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Agrément Certificate

86/1593

Product Sheet 1

DERBIGUM ROOFING MEMBRANES

DERBIGUM BLACK AND MINERAL

This Agrément Certificate Product Sheet⁽¹⁾ relates to Derbigum Black and Mineral, glass and polyester reinforced, atactic polypropylene (APP) polymer-modified bitumen membranes for use as fully-bonded or partially-bonded waterproofing on flat, pitched or zero-pitched roofs with limited access.

(1) Hereinafter referred to as 'Certificate'.

CERTIFICATION INCLUDES:

- factors relating to compliance with Building Regulations where applicable
- factors relating to additional non-regulatory information where applicable
- independently verified technical specification
- assessment criteria and technical investigations
- design considerations
- installation guidance
- regular surveillance of production
- formal three-yearly review.



KEY FACTORS ASSESSED

Weathertightness — the membranes will resist the passage of moisture to the interior of the building (see section 6).

Properties in relation to fire — the membranes, when used in a suitable specification, can enable a roof to be unrestricted under the Building Regulations (see section 7).

Resistance to wind uplift — when correctly specified, the membranes will resist the effects of any wind suction acting on the roof (see section 8).

Resistance to foot traffic — the membranes will accept, without damage, the limited foot traffic and loads associated with installation and maintenance (see section 9).

Durability — under normal service conditions the membranes will provide a durable waterproof covering with a service life in excess of 40 years (see section 11).

The BBA has awarded this Certificate to the company named above for the products described herein. These products have been assessed by the BBA as being fit for their intended use provided they are installed, used and maintained as set out in this Certificate.

On behalf of the British Board of Agrément

Date of Fourth issue: 26 October 2016

John Albon – Head of Approvals
Construction Products

Claire Curtis-Thomas
Chief Executive

Originally certificated on 17 March 1986

The BBA is a UKAS accredited certification body – Number 113.

The schedule of the current scope of accreditation for product certification is available in pdf format via the UKAS link on the BBA website at www.bbacerts.co.uk

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Regulations

In the opinion of the BBA, Derbigum Black and Mineral, if installed, used and maintained in accordance with this Certificate, can satisfy or contribute to satisfying the relevant requirements of the following Building Regulations (the presence of a UK map indicates that the subject is related to the Building Regulations in the region or regions of the UK depicted):



The Building Regulations 2010 (England and Wales) (as amended)

Requirement:	B4(2)	External fire spread
Comment:		On suitable substructures the use of the membranes can enable a roof to be unrestricted under this Requirement. See section 7 of this Certificate.
Requirement:	C2(b)	Resistance to moisture
Comment:		The membranes, including joints, can enable a roof to meet this Requirement. See section 6.1 of this Certificate.
Regulation:	7	Materials and workmanship
Comment:		The membranes are acceptable. See section 11 and the <i>Installation</i> part of this Certificate.



The Building (Scotland) Regulations 2004 (as amended)

Regulation:	8(1)(2)	Durability, workmanship and fitness of materials
Comment:		The use of the membranes satisfies the requirements of this Regulation. See sections 10 and 11 and the <i>Installation</i> part of this Certificate.
Regulation:	9	Building standards applicable to construction
Standard:	2.8	Spread from neighbouring buildings
Comment:		The membranes, when applied to suitable substrates, can be unrestricted under the requirements of this Standard, with reference to clause 2.8.1 ⁽¹⁾⁽²⁾ . See sections 7.1 and 7.3 of this Certificate.
Standard:	3.10	Precipitation
Comment:		The membranes, including joints, can enable a roof to satisfy the requirements of this Standard, with reference to clauses 3.10.1 ⁽¹⁾⁽²⁾ and 3.10.7 ⁽¹⁾⁽²⁾ . See section 6.1 of this Certificate.
Standard:	7.1(a)	Statement of sustainability
Comment:		The membranes can contribute to meeting the relevant requirements of Regulation 9, Standards 1 to 6 and therefore will contribute to a construction meeting a bronze level of sustainability as defined in this Standard.
Regulation:	12	Building standards applicable to conversions
Comment:		Comments in relation to the products under Regulation 9, Standards 1 to 6, also apply to this Regulation, with reference to clause 0.12.1 ⁽¹⁾⁽²⁾ and Schedule 6 ⁽¹⁾⁽²⁾ .

