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Värmeisoleringsprodukter för byggnader – In situ-formad lösfyllnadsisolering av expanderad polystyren (EPS) pärlor och bundna expanderade polystyrenpärlor –
Del 2: Egenskapsredovisning för bundna produkter och lösfyllnadsprodukter efter installation

Thermal insulation products of buildings – In-situ formed products from loose-fill expanded polystyrene (EPS) beads and bonded expanded polystyrene beads –
Part 2: Specification for the bonded and loose-fill products after installation

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The European Standard EN 16809-2:2017 has the status of a Swedish Standard. This document contains the official English version of EN 16809-2:2017.

Upplysningar om sakinnehållet i standarden lämnas av SIS, Swedish Standards Institute, telefon 08-555 520 00. Standarder kan beställas hos SIS Förlag AB som även lämnar allmänna upplysningar om svensk och utländsk standard.

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 Förlag AB, 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
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 16809-2

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English Version

Thermal insulation products of buildings - In-situ formed products from loose-fill expanded polystyrene (EPS) beads and bonded expanded polystyrene beads - Part 2: Specification for the bonded and loose-fill products after installation

Produits isolants thermiques destinés aux bâtiments - Produits formés sur place à partir de billes en polystyrène expansé (PSE) en vrac et de billes en polystyrène expansé liées - Partie 2: Spécification pour les produits liés et en vrac après mise en œuvre

Wärmedämmstoffe für Gebäude - An der Verwendungsstelle hergestellte Produkte aus losen expandierten Polystyrolkugeln (EPS) und gebundenen expandierten Polystyrolkugeln - Teil 2: Spezifikation für gebundene und lose Schütt- und Einblasdämmstoffe nach dem Einbau

This European Standard was approved by CEN on 23 October 2016.

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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CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

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European foreword

This document (EN 16809-2:2017) has been prepared by Technical Committee CEN/TC 88 “Thermal insulating products and materials”, 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 July 2017, and conflicting national standards shall be withdrawn at the latest by July 2017.

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.

Thermal insulation products of buildings — In situ formed products from loose-fill expanded polystyrene (EPS) beads and bonded expanded polystyrene beads, consists of the following parts:

— Part 1: *Specification for the bonded and loose filled products before installation*

— Part 2: *Specification for the bonded and loose-fill products after installation* (the present document).

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association.

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, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

1 Scope

This European Standard specifies the requirements for products of loose-fill expanded polystyrene (EPS) beads and bonded expanded polystyrene beads installed in masonry cavity walls and frame constructions.

This European Standard is a specification for the installed insulation products.

This European Standard describes, when taken together with EN 16809-1, the product characteristics that are linked to the essential requirements of the Regulation (EU) 305/2011. It also specifies the checks and tests to be used for the declarations made by the installer of the product and the rules for the evaluation of conformity.

This European Standard does not specify the required level of a given property to be achieved by a product to demonstrate fitness for purpose in a particular application. The levels required for a given application are to be found in regulations or non-conflicting standards. For example, see the note in the scope of EN 16809-1 regarding the possibility of special water penetration tests in different Member States.

Products with a declared thermal conductivity at 10 °C greater than 0,060 W/(m·K) are not covered by this standard.

This European Standard does not cover factory made expanded polystyrene products in the form of mats, batts, rolls or boards.

This European Standard does not cover products intended for airborne sound insulation and for acoustic absorption applications.

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 16809-1, *Thermal insulation products for buildings — In-situ formed loose-fill expanded polystyrene (EPS) products — Part 1: Specification for the loose-fill products before installation*

3 Terms, definitions, symbols and abbreviations

3.1 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1.1
expanded polystyrene beads
insulation material consisting of beads manufactured from expandable polystyrene or one of its copolymers with an air filled closed cellular structure

3.1.2
installed declared insulation thickness
insulation thickness as installed by the installer

3.1.3
frame construction
walls with wood or metal studs, sloping roof with insulation between rafters

3.1.4
performance chart
table giving thickness and coverage requirements for different values of declared thermal resistance

3.1.5
system
particular type of loose fill expanded polystyrene insulation used in conjunction with a defined blowing machine with a blowing hose and defined nozzle and bonding adhesive when used

3.1.6
blowing hole
hole, cut or formed, in a masonry cavity wall or frame construction, through which the expanded polystyrene is blown

3.2 Symbols and abbreviations

For the purposes of this document, the following terms and definitions apply.

d	is the installed declared insulation thickness	mm
λ_i	is one test result of thermal conductivity	W/(m·K)
λ_D	is the declared thermal conductivity	W/(m·K)
R	is the thermal resistance	m^2·K/W
R_D	is the installed declared thermal resistance	m^2·K/W
W_p	is the short-term water absorption	kg/m^2

For the purposes of this document, the following abbreviation applies.

EPS **E**xpanded **P**oly**S**tyrene

4 Requirements

4.1 General

The installer shall use an insulation product that complies with EN 16809-1 in a system appropriate to the application.

4.2 Suitability of the building for the installation of the product

The installer shall inspect the building in accordance with manufacturer's guidelines and national regulations, in order to determine whether it is suitable for application of the product. Typical checklist is given in Annex D.

4.3 *In situ* measurements and calculations

4.3.1 General

Properties of the installed product shall be assessed in accordance with Clause 5. To comply with this standard, products shall meet the requirements of 4.3.2.

One test result on a product property is the average of the measured values.

The calculated thermal resistance level is for the insulation only, disregarding the effects of studs, beams, rafters, etc.

NOTE 1 EN ISO 10456 describes how the design thermal conductivity is calculated from the declared thermal conductivity.

NOTE 2 For calculating the thermal resistance of complete building elements involving the use of these products the procedures given in EN ISO 6946 can be used.

4.3.2 The installed thermal resistance of masonry cavity wall and frame construction insulation

Thermal resistance shall be assessed by means of the procedure given in 5.4.

The installed thermal resistance can also be calculated using the formula:

$$R = d \cdot \left(1 / \lambda_D\right) \quad (1)$$

where

R is the installed thermal resistance ($m^2 \cdot K/W$);

d is the cavity/frame width (m);

λ_D is the declared thermal conductivity ($W/(m \cdot K)$).

The value of the thermal resistance level shall be rounded downward to the nearest 0,05 $m^2 \cdot K/W$ and declared in steps of 0,05 $m^2 \cdot K/W$.

5 Installation checks

5.1 Average cavity width

The minimum width and the average width of the cavity shall be established through a minimum of holes in accordance with Annex A.

The minimum cavity width shall not be less than specified by the system designer.

The area to be filled with insulation shall be calculated from the square meters of the property less the windows, doors and any obstructions.

5.2 Machine output

The blowing machine shall be set in accordance with the insulation product manufacturer's instructions. The machine output shall be adjusted to control the flow rates of beads and (where applicable) adhesive as specified by the manufacturer in accordance with Annex B.

5.3 Installed volume

The installed volume shall be monitored from the supply vehicle and volume installed shall match the volume calculated i.e. the average cavity width multiplied by the area to be filled.

In case of dispute the adequacy of fill can be determined using an endoscope in accordance with Annex C.

5.4 Thermal resistance of installed masonry cavity wall and frame construction installation

The thermal resistance shall be assessed by measurement of:

a) average cavity width according to 5.1;

b) machine output according to 5.2;

c) installed volume according to 5.3.