A Proctor Group Ltd
The Haugh
Blairgowrie
Perthshire PH10 7ER

Tel: 01250 872261 Fax: 01250 872727
e-mail: contact@proctorgroup.com
website: www.proctorgroup.com

Agrément Certificate
20/5723
Product Sheet 1 Issue 2

PROTECH GAS RESISTANT MEMBRANES

PROTECH VOC FLEX

This Agrément Certificate Product Sheet(1) relates to Protech VOC Flex, a multilayer thermoplastic membrane for use as a damp-proof membrane and a gas membrane not subject to hydrostatic pressure, to protect a building from the ingress of moisture, radon, methane, carbon dioxide, hydrocarbons and volatile organic compounds (VOCs) from the ground.

(1) Hereinafter referred to as 'Certificate'.

The assessment includes

Product factors:

- compliance with Building Regulations
- compliance with additional regulatory or non-regulatory information where applicable
- evaluation against technical specifications
- assessment criteria and technical investigations
- uses and design considerations

Process factors:

- compliance with Scheme requirements
- installation, delivery, handling and storage
- production and quality controls
- maintenance and repair

Ongoing contractual Scheme elements†:

- regular assessment of production
- formal 3-yearly review

KEY FACTORS ASSESSED

Section 1. Mechanical resistance and stability
Section 2. Safety in case of fire
Section 3. Hygiene, health and the environment
Section 4. Safety and accessibility in use
Section 5. Protection against noise
Section 6. Energy economy and heat retention
Section 7. Sustainable use of natural resources
Section 8. Durability

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 Second issue: 26 April 2024
Originally certificated on 13 February 2020

Hardy Giesler
Chief Executive Officer

This BBA Agrément Certificate is issued under the BBA's Inspection Body accreditation to ISO/IEC 17020. Sections marked with † are not issued under accreditation
The BBA is a UKAS accredited Inspection Body (No. 4345), Certification Body (No. 0113) and Testing Laboratory (No. 0357).
Readers MUST check that this is the latest issue of this Agrément Certificate by either referring to the BBA website or contacting the BBA directly.
The Certificate should be read in full as it may be misleading to read clauses in isolation.
Any photographs are for illustrative purposes only, do not constitute advice and should not be relied upon.

British Board of Agrément
1st Floor Building 3
Croxley Park, Watford
Herts WD18 8YG

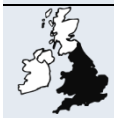
tel: 01923 665300
clientservices@bbacerts.co.uk
www.bbacerts.co.uk

SUMMARY OF ASSESSMENT AND COMPLIANCE

This section provides a summary of the assessment conclusions; readers should refer to the later sections of this Certificate for information about the assessments carried out.

Compliance with Regulations

Having assessed the key factors, the opinion of the BBA is that Protech VOC Flex, 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 Building Regulations 2010 (England and Wales) (as amended)

Requirement:	**C1(2)**	**Site preparation and resistance to contaminants**
Comment:		The product will contribute to satisfying this Requirement. See section 3 of this Certificate.
Requirement:	**C2(a)**	**Resistance to moisture**
Comment:		The product, including joints, will enable a structure to satisfy this Requirement. See section 3 of this Certificate.
Regulation:	**7(1)**	**Materials and workmanship**
Comment:		The product is acceptable. See sections 8 and 9 of this Certificate.

The Building (Scotland) Regulations 2004 (as amended)

Regulation:	**8(1)**	**Fitness and durability of materials and workmanship**
Comment:		The product is acceptable. See sections 8 and 9 of this Certificate.
Regulation:	**9**	**Building standards - construction**
Standard:	3.1	Site preparation – harmful and dangerous substances
Standard:	3.2	Site preparation – protection from radon gas
Comment:		The product can contribute to satisfying 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(1)(2) and 3.2.2(1)(2). See section 3 of this Certificate.
Standard:	3.4	Moisture from the ground
Comment:		The product will enable a structure to satisfy the requirements of this Standard, with reference to clauses 3.4.1(1)(2), 3.4.2(1)(2), 3.4.5(1)(2) and 3.4.7(1)(2). See section 3 of this Certificate
Standard:	7.1(a)	Statement of sustainability
Comment:		The product 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 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 product is acceptable. See sections 8 and 9 of this Certificate.
Regulation:	**26(1)(b)**	**Site preparation and resistance to contaminants**
Comment:	**26(2)**	The product will contribute to satisfying this Regulation. See section 3 of this Certificate.
Regulation:	**28(a)**	**Resistance to moisture and weather**
Comment:		The product can contribute to satisfying this Regulation. See section 3 of this Certificate.

