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Värmeisoleringsprodukter för isolering av installationer – Bestämning av vattenabsorption i förformad rörisolering vid kortvarig partiell nedsänkning i vatten

**Thermal insulating products for building equipment and
industrial installations – Determination of short term water
absorption by partial immersion of preformed pipe insulation**

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Denna standard ersätter SS-EN 13472, utgåva 1.

The European Standard EN 13472:2012 has the status of a Swedish Standard. This document contains the official version of EN 13472:2012.

This standard supersedes the Swedish Standard SS-EN 13472, edition 1.

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Denna standard är framtagen av kommittén för Material och konstruktioner, SIS/TK 189/AG 1.

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EUROPEAN STANDARD

EN 13472

NORME EUROPÉENNE

EUROPÄISCHE NORM

October 2012

ICS 91.100.60

Supersedes EN 13472:2001

English Version

Thermal insulating products for building equipment and industrial installations - Determination of short term water absorption by partial immersion of preformed pipe insulation

Produits isolants thermiques pour l'équipement du bâtiment et les installations industrielles - Détermination de l'absorption d'eau à court terme par immersion partielle des coquilles isolantes préformées

Wärmedämmstoffe für die Haustechnik und für betriebstechnische Anlagen - Bestimmung der Wasseraufnahme bei kurzzeitigem teilweisem Eintauchen von vorgeformten Rohrdämmstoffen

This European Standard was approved by CEN on 24 August 2012.

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
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Foreword

This document (EN 13472:2012) 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 2013, and conflicting national standards shall be withdrawn at the latest by April 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 13472:2001.

The following main technical changes have been done on this new edition of EN 13472:

- a) Figure 1 has been corrected;
- b) Subclause 5.3, Tap water has been supplemented.

This European Standard has been prepared for products used to insulate building equipment and industrial installations, but it may also be applied to products used in other areas.

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.

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.

SS-EN 13472:2012 (E)

1 Scope

This European Standard specifies the equipment and procedures for determining the short term water absorption of preformed pipe insulation by partial immersion in water. It is applicable to thermal insulating products.

NOTE It is intended to simulate the water absorption caused by exposure to rain for 24 h during product installation.

If the pipe insulation is cut from a flat product, then the short term water absorption by partial immersion can be obtained from tests carried out on the flat product with similar properties in accordance with EN 1609, providing the test is carried out in the direction giving the highest water uptake.

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 13467, *Thermal insulating products for building equipment and industrial installations — Determination of dimensions, squareness and linearity of preformed pipe insulation*

3 Terms and definitions

This European Standard contains no terms and definitions.

4 Principle

The short 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 24 h.

The excess water adhering to the surface and not absorbed by the test specimen is drained off in method A, or calculated in method B, from the initial water uptake.

5 Apparatus

5.1 Balance capable of determining the mass of a test specimen to an accuracy of 0,1 g or 0,5 %, whichever is less.

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 during the test (see examples in Figures 1a) and 1b)).

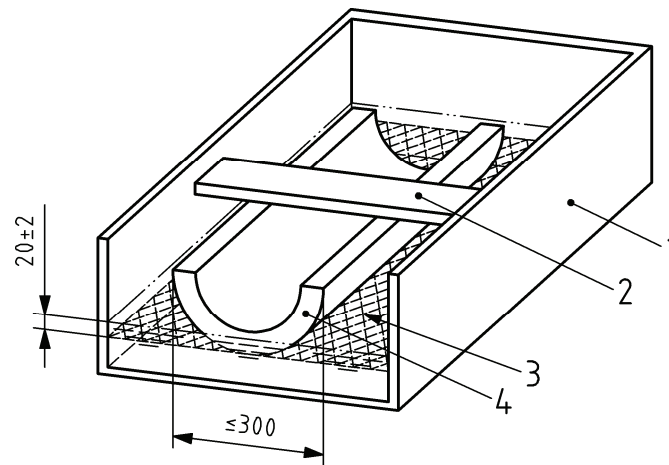
The supporting device shall be such that the test specimen contact area with water shall be at least 85 % and such that the original form of the test specimen is maintained.

5.3 Tap water adjusted to a temperature of (23 ± 5) °C.

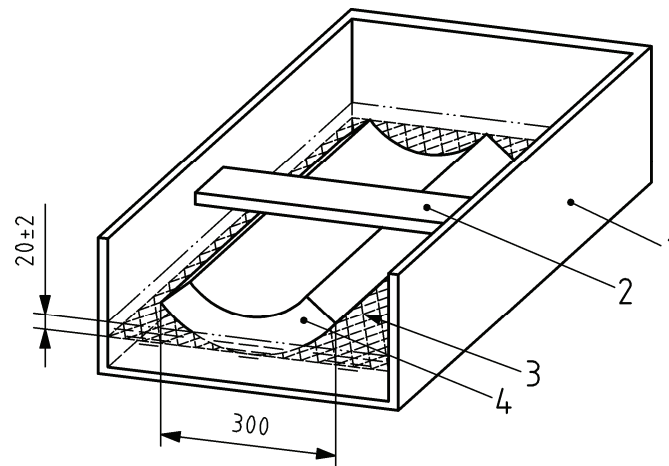
In case of dispute, deionised water shall be used.

