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Agrément Certificate

22/6002

Product Sheet 1

SPRAY, ROLLER OR BRUSH APPLIED FLEXIBLE MEMBRANES FOR DURABLE AIRTIGHTNESS

PASSIVE PURPLE AND AIRTIGHT WHITE

This Agrément Certificate Product Sheet⁽¹⁾ relates to Passive Purple and Airtight White, for use as airtightness membranes and to protect a building against radon 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

Air permeability — the products will reduce uncontrolled air infiltration from or into the building (see section 6).

Resistance to underground gases — the products are capable of resisting the ingress of radon into the building (see section 7).

Resistance to mechanical damage — the products will accommodate the movement likely to occur in service, and the limited foot traffic and loads associated with installation (see section 9).

Properties in relation to fire — the products, applied to a substrate with reaction to fire classification of A1-s1,d0 (excluding paper faced gypsum plasterboards) with a minimum density of 653 kg·m⁻³, are classified C-s1,d0 in accordance with EN 13501-1 : 2018 and consequently their use is restricted in some cases (see section 10).

Adhesion — the products have satisfactory adhesion to the substrates they are likely to be applied to (see section 11).

Durability — the products will have a service life equal to that of the element onto which they are installed (see section 13).

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

On behalf of the British Board of Agrément

Date of First Issue: 9 March 2022

Hardy Giesler
Chief Executive Officer

This Certificate was amended on 22 May 2024 as part of a transition of The BBA Agrément Certificate scheme delivered under the BBA's ISO/IEC 17020 accreditation. This Certificate was issued originally under accreditation to ISO/IEC 17065. Sections marked with the symbol † are not issued under accreditation. Full conversion to the ISO/IEC 17020 format will take place at the next Certificate review. The BBA is a UKAS accredited Inspection Body (No.4345). Readers MUST check the validity 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 must not be relied upon.

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Regulations

In the opinion of the BBA, Passive Purple and Airtight White, 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:	B3(4)	Internal fire spread – structure
Comment:		The products are restricted by this Requirement. See section 10.1 of this Certificate.
Requirement:	B4(1)	External fire spread
Comment:		The products are restricted by this Requirement. See sections 10.1 to 10.3 of this Certificate.
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, enabling compliance with this Requirement. See section 7.1 of this Certificate.
Requirement:	L1(a)(i)	Conservation of fuel and power
Comment:		The products will contribute to satisfying this Requirement. See section 6 of this Certificate.
Regulation:	7(1)	Materials and workmanship
Comment:		The products are acceptable. See section 13 and the <i>Installation</i> part of this Certificate.
Regulation:	26	CO₂ emission rates for new buildings
Regulation:	26A	Fabric energy efficiency rates for new dwellings (applicable to England only)
Regulation:	26A	Primary energy consumption rates for new buildings (applicable to Wales only)
Regulation:	26B	Fabric performance values for new dwellings (applicable to Wales only)
Comment:		The products will contribute to satisfying these Regulations but additional fabric/services measures will be required. See section 6 of this Certificate.



The Building (Scotland) Regulations 2004 (as amended)

Regulation:	8(1)	Durability, workmanship and fitness of materials
Comment:		The products satisfy the requirements of this Regulation. See section 13 and the <i>Installation</i> part of this Certificate.
Regulation:	9	Building standards applicable to construction
Standard:	2.4	Cavities
Comment:		The products are restricted by this Standard. See sections 10.1 and 10.2 of this Certificate.
Standard:	3.2	Site preparation — protection from radon gas
Comment:		The products will enable a floor to satisfy the requirements of this Standard, with reference to clauses 3.2.1 ⁽²⁾ and 3.2.2 ⁽¹⁾⁽²⁾ . See section 7.1 of this Certificate.
Standard:	6.1(b)	Carbon dioxide emissions
Comment:		The products will contribute to satisfying this Standard with reference to clauses 6.1.1 ⁽¹⁾ , 6.1.6 ⁽¹⁾ and 6.1.2 ⁽²⁾ but additional fabric/services measures will be required. See section 6 of this Certificate.

Standard:	6.2	Building insulation envelope
Comment:		The products will contribute to satisfying this Standard with reference to clauses 6.2.4 ⁽¹⁾ and 6.2.6 ⁽²⁾ . See section 6 of this Certificate.
Standard:	7.1(a)(b)	Statement of sustainability
Comment:		The products can contribute to satisfying 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. In addition, the products can contribute to a construction meeting a higher level of sustainability as defined in this Standard, with reference to clauses 7.1.4 ⁽¹⁾ [Aspects 1 ⁽¹⁾ and 2 ⁽¹⁾], 7.1.6 ⁽¹⁾⁽²⁾ [Aspects 1 ⁽¹⁾⁽²⁾ and 2 ⁽¹⁾], 7.1.7 ⁽¹⁾ [Aspect 1 ⁽¹⁾⁽²⁾] 7.1.9 ⁽²⁾ [Aspect 1 ⁽²⁾] and 7.1.10 ⁽²⁾ [Aspect 1 ⁽²⁾]. See section 6 of this Certificate.
Regulation:	12	Building standards applicable to conversions
Comment:		All comments given for the products under Regulation 9, Standards 1 to 6, also apply to this Regulation, with reference to clause 0.12.1 ⁽¹⁾⁽²⁾ and Schedule 6 ⁽¹⁾⁽²⁾ .
(1) Technical Handbook (Domestic).		
(2) Technical Handbook (Non-Domestic).		



