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Agrément Certificate

22/6076

Product Sheet 1

GP SELF ADHESIVE WATERPROOFING AND GAS CONTROL MEMBRANES

GP 1 SAM

This Agrément Certificate Product Sheet⁽¹⁾ relates to GP 1 SAM, a self-adhesive membrane incorporating a multilayer low-density polyethylene (LDPE) film reinforced with a polypropylene mesh and aluminium foil, for use as a damp-proof and waterproofing membrane and to protect the building from the ingress of 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 product, including joints, will provide an effective barrier to the passage of water under hydrostatic pressure and water vapour from the ground (see section 6).

Resistance to underground gases — the product will restrict the ingress of radon, methane and carbon dioxide into the structure (see section 7).

Resistance to mechanical damage — the product will accept without damage the limited foot traffic and loads associated with installation (see section 8).

Adhesion — the adhesion of the product to the substrate and to itself is satisfactory (see section 9).

Durability — under normal service conditions, the product will remain effective against the ingress of moisture, and will restrict the ingress of radon, methane and carbon dioxide from the ground for the life of the structure in which it is installed (see section 11).

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: 12 May 2022

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
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.

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Regulations

In the opinion of the BBA, GP 1 SAM, 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: Comment:	C1(2)	Site preparation and resistance to contaminants The product will contribute to a construction satisfying this Requirement with regard to radon, methane and carbon dioxide. See sections 7.1 and 7.2 of this Certificate.
Requirement: Comment:	C2(a)	Resistance to moisture The product, including joints, will enable a structure to satisfy this Requirement. See section 6 of this Certificate.
Regulation: Comment:	7(1)	Materials and workmanship The product is acceptable. See section 11.1 and the <i>Installation</i> part of this Certificate.



The Building (Scotland) Regulations 2004 (as amended)

Regulation: Comment:	8(1)	Durability, workmanship and fitness of materials The use of the product satisfies the requirements of this Regulation. See section 11.1 and the <i>Installation</i> part of this Certificate.
Regulation: Standard: Standard: Comment:	9 3.1 3.2	Building standards applicable to construction Site preparation – harmful and dangerous substances Site preparation – protection from radon gas When properly installed in a correctly designed structure, the product will form an effective barrier to the movement of radon, methane and carbon dioxide from the ground enabling compliance with these Standards, with reference to clauses 3.1.2 ⁽¹⁾⁽²⁾ , 3.1.6 ⁽¹⁾⁽²⁾ , 3.1.7 ⁽¹⁾⁽²⁾ and 3.2.2 ⁽¹⁾⁽²⁾ . See sections 7.1 and 7.2 of this Certificate.
Standard: Comment:	3.4	Moisture from the ground The product, including joints, will enable a structure to satisfy the requirements of this Standard, with reference to clauses 3.4.2 ⁽¹⁾⁽²⁾ , 3.4.4 ⁽¹⁾⁽²⁾ 3.4.6 ⁽¹⁾⁽²⁾ . See section 6 of this Certificate.
Standard: Comment:	7.1(a)	Statement of sustainability 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: Comment:	12	Building standards applicable to conversions 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: Comment:	23(a)(i) (iii)(b)(i)	Fitness of materials and workmanship The product is acceptable. See section 12.1 and the <i>Installation</i> part of this Certificate.
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Regulation:	26(1)(b),	Site preparation and resistance to contaminants
Comment:	26(2)	The product will contribute to a construction satisfying the requirements of this Regulation with regard to radon, methane and carbon dioxide. See sections 7.1, 7.2 of this Certificate.
Regulation:	28(a)	Resistance to moisture and weather
Comment:		The product, including joints, will enable a structure to satisfy this Regulation. See section 6 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: 3 *Delivery and site handling* (3.1, 3.4 and 3.5) of this Certificate.

Additional Information

NHBC Standards 2022

In the opinion of the BBA, GP 1 SAM, 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*, Clause 5.1.20 *Damp-proofing concrete floors* and 5.4 *Waterproofing of basements and other below ground structures*, for use externally as a post applied membrane.

Where Grade 2 or 3 protection is required and the below ground wall retains more than 600 mm measured from the top of the retained ground to the lowest finished floor level, the product must be used in combination with either Type B or C waterproofing protection, as defined in BS 8102 : 2022.

The Certificate holder should be consulted for approved Type B and C solutions.

CE marking

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

Technical Specification

1 Description

1.1 GP 1 SAM is a nominal 1.2 mm thick membrane comprising a multilayer, LDPE membrane, reinforced with a polypropylene reinforcing grid with an integral aluminium foil and a self-adhesive polymer modified bitumen compound applied to one face. The self-adhesive layer is protected with a siliconized polypropylene release film. The product has the nominal characteristics given in Table 1.