Additional Information

NHBC Standards 2024

In the opinion of the BBA, Protech VOC Flex, 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*, 5.1 *Substructure and ground bearing floors* and 5.2 *Suspended ground floors*.

Fulfilment of Requirements

The BBA has judged Protech VOC Flex to be satisfactory for use as described in this Certificate. The product has been assessed as a damp-proof membrane and a gas resistant barrier to protect a building from the ingress of moisture, radon, methane, carbon dioxide, hydrocarbons and VOCs from the ground.

ASSESSMENT

Product description and intended use

The Certificate holder provided the following description for the product under assessment. Protech VOC Flex consists of layers of polyethylene, low density polyethylene (LDPE) and ethylene vinyl alcohol (EVOH), with a polypropylene reinforcing core. The product is orange in colour and has the nominal characteristics given in Table 1.

Table 1 Nominal characteristics

Characteristic (unit)	Protech VOC Flex
Thickness (mm)	0.55
Roll length (m)	50
Roll width (m)	2.0
Mass per unit area ($g \cdot m^{-2}$)	564

Ancillary Items

The Certificate holder recommends the following ancillary items for use with the product, but these materials have not been assessed by the BBA and are outside the scope of this Certificate:

- Protech VOC Starter Band — for use to continue gas/VOC protection through a cavity
- Protech Protection Boards — for use above and below the membrane to protect it from damage during installation
- Protech GM Protection Fleece — for use above and below the membrane to protect it from damage during installation
- pre-fabricated corner units and top hats
- tapes — for sealing around penetrations and pile caps
- gas-resistant damp-proof course (DPC) — used through junctions with cavities or masonry.

Definitions for products and applications inspected

The following terms are defined for the purpose of this Certificate as:

- gas-resistant membrane — as defined in BS 8485 : 2015, a membrane placed above, below or within the floor slab construction to restrict gas migration from the ground into a building
- VOCs — as defined in CIRIA C748, organic compounds that are volatile under 'normal' environmental/atmospheric conditions
- VOC vapour barrier — as defined in CIRIA C748, a barrier to a specific challenge VOC to reduce the risk associated with VOC ingress to an acceptable level.

Product assessment – key factors

The product was assessed for the following key factors, and the outcome of the assessments is shown below. Conclusions relating to the Building Regulations apply to the whole of the UK unless otherwise stated.

1 Mechanical resistance and stability

Data were assessed for the following characteristics.

1.1.1 Results of tests for mechanical properties are given in Table 2.

Table 2 Results of mechanical properties tests

Product assessed	Assessment method	Requirement	Result
Protech VOC Flex	Impact resistance to BS EN 12691 : 2018	≥ 300 mm	Pass
	Tensile strength to 12311-2 : 2013	Value achieved	
	Longitudinal		776 N·50 mm
	Transverse		655 N· 50 mm
	Elongation to 12311-2 : 2013	Value achieved	
	Longitudinal		25.2%
	Transverse		20.6%
	Resistance to static loading to BS EN 12730 : 2015	25 kg	Pass
	Trouser tear to T1-23 : 2016	Value achieved	
	Longitudinal		248 $N \cdot mm^{-1}$
	Transverse		355 $N \cdot mm^{-1}$
	Dart impact to BS EN 12691 : 2018	200 mm	Pass
	Foldability at low temperature to BS EN 495-5 : 2013	Value achieved	-15°C

1.1.2 On the basis of the test data assessed, the product can be punctured by sharp objects and care must be taken when handling building materials over the exposed surface.

