

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

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN 12088:2013 sisaldab Euroopa standardi EN 12088:2013 ingliskeelset teksti.	This Estonian standard EVS-EN 12088:2013 consists of the English text of the European standard EN 12088:2013.
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ICS 91.100.60

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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

This European Standard was approved by CEN on 15 December 2012.

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Foreword

This document (EN 12088:2013) 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of an identical text or by endorsement, at the latest by September 2013, and conflicting national standards shall be withdrawn at the latest by September 2013.

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 12088:1997.

The revision of this standard contains no major changes, only minor corrections and clarifications of an editorial nature.

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.

This European test standard is one of the following group of inter-related standards on test methods for determining dimensions and properties of thermal insulation materials and products, all of which fall within the scope of CEN/TC 88:

- 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*
- EN 12090, *Thermal insulating products for building applications — Determination of shear behaviour*
- EN 12091, *Thermal insulating products for building applications — Determination of freeze-thaw resistance*
- EN 12429, *Thermal insulating products for building applications — Conditioning to moisture equilibrium under specified temperature and humidity conditions*
- EN 12430, *Thermal insulating products for building applications — Determination of behaviour under point load*
- EN 12431, *Thermal insulating products for building applications — Determination of thickness for floating floor insulating products*
- EN 13793, *Thermal insulating products for building applications — Determination of behaviour under cyclic loading*
- EN 13820, *Thermal insulating materials for building applications — Determination of organic content*

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, 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 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

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.

EN 12085, *Thermal insulating products for building applications — Determination of linear dimensions of test specimens*

3 Terms and definitions

This European Standard contains no terms and 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 $(50 \pm 1) ^\circ\text{C}$.

5.4 Cooling plate, thermally insulated on the outside, operating at a temperature of $(1 \pm 0,5) ^\circ\text{C}$.

5.5 Tap water, adjusted to a temperature of $(50 \pm 1) ^\circ\text{C}$.

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