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

Regulation:	23(a)(i)	Fitness of materials and workmanship
Comment:	(iii)(b)	The products are acceptable. See section 13 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, enabling compliance with this Regulation. See section 7.1 of this Certificate.
Regulation:	35(4)	Internal fire spread — structure
Comment:		The products are restricted by this Regulation. See sections 10.1, 10.2 and 10.4 of this Certificate.
Regulation:	39(a)(i)	Conservation measures
Comment:		The products will contribute to satisfying this Regulation. See section 6 of this Certificate.
Regulation:	40(2)	Target carbon dioxide emission rate
Comment:		The products will contribute to satisfying this Regulation but additional fabric/services measures will be required. 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 and 3.4) of this Certificate.

Technical Specification

1 Description

1.1 Passive Purple and Airtight White are VOC-free, liquid-applied, water-based coatings that dry to form a flexible membrane that is used to reduce uncontrolled air infiltration from or into a building and to protect a building against radon from the ground.

1.2 Other items or components which may be used with the products, but which are outside the scope of this Certificate, are spray foam or cementitious fillers, for sealing large cracks. Details of suitable products/specifications may be obtained from the Certificate holder.

2 Manufacture

2.1 The products are manufactured by a conventional batch-blending 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 The products are delivered to site in 10 kg pails on pallets, with a maximum of 44 pails per pallet. Other sizes are available on request.

3.2 Each pail is labelled with the product name, pack weight, company name, batch number and brief installation instructions.

3.3 The products should be stored at a temperature between 5 and 20°C, in dry conditions and out of direct sunlight. When stored in unopened containers, in accordance with the Certificate holder's instructions, the products will have a shelf life of 12 months.

3.4 The Certificate holder has taken the responsibility of classifying and labelling the products 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 Passive Purple and Airtight White.

Design Considerations

4 Use

4.1 Passive Purple and Airtight White are satisfactory for use internally as a membrane, to reduce the uncontrolled air infiltration from or into a building.

4.2 The products can be used to reduce air permeability at:

- walls
- floor/wall intersections
- wall/roof intersections
- ceilings and floors.

4.3 Airtightness sealing between window frames and walls or at penetrations, eg pipes or cables, should be carried out using Passive Purple Brush or Airtight White Brush, the subject of Product Sheet 2 of this Certificate.

4.4 The products are also satisfactory for use as a gas-resistant barrier to restrict the ingress of radon into buildings from naturally occurring sources.

4.5 Buildings in areas at risk from radon should be constructed in accordance with the recommendations of BRE Report BR 211 : 2015.

4.6 When used in gas protection applications in or over floor slabs the products must be joined to a compatible gas-resistant cavity tray damp-proof course to ensure that the whole footprint of the building, including cavities, is protected.

4.7 Existing elements must be clean, dry and in a good state of repair prior to application of the products.

4.8 The products are applied using airless spray equipment or by roller at an application rate of between 0.8 and 1.0 kg·m⁻² in two or more passes, resulting in a dry film thickness of between 0.4 and 0.5 mm.

4.9 If required, the products, once fully dry, can be finished by painting or plastering, or can be enclosed behind internal linings. The Certificate holder must be consulted for suitable compatible products. The products must not be left exposed where there is a risk of mechanical damage or exposure to sunlight.

5 Practicability of installation

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

6 Air permeability



The products will reduce uncontrolled air infiltration from or into the interior of a building and will therefore reduce heat loss through elements and junctions.

7 Resistance to underground gases



7.1 The products will restrict the ingress of radon into a building from naturally occurring sources.

7.2 The measured radon gas diffusion coefficient on the products is given in Table 1.

Table 1 Radon gas diffusion coefficient of Passive Purple and Airtight White

Method	Result (m ² ·s ⁻¹)
K124/02/95	3.3 x 10 ⁻¹²

8 Water vapour resistance

8.1 The water vapour resistance of the products varies with the relative humidity conditions across it. The water vapour diffusion equivalent air layer thicknesses (*s_d*) of the cured, unaged products at various relative humidity conditions are given in Table 2.

Table 2 Water vapour diffusion equivalent air layer thickness for different relative humidity conditions⁽¹⁾

Relative humidity difference (%)	<i>s_d</i> (m) ⁽²⁾
0/50 (±3)	21.7
39/69 (±3)	14.1
66/97 (±3)	0.8

(1) Tests carried out at a temperature of (23 ± 2)°C.

(2) Result adjusted for a membrane thickness of 0.4 mm.

