

Juta a.s.

Melton Grove Works
Church Road
Lytham FY8 5PL

Tel: 01772 754177

e-mail: info@juta.co.uk

website: www.juta.co.uk



Agrément Certificate

12/4912

Product Sheet 1

JUTA GAS-RESISTANT MEMBRANE

GP1 GAS BARRIER

This Agrément Certificate Product Sheet⁽¹⁾ relates to GP1 Gas Barrier, for use as a low-density polyethylene gas barrier and damp-proof membrane in concrete ground floors, above and below the slab not subject to hydrostatic pressure, to protect the building against moisture, radon, methane and carbon dioxide from the ground.

(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

Resistance to water and water vapour — the membrane provides an effective barrier to the passage of liquid water and water vapour from the ground (see section 6).

Resistance to underground gases — the membrane is capable of restricting the ingress of radon, methane and carbon dioxide into the building (see section 7).

Resistance to puncture — the membrane has a high resistance to puncture and on a smooth or blinded surface will not be damaged by foot or site traffic (see section 8).

Durability — under normal service conditions, the membrane will remain effective against the ingress of water and water vapour, and will restrict the ingress of radon, methane and carbon dioxide during the lifetime of the flooring construction in which it is installed (see section 12).



The BBA has awarded this Certificate to the company named above for the product described herein. This product has been assessed by the BBA as being fit for its intended use provided it is installed, used and maintained as set out in this Certificate.

On behalf of the British Board of Agrément

Date of Third issue: 29 October 2018

John Albon – Head of Approvals
Construction Products

Claire Curtis-Thomas
Chief Executive

Originally certificated on 10 July 2012

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
Readers are advised to check the validity and latest issue number of this Agrément Certificate by either referring to the BBA website or contacting the BBA direct.

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British Board of Agrément

Bucknalls Lane
Watford
Herts WD25 9BA

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tel: 01923 665300
clientservices@bbacerts.co.uk
www.bbacerts.co.uk

Regulations

In the opinion of the BBA, GP1 Gas Barrier, 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:	C1(2)	Site preparation and resistance to contaminants
Comment:		When properly installed in a correctly designed structure, the membrane forms an effective barrier to radon, methane and carbon dioxide, enabling compliance with this Requirement. See section 7.1 of this Certificate.
Requirement:	C2(a)	Resistance to moisture
Comment:		When properly installed in a correctly designed structure, the membrane forms an effective barrier to the movement of water within the ground floor slab, enabling compliance with this Requirement. See section 6.1 of this Certificate.
Regulation:	7	Materials and workmanship
Comment:		The membrane is an acceptable material. See section 12.1 and the <i>Installation</i> part of this Certificate.



The Building (Scotland) Regulations 2004 (as amended)

Regulation:	8(1)	Durability, workmanship and fitness of materials
Comment:		The membrane can contribute to a construction satisfying this Regulation. See section 12.1 and the <i>Installation</i> part of this Certificate.
Regulation:	9	Building standards applicable to construction
Standard:	3.1	Site preparation – harmful and dangerous substances
Standard:	3.2	Site preparation – protection from radon gas
Comment:		The membrane will enable a floor to satisfy the requirements of these Standards, with reference to clauses 3.1.2 ⁽¹⁾⁽²⁾ , 3.1.6 ⁽¹⁾⁽²⁾ , 3.1.7 ⁽¹⁾⁽²⁾ , 3.1.8 ⁽¹⁾⁽²⁾ , 3.2.1 ⁽²⁾ and 3.2.2 ⁽¹⁾⁽²⁾ . See section 7.1 of this Certificate.
Standard:	3.4	Moisture from the ground
Comment:		When properly installed in a correctly designed structure, the membrane forms an effective barrier to the movement of water within the ground floor slab, enabling compliance with this Standard, with reference to clauses 3.4.2 ⁽¹⁾⁽²⁾ , 3.4.4 ⁽¹⁾⁽²⁾ and 3.4.6 ⁽¹⁾⁽²⁾ . See section 6.1 of this Certificate.
Standard:	7.1(a)	Statement of sustainability
Comment:		The membrane 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 product 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)	Fitness of materials and workmanship
Comment:	(iii)(b)(i)	The membrane is acceptable. See section 12.1 and the <i>Installation</i> part of this Certificate.
Regulation:	26	Site preparation and resistance to contaminants
Comment:		When properly installed in a correctly designed structure, the membrane forms an effective barrier to radon, methane and carbon dioxide enabling compliance with this Regulation. See section 7.1 of this Certificate.
Regulation:	28	Resistance to moisture and weather
Comment:		When properly installed in a correctly designed structure, the membrane forms an effective barrier to the movement of water within the ground floor slab, enabling compliance with this Regulation. See section 6.1 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* (1.2) of this Certificate.