(1) Technical Handbook (Domestic).

(2) Technical Handbook (Non-Domestic).



The Building Regulations (Northern Ireland) 2012 (as amended)

Regulation:	23(a)(i)(ii) (iii)(b)(i)	Fitness of materials and workmanship
Comment:		The membranes are acceptable. See section 11 and the <i>Installation</i> part of this Certificate.
Regulation:	28(b)	Resistance to moisture and weather
Comment:		The membranes, including joints, can enable a roof to satisfy the requirements of this

Regulation. See section 6.1 of this Certificate.

Regulation: 36(b)

External fire spread

Comment:

On suitable substructures, the use of the membranes can enable a roof to be unrestricted under the requirements of this Regulation. See section 7 of this Certificate.

Construction (Design and Management) Regulations 2015

Construction (Design and Management) Regulations (Northern Ireland) 2016

Information in this Certificate may assist the client, designer (including Principal Designer) and contractor (including Principal Contractor) to address their obligations under these Regulations.

See section: 1 *Description* (1.3) of this Certificate.

Additional Information

NHBC Standards 2016

NHBC accepts the use of Derbigum Black and Mineral, provided they are installed, used and maintained in accordance with this Certificate, in relation to *NHBC Standards*, Chapter 7.1 *Flat roofs and balconies*.

CE marking

The Certificate holder has taken the responsibility of CE marking the products in accordance with harmonised European Standard BS EN 13707 : 2013. An asterisk (*) appearing in this Certificate indicates that data shown are given in the manufacturer's Declaration of Performance.

Technical Specification

1 Description

1.1 Derbigum Black and Mineral are atactic polypropylene (APP) polymer-modified bitumen membranes containing glassfibre/polyester reinforcement. The lower face is a heat-activated adhesive layer.

1.2 The membranes are available in two product ranges, depending on the reinforcement:

- Derbigum Black — reinforced with a glassfibre mat (55 g·m⁻²) and a non-woven polyester core (150 g·m⁻²)
- Derbigum Mineral — reinforced with a mixed composite glass/polyester of 170 g·m⁻². Available in two finishes, slated and granules.

1.3 The nominal characteristics for the membranes are given in Table 1.

1.4 Ancillary items for use with the membranes are:

- Derbiprimer S — for use in preparation of the substrate prior to the application of the products
- Derbibond NT — a bituminous cold-applied adhesive for use in the Derbigum Rapido, NoFlame and Cold Systems
- Derbiseal S — a bituminous cold adhesive for sealing laps in the Derbigum Cold System.

Table 1 Nominal characteristics

Characteristic (unit)	Derbigum Black	Derbigum Mineral
Thickness* (mm)	4.0	4.0
Width* (m)	1.1	1.1
Roll length* (m)	8	7.27
Roll weight* (kg)	37	42 ⁽¹⁾ , 46 ⁽²⁾
Mass per unit area* (kg·m ⁻²)	4.2	5.3 ⁽¹⁾ , 5.7 ⁽²⁾
Tensile strength* (N·50 mm ⁻¹)		
longitudinal	700	900
transverse	650	700
Elongation at break* (%)		
longitudinal	45	40
transverse	45	40
Resistance to static loading* (kg)	>20	>20
Impact resistance* (mm)	>1250	>2000
Resistance to tearing* (N)		
longitudinal	200	200
transverse	200	200
Watertightness*	Pass	Pass
Shear resistance of joints* (N·50 mm ⁻¹)	560	600

(1) Slated finish.

(2) Granular finish.

2 Manufacture

2.1 The membranes are manufactured by saturating and coating the reinforcement with a mixture of bitumen, polypropylene resins and small amounts of inert fillers.

2.2 As part of the assessment and ongoing surveillance of product quality, the BBA has:

- agreed with the manufacturer the quality control procedures and product testing to be undertaken
- assessed and agreed the quality control operated over batches of incoming materials
- monitored the production process and verified that it is in accordance with the documented process
- evaluated the process for management of nonconformities
- checked that equipment has been properly tested and calibrated
- undertaken to carry out the above measures on a regular basis through a surveillance process, to verify that the specifications and quality control being operated by the manufacturer are being maintained.

