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Värmeisoleringsprodukter för byggnader – In-situ-formad dispergerad styv uretancellplast (PUR) och styv isocyanuratcellplast (PIR) – Del 1: Egenskapsredovisning för cellplastsystem före installation

**Thermal insulating products for buildings – In-situ formed
dispensed rigid polyurethane (PUR) and polyisocyanurate (PIR)
foam products –
Part 1: Specification for the rigid foam dispensed system before
installation**

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EUROPEAN STANDARD

EN 14318-1

NORME EUROPÉENNE

EUROPÄISCHE NORM

January 2013

ICS 91.100.60

English Version

Thermal insulating products for buildings - In-situ formed
dispensed rigid polyurethane (PUR) and polyisocyanurate (PIR)
foam products - Part 1: Specification for the rigid foam
dispensed system before installation

Produits isolants thermiques destinés aux applications du bâtiment - Produits en mousse rigide de polyuréthane (PUR) ou de polyisocyanurate (PIR) injectée, formés en place - Partie 1 : Spécifications relatives aux systèmes d'injection de mousse rigide avant mise en œuvre

Wärmedämmstoffe für das Bauwesen - An der Verwendungsstelle hergestellter Wärmedämmstoff aus dispensiertem Polyurethan (PUR)- und Polyisocyanurat (PIR)-Hartschaum - Teil 1: Spezifikation für das Schaumsystem vor dem Einbau

This European Standard was approved by CEN on 17 November 2012.

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COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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SS-EN 14318-1:2013 (E)

Foreword

This document (EN 14318-1:2013) 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of an identical text or by endorsement, at the latest by July 2013, and conflicting national standards shall be withdrawn at the latest by July 2013.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 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).

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

This European Standard consists of two parts which form a package. The first part is the harmonised part satisfying the mandate and the CPD and is the basis for the CE marking covering the products, which are placed on the market. The second part, which is the non-harmonised part, covers the specification for the installed products. Both parts need to be used for the application of the insulation product in the end-use applications covered by EN 14318.

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

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.

This European Standard, EN 14318-1, *Thermal insulating products for buildings — In-situ formed dispensed rigid polyurethane (PUR) and polyisocyanurate (PIR) foam products*, consists of the following parts:

- *Part 1: Specification for the rigid foam dispensed system before installation* (the present document)
- *Part 2: Specification for the installed insulation products*

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.

1 Scope

This European Standard specifies requirements for in-situ formed dispensed rigid polyurethane (PUR) and rigid polyisocyanurate (PIR) foam products when installed into cavity walls.

This Part 1 of this European Standard is a specification for the rigid foam dispensing system before installation.

Part 1 of this European Standard describes the product characteristics and includes procedures for testing, marking and labelling and the rules for evaluation of conformity.

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

This European Standard does not cover factory made rigid polyurethane (PUR) or polyisocyanurate (PIR) foam insulation products or in-situ products intended to be used for the insulation of building equipment and industrial installations.

NOTE Foam products are either called flexible or rigid. The flexible products are used in upholstery and mattresses and are characterised by their ability to deflect, support and recover to their original thickness continually during their in-use phase. Those that are not flexible are termed rigid and do not possess these flexible characteristics. They are mostly used for thermal insulation purposes and vary widely in their compression strength values. Once the cell structure is crushed in a rigid foam, it does not recover its thickness fully. Some of these rigid foams are very low in density with very low compression strengths and are sometimes described “commercially” as “soft foams” or “semi-rigid” foams. This note has been included to clarify that all foams with such descriptions are covered by this standard’s used of the term rigid foam.