Additional Information

NHBC Standards 2018

In the opinion of the BBA, GP1 Gas Barrier, if installed, used and maintained in accordance with this Certificate, can satisfy or contribute to satisfying the relevant requirements in relation to *NHBC Standards*, Chapters 4.1 *Land quality – managing ground conditions* and 5.1 *Substructure and ground bearing floors*.

CE marking

The Certificate holder has taken the responsibility of CE marking the product, in accordance with harmonised European Standard BS EN 13967 : 2012. 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 GP1 Gas Barrier is a multilayer, low-density polyethylene membrane, reinforced with a polypropylene reinforcing grid with an integral aluminium foil.

1.2 The membrane has the following nominal characteristics:

Thickness (mm)	0.6
Roll length (m)	various
Roll width (m)	various
Mass per unit area (g·m ⁻²)	370
Tensile strength* (N·50 mm ⁻¹)	
Machine direction	600
Cross direction	480
Elongation (%)	
Machine direction	20
Cross direction	20

Nail tear resistance* (N)	
Machine direction	330
Cross direction	400
Watertightness*	pass
Colour	
upper surface	various
lower surface	various.

1.3 Ancillary products for use with the membrane include:

- butyl or bitumen tape — for use for joints and laps
- jointing tape — for securing laps and joints.

1.4 Ancillary products for use with the membrane, but outside the scope of this Certificate, include:

- GP Top Hats — to seal around entry points to the membrane
- GP Internal Corner Cloaks — prefabricated corner details
- GP External Corner Cloaks — prefabricated corner details
- GP Primer — used to provide adhesion for application of bitumen enhanced geomembranes
- GP Void Vent 25 — cusped high-density polyethylene (HDPE) drainage core with a non-woven polypropylene geotextile separator/filter bonded to one side
- GP Void Vent 40 — cusped HDPE drainage core with a non-woven polypropylene geotextile separator/filter bonded to one side
- GP Protection Fleece — to form a protective layer to prevent damage to the membrane
- GR-SAM — gas-resistant self-adhesive membrane
- GP DPC — a gas resistant damp-proof course (dpc).

2 Manufacture

2.1 The membrane is manufactured by an extrusion/coating process.

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 operated by the manufacturer are being maintained.

2.3 The management system of Juta a.s. has been assessed and registered as meeting the requirements of BS EN ISO 9001 : 2008 and BS EN ISO 14001 : 2015 by Bureau Veritas (Certificates CZ002814-1 and CZ002815-1 respectively).

3 Delivery and site handling

3.1 Rolls are wrapped in polythene film. Each roll has a leaflet enclosed describing the membrane and installation details. The BBA logo and the number of this Certificate are printed on the leaflet and pallet label.

3.2 The rolls must be stacked on a flat surface, kept under cover and protected from sunlight and mechanical damage.

Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on GP1 Gas Barrier.

4 Use

4.1 GP1 Gas Barrier is satisfactory for use as a gas-resistant barrier to restrict the ingress of radon, methane and carbon dioxide into buildings from landfill and naturally occurring sources.

4.2 Buildings in areas of risk should be constructed in accordance with the recommendations of BRE Report BR 211 : 2015 and following the guidance set out in BS 8485 : 2015.

4.3 The membrane is also satisfactory for use as a damp-proof membrane in accordance with CP 102 : 1973 Section 3, BS 8000-0 : 2014 and BS 8000-4 : 1989.

5 Practicability of installation

The membrane is designed to be installed by a competent general builder, or a contractor, experienced with this type of product.

6 Resistance to water and water vapour



6.1 The membrane, 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 membrane is impervious to water and provides a waterproof layer capable of accepting minor structural movements without damage.