2.3 The management system of the manufacturer has been assessed and registered as meeting the requirements of BS EN ISO 9001 : 2008 and BS EN ISO 14001 : 2004 by Bureau Veritas (Certificates BE007803-1 and BE006429-1 respectively).

3 Delivery and site handling

3.1 The membranes are delivered to site in rolls with plastic wrappings bearing the Certificate holder's name and the BBA logo incorporating the number of this Certificate.

3.2 The rolls must be stored on end on a clean, level surface and kept under cover.

Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on Derbigum Black and Mineral.

4 General

4.1 Derbigum Black and Mineral are satisfactory for use as:

- a cap sheet in a multi-layer system based on traditional reinforced bitumen membranes on flat, pitched or zero-pitched roofs with limited access
- a fully-bonded repair medium for existing traditional reinforced bitumen membranes or mastic asphalt roofs (ie as a complete overlay).

4.2 The membranes can be installed using two different methods of installation:

- Derbigum Torch System — fully bonded by torching
- Derbigum Rapido System — fully bonded with Derbibond NT, with laps and details torch-bonded.

4.3 For the purposes of this Certificate, flat roofs are defined as those having a minimum finished fall of 1:80, zero-pitched roofs as those having a finished fall of between 0 and 0.7 degrees, and pitched roofs as those having falls in excess of 1:6. Reference should also be made to the appropriate clauses in *Liquid Waterproofing Roofing Alliance (LWRA) Note 7 – Specifier Guidance for Flat Roof Falls*.

4.4 For design purposes, twice the minimum finished fall should be assumed, unless a detailed analysis of the roof is available, including overall and local deflection, direction of falls etc.

4.5 Limited access roofs are defined for the purpose of this Certificate as those subjected only to pedestrian traffic for maintenance of the roof waterproofing, cleaning of gutters, etc. Where traffic in excess of this is envisaged, special precautions such as additional protection to the membrane must be taken.

4.6 Decks to which the products are to be applied must comply with the relevant requirements of BS 6229 : 2003, BS 8217 : 2005 and, where appropriate, *NHBC Standards 2016*, Chapter 7.1.

4.7 Insulation materials used in conjunction with the products must be:

- as described in the relevant clauses of BS 8217 : 2005, or
- the subject of a current BBA Certificate and used in accordance with and within the limitations of that Certificate.

4.8 For zero-pitched roofs it is particularly important to identify the correct drainage system to ensure that it is effective.

5 Practicability of installation

Installation of the membranes must be carried out by installers approved by the Certificate holder.

6 Weathertightness



6.1 The membranes, including joints, when completely sealed and consolidated, will adequately resist the passage of moisture into the building and enable a roof to comply with the requirements of the national Building Regulations.

6.2 The membranes are impervious to water and when used as described in this Certificate will achieve a weathertight roof waterproofing capable of accepting minor structural movement without damage.

7 Properties in relation to fire



7.1 A system comprising a 19 mm thick plywood deck with one layer of glass-based felt and one layer of Derbigum Mineral will be unrestricted by the requirements of the national Building Regulations.



7.2 When used for flat roofs with the surface finishes listed below, defined in Part iii of Table 5 of Appendix A of Approved Document B of the Building Regulations, England and Wales, or Technical Booklet E, Table 4.6 of Part IV of the Building Regulations, Northern Ireland, the roof is deemed to be of classification $B_{ROOF}(t4)$:

- bitumen-bedded stone chippings covering the whole surface to a depth of not less than 12.5 mm
- bitumen-bedded tiles of a non-combustible material
- sand and cement screed, or
- macadam.



7.3 The designation of other specifications (eg on combustible substrates) should be confirmed by:

England and Wales — test or assessment in accordance with Approved Document B, Appendix A, Clause A1

Scotland — test to conform to Mandatory Standard 2.8, Clause 2.8.1

Northern Ireland — test or assessment carried out by a UKAS-accredited laboratory or an independent consultant with appropriate experience.

