



SLOVENSKI STANDARD
SIST EN 12088:1999
01-september-1999

Toplotnoizolacijski proizvodi za uporabo v gradbeništvu – Določanje dolgotrajnega vpijanja vode – Preskus z difuzijo

Thermal insulating products for building applications - Determination of long term water absorption by diffusion

Wärmedämmstoffe für das Bauwesen - Bestimmung der Wasseraufnahme durch Diffusion

Produits isolants thermiques destinés aux applications du bâtiment - Détermination de l'absorption d'eau a long terme - Essai par diffusion

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Ta slovenski standard je istoveten z: EN 12088:1997

ICS:

91.100.60	Materiali za toplotno in zvočno izolacijo	Thermal and sound insulating materials
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en

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EUROPEAN STANDARD

EN 12088

NORME EUROPÉENNE

EUROPÄISCHE NORM

June 1997

ICS 91.100.99

Descriptors: buildings, thermal insulation, thermal insulating materials, water absorption tests, diffusion, test specimen, procedure, computation

English version

Thermal insulating products for building applications - Determination of long term water absorption by diffusion

Produits isolants thermiques destinés aux applications du bâtiment - Détermination de l'absorption d'eau à long terme - Essai par diffusion

Wärmedämmstoffe für das Bauwesen - Bestimmung der Wasseraufnahme durch Diffusion

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This European Standard was approved by CEN on 1997-04-26. 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 Central Secretariat or to any CEN member.

The European Standards exist 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.

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

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 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 December 1997, and conflicting national standards shall be withdrawn at the latest by December 1997.

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 it may also be used in other areas where it is relevant.

In pursuance of Resolution BT 20/1993 Revised, CEN/TC 88 have proposed defining the standards listed below as a European "package" of standards, setting December 31, 1997 as the date of withdrawal (dow) of national standards which conflict with the European Standards of this package.

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The "package" of standards comprises the following group of inter-related standards on test methods for determining dimensions and properties of thermal insulation materials and products, all of which come within the scope of CEN/TC 88:

<u>SIST EN 12088:1999</u>	
EN 822	Thermal insulating products for building applications - Determination of length and width
EN 823	Thermal insulating products for building applications - Determination of thickness
EN 824	Thermal insulating products for building applications - Determination of squareness
EN 825	Thermal insulating products for building applications - Determination of flatness
EN 826	Thermal insulating products for building applications - Determination of compression behaviour
EN 1602	Thermal insulating products for building applications - Determination of the apparent density
EN 1603	Thermal insulating products for building applications - Determination of dimensional stability under constant normal laboratory conditions (23 °C/50 % relative humidity)
EN 1604	Thermal insulating products for building applications - Determination of dimensional stability under specified temperature and humidity conditions
EN 1605	Thermal insulating products for building applications - Determination of deformation under specified compressive load and temperature conditions

EN 1606	Thermal insulating products for building applications - Determination of compressive creep
EN 1607	Thermal insulating products for building applications - Determination of tensile strength perpendicular to faces
EN 1608	Thermal insulating products for building applications - Determination of tensile strength parallel to faces
EN 1609	Thermal insulating products for building applications - Determination of short term water absorption by partial immersion
EN 12085	Thermal insulating products for building applications - Determination of linear dimensions of test specimens
EN 12086	Thermal insulating products for building applications - Determination of water vapour transmission properties
EN 12087	Thermal insulating products for building applications - Determination of long term water absorption by immersion
EN 12088	Thermal insulating products for building applications - Determination of long term water absorption by diffusion
EN 12089	Thermal insulating products for building applications - Determination of bending behaviour STANDARD PREVIEW (standards.iteh.ai)
EN 12090	Thermal insulating products for building applications - Determination of shear behaviour SIST EN 12088:1999 https://standards.iteh.ai/catalog/standards/sist/6385c0d3-382a-4aac-99af-4c5b575c7e8c/sist-en-12088-1997
EN 12091	Thermal insulating products for building applications - Determination of freeze-thaw resistance

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, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

1 Scope

This European Standard specifies the equipment and procedures for determining the long term water absorption of test specimens by diffusion. It is applicable to thermal insulating products. It is intended to simulate the water absorption of products subjected to high relative humidities, approximating to 100%, on both sides and subjected to a water vapour pressure gradient for a long period of time e.g. inverted roof or unprotected ground insulation.

The test is not applicable for all types of thermal insulating products. The product standard should state for which of its products, if any, this test is applicable.

NOTE: For unprotected ground insulation the temperature of 50 °C might be replaced by a lower temperature, when more data is available.

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 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.

EN 12085 Thermal insulating products for building applications - Determination of linear dimensions of test specimens

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3 Definitions <https://standards.iteh.ai/catalog/standards/sist/6385c0d3-382a-4aac-99af-4a5bb575e7a8/sist-en-12088-1999>

This European Standard contains no definitions.