7 Resistance to underground gases



7.1 The membrane will restrict the ingress of radon, methane and carbon dioxide into buildings from landfill and naturally occurring sources and satisfy the performance criteria for a gas-resistant membrane as defined in BS 8485 : 2015.

7.2 Measured gas permeability/diffusion values on unjointed membrane are given in Table 1.

Table 1 Gas permeability of GP1

Gas	Method	Result
Methane	BS ISO 15105-1	$<0.09 \text{ ml}\cdot\text{m}^2\text{day}^{-1}\cdot\text{atm}^{-1}$
Carbon dioxide	BS ISO 15105-1	$<0.09 \text{ ml}\cdot\text{m}^2\text{day}^{-1}\cdot\text{atm}^{-1}$
Radon	K124/02/95	$8.0 \times 10^{-15} \text{ m}^2\cdot\text{s}^{-1}$

7.3 BRE Report BR 211 : 2015 recommends a 300 μm thick polyethylene sheet as the minimum required thickness for a radon gas-resistant membrane. It is generally accepted that other materials with comparable or higher gas resistance are suitable, provided they can withstand the construction process. In the opinion of the BBA, the membrane satisfies these criteria.

8 Resistance to puncture

8.1 The membrane can be punctured by sharp objects and care should be taken when handling building materials over the exposed surface.

8.2 Provided there are no sharp objects present on the membrane's surface prior to and during installation of the protective layer, the membrane will not be damaged by normal foot traffic.

9 Compatibility with other materials

The membrane contains an aluminium foil interlayer which may be subject to corrosion by alkaline conditions if damage to the membrane and exposure occurs. However, under normal circumstances, the polyethylene faces of the membrane are compatible with other materials and products typically used in the same areas, with the exception of those containing pitch.

10 Underfloor heating

There will be no adverse effect on the membrane from the underfloor heating under normal service conditions. In other circumstances, the Certificate holder's advice should be sought.

11 Maintenance

As the membrane is confined under concrete and has suitable durability (see section 12), maintenance is not required. However, any damage occurring before enclosure must be repaired (see section 15).

12 Durability



12.1 The membrane will, in normal circumstances, remain effective against the ingress of water and water vapour, and will restrict the ingress of radon, methane and carbon dioxide during the lifetime of the building.

12.2 Long periods of exposure to ultraviolet light will reduce the effectiveness of the membrane.

Installation

13 General

13.1 GP1 Gas Barrier must be installed and fixed in accordance with this Certificate, the Certificate holder's instructions, the relevant clauses of BRE Report BR 211 : 2015 and the guidance given in BS 8485 : 2015.

13.2 The membrane can be installed in all normal site conditions, provided that the air temperature is not below 5°C to prevent the risk of surface condensation.

14 Procedure

14.1 The membrane must only be applied to surfaces that have a smooth finish, ie they should be free from voids, projections and mortar deposits. Surfaces should be dry and free from dust and frost.

14.2 Concrete surfaces should be dense. Vertical surfaces of brickwork and blockwork must be dry and rendered to provide an even surface. Brickwork or blockwork not rendered must be flush pointed to give a smooth surface without sudden changes in level.

14.3 The membrane is rolled out with the printed side uppermost, ensuring that it is properly aligned. All end and side overlaps should be a minimum of 100 mm and prepared in accordance with the Certificate holder's instructions.

14.4 When the membrane is laid below the concrete slab, it should be loose-laid to accommodate any small movements.

14.5 All surfaces must be dried thoroughly prior to joining. Roll edges can be welded or taped. A strip of the tape is unrolled over the membrane with its nearest edge 50 mm from the membrane edge. The protective paper is removed from the butyl tape prior to rolling an adjacent run of the membrane, which must be carefully unrolled over the jointing tape, ensuring a 100 mm overlap.

14.6 All service penetrations and direction changes should be properly detailed in accordance with the Certificate holder's instructions. Service ducts should be vented to prevent the possibility of gas accumulating in confined spaces.

14.7 The continuity of the gas protection must extend over the footprint of the building, and the membrane must be sealed to a gas-resistant dpc where required.

