

Thermal insulation for use in pitched roof spaces in dwellings —

Part 3: Specification for cellulose fibre thermal insulation for application by blowing

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Committees responsible for this British Standard

The preparation of this British Standard was entrusted by the Elements and Components (of Diverse Materials) for Buildings Standards Committee (ECB/-) to Technical Committee ECB/38 upon which the following bodies were represented:

- Chartered Institution of Building Services
- Consumer Standards Advisory Committee of BSI
- Department of the Environment (Building Research Establishment, Fire Research Station)
- Department of the Environment (Housing and Construction Industries)
- Department of the Environment (Property Services Agency)
- Eurisol (UK) (Association of Manufacturers of Mineral Fibre Insulation)
- Greater London Council
- Independent Waste Paper Processors' Association
- Institution of Building Control Officers
- National Association of Loft Insulation Contractors
- National Council of Building Materials Producers
- Royal Institute of British Architects
- Thermal Insulation Manufacturers' Association

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Contents

	Page
Committees responsible	Inside front cover
Foreword	ii
1 Scope	1
2 Definitions	1
3 Composition and form	1
4 General properties	1
5 Thermal insulation properties	2
6 Preparation of samples	2
7 Marking	2
Appendix A Method for the measurement of the installed thickness, coverage and density of cellulose fire insulation	3
Appendix B Method of test for corrosivity	3
Appendix C Determination of settlement at high humidity	7
Appendix D Determination of vibration settlement and settled density	8
Appendix E Effect of thermal insulation on domestic PVC sheathed electrical cable	10
Appendix F Determination of thermal properties	11
Figure 1 — Plan of simulated loft area for the determination of coverage and installed thickness	5
Figure 2 — Measuring device	6
Publications referred to	Inside back cover

Foreword

This Part of BS 5803, having been prepared under the direction of the Elements and Components (of Diverse Materials) for Buildings Standards Committee. This Part covers the requirements for cellulose fibre thermal insulation for application by blowing.

Material used for thermal insulation in pitched roof spaces in dwellings should not sustain vermin or encourage the growth of fungus either when dry or wetted with clean water. It should also be free from objectionable odour when in normal use and when wetted with clean water. As these properties are of a subjective nature it is not possible to derive methods of test for them. They are not therefore included in the requirements for the materials contained in this Part but in considering the applicability of the materials in this Part they have been taken fully into account.

BS 5803 comprises the following Parts:

- *Part 1: Specification for man-made mineral fibre thermal insulation mats;*
- *Part 2: Specification for man-made mineral fibre thermal insulation in pelleted or granular form for application by blowing;*
- *Part 3: Specification for cellulose fibre thermal insulation for application by blowing;*
- *Part 4: Methods for determining flammability and resistance to smouldering;*
- *Part 5: Specification for installation of man-made mineral fibre and cellulose fibre insulation.*

Certification. It is strongly recommended that in view of the nature of this specification, manufacturers and purchasers make use of the certification facilities described on the inside back cover of this standard.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

Summary of pages

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.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

1 Scope

This Part of BS 5803 specifies requirements for cellulose fibre thermal insulation for installation by blowing in pitched roof spaces in dwellings.

This Part does not apply to other forms of thermal insulation, and does not deal with methods of installation of insulating materials or with the general principles of insulation of pitched roofs.

NOTE The titles of the publications referred to in this standard are listed on the inside back cover.

2 Definitions

For the purposes of this Part of BS 5803, the definitions given in BS 874-1 and BS 3533 apply together with the following.

2.1

usage

the mass of blown fibre per unit area installed at a given thickness (in kg/m²)

2.2

bag usage rate

the number of bags of stated mass per 100 m² of insulation installed at a given thickness

2.3

coverage

the reciprocal of usage (in m²/kg) (see Appendix A)

2.4

bag coverage rate

the coverage multiplied by the stated mass of a bag of insulation (in m² per bag)

2.5

R value

thermal resistance (in m² K/W) assessed at the appropriate thickness (see Appendix F)

3 Composition and form

The insulating material shall be composed of cellulose (wood-based) fibres treated with fire retardant and biocidal additives.

