

## Solco Building Products

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**Agrément Certificate**

**20/5737**

Product Sheet 3

### SOLCO GAS-RESISTANT AND DAMP-PROOF MEMBRANES

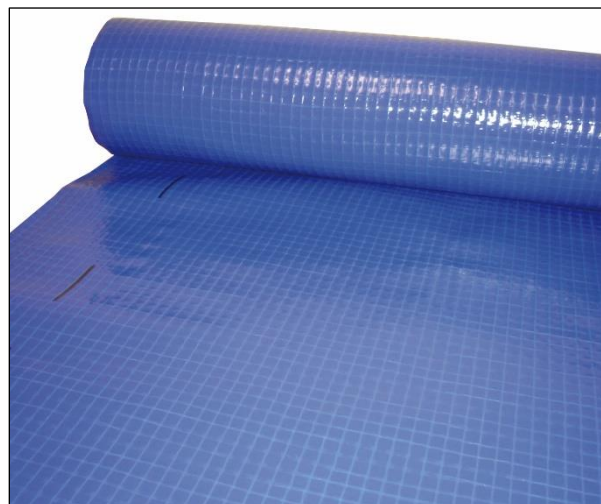
#### SOLSHIELD HIGH PERFORMANCE DPM

This Agrément Certificate Product Sheet<sup>(1)</sup> relates to the Solshield High Performance DPM, for use as a low-density polyethylene damp-proof membrane in concrete ground floors not subject to hydrostatic pressure, to protect the building against moisture 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, including joints, will resist the passage of moisture into the structure (see section 6).

**Resistance to puncture** — the membrane has a high resistance to puncture and over 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 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 First issue: 1 October 2020

Hardy Giesler  
Chief Executive Officer

*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](http://www.bbacerts.co.uk)  
Readers MUST check the validity and latest issue number of this Agrément Certificate by either referring to the BBA website or contacting the BBA directly.*

*Any photographs are for illustrative purposes only, do not constitute advice and should not be relied upon.*

#### British Board of Agrément

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## Regulations

In the opinion of the BBA, Solshield High Performance DPM, 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:** 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 sections 6.1 and 6.2 of this Certificate.

**Regulation:** 7(1)

**Materials and workmanship**

Comment:

The membrane is an acceptable material. See section 12.1 and the *Installation* 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 *Installation* part of this Certificate.

**Regulation:** 9

**Building standards applicable to construction**

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<sup>(1)(2)</sup>, 3.4.4<sup>(1)(2)</sup> and 3.4.6<sup>(1)(2)</sup>. See sections 6.1 and 6.2 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 membrane under Regulation 9, Standards 1 to 6 also apply to this Regulation, with reference to clause 0.12.1<sup>(1)(2)</sup> and Schedule 6<sup>(1)(2)</sup>.

(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 *Installation* part 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 sections 6.1 and 6.2 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 sections: 1 *Description* (1.2) of this Certificate.

### Additional Information

#### NHBC Standards 2020

In the opinion of the BBA, Solshield High Performance DPM, if installed, used and maintained in accordance with this Certificate, can satisfy or contribute to satisfying the relevant requirements in relation to *NHBC Standards*, Chapter 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.

### Technical Specification

#### 1 Description

1.1 Solshield High Performance DPM is a three-layer, low-density polyethylene membrane, reinforced with a polypropylene reinforcing grid.

1.2 The membrane has the following nominal characteristics:

Thickness (mm)	0.5 (including reinforcement scrim)
Effective thickness (mm)	0.3 (measured between the reinforcement scrim)
Roll length (m)	various
Roll width (m)	various
Mass per unit area ( $\text{g}\cdot\text{m}^{-2}$ )	275
Tensile strength ( $\text{N}\cdot 50\text{ mm}^{-1}$ )	
Machine direction	500
Cross direction	470
Elongation (%)	
Machine direction	15
Cross direction	20
Nail tear resistance (N)	
Machine direction	400
Cross direction	350
Watertightness	pass
Colour	
upper surface	various
lower surface	various.

1.3 Ancillary products for use with the membrane include:

- Solco Double Sided Butyl Jointing Tape — for use at joints and laps
- Solco Foil Lap Tape — for securing laps and joints.

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

- Solco Top Hats — to seal around entry points to the membrane
- Solco Internal Corner Cloaks — prefabricated corner details
- Solco External Corner Cloaks — prefabricated corner details
- Solco Bitumen Primer — to provide adhesion for application of bitumen-enhanced geomembranes
- Solshield Gas Venting Mat 25 — cusped high-density polyethylene (HDPE) drainage core with a non-woven polypropylene geotextile separator/filter bonded to one side
- Solshield Gas Venting Mat 40 — cusped HDPE drainage core with a non-woven polypropylene geotextile separator/filter bonded to one side
- Solco Protection Fleece — to form a protective layer to prevent damage to the membrane.

## 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.

## 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 Solshield High Performance DPM.

## Design Considerations

## 4 Use

4.1 Solshield High Performance DPM is 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.

4.2 The membrane can be used either below or above the slab and in sandwich constructions.

4.3 The product will remain flexible at the temperatures likely to occur in practice.

## 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, provides an effective barrier to the passage of liquid moisture from the ground.

6.2 The membrane will comply with the minimum sheet thickness detailed in the documents supporting the national Building Regulations.

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

## 7 Resistance to underground gases

The measured gas diffusion coefficient of the membrane is given in Table 1

*Table 1 Radon gas diffusion of Solshield High Performance DPM*

Gas	Method	Result ( $m^2 \cdot s^{-1}$ )
Radon	K124/02/95	$4.3 \times 10^{-12}$

## 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 is compatible with other materials and products typically used in the same areas.

## 10 Underfloor Heating

There will be no adverse effect on the membrane from 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 16).

## 12 Durability



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

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

## 13 Reuse and recyclability

The membrane comprises polyethylene, which can be recycled.

### 14 General

14.1 Solshield High Performance DPM must be installed and fixed in accordance with this Certificate, the Certificate holder's instructions.

14.2 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.

### 15 Procedure

15.1 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.

15.2 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.

15.3 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.

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

15.5 All surfaces must be dried thoroughly prior to the application of the butyl tape. 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.

15.6 The membrane should be covered by a screed or other protective layer, such as Solshield 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.

### 16 Repair

Any damage to the membrane must be repaired using a patch of the membrane, and laps 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.

### 17 Tests

An assessment was made of existing data relating to:

- tensile strength and elongation
- nail tear and resistance
- watertightness
- resistance to static loading
- 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
- practicability of installation

to assess:

- membrane characteristics
- durability of the membrane and joints.

## 18 Investigations

18.1 An evaluation was made of the results of the test data regarding the diffusion of radon.

18.2 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

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 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*

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 diffusion coefficient.*

### 19 Conditions

19.1 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.

19.2 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.

19.3 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.

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

19.5 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.

19.6 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.