14.8 The membrane should be covered by a screed or other protective layer, such as GP Protection Fleece, as soon as possible after installation. If blockwork protection is used, care must be taken to avoid damage to the membrane during construction.

14.9 The membrane installation should be subject to third-party independent validation, in accordance with BS 8485 : 2015.

15 Repair

Any damage to the membrane must be repaired using a patch of the membrane, and laps welded or sealed with double sided tape and secured with the butyl tape. All patched areas must extend a minimum of 100 mm from the damaged area. If required by the local authority, repair work should be confirmed by an independent validation report, as all gas membrane installations should be subject to third-party validation in accordance with BS 8485 : 2015.

Technical Investigations

16 Tests

16.1 An assessment was made of data to BS EN 13967 : 2012 in relation to:

- tensile strength and elongation
- nail tear resistance
- watertightness
- resistance to static loading.

16.2 Tests were carried out to determine:

- thickness, width, density and mass per unit area
- dimensional stability, low temperature flexibility and water vapour permeability
- tensile strength and elongation on controls and after 12 weeks heat ageing at 70°C, and after 100 hours UVB exposure
- watertightness on controls and after 12 weeks heat ageing at 70°C
- nail tear strength on controls and after 12 weeks heat ageing at 70°C
- resistance of joints to air pressure
- tensile strength of joints on controls and after 12 weeks heat ageing at 70°C

to assess:

- membrane characteristics
- durability of the membrane and joints.

17 Investigations

17.1 An evaluation was made of the results of the test data regarding permeability of radon, methane and carbon dioxide.

17.2 A site visit was conducted to assess practicability of installation.

17.3 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.

Bibliography

BRE Report BR 211 : 2015 *Radon : Guidance on protective measures for new buildings*

BS 8000-0 : 2014 *Workmanship on construction sites – Introduction and general principles*

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

BS 8485 : 2015 *Code of practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings*

BS EN 13967 : 2012 + A1 : 2017 *Flexible sheets for waterproofing — Plastic and rubber damp proof sheets including plastic and rubber basement tanking sheet — Definitions and characteristics*

BS EN ISO 9001 : 2008 *Quality management systems — Requirements*

BS EN ISO 14001 : 2015 *Environmental management systems – Requirements with guidance for use*

BS ISO 15105-1 : 2007 *Plastics. Film and sheeting. Determination of gas-transmission rate. Differential-pressure methods*

CP 102 : 1973 *Code of practice for protection of buildings against water from the ground*

K124/02-95 *Radon diffusion coefficient by Czech Technical University to test number 124-11 – Measurement of radon coefficient*

18 Conditions

18.1 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.

18.2 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.

18.3 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.

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

18.5 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.

18.6 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.

Premier Coatings Ltd

Marley Farm
Smarden
Ashford
Kent TN27 8PJ

Tel: 01233 770663 Fax: 01233 770633
e-mail: sales@premiercoatings.com
website: www.premiercoatings.com



Agrément Certificate
92/2789
Product Sheet 1

PREMIER COATINGS WATERPROOFING MEMBRANES

PREMSEAL WATERPROOFING MEMBRANES

PRODUCT SCOPE AND SUMMARY OF CERTIFICATE

This Certificate relates to Premseal Waterproofing Membranes, for use as damp-proof and waterproof membranes for solid concrete floors, underground structures etc and for internally and externally applied tanking below ground. Premseal 100 is also for use to waterproof reservoir roofs. The membrane must always be protected.

AGRÉMENT 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

Resistance to water and water vapour — the product will resist the passage of moisture in to the structure (see section 6).

Resistance to puncturing — on smooth or blinded surfaces the membranes will accept without damage the limited foot traffic and loads associated with the installation of the system (see section 7).

Durability — under normal service conditions the membranes will provide an effective barrier to moisture for the life of the concrete slab in which they are installed (see section 11).

The BBA has awarded this Agrément 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 First issue: 13 March 2012

Originally certificated on 31 March 1992

Simon Wroe
Head of Approvals — Materials

Greg Cooper
Chief Executive

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

Readers are advised to check the validity and latest issue number of this Agrément Certificate by either referring to the BBA website or contacting the BBA direct.