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

2 Safety in case of fire

Not applicable.

3 Hygiene, health and the environment

Data were assessed for the following characteristics.

3.1 Weathertightness and damp-proofing

3.1.1 Results of weathertightness and damp-proofing tests are given in Table 3.

Table 3 Weathertightness

Product assessed	Assessment method	Requirement	Result
Protech VOC Flex	Water vapour permeability to BS EN 1931 : 2000	Declared value ± 30%	Pass
		>200 MNs·g	Pass
	Watertightness to BS EN 1928 : 2000	60 kPa	Pass
	Shear strength of joints to BS EN 12317-2 : 2010 Side joint/End joint	Value achieved	656 N/759 N

3.1.2 On the basis of the data assessed, the membrane, including joints, provides an affective barrier to the passage of liquid moisture from the ground.

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

3.2 Resistance to chemicals

3.2.1 Results of immersion tests on a range of chemicals, including hydrocarbons and those stated within CIRIA Report C748, Clause 4.2.1, are given in Table 4 of this Certificate.

Table 4 Resistance to chemicals

Test method	Exposure chemical(s)	Loss of tensile strength/elongation	Result
BS EN 14414 : 2004, Method A	Sulfuric acid (10% solution)	MD <25% / <20% CD <25 / <20%	Pass
BS EN 14414 : 2004, Method B	Calcium hydroxide solution (saturated)	MD <25% / <20% CD <25 / <20%	Pass
BS EN 14414 : 2004, Method C	Diesel, paraffin, lubricating oil mixture	MD <25% / <20% CD <25 / <20%	Pass
BS EN 14414 : 2004, Method D	Synthetic leachate comprising a mixture of organic acids, glucose, chlorides, sulfates and phosphate	MD <25% / <20% CD <25 / <20%	Pass
BS EN 14415 : 2004, Method A	Leaching by hot water (distilled water)	MD <25% / <20% CD <25 / <20%MD	Pass
BS EN 14415 : 2004, Method B	Leaching by aqueous alkaline liquids (saturated $Ca(OH)_2$)	MD <25% / <20% CD <25 / <20%MD	Pass
BS EN 14415 : 2004, Method C	Leaching by organic alcohols (30% methanol, 30% 2-propanol, 40% 1,2 ethane diol)	MD <25% / <20% CD <25 / <20%	Pass
BS EN 14414 : 2004	Benzene (saturated solution in water)	MD <25% / <20% CD <25 / <20%	Pass
	Toluene (saturated solution in water)	MD <25% / <20% CD <25 / <20%	Pass
	Ethyl benzene (saturated solution in water)	MD <25% / <20% CD <25 / <20%	Pass
	m,p,o-Xylenes (saturated solution in water)	MD <25% / <20% CD <25 / <20%	Pass
	Tetrachloroethene (saturated solution in water)	MD <25% / <20% CD <25 / <20%	Pass
	Trichloroethene (saturated solution in water)	MD <25% / <20% CD <25 / <20%	Pass
	Hexane (saturated solution in water)	MD <25% / <20% CD <25 / <20%	Pass
	Napthalene (saturated solution in water)	MD <25% / <20% CD <25 / <20%	Pass

3.2.2 Results of/gas transmission tests for a range of VOCs are given in Tables 5 and 6.

Table 5 Transmission rates of volatile organic compounds to ISO 15105-2 : 2003, Annex B(1)

