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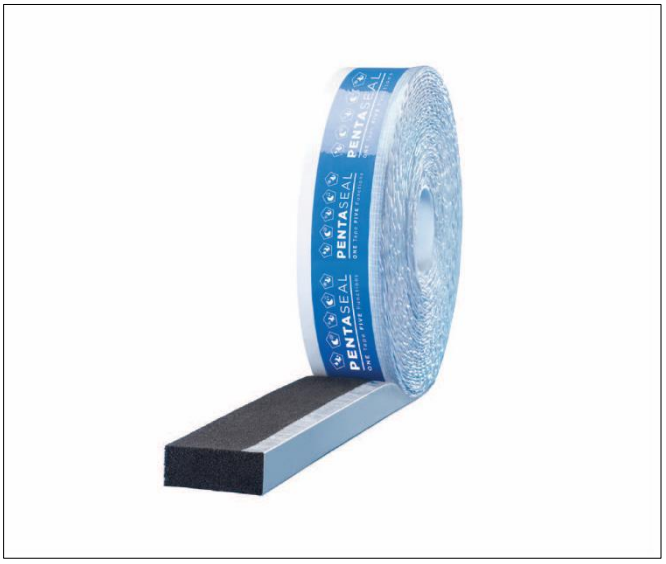
Agrément Certificate
24/7214
Product Sheet 1 Issue 1

LYNVALE SEALING TAPES

PENTASEAL

This Agrément Certificate Product Sheet(1) relates to PENTASEAL, a range of impregnated polyurethane foam-based sealing tapes, for use around window frames to provide a weathertight seal.

(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 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 issue: 14 August 2024

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.

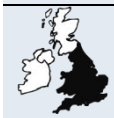
Any photographs are for illustrative purposes only, do not constitute advice and should not be relied upon.

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 PENTASEAL, 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:	**C2(b)**	**Resistance to moisture**
Comment:		The products will contribute to satisfying this Requirement. See section 3 of this Certificate.
Requirement:	**7(1)**	**Materials and workmanship**
Comment:		The products are acceptable. See sections 8 and 9 of this Certificate.
Requirement:	**L1(a)(i)**	**Conservation of fuel and power**
Comment:		The system can contribute to minimising heat loss at lintels, jambs and sills. See section 6 of this Certificate.
Regulation:	**25B**	**Nearly zero-energy requirements for new buildings**
Regulation:	**26**	**CO_2 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)**
Regulation:	**26C**	**Target primary energy rates for new buildings (applicable to England only)**
Regulation:	**26C**	**Minimum energy efficiency rating (applicable to Wales only)**
Comment:		The system can contribute to satisfying these Regulations. See section 6 of this Certificate.

The Building (Scotland) Regulations 2004 (as amended)

Regulation:	**8(1)**	**Fitness and durability of materials and workmanship**
Comment:		The use of the products can contribute to satisfying the requirements of this Regulation. See sections 8 and 9 of this Certificate.
Regulation:	**9**	**Building standards applicable to construction**
Standard	3.10	Precipitation
Comment:		The products will contribute to satisfying the requirements of this Standard, with reference to clause 3.10.1[(1)(2)]. See section 3 of this Certificate.
Standard	6.1(b)(c)(d)	Energy demand and carbon dioxide emissions
Standard:	6.2	Building insulation envelope
Comment:		The system can contribute to minimising heat loss at lintels, jambs and sills, with reference to clauses 6.1.2[(1)], 6.1.4[(2)], 6.2.4[(1)] and 6.2.5[(2)] of these Standards. 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.

Regulation:	**12**	**Building standards applicable to conversions**
Comment:		Comments in relation to 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)(iii) (b)(i)**	**Fitness of materials and workmanship**
Comment:		The products are acceptable. See sections 8 and 9 of this Certificate.
Regulation:	**28(b)**	**Resistance to moisture and weather**
Comment:		The products can contribute to satisfying this Regulation. See section 3 of this Certificate.
Regulation:	**39(a)(i)**	**Conservation measures**
Regulation:	**40(2)**	**Target carbon dioxide emission rate**
Regulation:	**43(1)(2)**	**Renovation of thermal elements**
Regulation:	**43B**	**Nearly zero-energy requirements for new buildings**
Comment:		The products can contribute to minimising heat loss at lintels, jambs and sills. See section 6 of this Certificate.

