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Värmeisoleringsprodukter för byggnader – Bestämning av vattenabsorption vid långvarig nedsänkning i vatten (ISO 16535:2019)

Thermal insulating products for building applications – Determination of long-term water absorption by immersion (ISO 16535:2019)

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Europastandarden EN ISO 16535:2019 gäller som svensk standard. Detta dokument innehåller den officiella engelska versionen av EN ISO 16535:2019.

Denna standard ersätter SS-EN 12087:2013, utgåva 2

The European Standard EN ISO 16535:2019 has the status of a Swedish Standard. This document contains the official version of EN ISO 16535:2019.

This standard supersedes the SS-EN 12087:2013, edition 2

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Information about the content of the standard is available from the Swedish Standards Institute (SIS), telephone +46 8 555 520 00. Standards may be ordered from SIS, who can also provide general information about Swedish and foreign standards.

Denna standard är framtagen av kommittén för Material och konstruktioner, SIS/TK 189/AG 01.

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EUROPEAN STANDARD

EN ISO 16535

NORME EUROPÉENNE

EUROPÄISCHE NORM

July 2019

ICS 91.100.60

Supersedes EN 12087:2013

English Version

Thermal insulating products for building applications
- Determination of long-term water absorption by
immersion (ISO 16535:2019)

Produits isolants thermiques destinés aux
applications du bâtiment - Détermination
de l'absorption d'eau à long terme par
immersion (ISO 16535:2019)

Wärmedämmstoffe für das Bauwesen -
Bestimmung der Wasseraufnahme bei
langzeitigem Eintauchen (ISO 16535:2019)

This European Standard was approved by CEN on 21 June 2019.

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

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European foreword

This document (EN ISO 16535:2019) has been prepared by Technical Committee ISO/TC 163 "Thermal performance and energy use in the built environment" in collaboration with 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 January 2020, and conflicting national standards shall be withdrawn at the latest by January 2020.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

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Endorsement notice

The text of ISO 16535:2019 has been approved by CEN as EN ISO 16535:2019 without any modification.

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

1 Scope

This document specifies the equipment and procedures for determining the long-term water absorption of test specimens. It is applicable to thermal insulating products.

This document specifies two methods:

- Method 1: Partial immersion;
- Method 2: Total immersion.

The long-term water absorption by partial immersion is intended to simulate the water absorption caused by long-term water exposure.

The long-term water absorption by total immersion is not directly related to the conditions on site, but has been recognized as a relevant condition of test for some products in some applications.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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.

ISO 29768, *Thermal insulating products for building applications — Determination of linear dimensions of test specimens*

3 Terms and definitions

No terms and definitions are listed in this document.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

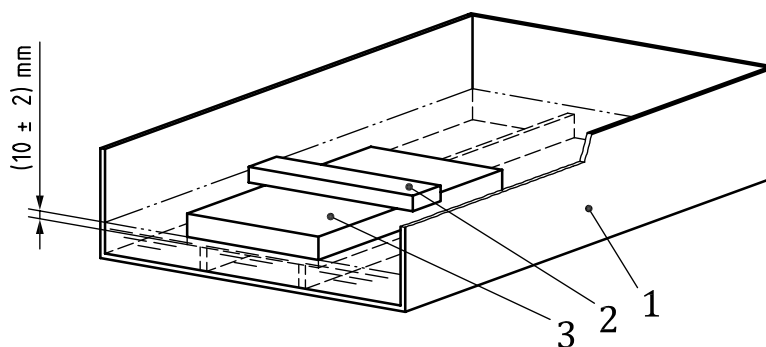
- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <https://www.iso.org/obp>

4 Principle

4.1 Method 1: Partial immersion

The long-term water absorption by partial immersion is determined by measuring the change in mass of a test specimen, the lower part of which is in contact with water for a period of 28 days.

The excess water adhering to the surface, not absorbed by the test specimen, is removed by drainage in method 1A or taken into account by deduction of the initial water uptake in method 1B.