British Board of Agrément
Bucknalls Lane
Garston, Watford
Herts WD25 9BA

©2012

tel: 01923 665300
fax: 01923 665301
e-mail: mail@bba.star.co.uk
website: www.bbacerts.co.uk

Regulations

In the opinion of the BBA, Premseal Waterproofing Membranes, if used in accordance with the provisions of this Certificate, will meet or contribute to meeting 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)

Requirement:	C2(a)	Resistance to moisture
Comment:		The products will enable a floor to meet this Requirement. See sections 6.1 and 6.2 of this Certificate.
Requirement:	Regulation 7	Materials and workmanship
Comment:		The products are acceptable materials. See section 11 and the <i>Installation</i> part of this Certificate.



The Building (Scotland) Regulations 2004 (as amended)

Regulation:	8(1)	Fitness and durability of materials and workmanship
Comment:		The products satisfy the requirements of this Regulation. See section 11 and the <i>Installation</i> part of this Certificate.
Regulation:	9	Building standards — construction
Standard:	3.4	Moisture from the ground
Comment:		The products will enable a floor to satisfy the requirements of this Standard, with reference to clauses 3.4.1 ⁽¹⁾⁽²⁾ , 3.4.2 ⁽¹⁾⁽²⁾ , 3.4.4 ⁽¹⁾⁽²⁾ and 3.4.6 ⁽¹⁾⁽²⁾ . See sections 6.1 and 6.2 of this Certificate.
Standard:	7.1(a)	Statement of sustainability
Comment:		The products 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 — conversions
Comment:		Comments made in relation to the products under Regulation 9, Standards 1 to 6 also apply to this Regulation, with reference to clause 0.1 ⁽¹⁾⁽²⁾ and Schedule 6 ⁽¹⁾⁽²⁾ . (1) Technical Handbook (Domestic). (2) Technical Handbook (Non-Domestic).



The Building Regulations (Northern Ireland) 2000 (as amended)

Regulation:	B2	Fitness of materials and workmanship
Comment:		The products are acceptable materials. See section 11 and the <i>Installation</i> part of this Certificate.
Regulation:	C4(a)	Resistance to ground moisture and weather
Comment:		The products will enable a floor to satisfy this Regulation. See section 6.1 and 6.2 of this Certificate.

Construction (Design and Management) Regulations 2007

Construction (Design and Management) Regulations (Northern Ireland) 2007

Information in this Certificate may assist the client, CDM co-ordinator, designer and contractors to address their obligations under these Regulations.

See section: 2 *Description* (1.1) of this Certificate.

Additional Information

NHBC Standards 2011

NHBC accepts the use of Premseal Waterproofing Membranes, when installed and used in accordance with this Certificate, in relation to *NHBC Standards*, Chapter 5.1 *Substructure and ground bearing floors*, Section M8 *Damp-proof membrane*.

1 Description

1.1 Premseal Waterproofing Membranes are two-ply, self adhesive, damp-proof membranes comprising a top layer of polyethylene film bonded to a layer of bitumen/polymer adhesive carried on a release paper, with a selvage strip. The nominal characteristics of the products are:

Thickness ⁽¹⁾ (mm)	1.5
Width (m)	1.05
Roll length (m)	19.05
Roll weight (kg)	34.00
Weight per unit (kg·m ⁻²)	1.7

(1) Excluding release paper.

1.2 Premseal membranes are available in the following grades:

- Premseal 100 — a 0.1 mm thick, cross orientated, high-density, polyethylene backing film with a bitumen/polymer adhesive bottom layer, for use in waterproofing reservoir roofs and solid floors, and in internal and external tanking
- Premseal 125 — a 0.125 mm thick, low-density, polyethylene backing film with a bitumen/polymer adhesive bottom layer, for use in waterproofing solid floors and in internal and external tanking
- Premseal 250 — a 0.25 mm thick, low-density, polyethylene backing film with a bitumen/polymer adhesive bottom layer, for use in waterproofing solid floors and in internal and external tanking and underground structures.

1.3 Ancillary materials used with the membrane are:

- Premseal Primer — a solution of bitumen in a petroleum aliphatic hydrocarbon and is supplied in 5 litre and 25 litre containers
- Premboard Protection board — a 2 mm thick protection layer for use in reservoir roofs and where required in other specifications
- Premseal reinforcing tape — for reinforcing at internal and external corners
- Premseal preformed fillets — for use in internal corners.