Additional Information

NHBC Standards 2024

In the opinion of the BBA, PENTASEAL, 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 6.7 *Doors, windows and glazing* and 6.9 *Curtain walling and cladding*.

In Scotland, Northern Ireland and other areas of very severe exposure, 'check' reveals should be used, and an appropriate sealant applied between the window frame and the structure.

Fulfilment of Requirements

The BBA has judged PENTASEAL to be satisfactory for use as described in this Certificate. The products have been assessed for use to provide a weathertight and airtight seal around window frames.

ASSESSMENT

Product description and intended use

The Certificate holder provided the following description for the products under assessment. PENTASEAL consists of a range of black multifunctional joint sealing tapes, manufactured from polyurethane foam impregnated with an acrylic-based polymer dispersion. One side of the strip has a self-adhesive film to aid installation and the inside of the strip includes a polyethylene film. The adhesive layer is protected by a release paper. The products are available in a range of sizes to suit window construction depths of 60 mm, and joint widths of between 2 and 30 mm.

The dimensions of the tapes are given in Table 1.

Table 1 Tape dimensions of PENTASEAL

Tape size (mm)	Suitable window construction depth (mm)	Suitable joint width (mm)	Roll length (m)
54 / 2–12	60	2 to 12	8
54 / 3–18	60	3 to 18	8
54 / 5–30	60	5 to 30	8

Ancillary items

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

- specialist sealants/adhesives
- spacers for setting the window frame.

Applications

The products are intended for use on the following substrates:

- concrete
- brick
- wood(1)
- wood painted with water-based paint or varnish
- PVC-U
- steel
- aluminium.

(1) Spruce tested. The Certificate holder should be consulted for the suitability of other species, but such advice is outside the scope of this Certificate.

Product assessment – key factors

The products were assessed for the following key factors, and the outcomes of the assessments are shown below. Conclusions relating to the Building Regulations apply to the whole of the UK unless otherwise stated.

1 Mechanical resistance and stability

Not applicable.

2 Safety in case of fire

Data were assessed for the following characteristics.

2.1 Reaction to fire

2.1.1 When classified to BS EN 13501-1 : 2010, the products achieved a reaction to fire classification of Class E.

2.1.2 On the basis of data assessed, PENTASEAL will be unrestricted in terms of height and distance from a boundary by the documents supporting the national Building Regulations.

2.1.3 Cavity barriers should be used to satisfy the requirements of the documents supporting the national Building Regulations.

3 Hygiene, health and the environment

Data were assessed for the following characteristics.

3.1 Weathertightness

3.1.1 Results of weathertightness tests are given in Table 2.

Table 2 Weathertightness

Product assessed	Assessment method	Requirement	Result
PENTASEAL	Watertightness to DIN EN 1027 : 2000	≥600 Pa	Pass
	Resistance to driving rain to EN 1027 : 2000	Value achieved	1050 Pa

3.1.2 On the basis of data assessed, the products will resist the passage of water, wind-driven rain and dust into the interior of a building.

3.1.3 The products satisfy the Class 9A requirements of BS EN 12208 : 2000.

3.2 Condensation

3.2.1 Results of water vapour resistance tests are given in Table 3.

Table 3 Water vapour resistance

Product assessed	Assessment method	Requirement	Result
PENTASEAL	Water vapour permeability to DIN EN ISO 12572 : 2001	Declared value	$s_d \leq 0.5$ (1)
	Water vapour diffusion resistance (μ) to DIN EN ISO 12572 : 2001	Value achieved	
	Foam		2
	Film		361

(1) Water vapour resistance may be taken as 5 x s_d value.

