

BRITISH STANDARD

Rigid polyisocyanurate (PIR) and polyurethane (PUR) products for building end-use applications –

**Part 1: Specification for laminated
insulation boards with auto-
adhesively or separately
bonded facings**

ICS 91.100.60



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This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 12, an inside back cover and a back cover.

Foreword

Publishing information

This British Standard was published by BSI and came into effect on 20 July 2006. It was prepared by Subcommittee PRI/72/4, *Polyurethane*, under the authority of Technical Committee PRI/72, *Rigid cellular materials*.

Supersession

This part of BS 4841 supersedes BS 4841-1:1993, which is withdrawn.

Information about this document

This revision has been introduced to specify the requirements needed to ensure fitness for purpose of those PIR and PUR cored laminated insulation boards with auto-adhesively or separately bonded flexible and rigid facings used in the insulation of cavity walls in the United Kingdom. The requirements have been written so that products conforming to BS 4841-1 also conform to BS EN 13165:2001 (including amendments 1 and 2) whilst satisfying the specified minimum performance levels of the properties included in the current standard.

The insulation boards specified in this standard are particularly suitable for use in wall cavities since their excellent thermal insulation performance enables the thin insulation boards to be attached to the outside of the inner leaf. This provides a mechanism to insulate walls by creating partially filled cavities without destroying the principle function of the cavity which is to prevent rain penetration through the wall to the indoor area of the property. These other parts of the wall provide the strength, weather and fire resistance characteristics of the insulated wall. As the insulating board is located in the wall in a non-loadbearing position, only its ease of handling during installation plus its integrity for long-term adequate thermal insulation performance need be considered from a robustness point of view.

Additional information for the guidance of users, installers and designers is given in informative Annexes A, B, C and D to this standard. The other parts of BS 4841 have also been revised to reflect recent technical advances and to take into account the European Standard BS EN 13165:2001 (including amendments 1 and 2).

Presentational conventions

The provisions of this standard are presented in roman (i.e. upright) type. Its requirements are presented in sentences in which the principal auxiliary verb is “shall”.

Commentary, explanation and general informative material is presented in smaller italic type, and does not constitute a normative element.

Contractual and legal obligations

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

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

1 Scope

This British Standard specifies requirements for rigid polyisocyanurate (PIR) and polyurethane (PUR) cored laminated insulation boards with auto-adhesively and separately bonded flexible and/or rigid facings, for use as thermal insulation for wall cavities. It also applies to products with one flexible facing and one rigid facing.

NOTE Additional information for the guidance of users, installers and designers is given in informative Annexes A, B, C and D to this standard.

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.

BS EN 822:1995, *Thermal insulating products for building applications – Determination of length and width*

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

BS EN 824:1995, *Thermal insulating products for building applications – Determination of squareness*

BS EN 825:1995, *Thermal insulating products for building applications – Determination of flatness*

BS EN 826:1996, *Thermal insulating products for building applications – Determination of compression behaviour*

BS EN 1607:1997, *Thermal insulating products for building applications – Determination of tensile strength perpendicular to faces*

BS EN 13165:2001, *Thermal insulation products for buildings – Factory made rigid polyurethane foam (PUR) products – Specification*

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

3 Terms, symbols and definitions

3.1 Terms and definitions

For the purposes of this part of BS 4841 the following terms and definitions apply.

3.1.1 auto-adhesively bonded facing

NOTE These facings can be flexible or rigid.

facing that becomes bonded onto the PIR or PUR core during the process of creating it

3.1.2 separately bonded facing

NOTE These facings can be flexible or rigid.

facing that is bonded onto the PIR or PUR core in a separate manufacturing process

3.1.3 polyisocyanurate product

rigid cellular plastics insulation material or product with a substantially closed cell structure mainly based on polymers of the isocyanurate type

3.1.4 polyurethane product

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

3.2 Symbols

d_N	nominal thickness of the product in mm
λ_D	declared thermal conductivity in mW/(m·K)
S_b	deviation from squareness in mm/m
S_{max}	maximum deviation from flatness in mm/m

4 Construction and composition**4.1 General**

The insulation boards shall consist of an insulating core (4.2) with either two bonded flexible facings (4.3), or two rigid facings (4.4), or one flexible facing (4.3) and one rigid facing (4.4).

4.2 Core product type

The cores of the product type shall be of rigid polyisocyanurate (PIR) or polyurethane (PUR).

4.3 Flexible facings

The flexible facings of the insulation boards shall be either functional or decorative, e.g. paper, metal foil, glass tissue, or mineralized glass with a minimum weight of 100 g/m², or polyethylene coated glass fibre.

NOTE The two facings need not be identical.

4.4 Rigid facings

Rigid facings shall be substantially of inorganic composition.

NOTE The type of facings and the degree of their bonding are crucial to ensure good service performance for the laminated insulation boards. The degree of bonding, if required, should conform to the recommendations given in Annex A when evaluated according to the procedure given in Annex A.