BRITISH STANDARD

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Thermal insulation products for buildings — In-situ thermal insulation formed from exfoliated vermiculite (EV) products

Part 2: Specification for the installed products

ICS 91.100.60

National foreword

This British Standard is the UK implementation of .

The UK participation in its preparation was entrusted to Technical Committee B/540, Energy performance of materials components and buildings.

A list of organizations represented on this committee can be obtained on request to its secretary.

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Produits isolants thermiques pour le bâtiment - Isolation thermique formée en place à base de granulats légers de Vermiculite exfoliée (EV) - Partie 2: Spécification des produits mis en place

Wärmedämmstoffe für Gebäude - An der Verwendungsstelle hergestellte Wärmedämmung mit Produkten aus expandiertem Vermiculit (EV) - Teil 2: Spezifikation für die eingebauten Produkte

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Foreword

This document (EN 14317-2:2007) 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of an identical text or by endorsement, at the latest by July 2007, and conflicting national standards shall be withdrawn at the latest by July 2007.

This draft European Standard consists of two parts. The first part, which is the harmonised part satisfying the mandate, the CPD and is the basis for the CE marking, covers the products, which are placed on the market. The second part, which is the non-harmonised part, covers the specification for the installed products.

Part 1 of this European Standard has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports the essential requirements of EU Directives.

For relationship with EU Directive(s), see informative Annex ZA, which is an integral part of Part 1 of this standard.

Attention is drawn to the need to take into account any complementary member state rules (e.g. installation rules) which together with this European Standard ensures the fitness for purpose of the installed product.

This European Standard is one of a series for mineral wool, expanded clay, expanded perlite, exfoliated vermiculite, polyurethane/polyisocyanurate, cellulose and urea formaldehyde in-situ formed insulation products used in buildings, but this standard can be used in other areas where appropriate.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

1 Scope

This European Standard specifies the requirements for the four types of exfoliated vermiculite products Vermiculite Aggregate (EVA), Coated Vermiculite (EVC), Hydrophobic Vermiculite (EVH) and Premixed Vermiculite (EVM), containing less than 1 % organic material as defined by Annex D of EN 14317-1:2004 for in-situ insulation of roofs, ceilings, walls and floors.

This Part 2 of the standard is a specification for the installed products.

This Part 2 of this standard also specifies the checks and test procedures to be used for the declaration made by the installer of the product.

This European Standard does not specify the required level of all properties to be achieved by a product to demonstrate fitness for purpose in a particular application. The required levels are to be found in regulations or non-conflicting standards.

This European Standard does not include factory made insulation products of formed shapes and boards made with exfoliated vermiculite or in-situ products intended to be used for the insulation of building equipment and industrial installations.

This European Standard does not specify performance requirements for airborne sound insulation and for acoustic absorption applications.

2 Normative references

The following referenced documents are indispensable for the application 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.

EN 823:1994, *Thermal insulating products for building applications — Determination of thickness*

EN 14317-1:2004, *Thermal insulation products for buildings — In-situ thermal insulation formed from exfoliated vermiculite (EV) products — Part 1: Specification for bonded and loose-fill products before installation*

prEN ISO 9229:2005, *Thermal insulation — Definitions of terms (ISO/DIS 9229:2005)*

3 Terms, definitions, symbols, units and abbreviated terms

3.1 Terms and definitions

For the purposes of this document, the terms and definitions given in prEN ISO 9229:2005 and the following apply.

3.1.1
exfoliated vermiculite
insulation material which results from expanding or exfoliating a natural micaceous mineral by heating

3.1.2
loose fill insulation
in-situ insulation formed by pouring the granular material into the void or cavity, without the use of a bonding material

3.1.3
bonded insulation
in-situ insulation formed by bonding the exfoliated vermiculite to itself, or to itself and the surface of the roof or ceiling

3.1.4
specifier
person responsible for the amount and thickness of the insulation and the type of product to be used in a particular installation

NOTE The specifier could be the installation contractor but is more likely to be the architect or other qualified engineer.