Product assessed	Chemical	Requirement	Result	
Protech VOC Flex	Benzene	Value achieved	14 $ml \cdot m^{-2} \cdot day^{-1}$	48.8 $mg \cdot m^{-2} \cdot day^{-1}$
	Toluene	Value achieved	43.9 $ml \cdot m^{-2} \cdot day^{-1}$	180.6 $mg \cdot m^{-2} \cdot day^{-1}$
	Ethyl benzene	Value achieved	94 $ml \cdot m^{-2} \cdot day^{-1}$	445.5 $mg \cdot m^{-2} \cdot day^{-1}$
	Xylene	Value achieved	109.3 $ml \cdot m^{-2} \cdot day^{-1}$	518.1 $mg \cdot m^{-2} \cdot day^{-1}$
	Tetrachloroethene	Value achieved	1.2 $ml \cdot m^{-2} \cdot day^{-1}$	8.9 $mg \cdot m^{-2} \cdot day^{-1}$
	Trichloroethene	Value achieved	27.8 $ml \cdot m^{-2} \cdot day^{-1}$	163.1 $mg \cdot m^{-2} \cdot day^{-1}$
	Napthalene	Value achieved	10.8 $ml \cdot m^{-2} \cdot day^{-1}$	61.8 $mg \cdot m^{-2} \cdot day^{-1}$
	Hexane	Value achieved	10.5 $ml \cdot m^{-2} \cdot day^{-1}$	40.4 $mg \cdot m^{-2} \cdot day^{-1}$
	Vinyl chloride	Value achieved	11.9 $ml \cdot m^{-2} \cdot day^{-1}$	33.2 $mg \cdot m^{-2} \cdot day^{-1}$
	Bromoform	Value achieved	148.1 $ml \cdot m^{-2} \cdot day^{-1}$	1671.0 $mg \cdot m^{-2} \cdot day^{-1}$
	Carbon Tetrachloride	Value achieved	20.4 $ml \cdot m^{-2} \cdot day^{-1}$	140.1 $mg \cdot m^{-2} \cdot day^{-1}$
	Chloroform	Value achieved	22.1 $ml \cdot m^{-2} \cdot day^{-1}$	117.8 $mg \cdot m^{-2} \cdot day^{-1}$
	Ethylene Dichloride	Value achieved	63.4 $ml \cdot m^{-2} \cdot day^{-1}$	280.1 $mg \cdot m^{-2} \cdot day^{-1}$
	Methyl Teriary Butyl Ether	Value achieved	11.7 $ml \cdot m^{-2} \cdot day^{-1}$	46.0 $mg \cdot m^{-2} \cdot day^{-1}$

(1) Non-contact method.

Table 6 Measured gas transmission rates

Product assessed	Assessment method	Requirement	Result
Protech VOC Flex	Transmission rate of volatile liquid to ISO 6179 : 2010, Method B – Diesel	Value achieved	0.0999 $g \cdot m^{-2} \cdot h^{-1}$
	Transmission rate of volatile liquid to ISO 6179 : 2010, Method B - Xylene	Value achieved	1.855 $g \cdot m^{-2} \cdot h^{-1}$
	Transmission rate of volatile liquid to ISO 6179 : 2010, Method B - Toluene	Value achieved	3.283 $g \cdot m^{-2} \cdot h^{-1}$
	Transmission rate of volatile liquid to ISO 6179 : 2010, Method B - Petrol	Value achieved	2.341 $g \cdot m^{-2} \cdot h^{-1}$

3.2.2 On the basis of data assessed, the product, including hot air welded joints, is resistant to the chemicals commonly found on construction sites.

3.2.3 Site-specific examination and assessment must be carried out to CIRIA Report C682 and CIRIA Report C716 on a case by case basis by a suitably competent and experienced individual, to establish the suitability for any specific application and the need for any additional testing.

3.3 Resistance to underground gases

3.3.1 The result of a methane transmission test is given in Table 7.

Table 7 Measured methane transmission rates

Product assessed	Assessment method	Requirement	Result
Protech VOC Flex	Methane transmission to ISO 15105-1 : 2007	BS 8485 : 2015 <40.0 $ml \cdot m^{-2} \cdot day^{-1}$	≤0.1

3.3.2 On the basis of data assessed, the product will restrict the ingress of radon, methane and carbon dioxide into buildings from landfill and naturally occurring sources, and meets the performance criteria for a gas-resistant membrane as defined in BS 8485 : 2015.

4 Safety and accessibility in use

Not applicable.

5 Protection against noise

Not applicable.

6 Energy economy and heat retention

Not applicable.