5.4 Equipment for drainage (see examples in Figures 2a) and 2b)).

Dimensions in millimetres



a) Example for $D_0 \leq 300$ mm

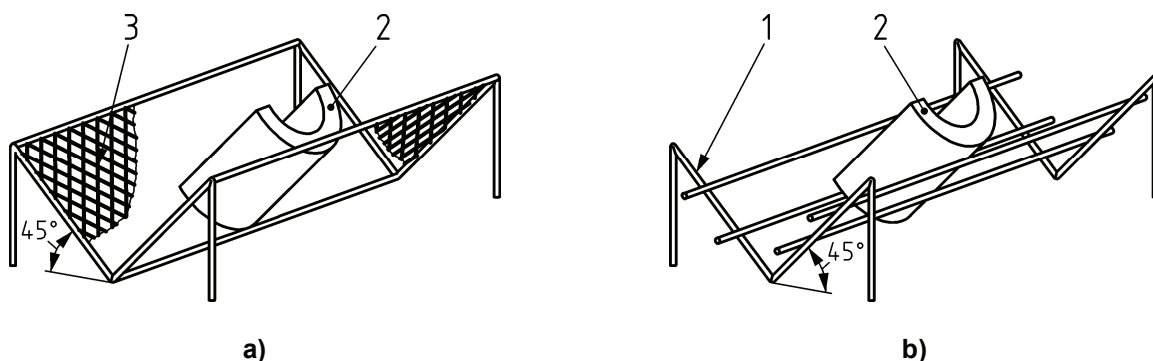


b) Example for $D_0 > 300$ mm

Key

- 1 water tank
- 2 load to keep the test specimen in position
- 3 stainless steel mesh
- 4 test specimen

Figure 1 — Examples of partial immersion test devices



Key

- 1 stainless steel mesh
- 2 test specimen
- 3 perforated stainless steel

Figure 2 — Examples of equipment for drainage

6 Test specimens

6.1 Dimensions of test specimens

Test specimens shall be prepared from the product without reducing the original thickness. In the event that the outside diameter of the product is ≤ 300 mm, the test specimen shall have one face with an area equal to the full cross sectional area of the product or half the original cross sectional area. For products with outside diameters > 300 mm, the face shall be a segment of the cross section with an outside chord length of (300 ± 10) mm.

The length of the test specimen shall be adjusted so that the area of the immersed cylindrical surface will be $(40\,000 \pm 400)$ mm².

6.2 Preparation of test specimens

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

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

NOTE Special methods of preparation, when needed, are specified in the relevant product standard.

For products with a thickness < 25 mm, the ends shall be closed to avoid water pickup on the inner main surface of the test specimen (e.g. by use of glued aluminium foil on the ends).

6.3 Number of test specimens

The number of test specimens shall be as specified in the relevant product standard. If the number is not specified, then at least three test specimens shall be used.

In the absence of a product standard or any other European Technical Specification, the number of test specimens may be agreed between parties.

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 specified in the relevant product standard.

7 Procedure

7.1 Test conditions

The test shall be carried out at (23 ± 5) °C. In case of dispute it shall be carried out at (23 ± 2) °C and (50 ± 5) % relative humidity.

7.2 Test procedure

7.2.1 General

The choice of the method A or B shall be as specified in the relevant product standard.

In the absence of a product standard or any other European Technical Specification, the method A or B may be agreed between parties.

The dimensions of the test specimens shall be measured in accordance with EN 13467.

7.2.2 Method A (drainage)

Weigh the test specimen to the nearest 0,1 g or 0,5 %, whichever is less, to determine its initial mass m_0 .

Place the test specimen with the outside surface downwards in the empty water tank and apply a sufficient load to keep the test specimen partially immersed when water is added. Carefully adjust the water added to the tank until the lowest point of the outside face of the test specimen is (20 ± 2) mm below the surface of the water (see examples in Figures 1a) and 1b)). Ensure that the water level remains constant during the test.

Remove the test specimen after 24 h and drain it for $(10 \pm 0,5)$ min by placing it supported on the exterior surface on a mesh, inclined at 45°, as shown in Figure 2a) or 2b). Weigh the test specimen again to determine the mass m_{24} .

7.2.3 Method B (deduction of initial water uptake)

Weigh the test specimen to the nearest 0,1 g or 0,5 %, whichever is less, to determine its initial mass m_0 .

Place the test specimen with the outside surface downwards in the water tank in such position that it is partially immersed in water with the lowest point of the outside face of the test specimen (20 ± 2) mm below the water level. Remove the test specimen after 10 s holding it horizontally and place it within 5 s in a plastic tray of known mass. Reweigh this tray with the test specimen to determine the mass of the test specimen including the initial water uptake m_1 .

Replace the test specimen in the water tank in the same position and apply a sufficient load to keep the test specimen partially immersed in water, with the lowest point of the outside face of the test specimen (20 ± 2) mm below the water level (see examples in Figures 1a) and 1b)). Ensure that the water level remains constant during the test.

Remove the test specimen after 24 h, holding it horizontally and place it within 5 s in the plastic tray of known mass to determine the mass m_{24} .

Method B is only applicable if the initial water uptake is: