 Scope**

This European Standard specifies equipment and a procedure for determining the resistance to impact of external thermal insulation composite systems.

2 Normative references

This European Standard incorporates, by dated or undated reference, provisions from other publications. These 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 (including amendments).

EN 823, *Thermal insulating products for building applications — Determination of thickness.*

EN 1015-1, *Methods of test for mortar for masonry — Part 1: Determination of particle size distribution (by sieve analysis).*

EN 1602, *Thermal insulating products for building applications — Determination of the apparent density.*

EN 1607, *Thermal insulating products for building applications — Determination of tensile strength perpendicular to faces.*

prEN 13499:1999, *Thermal insulation products for buildings — External Thermal Insulation Composite Systems (ETICS) based on expanded polystyrene — Specification.*

prEN ISO 3251, *Paints, varnishes and plastics — Determination of non-volatile matter content (ISO/DIS 3251:2000)*

EN ISO 3451-1, *Plastics — Determination of ash — Part 1: General methods (ISO 3451-1:1997).*

prEN ISO 9229:1997, *Thermal insulation — Definitions of terms (ISO 9229:1997).*

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

3 Terms and definitions

For the purposes of this European Standard the terms and definitions given in prEN ISO 9229:1997 and prEN 13499:1999 apply.

4 Principle

The resistance to impact (impact resistance) of external thermal insulation composite systems is determined by means of a steel ball falling on to the surface of the ETICS. Any damages occurring are rated qualitatively (e.g. the reinforcement has become visible; the finishing material or the base coat has visibly delaminated or the base coat with the reinforcement has been perforated).

5 Test apparatus

For the impact resistance level of 2 J a steel ball of (500 ± 5) g falls from a height of (408 ± 1) mm. For this a vertical pipe with an internal diameter of at least 2 mm greater than the diameter of the steel ball and a length of 408 mm is erected above a surface of the horizontal test specimen. The ball falls through the pipe on to the surface of the test specimen (see figure 1).

For the impact resistance level of 10 J a steel ball of $(1\ 000 \pm 10)$ g falls from a height of $(1\ 020 \pm 1)$ mm. For this a vertical pipe with an internal diameter of at least 2 mm greater than the diameter of the steel ball and a length of 1 020 mm is erected above a surface of the horizontal test specimen. The ball falls through the pipe on to the surface of the test specimen (see Figure 1).

Alternatively, a test apparatus as specified in ISO 7892 can be used.

6 Test specimens

6.1 Preparation and number of test specimens

The base coat with the reinforcement is applied in accordance with the manufacturers instructions on to the surface of the thermal insulation material. The test specimens shall have minimum dimensions of 200 mm × 200 mm × 60 mm. After a time period which is specified by the manufacturer, the finishing material is applied on to the base coat in accordance with the manufacturers instructions.

The number of the test specimens should be chosen so that five tests can be performed according to the test procedure described in 7.2.

6.2 Conditioning of test specimens

The conditioning of test specimens shall be carried out as specified in the relevant ETICS product standard.

NOTE In the absence of a product standard for ETICS or any other European technical specification, the conditioning procedure may be agreed between parties.

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7 Procedure

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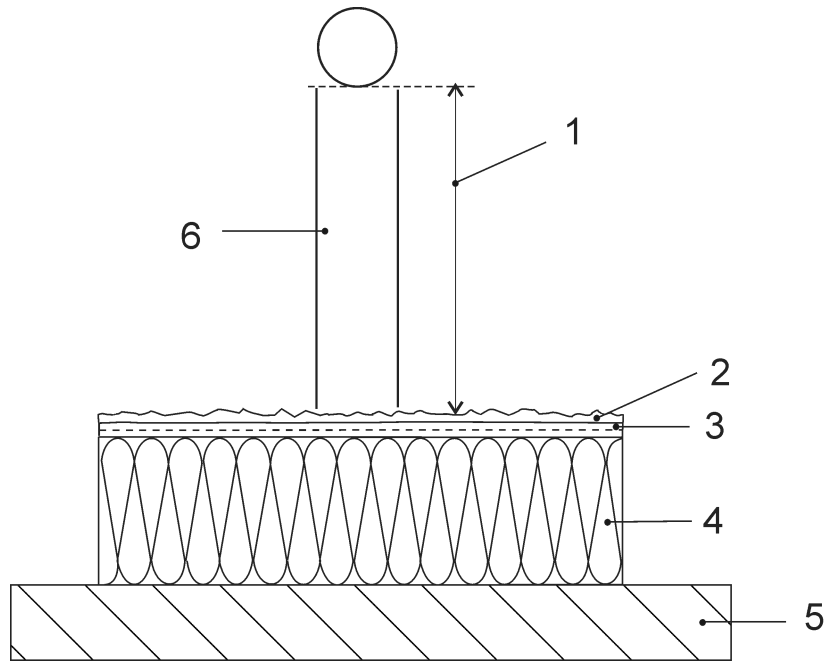
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7.1 Test conditions

The test shall be carried out at (23 ± 5) °C.

7.2 Test procedure

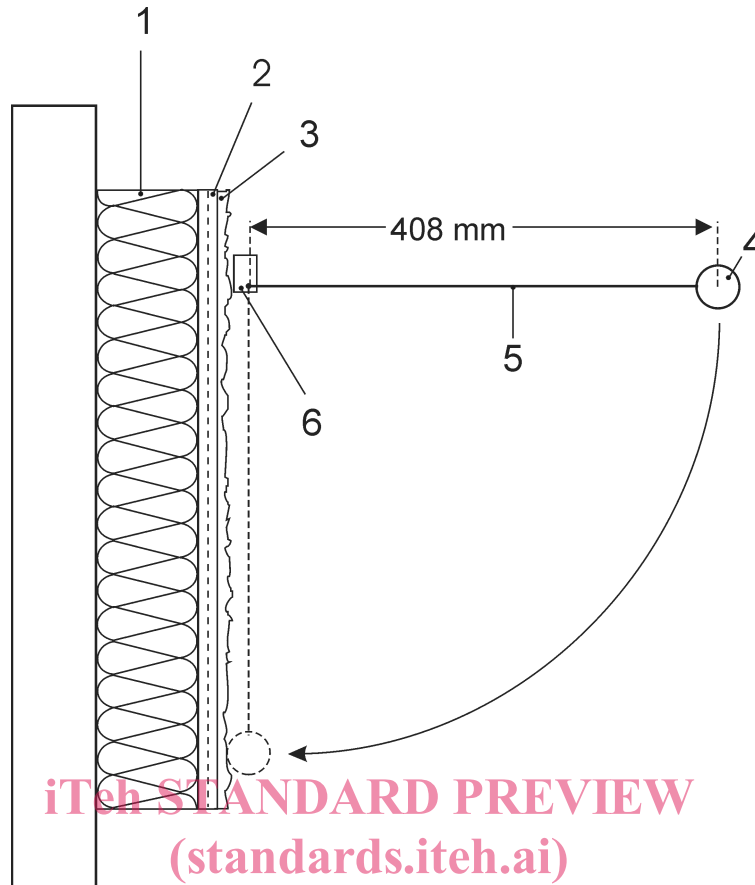
For the requirement 2 J the steel ball with 500 g falls from a height of 408 mm on to the surface of the test specimen. For the requirement 10 J the steel ball with 1 000 g falls from a height of 1 020 mm on to the surface of the test specimen. Each test has to be performed five times on different points of the test specimen(s), these points shall have a minimum distance of 100 mm from each other and from the edges of the specimen.

**Key**

1	Height for 2 J:	408 mm	4	Thermal insulation material
	Height for 10 J:	1 020 mm	5	Flat and rigid surface
2	Finishing material		6	Vertical pipe
3	Base coat with reinforcement			

Figure 1 — Example of a test apparatus and the test specimen for the resistance to impact

The impact resistance of ETICS can be also tested according to ISO 7892. In this case the impact body falls like a pendulum onto the specimen arranged in position in a frame. In case of rebound the impact body shall be held back to avoid a second impact (see Figure 2).



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Key

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|---|------------------------------|---|-------------------|
| 1 | thermal insulation material | 4 | steel ball |
| 2 | base coat with reinforcement | 5 | steel wire |
| 3 | finishing material | 6 | device for fixing |

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Figure 2 — Example of a test apparatus for the resistance to impact according to ISO 7892

8 Expression of results

Describe the damage observed.

The following results are considered as damages:

- the reinforcement has become visible;
- the finishing material or the base coat has visibly delaminated;
- the base coat with the reinforcement has been perforated.

9 Accuracy of measurement

NOTE It has not been possible to include a statement on the accuracy of the measurement in this edition of the standard. But it is intended to include such a statement when the standard is next revised.