Table 1 Nominal characteristics

Characteristic (unit)	Value
Thickness (mm)	1.2
Effective thickness (mm)	0.9
Roll length (m)	20
Roll width (m)	0.3, 0.9
Mass per unit area ($\text{kg}\cdot\text{m}^{-2}$)	1.2
Impact resistance (mm)	≥ 250
Tensile strength (N per 50 mm)	
MD	≥ 550
CD	≥ 400
Elongation (%)	
MD/CD	≥ 20
Water vapour transmission ($\text{g}\cdot\text{m}^{-2}\cdot\text{day}^{-1}$)	0.7
Watertightness (60 kPa)	Pass
Nail tear (N)	
MD/CD	≥ 300
Resistance to static loading (kg)	≥ 20

1.2 Ancillary items for use with the product and included in this assessment are:

- GP PRIMER — a bituminous solvent-based primer used to prime masonry substrates prior to the application of GP 1 SAM
- GP LAP TAPE — a single-sided adhesive aluminium foil tape for sealing and protecting overlapped joints in GP 1 SAM.

1.3 Other ancillary items for use with the product, but outside the scope of this Certificate include:

- protection fleece and/or protection boards for use over the membrane to protect it from damage from UV and from trafficking and backfilling operations during the installation
- pre-fabricated corner units and top hats
- specialised sealants and liquid-applied membranes for sealing around penetrations and pile caps
- void-vent geocomposite membranes for use as part of a gas/VOC restrictive system
- angle fillets.

The Certificate holder should be consulted for suitable products.

2 Manufacture

2.1 The product is manufactured by extrusion and laminating processes.

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 systems of the manufacturers have been assessed and registered as meeting the requirements of BS EN ISO 9001 : 2015 by Bureau Veritas (Certificate CZ006792-1) and BSI (Certificate Q09303).

3 Delivery and site handling

3.1 The product is delivered to site in rolls of 0.3 x 20 m and 0.9 x 20 m weighing approximately 7 and 22 kg respectively.

3.2 Rolls must be stored horizontally under cover in cool dry conditions, protected from rain, direct sun light and extremes of temperature. Pallets must not be stacked on top of one another. The product should be protected against mechanical damage.

3.3 GP LAP TAPE is available in rolls with nominal dimensions of 50 m x 75 mm x 0.2 mm. The product is packed into cardboard boxes. Each box contains 16 rolls.

3.4 GP PRIMER is supplied in 5 and 25 litre tins.

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

Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on GP 1 SAM.

Design Considerations

4 Use

4.1 GP 1 SAM is satisfactory for use as a Type A waterproofing protection, as defined in BS 8102 : 2022 for the waterproofing on new-build underground structures, and as a damp-proofing membrane for solid floors in accordance with the relevant clauses of CP 102 : 1973 Section 3.

4.2 The product can be internally and externally applied to provide an effective barrier to the transmission of liquid water where Grades 1 to 3 waterproofing protection is required, as defined in BS 8102 : 2022, Table 2.

4.3 Where Grade 3 waterproofing protection is required, the environment must be controlled by use of ventilation, dehumidification and/or air conditioning, as appropriate, to ensure dampness does not occur. See also the Additional Information part of this Certificate relating to *NHBC Standards 2022*.

4.4 The product is compatible with concrete, smooth brick and blockwork or screeded substrates, and is resistant to those chemicals likely to be present in normal service conditions.

4.5 The product is also satisfactory for use as a gas-resistant membrane to restrict the ingress of methane, carbon dioxide and radon. Installations must be verified in accordance with BS 8485 : 2015.

4.6 The product should be fully protected immediately after it is installed, in accordance with the Certificate holder's instructions.

5 Practicability of installation

The product 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



The product, including joints, when completely sealed and consolidated, will resist the passage of water under hydrostatic pressure and moisture from the ground and so satisfy the relevant requirements of the national Building Regulations.

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 GP 1 SAM are given in Table 2.

Table 2 Gas permeability of GP 1 SAM

Gas	Method	Result
Methane ⁽¹⁾ - unjointed	BS ISO 15105-1	0.69 ml·m ² day ⁻¹ ·atm ⁻¹
Carbon dioxide		2.85 ml·m ² day ⁻¹ ·atm ⁻¹
Radon (unjointed) ⁽²⁾	BS ISO 15105-1 K124/02/95	8.0 x 10 ⁻¹³ m ² ·s ⁻¹

(1) BS 8485 : 2015 requires that the methane transmission measured in accordance with BS ISO 15105-1 : 2007 for a gas-resistant membrane is <40 ml·m²·d⁻¹·atm⁻¹.