7 Sustainable use of natural resources

7.1 Reuse and recyclability

The product contains polyethylene, which can be recycled.

8 Durability

8.1 The potential mechanisms for degradation and the known performance characteristics of the materials in the product were assessed.

8.2 Specific test data were assessed as given in Table 8.

Table 8 Measured gas transmission rates of Protech VOC Flex

Product assessed	Assessment method	Requirement	Result
Protech VOC Flex	Dimensional stability to BS EN 1107-2 : 2001	Value achieved	±0.1%
	Airtightness of joints to MOAT 27 : 1983 Control	10 kPa/30 mins no leakage	Pass
	Airtightness of joints to MOAT 27 : 1983 Heat aged for 84 days at 70°C	10 kPa/30 mins no leakage	Pass
	Airtightness of joints to MOAT 27 : 1983 Immersed for 56 days at 50 °C	10 kPa/30 mins no leakage	Pass
	Shear strength of joints to BS EN 12317-2 : 2010	Value achieved	
	Heat aged/water soak retained strength		
	Side joint		105%/101%
	End joint		103%/98%

8.4 Service life

8.4.1 Under normal service conditions, the product will have a life of at least equivalent to the building in which it is installed, provided it is designed, and maintained in accordance with this Certificate and the Certificate holders instructions.

8.4.2 The product will not be significantly affected by short term exposure to ultraviolet (UV) light. However, it must be protected as soon as practicable after installation.

PROCESS ASSESSMENT

Information provided by the Certificate holder was assessed for the following factors:

9 Design, installation, workmanship and maintenance

9.1 Design

9.1.1 The design process was assessed, against the requirements of, BS 8000-4 : 1989, BS 8485: 2015, CP 102 : 1973 Section 3, this Certificate and the Certificate holder's instructions and the following requirements apply in order to satisfy the performance assessed in this Certificate.

9.1.2 The design of gas and VOC protection systems must be carried out by suitably experienced and competent individuals with sufficient knowledge of ground gas risk and the construction methods and materials.

9.1.3 The continuity of the gas protection must extend over the footprint of the building, and the product must be sealed to a gas resistant DPC, or starterband with separate DPC above.

9.1.4 Hot air welding specifications must be obtained from the Certificate holder, but such advice is outside the scope of this Certificate.

9.1.5 Where the construction is subject to NHBC requirements reference must be made to NHBC NF94 *Hazardous Ground gas – an essential guide for housebuilders*.

9.2 Installation

9.2.1 Installation instructions provided by the Certificate holder were assessed and judged to be appropriate and adequate.

9.2.3 Installation must be carried out in accordance with this Certificate, the Certificate holder's instructions, and where relevant, following the relevant clauses of BRE Report BR 211 : 2023, BS 8485 : 2015, CIRIA Report C748 : 2014 and NHBC NF 94.

9.2.4 All gas membrane installations must be subject to third party validation, in accordance with BS 8485 : 2015.

9.2.5 The product 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.

9.2.6 The surface onto which the product is to be laid must be smooth, dry and free from sharp protrusions and debris that could damage the membranes. Brickwork or blockwork must be flush pointed or rendered to provide a smooth surface.

9.2.7 For chemical, gas resistance, VOC and all NHBC applications, the product must be installed with hot air welded joints in accordance with the Certificate holder's instructions.

9.2.8 The product must be protected as soon as possible after it is installed to minimise direct foot trafficking. Direct trafficking by vehicles must be avoided.

9.2.9 The product must normally only be installed over a surface that has a smooth finish, ie it must be free from voids, projections and mortar deposits (see section 9.2.10). Surfaces must also be dry and free from dust and frost.

9.2.10 Unless the base is smooth, a surface blinding of soft sand (or similar material) must be used to prevent puncturing during installation, or when concrete screed is being placed.

9.2.11 If the product is to be installed below a reinforced floor or concrete slab, it must be covered with a screed or protection layer prior to the positioning of the reinforcement.

9.2.12 If the product is installed above the slab, insulation must be delayed until just before the layer of the screed or flooring, to avoid damage from site traffic.