3.2.2 The products will not adversely affect the risk of interstitial condensation, provided they are used in conjunction with a suitable air and vapour control layer (AVCL).

4 Safety and accessibility in use

Not applicable.

5 Protection against noise

Not applicable.

6 Energy economy and heat retention

Data were assessed for the following characteristics.

6.1 Conservation of fuel and power

6.1.1 Results of conservation of fuel and power tests are given in Table 4.

Table 4 Results of conservation of fuel and power tests

Product assessed	Assessment method	Requirement	Result
PENTASEAL	Air permeability to EN 12114 : 2000	$<0.1 m^3/[h \cdot m \cdot (daPa)^{2/3}]$	Pass

6.1.2 The products are air barriers and, when installed correctly, can contribute to junctions minimising heat loss by unplanned air infiltration. The air infiltration classification according to BS EN 12207 : 2016 for suitable windows used in combination with the components will be at least Class 2. Guidance in this respect is found in the documents supporting the national Building Regulations.

7 Sustainable use of natural resources

Not applicable.

8 Durability

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

8.1.1 Specific test data were assessed, as given in Table 5.

Table 5 Results of durability tests

Product assessed	Assessment method	Requirement	Result
PENTASEAL	Tensile strength to BS EN ISO 1798 : 2008 Control(1)	Value achieved	201 N·(50mm)$^{-1}$
	heat aged at 80°C for 56 days(1)	No significant deterioration	Pass
	Elongation to BS EN ISO 1798 : 2008 Control(1)	Value achieved	133.7 %
	heat aged at 80°C for 56 days(1)	No significant deterioration	Pass
	Initial thickness - compression set to BS EN ISO 1856 : 2018 Control(1)	Value achieved	-9.5 %
	Expanded thickness - compression set to BS EN ISO 1856 : 2018 Control(1)	Value achieved	77.2%
	Resistance to thermal shock to DIN 18542 : 2009 -30 to +80°C	Satisfactory recovery	Pass
	Low temperature bending and unrolling test to a BBA method, unrolling at -5°C	No visual tears or cracks	Pass
	Compatibility with adjoining building materials at up to 90°C (concrete, facing bricks, sand-lime brick, spruce wood with water-based coating, spruce wood with water based stain, PVC windows, steel, zinc-plated steel and aluminium) to DIN 18542 : 2009	No changes to the contact face or to the direct edge area of the multifunction sealing tape	Pass
	Light resistance and resistance to moisture penetration to DIN EN 4892-2 : 1995	No leakage	Pass
	Resistance to condensation at 100% rh and +85°C, to DIN EN ISO 2440 : 2000	No changes to the contact face or at the direct edge area of the multifunction sealing tape	Pass

(1) Product tested PENTASEAL (dimension 64/5-30mm in rolls 12 mm, Black).

8.2 Service life

Under normal service conditions, the products will have a life of up to 20 years, provided they are designed, installed and maintained in accordance with this Certificate and the Certificate holder's instructions.

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 by the BBA, and the following requirements apply in order to satisfy the performance assessed in this Certificate.

9.1.2 To provide a weathertight seal, the tape size must be chosen with a thickness suitable for the operational joint depth and width, as detailed in Table 1. To achieve satisfactory resistance to water penetration, the products must be used under a compression of at least 60%.

9.1.3 The products are not designed to withstand a head of water; in these situations, the advice of the Certificate holder must be sought but such advice is outside the scope of this Certificate.

9.2 Installation

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

9.2.2 Installation must be carried out in accordance with this Certificate and the Certificate holder's instructions. A summary of instructions and guidance is provided in Annex A of this Certificate.

9.2.3 The window opening must be clean and free from mortar residue, and mortar joints must be rendered level.

9.2.4 The window opening and window frame must be measured to determine the fitting depth of the window frame, and the maximum joint width between the window frame and surrounding wall.