(2) Measured on the GP 1 component of the product without the self-adhesive bitumen coating.

7.3 In the opinion of the BBA, the membrane satisfies the criteria for a radon gas resistant membrane of BRE Report BR 211 : 2015.

8 Resistance to mechanical damage

8.1 The product can accept the limited foot traffic and light loads associated with the installation without damage.

8.2 When installed, the membrane is capable of accommodating the minor movements likely to occur under normal service conditions.

8.3 The product can be damaged by sharp objects and care must be taken with exposed surfaces during construction and back filling operations. Where damage does occur, the product must be repaired (see section 15).

9 Adhesion

The adhesion of the product to the substrate and to itself, with joints as described in this Certificate, is satisfactory.

10 Maintenance

As the product is confined within the structure and has suitable durability (see section 11), maintenance is not required. However, any damage occurring before enclosure must be repaired (see section 15).

11 Durability



11.1 The product, when fully protected in normal circumstances, will remain effective against the ingress of water and water vapour, and will restrict the ingress of radon, methane, carbon dioxide during the lifetime of the building.

11.2 Long periods of exposure to UV radiation will reduce the effectiveness of the membrane and it should be protected from UV as soon as practicable after it is installed.

12 Reuse and recyclability

The product contains polyethylene, which can be recycled.

13 General

13.1 GP 1 SAM must be installed in accordance with the Certificate holder's instructions and this Certificate and follow the relevant guidance given in BS 8102 : 2022, BS 8485 : 2015, BRE Report BR 211 : 2015, BS 8000-0 : 2014 and BS 8000-4 : 1989.

13.2 The product must be installed in dry conditions at temperatures between 10 and 35°C. Care must be taken to ensure that there is no surface condensation when installing at low temperatures that could affect jointing.

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

13.4 For internal tanking applications the membrane must be fully loaded.

13.5 The membrane must be protected as soon as possible after it is installed to minimise the risk of damage from direct foot trafficking and exposure to UV radiation. Direct trafficking by vehicles must be avoided.

14 Procedure

14.1 Prepared surfaces must be primed with GP PRIMER, typically at a coverage rate of between 6 and 10 m² per litre, and allowed to dry before application of the membrane. Only areas that can be covered with the membrane on the same day should be primed.

14.2 Sharp angles at changes of direction should be avoided by using suitable angle fillets. The Certificate holder should be consulted for suitable products.

14.3 The membrane is cut to length allowing 100 mm for end laps and positioned by progressively peeling back the release film and applying the self-adhesive face to the primed surface.

14.4 The membrane should be smoothed out to remove air pockets and then rolled using a hard silicone roller.

14.5 Remaining bubbles should be slit and the membrane adhered to the substrate. Slits and other damage should be covered using a patch of the membrane ensuring a minimum overlap on the damaged area of 100 mm.

14.6 Subsequent adjacent strips of the membrane are then lapped over the previously applied membrane ensuring a minimum side overlap of 50 mm and 100 mm for end laps. The laps must then be rolled with a hard silicone roller to ensure good adhesion.

14.7 GP LAP TAPE is then applied equally over the joint.

14.8 In vertical applications the top of the membrane must be immediately supported.

14.9 The Certificate holder must be consulted for the treatment of specific details.

14.10 For gas applications the membrane installation should be subject to third-party independent validation, in accordance with BS 8485 : 2015 as detailed in CIRIA C735 section 3.4. Particular attention should be paid to laps, edges and sealing of service entries and penetrations such as pipes and pile caps.

15 Repair

Any damage to the membrane must be repaired using a patch of the membrane. All patched areas must extend a minimum of 100 mm from the damaged area. If required, 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 as detailed in CIRIA C735 section 3.4.

16 Tests

Tests were carried out and the results assessed to determine:

- visible defects
- width and straightness
- thickness
- mass per unit area
- resistance to static loading
- resistance to impact
- watertightness of joints (60 kPa)
- shear strength of joints
- water vapour transmission.

17 Investigations

17.1 An assessment was made of independent test reports to establish:

- radon diffusion coefficient
- resistance to transmission of methane and carbon dioxide gas
- watertightness after exposure to liquid chemicals (60 kPa)
- watertightness after heat ageing (60 kPa).

17.2 An assessment of existing test data held by the BBA to establish:

- flexibility at low temperature
- peel adhesion
- resistance to fatigue
- foldability at low temperature
- tensile strength and elongation.

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 : Protective measures for new buildings*

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

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

BS 8102 : 2022 *Protection of below ground structures against water ingress — Code of practice*

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

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

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

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 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.

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.