9.2.13 The membrane must be rolled out and properly aligned to the structure.

9.2.14 Each joint must consist of two 15 mm weld tracks, with a 20 mm gap between.

9.2.15 All surfaces must be dry before welding.

9.2.16 Before welding work is carried out, trials must be completed to determine the 'operating window' for the welding equipment, materials and ambient conditions. In case of doubt, the Certificate holder must be consulted for advice, but such advice is outside the scope of this Certificate.

9.2.17 Weld widths must be a minimum of 50 mm and must be checked for integrity after being formed.

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

9.2.19 The product must be protected from UV light and mechanical damage as soon as possible after installation.

9.4 Workmanship

9.4.1 To achieve the performance described in this Certificate, installation of Protech VOC Flex must be carried out by a suitably experienced and competent groundwork installer experienced with this type of product'.

9.4.2 The BBA operates an Approved Installer Scheme for gas membranes; details of approved installer companies are included on the BBA website (www.bbacerts.co.uk).

9.5 Maintenance and repair

9.5.1 As the product is confined within the structure and has suitable durability, maintenance is not required. However, any damage occurring before enclosure must be repaired.

9.5.2 Any damage to the product must be repaired using a patch of the product, and laps welded or sealed with tape and secured over the edges with a suitable sealing tape. The Certificate holder can advise on suitable materials, but such advice and products are outside the scope of this Certificate. All patched areas must extend a minimum of 100 mm from the damaged area.

9.5.3 If required by the local authority, the adequacy of repair work must be confirmed by an independent validation report.

10 Manufacture

10.1 The production processes for the product have been assessed, and provide assurance that the quality controls are satisfactory according to the following factors:

10.1.1 The manufacturer has provided documented information on the materials, processes, testing and control factors.

10.1.2 The quality control operated over batches of incoming materials has been assessed and deemed appropriate and adequate.

10.1.3 The quality control procedures and product testing to be undertaken have been assessed and deemed appropriate and adequate.

10.1.4 The process for management of non-conformities has been assessed and deemed appropriate and adequate.

10.1.5 An audit of each production location was undertaken, and it was confirmed that the production process was in accordance with the documented process, and that equipment has been properly tested and calibrated.

† 10.2 The BBA has undertaken to review 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.

11 Delivery and site handling

11.1 The Certificate holder stated that the product is delivered to site in 50 x 2 m rolls wrapped with cardboard protection on pallets. Pallets include a maximum of 12 rolls.

11.2 The rolls have a nominal weight of 56 kg.

ANNEX A – SUPPLEMENTARY INFORMATION †

Supporting information in this Annex is relevant to the product but has not formed part of the material assessed for the 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.

CLP Regulations

The Certificate holder has taken the responsibility of classifying and labelling the product under the *GB CLP Regulation* and *CLP Regulation (EC) No 1272/2008 - classification, labelling and packaging of substances and mixtures.* Users must refer to the relevant Safety Data Sheet(s).

UKCA marking

The Certificate holder has taken the responsibility of UKCA marking the product, in accordance with Designated Standard EN 13967 : 2012.

CE marking

The Certificate holder has taken the responsibility of CE marking the product, in accordance with harmonised European Standard EN 13967 : 2012.

Management Systems Certification for production

The management system of the manufacturer has been assessed and registered as meeting the requirements of EN ISO 9001 : 2015 by Bureau Veritas, Belgium (Certificate BE011118).