8 Resistance to wind uplift

The membranes can be used as a cap sheet for systems based on traditional bitumen felts, or as a repair medium for such roofs. Results of test data confirm that the adhesion of the products to these materials is sufficient to resist the effects of wind suction, elevated temperature and thermal shock conditions likely to occur in practice.

9 Resistance to foot traffic

The membranes can accept, without damage, the limited foot traffic and light concentrated loads associated with installation and maintenance operations. Where traffic in excess of this is envisaged, additional protection to the membrane in accordance with the Certificate holder's instructions must be provided. Reasonable care is required, however, to avoid puncture by sharp objects or concentrated loads.

10 Maintenance



10.1 The membranes must be the subject of annual inspections and maintenance to ensure continued performance.

10.2 A planned maintenance cycle, including inspections by the Certificate holder at minimum intervals of five years, should be introduced if an extended service life is required. The Certificate holder can advise on methods of extending the service life. These could include the use of thicker membranes, specific maintenance requirements, or localised replacement and repair.

10.3 Any damage should be repaired in accordance with section 14 and the Certificate holder's instructions.

11 Durability



When installed on stable substrates and regularly maintained, the products will have a life of at least 40 years.

Installation

12 General

12.1 Installation of Derbigum Black and Mineral is carried out in accordance with the Certificate holder's instructions and the relevant clauses of BS 8000-4 : 1989 and BS 8217 : 2005.

12.2 Deck surfaces must be dry, clean and free from sharp projections such as nail heads and concrete nibs.

12.3 The membranes may be laid in conditions normal to roofing work and must not be laid in rain, snow or heavy fog, nor if the temperature falls below 5°C, unless precautions against condensation have been taken.

12.4 If the roof is likely to be subjected to uncontrolled pedestrian access, the substructure must meet the requirements of clause 6.5 of BS 8217 : 2005 and to prevent damage to the roof covering one of the appropriate surface finishes referred to in clauses 6.12 and 6.13 of the code must be used.

12.5 At falls in excess of 5° (1:11), the nominal precautions against slippage and the provision for mechanical fixings as required by BS 8217 : 2005 should be observed.

12.6 In renovation of existing roofs, blisters should be opened and flattened or removed, and cracks repaired before installation of the top layer.

12.7 When used on roofs with limited access, the membranes do not require further protection.

12.8 The roofing layers must always be installed with staggered overlaps and in such a manner that no counter-seams in the direction of outlets are made.

12.9 On completion of the roof, the self-finished membrane, when used as a top layer, may have a surface finish applied in accordance with BS 8217 : 2005, Clauses 6.12 (Table 3) and 8.19. Surface finishes in the Code of Practice include:

- stone aggregate in dressing compound/gritting solution
- precast concrete paving flags
- proprietary tiles in bonding compound.

13 Procedure

Derbigum Torch System

13.1 Where required, the substrate should be primed using Derbiprimer S.

13.2 Bonding is achieved by melting the lower surface by torching, and pressing down.

13.3 When used as a cap sheet in a multi-layer system, the membranes are always bonded to a base layer complying with BS 8747 : 2007 or higher-performance roofing felts. Polyester-reinforced felts should not be used.

13.4 When used in a partially-bonded specification, a type 3G felt to BS 8747 : 2007 or equivalent should be used beneath the base layer.

13.5 Side laps should be a minimum overlap of 100 mm and end laps a minimum overlap of 150 mm. All laps should be pressure-rolled using a 15 kg long-handled lap roller. On zero-pitched roofs, all overlaps (side and end) must be a minimum of 150 mm and also pressure-rolled.

Derbigum Rapido System

13.6 Derbibond NT is applied to the substrate at a rate of 1 kg·m⁻² (unless otherwise indicated by the specification). The membrane is unrolled into the freshly-applied mastic.

13.7 Lap joints are sealed by torching, and should be a minimum overlap of 100 mm at sides and 150 mm at ends. Care should be taken to avoid getting Derbibond NT on the lap area. All laps should be pressure-rolled using a 15 kg long-handled lap roller. On zero-pitched roofs, all overlaps (side and end) must be a minimum of 150 mm and also pressure-rolled.

14 Repair

In the event of damage, the membranes can be effectively repaired by cleaning around the damaged area and applying a patch of the membrane in accordance with section 13.

