



BSI Standards Publication

Thermal insulation products for building equipment and industrial installations — In- situ thermal insulation formed from exfoliated vermiculite (EV) products

Part 2: Specification for the installed
products

National foreword

This British Standard is the UK implementation of EN 15600-2:2010.

The UK participation in its preparation was entrusted to Technical Committee PRI/72, Rigid cellular materials.

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

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

© BSI 2010

ISBN 978 0 580 68710 5

ICS 91.100.60

Compliance with a British Standard cannot confer immunity from legal obligations.

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 31 August 2010.

Amendments issued since publication

Date	Text affected
------	---------------

EUROPEAN STANDARD

EN 15600-2

NORME EUROPÉENNE

EUROPÄISCHE NORM

July 2010

ICS 91.100.60

English Version

Thermal insulation products for building equipment and industrial installations - In-situ thermal insulation formed from exfoliated vermiculite (EV) products - Part 2: Specification for the installed products

Produits isolants thermiques pour l'isolation du bâtiment et les installations industrielles - Isolation thermique formée en place à base de granulats légers de vermiculite exfoliée (EV) - Partie 2: Spécification de produits mis en place

Wärmedämmstoffe für die technische Gebäudeausrüstung und für betriebstechnische Anlagen in der Industrie - An der Verwendungsstelle hergestellte Wärmedämmung mit Produkten aus expandiertem Vermiculit (EV) - Teil 2: Spezifikation für die eingebauten Produkte

This European Standard was approved by CEN on 16 May 2010.

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 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 Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, 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.



EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

Management Centre: Avenue Marnix 17, B-1000 Brussels

Contents

Page

Foreword.....	3
1 Scope	4
2 Normative references	4
3 Terms and definitions	4
3.1 Definitions	4
3.2 Symbols and abbreviations	5
3.2.1 Symbols used in this part of the standard	5
3.2.2 Abbreviations used in this part of the standard	5
4 Requirements	5
4.1 General	5
4.2 Thermal resistance	5
4.3 Installed declared insulation thickness	5
4.4 Cavity fill	6
5 In-situ measurements	6
5.1 Installed declared insulation thickness	6
5.2 Width of cavities	6
5.3 Cavity fill	6
6 Installer's declaration	6
Bibliography	7

Foreword

This document (EN 15600-2:2010) 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 January 2011, and conflicting national standards shall be withdrawn at the latest by January 2011.

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 has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

This European Standard consists of two parts which form a package. 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.

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 polyurethane/polyisocyanurate, expanded perlite and exfoliated vermiculite in-situ formed insulation products used in building equipment and industrial installations, but this standard may be used in other areas where appropriate. EN 14317-1 covers the use of expanded vermiculite in buildings.

The reduction in energy used and emissions produced during the installed life of insulation products exceeds by far the energy used and emissions made during the production and disposal processes.

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, Croatia, 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 the United Kingdom.

1 Scope

This European Standard specifies the requirement for exfoliated vermiculite products, which are used for in-situ thermal insulation of building equipment and industrial installations with an operating temperature in the range of approximately – 40 °C to + 1050 °C.

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 % by mass organic material as determined by Annex C in EN 15600-1:2010.

This European Standard is a specification for the installed products.

This European 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.

The products covered by this European Standard are not intended to be used primarily for airborne sound insulation or sound absorption applications although they may improve the performance of the installation in these respects when installed for their primary insulation intended use.

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 15600-1, *Thermal insulation products for building equipment and industrial installations — In-situ thermal insulation formed from exfoliated vermiculite (EV) products — Part 1: Specification for bonded and loose-fill products before installation*

3 Terms and definitions

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

3.1 Definitions

3.1.1

exfoliated vermiculite

insulation material that results from expanding or exfoliating a natural micaceous mineral by heating

[EN ISO 9229]

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 a surface

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

3.1.5

installer

person, company or organization which is responsible for the process of installing the insulation product

3.2 Symbols and abbreviations

3.2.1 Symbols used in this part of the standard

d is the required thickness of the product	m
λ_D is the declared thermal conductivity	W/(m·K)
R_s is the specified thermal resistance	m ² ·K/W

3.2.2 Abbreviations used in this part of the standard

EV is exfoliated vermiculite as defined in 3.1.1.

4 Requirements

4.1 General

The installer shall use an insulation product that complies with EN 15600-1.

The installer shall inspect the proposed installation, in order to determine whether it is suitable for application of the product.