8.2 A condensation risk analysis should be carried out prior to use of the products.

9 Resistance to mechanical damage

9.1 The products have satisfactory resistance to damage and will resist the minor movements likely to occur in service without damage. However, they can be punctured by sharp objects and they must be protected when handling building materials and tools during installation or where there is risk of damage in-service.

9.2 Where large relative movements between construction elements are possible, such as in timber-frame construction, the advice of the Certificate holder should be sought.

10 Properties in relation to fire



10.1 When tested in accordance with EN ISO 11925-2 : 2020 and EN 13238 : 2010 and classified in accordance with EN 13501-1 : 2018, a test specimen comprising one coat of Passive Purple and a test specimen comprising one coat of Airtight White, applied at an application rate of $800 \text{ g}\cdot\text{m}^{-2}$ onto a substrate with reaction to fire classification of A1-s1,d0 (excluding paper faced gypsum plasterboards) with a minimum density of $653 \text{ kg}\cdot\text{m}^{-3}$, are classified Class C-s1,d0⁽¹⁾. Where the products form the face of a cavity, the permissible area of use and the spacing of cavity barriers are restricted by the national Building Regulations.

10.2 Other specifications must be assessed in accordance with the documents supporting the national Building Regulations.

(1) Fire test report reference Pr-20-1.217-En and classification report reference PK1-01-20-061-E-1 from PAVUS a.s., available from the Certificate holder.



10.3 When used as part of the external wall, the products should not be used on buildings in England that have a storey at least 18 m above ground level and contain: one or more dwellings, an institution, a room for residential purposes (excluding any room in a hostel, hotel or boarding house), student accommodation, care homes, sheltered housing, hospitals or dormitories in boarding schools.



10.4 When used as part of the external wall, the products should not be used on buildings in Scotland that have a storey at least 11 m above ground level.

11 Adhesion

The products have satisfactory adhesion to the following substrates:

- concrete
- lightweight concrete block
- red brick
- aluminium
- steel
- wood
- plaster
- EPDM membrane
- PVC-U.

12 Maintenance

As the products are confined within the structure and have suitable durability (see section 13), maintenance is not required. However, any damage to the membrane should be repaired before enclosing into the structure (see section 16).

13 Durability



Under normal conditions of use, the products will have a life equal to that of the element onto which they are installed.

Installation

14 General

14.1 Installation of Passive Purple and Airtight White must be in accordance with the Certificate holder's instructions and this Certificate, and following the relevant guidance given in BRE Report BR 211 : 2015.

14.2 Where used in radon gas control applications, installations should also be subject to third-party independent validation, in accordance with the recommendations in CIRIA Report C735.

14.3 Surfaces must be free from salt efflorescence, dust and other loose particles, or any other contamination that could affect the adhesion of the products. The products can be applied to lightly damp surfaces but must not be applied where there is standing water.

14.4 Existing holes and cracks in the substrate must be sealed with a cementitious filler or polyurethane spray foam. Small holes and cracks up to 5 mm can be sealed with Passive Purple Brush or Airtight White Brush.

14.5 The products must not be applied when the air or substrate temperature is <5°C.

15 Procedure

15.1 The products are applied to the prepared substrate using airless spray equipment at a pressure of between 120 and 150 bar or a long-haired paint roller in two or more passes, to achieve a wet film thickness of between 800 and 1000 µm.

15.2 The applied coating thickness should be checked using a wet film gauge and the application checked for complete coverage.

15.3 The drying time will depend on the substrate as well as the ambient temperature and relative humidity. Typically, the products will be dry 24 to 48 hours after application.

16 Repair

Any damaged coating must be repaired prior to enclosure. Minor damage to the dry product can be repaired by reapplying the products over the damaged area, as described in sections 15.1 and 15.2. Where major damage has occurred, the damaged section must be cut out and the membrane reapplied, ensuring a minimum 50 mm overlap onto sound material.

Technical Investigations

17 Tests

Tests were carried out to establish:

- IR spectroscopy
- thermogravimetric analysis
- resistance to fatigue
- tensile strength/elongation.

18 Investigations

18.1 An assessment was made of test reports from independent test laboratories, relating to:

- reaction to fire
- air permeability
- adhesion to substrates
- water vapour resistance
- tensile strength/elongation
- radon diffusion.

18.2 A visit was made to an established installation in Belgium to witness airtightness testing and to assess the products' performance in service. The assessed building was an office that was tested at the end of the construction phase and after three years, satisfying the passive house requirements for air permeability in both cases.

18.3 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 *Protecting new buildings from radon*

EN 13501-1 : 2018 *Fire classification of construction products and building elements — Classification using test data from reaction to fire tests*

EN ISO 11925-2 : 2020 *Reaction to fire tests — Ignitability of products subjected to direct impingement of flame — Single-flame source test*

BS EN 13238 : 2010 – *Reaction to fire tests for building products. Conditioning procedures and general rules for selection of substrates*

K124/02/95 *Radon diffusion coefficient of the waterproofing material, Czech University, Thákurova 7, 166 29 Praha 6*

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, UKNI or 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.