15 Tests

An assessment was made of test data for the waterproofing membranes in relation to:

- thickness
- width
- mass per unit area
- tensile strength
- elongation
- nail tear strength
- unrestricted shrinkage (%)
- static indentation (expanded perlite substrate and expanded polystyrene substrate)
- dynamic indentation (expanded perlite substrate and expanded polystyrene substrate)
- fatigue cycling
- low temperature flexibility
- flow temperature
- tensile strength of joints
- peel strength of joints
- heat ageing followed by fatigue resistance, low temperature flexibility, flow temperature, tensile strength of joints and peel strength of joints
- UV ageing followed by low temperature flexibility
- water soak followed by tensile strength of joints and peel strength of joints
- wind uplift
- resistance to water penetration
- water exposure at 60°C for 180 days (joint strength, joint leakage, peel strength repeated).

16 Investigations

16.1 Test data on membranes of similar specification were evaluated in relation to:

- shear strength of joints
- peel strength of joints.

16.2 Existing data on fire performance of the products were assessed.

16.3 The manufacturing process was evaluated, including the methods adopted for quality control, and details were obtained of the quality and composition of the materials used.

16.4 User surveys were carried out to assess the performance in use of the products.

16.5 Existing sites installed between 1974 and 1976 were visited in 1990, 1995 and 2000 to assess the durability of the products.

16.6 Additional sites installed between 1973 and 1990 were visited in 2016 to assess the durability of the products.

16.7 Independent data on durability testing were assessed.

16.8 Data on the coating mass and reinforcements used in the products were evaluated.

Bibliography

BS 6229 : 2003 *Flat roofs with continuously supported coverings — Code of practice*

BS 8000-4 : 1989 *Workmanship on building sites — Code of practice for waterproofing*

BS 8217 : 2005 *Reinforced bitumen membranes for roofing — Code of practice*

BS 8747 : 2007 *Reinforced bitumen membranes (RBMs) for roofing — Guide to selection and specification*

Conditions of Certification

17 Conditions

17.1 This Certificate:

- relates only to the product/system that is named and described on the front page
- is issued only to the company, firm, organisation or person named on the front page – no other company, firm, organisation or person may hold claim that this Certificate has been issued to them
- is valid only within the UK
- has to be read, considered and used as a whole document – it may be misleading and will be incomplete to be selective
- is copyright of the BBA
- is subject to English Law.

17.2 Publications, documents, specifications, legislation, regulations, standards and the like referenced in this Certificate are those that were current and/or deemed relevant by the BBA at the date of issue or reissue of this Certificate.

17.3 This Certificate will remain valid for an unlimited period provided that the product/system and its manufacture and/or fabrication, including all related and relevant parts and processes thereof:

- are maintained at or above the levels which have been assessed and found to be satisfactory by the BBA
- continue to be checked as and when deemed appropriate by the BBA under arrangements that it will determine
- are reviewed by the BBA as and when it considers appropriate.

17.4 The BBA has used due skill, care and diligence in preparing this Certificate, but no warranty is provided.

17.5 In issuing this Certificate the BBA is not responsible and is excluded from any liability to any company, firm, organisation or person, for any matters arising directly or indirectly from:

- the presence or absence of any patent, intellectual property or similar rights subsisting in the product/system or any other product/system
- the right of the Certificate holder to manufacture, supply, install, maintain or market the product/system
- actual installations of the product/system, including their nature, design, methods, performance, workmanship and maintenance
- any works and constructions in which the product/system is installed, including their nature, design, methods, performance, workmanship and maintenance
- any loss or damage, including personal injury, howsoever caused by the product/system, including its manufacture, supply, installation, use, maintenance and removal
- any claims by the manufacturer relating to CE marking.

17.6 Any information relating to the manufacture, supply, installation, use, maintenance and removal of this product/system which is contained or referred to in this Certificate is the minimum required to be met when the product/system is manufactured, supplied, installed, used, maintained and removed. It does not purport in any way to restate the requirements of the Health and Safety at Work etc. Act 1974, or of any other statutory, common law or other duty which may exist at the date of issue or reissue of this Certificate; nor is conformity with such information to be taken as satisfying the requirements of the 1974 Act or of any statutory, common law or other duty of care.