4.2 Thermal resistance

The required thermal resistance is obtained using the specified thickness of exfoliated vermiculite. The thickness shall be calculated by the specifier before installation starts, according to the formula $d = R_s \lambda_D$. The required thickness shall be compared with the design specification to confirm the suitability of this product.

4.3 Installed declared insulation thickness

The mean value of the installed declared thickness shall not be less than the thickness calculated in accordance with 4.2. No individual value shall be less than 80 % of the specified value.

4.4 Cavity fill

The cavity shall be filled as specified by the specifier.

5 In-situ measurements

5.1 Installed declared insulation thickness

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

The method of verification will vary depending on the 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 m² 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 Width of cavities

The width of a cavity shall be determined by reference to design drawings or use of a suitable test. This determination will normally be carried out by the specifier, before installation starts.

5.3 Cavity fill

For insulation applied in a cavity, the installer shall check to ensure that the cavity is filled as specified.

6 Installer's declaration

The installer (in conjunction with the specifier) 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 15600-1.

The installer shall state at least the following information:

- trade name and designation code of the installed product;
- declared thermal resistance;
- required thermal resistance;
- required thickness;
- installed declared 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.

Bibliography

EN 14317-1, *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*

EN ISO 9229, *Thermal insulation — Vocabulary (ISO 9229:2007)*

British Standards Institution (BSI)

BSI is the national body responsible for preparing British Standards and other standards-related publications, information and services.

BSI is incorporated by Royal Charter. British Standards and other standardization products are published by BSI Standards Limited.

About us

We bring together business, industry, government, consumers, innovators and others to shape their combined experience and expertise into standards-based solutions.

The knowledge embodied in our standards has been carefully assembled in a dependable format and refined through our open consultation process. Organizations of all sizes and across all sectors choose standards to help them achieve their goals.

Information on standards

We can provide you with the knowledge that your organization needs to succeed. Find out more about British Standards by visiting our website at bsigroup.com/standards or contacting our Customer Services team or Knowledge Centre.

Buying standards

You can buy and download PDF versions of BSI publications, including British and adopted European and international standards, through our website at bsigroup.com/shop, where hard copies can also be purchased.

If you need international and foreign standards from other Standards Development Organizations, hard copies can be ordered from our Customer Services team.

Subscriptions

Our range of subscription services are designed to make using standards easier for you. For further information on our subscription products go to bsigroup.com/subscriptions.

With **British Standards Online (BSOL)** you'll have instant access to over 55,000 British and adopted European and international standards from your desktop. It's available 24/7 and is refreshed daily so you'll always be up to date.

You can keep in touch with standards developments and receive substantial discounts on the purchase price of standards, both in single copy and subscription format, by becoming a **BSI Subscribing Member**.

PLUS is an updating service exclusive to BSI Subscribing Members. You will automatically receive the latest hard copy of your standards when they're revised or replaced.

To find out more about becoming a BSI Subscribing Member and the benefits of membership, please visit bsigroup.com/shop.

With a **Multi-User Network Licence (MUNL)** you are able to host standards publications on your intranet. Licences can cover as few or as many users as you wish. With updates supplied as soon as they're available, you can be sure your documentation is current. For further information, email bsmusales@bsigroup.com.

BSI Group Headquarters

389 Chiswick High Road London W4 4AL UK

Revisions

Our British Standards and other publications are updated by amendment or revision.

We continually improve the quality of our products and services to benefit your business. If you find an inaccuracy or ambiguity within a British Standard or other BSI publication please inform the Knowledge Centre.

Copyright

All the data, software and documentation set out in all British Standards and other BSI publications are the property of and copyrighted by BSI, or some person or entity that owns copyright in the information used (such as the international standardization bodies) and has formally licensed such information to BSI for commercial publication and use. Except as permitted under the Copyright, Designs and Patents Act 1988 no extract may be reproduced, stored in a retrieval system or transmitted in any form or by any means – electronic, photocopying, recording or otherwise – without prior written permission from BSI. Details and advice can be obtained from the Copyright & Licensing Department.

Useful Contacts:

Customer Services

Tel: +44 845 086 9001

Email (orders): orders@bsigroup.com

Email (enquiries): cservices@bsigroup.com

Subscriptions

Tel: +44 845 086 9001

Email: subscriptions@bsigroup.com

Knowledge Centre

Tel: +44 20 8996 7004

Email: knowledgecentre@bsigroup.com

Copyright & Licensing

Tel: +44 20 8996 7070

Email: copyright@bsigroup.com



...making excellence a habit.™