Key

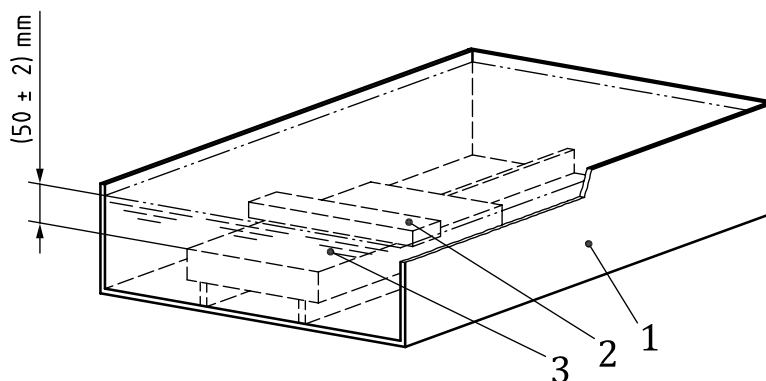
- 1 water tank
- 2 load to keep the test specimen in position
- 3 test specimen

Figure 1 — Example of partial immersion test device (method 1A and 1B)

4.2 Method 2: Total immersion

The long-term water absorption by total immersion is determined by measuring the change in mass of the test specimen, totally immersed in water, over a period of 28 days.

The excess water adhering to the surface, not absorbed by the test specimen, is removed by drainage in method 2A or taken into account by deduction of the initial water uptake in method 2B. The method 2C use the Archimedes' principle to allow a determination of water absorption without moving the sample from the water tank.



Key

- 1 water tank
- 2 load to keep the test specimen in position
- 3 test specimen

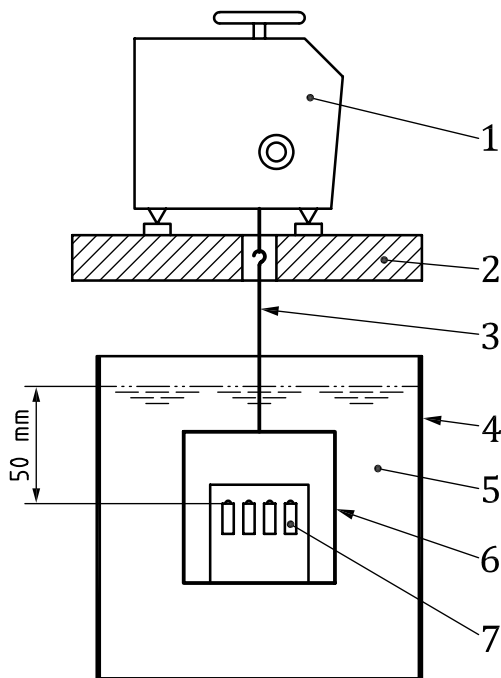
Figure 2 — Example of test device for the determination of water absorption by total immersion (method 2A and 2B)

5 Apparatus

5.1 Balance, capable of determining the mass of a test specimen with an accuracy of 0,1 g.

5.2 Water tank, with a device for keeping the water level constant to within ± 2 mm, and a device to keep the test specimen in the required position.

Examples of test devices are given in [Figures 1, 2](#) and [3](#). The device to keep the test specimen in position shall not cover more than 15 % of the cross-section area of the test specimen, which is exposed to water. The device shall be such that the original form of the test specimen is maintained.



Key

- 1 balance
- 2 weighing table
- 3 linkage
- 4 water container
- 5 water
- 6 mesh cage made of stainless material with fixing rods or a sinker large enough in mass to compensate for the upthrust of the test specimen
- 7 test specimen

Figure 3 — Example of test device for determination of water absorption by total immersion (method 2C)

5.3 Tap water, adjusted to a temperature of (23 ± 5) °C. In case of dispute, deionised water shall be used.

In tropical countries, different conditions and testing conditions can be relevant. In such cases the temperature shall be (27 ± 5) °C, and this shall be stated in the test report.

5.4 Equipment for drainage.

Examples are shown in [Figures 4 a\)](#) and [4 b\)](#).