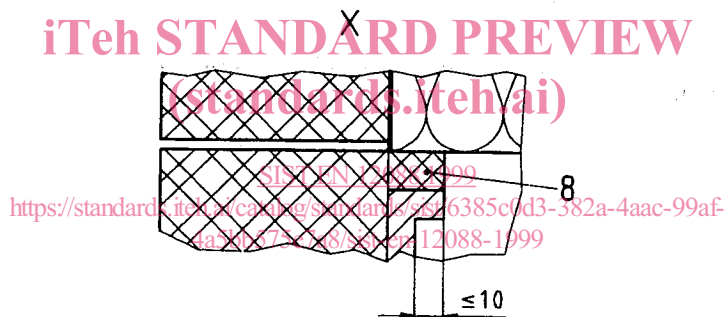
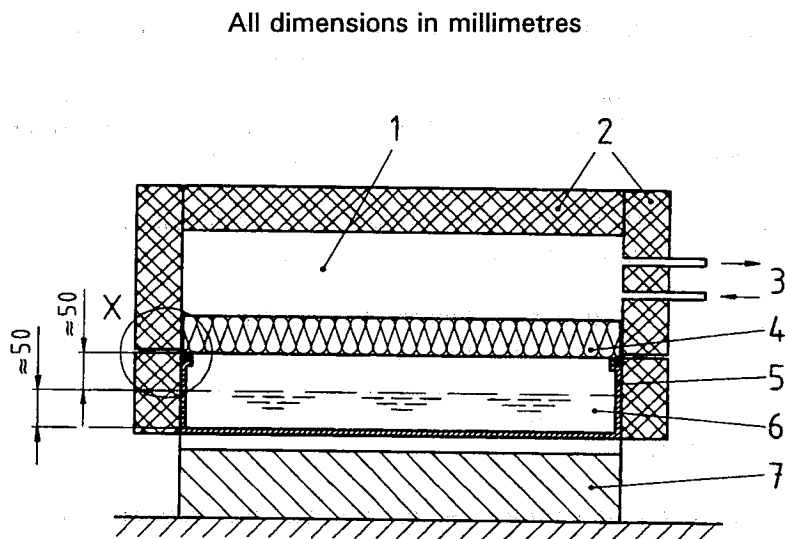
4 Principle

The long term water absorption by diffusion is determined by measuring the increase in the mass of a test specimen subjected to a water vapour pressure difference and temperature gradient for a period of 28 days.

5 Apparatus

- 5.1 **Balance**, which allows the determination of the mass of a test specimen to 0,1 g.
- 5.2 **Corrosion resistant container**, with a frame supporting the test specimens.
- 5.3 **Heating device**, with a thermostat, which provides water temperature control to (50 ± 1) °C.
- 5.4 **Cooling plate**, thermally insulated on the outside, operating at a temperature of $(1 \pm 0,5)$ °C.
- 5.5 **Tap water**, adjusted to a temperature of (50 ± 1) °C.

The principle of the apparatus assembly is illustrated in figure 1.



- 1 Cooling plate
- 2 Thermal insulation of the cooling plate and the container
- 3 Cooling medium inlet and outlet
- 4 Test specimen
- 5 Corrosion resistant container with a frame supporting the test specimen
- 6 Tap water
- 7 Heating device with a thermostat
- 8 Sealing

Figure 1: Example of test device for water absorption by diffusion

6 Test specimens

6.1 Dimensions of test specimens

The thickness of the test specimens shall be the original product thickness.

The test specimens shall be squares with squarely cut edges having sides of (500 ± 1) mm. If the product is not large enough to permit this size of test specimen, the test specimen size shall be reduced accordingly. Test specimens shall contain no joints.

6.2 Number of test specimens

The number of test specimens shall be at least two.

6.3 Preparation of test specimens

The test specimens shall be cut so that they do not include original product edges.

Test specimens shall be prepared by methods that do not substantially change the original structure of the product. Any facings, skins and/or coatings shall be retained.

NOTE: Special methods of preparation, when needed, are given in the relevant product standard or any other European technical specification.

6.4 Conditioning of test specimens

The test specimens shall be stored for at least 6 h at (23 ± 5) °C. In case of dispute they shall be stored at (23 ± 2) °C and (50 ± 5) % relative humidity for the time stated in the relevant product standard with a minimum of 6 h.

7 Procedure

7.1 Test procedure

The dimensions of the test specimens shall be measured in accordance with EN 12085.

Weigh the test specimen to the nearest 0,1 g to determine its initial mass, m_0 .

Place the test specimen on the frame of the container. If the product is faced on one side, begin the test with the facing upwards. Seal the bottom edge of the test specimen to the container. The width of the sealing shall be ≤ 10 mm (see figure 1). Place the insulated cooling plate on the top of the test specimen.

Subject the test specimen to a temperature and a water vapour pressure difference for 28 days by maintaining the water at a temperature of (50 ± 1) °C and the cooling on the other side at a temperature of $(1 \pm 0,5)$ °C.

Turn the test specimen over every 7 days.

After 28 days remove the test specimen and wipe off any surface water. Weigh the test specimen again to determine its mass, m_D .