2 Manufacture

2.1 The products are manufactured by laminating layers of polyethylene film to a bottom layer of bitumen/polymer adhesive.

2.2 To ensure product quality is consistently maintained to the required specification, the BBA has:

- agreed with the Certificate holder 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 as part of a surveillance process to ensure that standards are maintained and that the products remain as Certificated.

2.3 The management system of Premier Coatings Ltd has been assessed and registered as meeting the requirements of BS EN ISO 9001 : 2008 and/or BS EN ISO 14001 : 2004 by BSI (Certificate Q 09303).

3 Delivery and site handling

3.1 Rolls of the products are packed in cardboard containers bearing the Certificate holders's name and the BBA identification mark incorporating the number of this Certificate.

3.2 The rolls should be stacked on end and stored under cover.

3.3 Premseal Primer has a flashpoint of 39°C and is classified as 'flammable' and 'irritant' under *The Chemicals (Hazard Information and Packaging for Supply) Regulations 2009* (CHIP4)/*Classification, Labelling and Packaging of Substances and Mixtures (CLP Regulation) 2009*.

Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on Premseal Waterproofing Membranes.

Design Considerations

4 Use

4.1 Premseal Waterproofing Membranes are satisfactory for use in accordance with the relevant Clauses of CP 102 : 1973.

4.2 Premseal 100 is satisfactory for use as waterproofing for reservoir roofs when protected using a suitable ballast.

4.3 The products are compatible with concrete, smooth brickwork and blockwork or screeded substrates and are resistant to those chemicals likely to be present in normal service conditions.

5 Practicability of installation

The products are designed to be installed by a competent installer or contractor, experienced with these types of products.

6 Resistance to water and water vapour



6.1 The membranes, including joints, provide an effective barrier to the passage of liquid moisture from the ground.

6.2 The membranes have a minimum nominal sheet thickness greater than the requirements of the national Building Regulations. Therefore, the products comply with the requirements of the national Building Regulations, if installed in the manner described in the relevant documents:

England and Wales — Approved Document C, Requirement C2(a), Section 3, clauses 4.8 and 4.9

Scotland — Mandatory Standard 3.4, clauses 3.4.1, 3.4.2, 3.4.4 and 3.4.6

Northern Ireland — Regulation C4(a), Technical Booklet C, Sections 1 and 2.

6.3 The membranes are impervious to water and, when used and installed in accordance with this Certificate, will give a waterproof layer capable of acceptable minor structural movements without damage.

7 Resistance to puncturing

On smooth or blinded surfaces the membranes will accept without damage the limited foot traffic and loads associated with the installation of the system. The membranes can be punctured by sharp objects and care should be taken to avoid damage during installation, particularly when handling building materials and equipment over the surface and when placing concrete or screeds.

8 Adhesion and stability

Results of tests indicate that the adhesion of Premseal to the substrate and to itself, jointed as described in this Certificate, is satisfactory. The membrane's properties allow it to accommodate minor movements likely to occur under normal service conditions in the structure which it is incorporated.

9 Effects of temperature

9.1 At low temperatures the products will become progressively stiffer, which may make it difficult to handle. However, the products will not crack at the minimum recommended laying temperature when folded around a 20 mm diameter mandrel.

9.2 At elevated temperature the adhesive will soften, which under extreme conditions may cause slippage. With Premseal 100 there may also be the risk of curling of the laps caused by the cross-orientation of the polyethylene sheet; however when used in accordance with the *Installation* section (ie the membrane is protected as soon as possible after installation), the sheet will be restrained and will not achieve the temperatures at which these effects occur.

10 Maintenance

As the membranes are confined and have suitable durability, maintenance is not required.

11 Durability



The membranes, when fully protected and subjected to normal service conditions, will provide an effective barrier to the transmission of liquid water and water vapour for the life of the structure in which they are incorporated.

12 General

12.1 Installation of Premseal Waterproofing Membranes should be in accordance with the Certificate holder's instructions, CP 102 : 1973, Clause 11, the relevant Clauses of BS 8000-4 : 1989 and section 12 of this Certificate.