9.2.5 The correct tape size is then selected according to the fitting depth of the window frame and joint width (see Table 1).

9.2.6 The tapes will start to expand gradually as soon as they are unwound from the roll. The rate of expansion is temperature-dependent and will generally be slower at low temperatures. The tapes must therefore be stored at room temperature.

9.3 Workmanship

Practicability of installation was assessed by the BBA, on the basis of the Certificate holder's information. To achieve the performance described in this Certificate, installation of the products must be carried out by a competent general builder, or a contractor, experienced with these types of products.

9.4 Maintenance and repair

9.4.1 Ongoing satisfactory performance of the products in use requires that they are suitably maintained. The guidance provided by the Certificate holder was assessed by the BBA and found to be appropriate and adequate. The following requirements apply in order to satisfy the performance assessed in this Certificate:

9.4.2 As the products are confined within the final construction and have suitable durability, maintenance is not required.

9.4.3 Any damage to the products must be repaired prior to installation of the window.

9.4.4 Damaged tape must be replaced. The Certificate holder must be consulted for suitable methods of replacing damaged products, but such advice is outside the scope of this Certificate.

10 Manufacture

10.1 The production processes for the products 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 products are delivered to site in cartons bearing the product name, dimensions, roll length and number of rolls. A label bearing the batch reference is located on the products.

11.2 Delivery and site handing must be performed in accordance with the Certificate holder's instructions and this Certificate, including:

11.2.1 The products must be stored horizontally in cool, dry conditions in the original packaging. To avoid distorting the tapes, excessive weight that could cause crushing must not be placed on the cartons.

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 products 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).

Additional information on installation

A.1 The leader strip at the start of the roll is cut using scissors and removed.

A.2 The start of the tape is cut straight, removing approximately the first two centimetres of the tape, which should not be used.

A.3 A length of the release film is removed, and the tape applied firmly to the window frame, starting at the centre of the top edge of the frame, ensuring that the polyethylene film is located facing towards the internal side of the frame and the edge of the tape is 1 to 3 mm short of the edge of the window frame, to allow for flush finish of plaster etc.

A.4 The tape is continuously applied around the window frame whilst pinching to form a ‘gusset’ of extra material at each corner – the tape must be orientated to be in line with the mitre line in the window frame.

A.5 The butt-joint formed on returning to the top edge must be accurately formed and cut, preferably at an angle of approximately 45°, allowing approximately 5 mm excess length of tape.

A.6 Alternatively, the tape can be butt-jointed at the corners. In this case, the joint dimensions must be added to the length of tape at both the top and bottom of the window frame.

A.7 For additional security, the butt-joint can be sealed with a suitable sealant/adhesive. The Certificate holder should be consulted for suitable products, but such advice and materials are outside the scope of this Certificate.

Bibliography

BS EN ISO 1798 : 2008 *Flexible cellular polymeric materials — Determination of tensile strength and elongation at break*

BS EN ISO 1856 : 2018 *Flexible cellular polymeric materials — Determination of compression set*

BS EN 12207 : 2016 *Windows and doors — Air permeability — Classification*

BS EN 12208 : 2000 *Windows and doors — Watertightness — Classification*

BS EN 13501-1 : 2010 *Fire classification of construction products and building elements — Classification using data from reaction to fire tests*

DIN 18542 : 2009 *Impregnated sealing tapes made of cellular plastics for sealing of outside wall joints — Requirements and testing*

DIN EN 1027: 2000 *Windows and doors — Watertightness — Test method*

DIN EN 4892-2 : *1995 Plastics — Methods of exposure to laboratory light sources — Part 2: Xenon-arc lamps*

DIN EN 12114 : 2000 *Thermal performance of buildings — Air permeability of building components and building elements — Laboratory test method*

DIN EN ISO 2440 : 2000 *Flexible and rigid cellular polymeric materials — Accelerated ageing tests*

DIN EN ISO 12572 : 2001 *Hygrothermal performance of building materials and products — Determination of water vapour transmission properties*

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.

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