The material shall not contain extraneous foreign materials such as metal or glass.

4 General properties

4.1 The material shall not contain water soluble substances likely to accelerate the corrosion of metallic surfaces with which it comes into contact. It shall be deemed to be free from corrosive constituents if, when tested in accordance with Appendix B, no perforation of any of the metal coupons is evident.

4.2 The materials shall not exhibit more than 5 % settlement when tested in accordance with Appendix C.

4.3 The percentage settlement shall not exceed the value declared in item g) of clause 7 when tested in accordance with Appendix D.

NOTE This test is intended to simulate the effect of traffic vibration, heavy footsteps, door slamming, etc. over a period of many years.

4.4 The material shall have no deleterious effect on PVC or similarly covered electrical wiring. When tested in accordance with Appendix E, the material shall be deemed to be satisfactory if all four of the cable test pieces show no cracks in their sheathing. Any discoloration of the insulation or discoloration of the cable sheathing, or both, shall be noted as indicative of plasticizer migration, but does not in itself constitute failure.

4.5 When the material is tested at the settled density in accordance with BS 5803-4:

a) in the flammability test, the combustion zone shall not extend to within 25 mm of any part of the timber surround in any of the five specimens tested; and

b) in the smouldering resistance test, the combustion zone shall not extend to more than 150 mm from the centre line of the ignition cylinder on more than one of the first five specimens tested.

If one of the specimens gives a combustion zone extending more than 150 mm from the centre line of the cylinder, a further set of five specimens shall be tested and they shall all comply with this requirement.

5 Thermal insulation properties

5.1 The manufacturer shall declare the installed and settled thickness needed to achieve R values of 2.0, 2.5, 3.0, 3.5, 4.0, 4.5 and 5.0 m² K/W after settlement, calculated in accordance with **F.4.2** and **F.4.1** respectively.

NOTE The installed thickness required to yield R values other than those declared by the manufacturer may be determined by interpolation or extrapolation.

5.2 The actual value of R , when calculated in accordance with **F.4.3**, shall be not less than 90 % of the manufacturer's declared (or interpolated) value.

6 Preparation of samples

Samples for verification of compliance with the requirements of clause 4 shall be prepared by blowing through a commercially available blowing machine to the average installed density marked on the packaging [see item h) of clause 7].

7 Marking

Each bag (or package) shall be legibly and indelibly marked with the following.

- The number and date of this British Standard, i.e. BS 5803-3:1985¹⁾.
- The manufacturer's name, mark or symbol.
- Type of material.
- Action to be taken in the event that the material becomes accidentally soaked.
- Bag mass.
- A table, giving R values and corresponding thickness information as specified in **5.1**, together with coverage information based on the definitions and values given in **2.2**, **2.4** and items e) and h) of this clause, as follows.

R value	Thickness required		Average bag usage rate	Maximum bag coverage rate (not to be exceeded)
	As installed	After maximum settlement		
m ² K/W	mm	mm	bags/100 m ²	m ² /bag
2.0				
2.5				
3.0				
3.5				
4.0				
4.5				
5.0				

- Maximum percentage settlement.
- Average density as installed and after maximum settlement.
- Thermal conductivity (λ) as settled density and a mean temperature of 10 °C.
- Health and safety requirements regarding inhaling or ingesting dust.

¹⁾ Marking BS 5803-3:1985 on or in relation to a product represents a manufacturer's declaration of conformity, i.e. a claim by or on behalf of the manufacturer that the product meets the requirements of the standard. The accuracy of such a claim is therefore solely the responsibility of the person making the claim. Such a declaration is not to be confused with third party certification of conformity, which may also be desirable.