12.2 All surfaces to which Premseal is applied should have a smooth finish, ie they should be free from cavities, projections and mortar deposits. Surfaces should be dry and free from dust and frost. Concrete surfaces should be dense. Where necessary (ie for dusty or porous substrates) the surface should be primed with Premseal Primer, at the recommended coverage rate, and allowed to dry. Vertical surfaces must always be primed.

12.3 Vertical surfaces of brickwork and blockwork should be dry and rendered to provide an even surface. Brickwork and blockwork that is not rendered must be flush pointed to give a smooth surface without sudden changes in level.

12.4 Premseal can be installed in all normal site conditions provided the air temperature is not below 5°C to prevent the risk of surface condensation.

12.5 The membrane should be covered by a screed or other protective layer as soon as possible after installation. If blockwork protection is used, care must be taken to avoid damage to the membrane during construction.

13 Procedure

13.1 The release paper is removed prior to applying the membrane to the prepared substrate. As the sheet is laid the membrane must be pressed firmly from the middle to prevent trapping air.

13.2 The polyethylene strip on the selvages must be removed to expose the bitumen/polymer adhesive to facilitate lapping of the membrane.

13.3 Overlaps should be at least 50 mm onto the backing film along the roll edges and at least 100 mm onto the backing film at the roll ends of the membrane. The membrane surface to be overlapped should be dust free and, to ensure a watertight bond, the upper membrane should be firmly pressed down onto the lower one.

14 Applications

Solid concrete floors

14.1 It is essential that the damp-proof membrane in the floor should be continuous with the damp-proof course in the surrounding walls. This is achieved by continuing the membrane up internal wall surfaces to tie in with the damp-proof course. A sand/cement screed or rot-proof board should be laid immediately after the installation of the damp-proofing membrane to prevent damage.

External tanking

14.2 The membrane should be applied to the site concrete and then applied to the external face of the structure and into the internal wall. A 300 mm wide strip of membrane should be placed at the angle (containing a 50 mm by 50 mm fillet) where the horizontal surface meets the vertical surface, and at the top where it is tucked into the internal wall. A protection wall of brickwork, blockwork or protection board should be used against the membrane to protect it against puncture during backfilling.

Internal tanking

14.3 The membrane should be applied to the site concrete base as well as to the interior face of the external wall. It should be tucked into the dpc and applied down the wall and 300 mm onto the site concrete base. A minimum 300 mm wide strip of membrane should be placed at the angle (containing a 50 mm by 50 mm fillet) where the horizontal surface meets the vertical surface and the top where the membrane is lapped into the dpc. The product is applied to the walls to achieve the overlaps defined in section 13.3.

14.4 A wall, preferably concrete, should be constructed immediately after installation to protect the damp-proof membrane and to resist the action of external water pressure. Where brickwork or blockwork is used it should be set 40 mm away from the membrane to enable the space so formed to be thoroughly filled with a sand/cement mortar as the construction proceeds.

Reservoir roof

14.5 Premseal 100 is applied to the substrate as defined in sections 13.1 to 13.3. The membrane is protected using 2 mm thick Premboard Protection Board prior to application of protective ballast (such as paving slabs, pea gravel).

15 Tests

Tests were conducted on samples of Premseal Waterproofing Membranes and the results assessed to determine:

- mass per unit area
- ring and ball softening point
- water vapour permeability
- tensile strength and elongation
- dimensional stability
- low temperature unrolling
- resistance to water pressure (6 metre head)
- resistance to cracking at 0°C and 20°C
- low temperature flexibility at 0°C and -5°C
- resistance to impact
- peel strength
- static indentation
- heat aged for 56 days at 60°C followed by tensile strength and elongation
- heat aged for 28 days at 60°C followed by peel strength.

Tests on joints

- tensile strength of joints
- heat aged for 28 days at 60°C followed by tensile strength
- exposure to water, 7 days at 60°C followed by tensile strength.

16 Investigations

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

Bibliography

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

BS EN ISO 9001 : 2008 *Quality management systems — Requirements*

BS EN ISO 14001 : 2004 *Environmental Management systems — Requirements with guidance for use*

CP 102 : 1973 *Code of practice for protection of buildings against water from the ground*

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 or 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
- individual 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.