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 312, *Particleboards — Specifications*

EN 508-1, *Roofing products from metal sheet — Specification for self-supporting products of steel, aluminium or stainless steel sheet — Part 1: Steel*

EN 520, *Gypsum plasterboards — Definitions, requirements and test methods*

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

EN 1602, *Thermal insulating products for building applications — Determination of the apparent density*

EN 1604, *Thermal insulating products for building applications — Determination of dimensional stability under specified temperature and humidity conditions*

EN 1609, *Thermal insulating products for building applications — Determination of short term water absorption by partial immersion*

EN 12086:1997, *Thermal insulating products for building applications — Determination of water vapour transmission properties*

EN 12667:2001, *Thermal performance of building materials and products — Determination of thermal resistance by means of guarded hot plate and heat flow meter methods — Products of high and medium thermal resistance*

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EN 12939, *Thermal performance of building materials and products — Determination of thermal resistance by means of guarded hot plate and heat flow meter methods — Thick products of high and medium thermal resistance*

EN 13172:2012, *Thermal insulation products — Evaluation of conformity*

EN 13238, *Reaction to fire tests for building products — Conditioning procedures and general rules for selection of substrates*

EN 13501-1, *Fire classification of construction products and building elements — Part 1: Classification using test data from reaction to fire tests*

EN 13823:2010, *Reaction to fire tests for building products — Building products excluding floorings exposed to the thermal attack by a single burning item*

EN ISO 354, *Acoustics — Measurement of sound absorption in a reverberation room (ISO 354)*

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

EN ISO 1182, *Reaction to fire tests for products — Non-combustibility test (ISO 1182)*

EN ISO 1716, *Reaction to fire tests for products — Determination of the gross heat of combustion (calorific value) (ISO 1716)*

EN ISO 11654, *Acoustics — Sound absorbers for use in buildings — Rating of sound absorption (ISO 11654)*

EN ISO 11925-2:2010, *Reaction to fire tests — Ignitability of products subjected to direct impingement of flame — Part 2: Single-flame source test (ISO 11925-2:2010)*

ISO 4590, *Rigid cellular plastics — Determination of the volume percentage of open cells and of closed cells*

3 Terms, definitions, symbols and abbreviations

3.1 Terms and definitions

For the purposes of this document, the terms and definitions given in EN ISO 9229:2007 and the following apply.

3.1.1

polyurethane foam PUR (in-situ formed products)

rigid cellular plastics insulation material or product with a structure based on polymers mainly of the polyurethane type

3.1.2

polyisocyanurate foam PIR (in-situ formed products)

rigid cellular plastics insulation material or product with a structure based on polymers mainly of the polyisocyanurate type

3.1.3

polyurethane foam PU

rigid cellular plastics insulation materials or products including both polymer types based mainly on polyurethane (PUR) or mainly on polyisocyanurate (PIR) groups

3.1.4

rigid foam dispensing system

kit of constituent components which when dispensed generates the rigid polyurethane (PUR) foam or the rigid polyisocyanurate (PIR) foam characterised by the specified properties of the foam generated

3.1.5

isocyanate component

liquid isocyanate product which is one of the components of the rigid foam dispensing system

3.1.6

polyol component

liquid polyhydroxyl product containing an expanding agent, catalysts and other additives which is one of the components of the rigid foam dispensing system

3.1.7

cream time

time which has elapsed between the time at which the stirring procedure for the mixed components was started and the moment when the foam is observed as starting to rise (usually measured in seconds)

3.1.8

gel time

time which has elapsed between the time at which the stirring procedure for the mixed components was started and the moment when, by means of a rod (or a match) applied into the surface of the foam, a polymeric string can be drawn from the foam surface (usually measured in seconds)

3.1.9

tack-free time

time which has elapsed between the time the stirring procedure for the mixed components was started and the moment when, by means of a rod (or a match) applied to the top surface of the foam, the top surface is established as no longer tacky (usually measured in seconds)

3.1.10

free-rise density

density of the unfaced cut test specimen taken from the reaction profile test sample (see E.5)

3.1.11

mixing ratio

proportions of the components of the rigid foam dispensing system specified by the manufacturer to be dispensed to generate the rigid polyurethane or polyisocyanurate foam

Note 1 to entry: This can be expressed either as a weight or a volume ratio or both.

3.1.12

production batch

amount of a component produced discontinuously in a single period of time of a rigid foam system

3.1.13

level

given value which is the upper or lower limit of a requirement, where the level is given by the declared value of the characteristic concerned

3.1.14

class

combination of two levels of the same property between which the performance shall fall, where the level is given by the declared value of the characteristic concerned