3.1.5
installer
person, company or organization that is responsible for installing the insulation product

3.1.6
installed insulation thickness
insulation thickness as installed by the installer

3.2 Symbols and units

Symbols and units used in this part of the standard:

d_i	is the installed thickness of the product	m
d_r	is the required thickness of the product	m
λ_D	is the declared thermal conductivity	W/(m x K)
R_D	is the declared thermal resistance	m^2 x K/W
R_s	is the specified thermal resistance	m^2 x K/W

4 Requirements

4.1 General

The installer shall use an insulation product that complies with EN 14317-1.

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. Guidance is given in Annex A.

NOTE 1 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.

NOTE 2 EN ISO 10456 describes how the design thermal conductivity is calculated from the declared thermal conductivity.

4.2 Thermal resistance

4.2.1 Required thickness

The required thermal resistance is obtained using a suitable thickness of exfoliated vermiculite. The required thickness shall be calculated by the specifier before installation starts according to the formula:

$$d_r = R_s \lambda_D \quad (1)$$

4.2.2 Declared thermal resistance

The declared thermal resistance, R_D, shall be calculated from the installed thickness, d_i, and the corresponding declared thermal conductivity value, λ_D, where $R_D = d_i/\lambda_D$.

4.3 Installed insulation thickness

The mean value of the installed thickness (5.1) shall not be less than the required thickness. No individual value shall be less than 80 % of the specified value.

5 In-situ measurements

5.1 Installed insulation thickness

The installed insulation thickness of the insulation layer shall be measured by the installer and declared.

The method of verification will vary depending on the building and the method of application. Verification shall include reference to guides or level marks placed before installation and direct measurement after installation using a calibrated depth gauge. At least five insulation thickness measurements in different places shall be made for each 100 m^2 insulation area. In case of dispute, the installed insulation thickness shall be measured in accordance with EN 823:1994, Annex A, pin and plate method.

5.2 Cavity width

The width of a cavity shall be measured through suitable holes using a calibrated depth gauge and declared as the thickness of the insulation. At least five cavity width measurements in different places shall be made for each 100 m^2 insulation area. The measurements will normally be carried out by the specifier, before installation starts.

NOTE The total number of measurements necessary to determine the nominal cavity width should take into account the construction of the building and possible damage to any cladding.

5.3 Cavity fill

The installer shall check to ensure that a cavity is full.

6 Installer's declaration

The specifier in conjunction with the installer shall declare to the customer that the work has been carried out in accordance with the requirements of this standard using an insulation product that complies with EN 14317-1.

The installer shall declare at least the following information:

— trade name and designation code of the installed product;

— declared thermal resistance;

— required thickness;

— installed thickness;

— volume of insulation material used;

— date of installation.

The installer shall also declare that the work has been carried out according to the specified procedure.

Annex A
(informative)

Suitability of the building and the insulation product

A.1 Building

The installer should ensure that the roofs, ceiling, walls and floors are structurally sound and the area is suitable to contain loose fill products or receive the bonded insulation. This assessment should take into account all aspects of the proposed installation.

On ceilings and floors with a joist or beam system, the substrate should be continuous to ensure retention of loose fill insulation products.

Provision should be made for attic ventilation and vapour barriers, if necessary, prior to installation of the insulation product in accordance with local building regulations and practice.

Where services such as pipes pass through the construction, adequate precaution should be taken to ensure that the insulation product is retained in the area to be insulated.

Roof and floor surfaces should be clean, dry and free of extraneous materials.

A.2 Insulation product

The installer should ensure that for:

— loose fill insulation the containers of the insulation product are checked to ensure the designation details agree with those given by the specifier;

— bonded insulation the designation details of the insulation product and any other materials required are checked to ensure they agree with the requirements of the specifier.

Bibliography

[1] EN ISO 6946, Building components and building elements — Thermal resistance and thermal transmittance — Calculation method (ISO 6946:1996)

[2] EN ISO 10456, Building materials and products — Procedures for determining declared and design thermal values (ISO 10456:1999)

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