VOC resistance test results

Table 9 Resistance to chemicals

Test method	Exposure chemical(s)	Retained tensile strength/elongation
BS EN 14414 : Method A	Sulfuric acid (10% solution)	MD 105/91 CD 96/94
BS EN 14414 : Method B	Calcium hydroxide solution (saturated)	MD 100/89 CD 100/93
BS EN 14414 : Method C	Diesel, paraffin, lubricating oil mixture	MD 99/91 CD 88/95
BS EN 14414 : Method D	Synthetic leachate comprising a mixture of organic acids, glucose, chlorides, sulfates and phosphate	MD 906/94 CD 93/99
BS EN 14415 : Method A	Leaching by hot water (distilled water)	MD 105/93 CD 103/99
BS EN 14415 : Method B	Leaching by aqueous alkaline liquids (saturated $Ca(OH)_2$)	MD 105/99 CD 102/97
BS EN 14415 : Method C	Leaching by organic alcohols (30% methanol, 30% 2-propanol, 40% 1,2 ethane diol)	MD 106/91 CD 107/113
BS EN 14414	Benzene (saturated solution in water)	MD 100/89 CD 100/93
	Toluene (saturated solution in water)	MD 99/91 CD 88/95
	Ethyl benzene (saturated solution in water)	MD 906/94 CD 93/99
	m,p,o-Xylenes (saturated solution in water)	MD 95/100 CD 88/98
	Tetrachloroethene (saturated solution in water)	MD 98/100 CD 89/111
	Trichloroethene (saturated solution in water)	MD 97/103 CD 91/65
	Hexane (saturated solution in water)	MD 97/92 CD 95/112
	Napthalene (saturated solution in water)	MD 98/93 CD 96/102

Bibliography

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

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

BS 8485 : 2015 +A 1 : 2019 *Code of practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings*

BS EN 495-5 : 2013 *Flexible sheets for waterproofing. Determination of foldability at low temperature - Plastic and rubber sheets for roof waterproofing*

BS EN 1107-2 : 2001 *Flexible sheets for waterproofing — Determination of dimensional stability — Plastic and rubber sheets for roof waterproofing*

BS EN 1928 : 2000 *Flexible sheets for waterproofing — Bitumen, plastic and rubber sheets for roof waterproofing. Determination of watertightness*

BS EN 1931 : 2000 *Flexible sheets for waterproofing — Determination of shear resistance of joints — Plastic and rubber sheets for roof waterproofing*

BS EN 12311-2 : 2013 *Flexible sheets for waterproofing — Determination of tensile properties — Plastic and rubber sheets for roof waterproofing*

BS EN 12317-2 : 2010 *Flexible sheets for waterproofing — Determination of shear resistance of joints — Plastic and rubber sheets for roof waterproofing*

BS EN 12691 : 2018 *Flexible sheets for waterproofing — Bitumen, plastic and rubber sheets for roof waterproofing — Determination of resistance to impact*

BS EN 12730 : 2015 *Flexible sheets for waterproofing — Bitumen, plastic and rubber sheets for roof waterproofing — Determination of resistance to static loading*

BS EN 14414 : 2004 *Geosynthetics — Screening test method for determining chemical resistance for landfill applications*
BS EN 14415 : 2004 *Geosynthetic barriers — Test method for determining the resistance to leaching*

CIRIA Report C682 : 2009 *The VOCs Handbook. Investigating, assessing and managing risks from inhalation of VOCs at land affected by contamination*

CIRIA Report C716 : 2012 *Remediating and mitigating risks from volatile organic compound (VOC) vapours from land affected by contamination*

CIRIA Report C748 : 2014 *Guidance on the use of plastic membranes as VOC vapour barriers*

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

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*

EN ISO 9001 : 2015 *Quality management systems — Requirements*

ISO 6179 : 2010 *Rubber, vulcanized or thermoplastic — Rubber sheets and rubber-coated fabrics — Determination of transmission rate or volatile liquids (gravimetric technique)*

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

MOAT 27 : 1983 *General Directive for the Assessment of Roof Waterproofing Systems*

Conditions

1 This Certificate:

- relates only to the product 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.

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.

3 This Certificate will be displayed on the BBA website, and the Certificate Holder is entitled to use the Certificate and Certificate logo, provided that the product 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.

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

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

6 Any information relating to the manufacture, supply, installation, use, maintenance and removal of this product which is contained or referred to in this Certificate is the minimum required to be met when the product 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.

British Board of Agrément
Building 3, Hatters Lane
Croxley Park, Watford
Herts WD18 8YG
tel: 01923 665300
clientservices@bbacerts.co.uk
www.bbacerts.co.uk