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Agrément Certificate

08/4548

Product Sheet 3

TYVEK⁽¹⁾ ROOF LINING SYSTEMS

DUPONT AIRGUARD CONTROL AIR LEAKAGE BARRIER

This Agrément Certificate Product Sheet⁽²⁾ relates to DuPont AirGuard⁽¹⁾ Control Air Leakage Barrier for use in roofs.

(1) TYVEK and DuPont AirGuard are registered trademarks of E.I. DuPont de Nemours & Co or its affiliates.

(2) 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

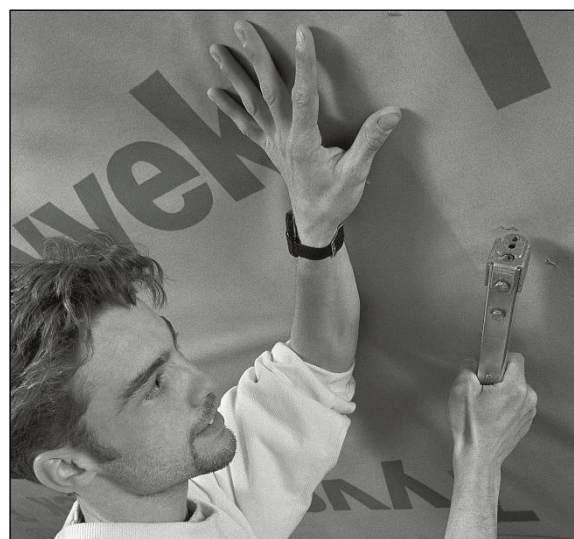
Risk of condensation — the product, when used in conjunction with a low resistance (LR) roof tile underlay will reduce the risk of interstitial condensation (see section 6).

Air permeability — the product is an air barrier and can reduce heat loss by air infiltration (see section 7).

Strength — the product has adequate strength to resist damage during the construction of the roof (see section 8).

Properties in relation to fire — the product is classified as Class E in accordance with EN 13501-1 : 2018 and its use is restricted in some cases by the national Building Regulations (see section 9).

Durability — the product will have a service life equal to that of the building 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 Fourth issue: 2 October 2020

Originally certificated on 8 April 2008

Hardy Geisler
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.

British Board of Agrément

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Regulations

In the opinion of the BBA, DuPont AirGuard Control Air Leakage Barrier, 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:	B4(1)	External fire spread
Comment:	The product, in some circumstances, is restricted by this Requirement. See sections 9.1 and 9.2 of this Certificate.	
Requirement:	C2(c)	Resistance to moisture
Comment:	The product can contribute to a roof to satisfy this Requirement, with respect to interstitial condensation. See section 6.2 of this Certificate.	
Requirement:	L1(a)(i)	Conservation of fuel and power
Comment:	The product can contribute to satisfying this Requirement. See section 7 of this Certificate.	
Regulation:	7(1)	Materials and workmanship
Comment:	The product is acceptable. See section 11 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 product can contribute to satisfying these Regulations. See section 7 of this Certificate.	



The Building (Scotland) Regulations 2004 (as amended)

Regulation:	8(1)	Durability, workmanship and fitness of materials
Comment:	The product can contribute to a construction satisfying this Regulation. See section 11 and the <i>Installation</i> part of this Certificate.	
Regulation:	9	Building standards applicable to construction
Standard:	3.15	Condensation
Comment:	The product can enable a roof to satisfy clauses 3.15.1 ⁽¹⁾⁽²⁾ , 3.15.3 ⁽¹⁾⁽²⁾ and 3.15.5 ⁽¹⁾⁽²⁾ of this Standard, with respect to interstitial condensation. See section 6.2 of this Certificate.	
Standard:	6.1(b)	Carbon dioxide emissions
Standard:	6.2	Building insulation envelope
Comment:	The product can contribute to satisfying the requirements of these Standards, with reference to clauses 6.1.1 ⁽¹⁾ , 6.1.2 ⁽²⁾ , 6.2.4 ⁽¹⁾ , 6.2.6 ⁽²⁾ , 6.2.10 ⁽¹⁾ , 6.2.11 ⁽¹⁾⁽²⁾ , 6.2.12 ⁽²⁾ and 6.2.13 ⁽²⁾ . See sections 7 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. In addition, the product 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⁾⁽²⁾], 7.1.7 ⁽¹⁾ [Aspect 1 ⁽¹⁾], 7.1.9 ⁽²⁾ [Aspects 1 ⁽²⁾ and 2 ⁽²⁾] and 7.1.10 ⁽²⁾ [Aspects 1 ⁽²⁾]. See section 7 of this Certificate.	

Regulation:	12	Building standards applicable to 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 section 11 and the <i>Installation</i> part of this Certificate.
Regulation:	29	Condensation
Comment:		The product can contribute to a roof satisfying this Regulation. See section 6.2 of this Certificate.
Regulation:	39(a)(i)	Conservation measures
Regulation:	40(2)	Target carbon dioxide emission rate
Comment:		The product can contribute to satisfying these Regulations. See section 7 of this Certificate.

Construction (Design and Management) Regulations 2015

Construction (Design and Management) Regulations (Northern Ireland) 2016

Information in this Certificate may assist the client, designer (including Principal Designer) and contractor (including Principal Contractor) to address their obligations under these Regulations.

See sections: 1 *Description* (1.2) and 3 *Delivery and site handling* (3.3) of this Certificate.

Additional Information

NHBC Standards 2020

In the opinion of the BBA, DuPont AirGuard Control Air Leakage Barrier, 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 7.2 *Pitched roofs* and 9.2 *Wall and ceiling finishes*.

CE marking

The Certificate holder has taken the responsibility of CE marking the product in accordance with harmonised European Standard EN 13984 : 2013.

Technical Specification

1 Description

1.1 DuPont AirGuard Control Air Leakage Barrier consists of a spunbond polypropylene substrate coated with a polyolefin-copolymer.

1.2 The finished rolls are available with the following nominal characteristics:

Thickness (mm)	0.3
Roll width (m)	1.5
Roll length (m)	50
Mass per unit area (g·m ⁻²)	108
Equivalent air layer thickness – s _d (m)	
minimum	2
nominal	5

Water vapour resistance ($\text{MN}\cdot\text{s}\cdot\text{g}^{-1}$)	
minimum	10
nominal	25
Watertightness	pass
Tensile strength (N per 50 mm)	
longitudinal	200
transverse	170
Nail tear (N)	
longitudinal	240
transverse	240
Reaction to fire	Class E.

1.3 The following products are used in conjunction with DuPont AirGuard Control Air Leakage Barrier:

- TYVEK Double-sided Tape — for sealing overlaps and bonding the membrane to smooth surfaces
- TYVEK 2060B Tape is a single-sided tape for use in laps and repairs (see section 15)
- Tyvek FLEXWRAP EZ (2064FW) is a flexible sealing tape for use in building penetrations
- AirGuard Tape (1310V) is a flexible airtight sealing tape for internal use in detailing.

2 Manufacture

2.1 The product is manufactured by spinning strands of polypropylene and bonding them with heat and pressure to form a flexible sheet. The scrim is coated on one side with a polyolefin-copolymer.

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 being operated by the manufacturer are being maintained.

2.3 The management system of the Certificate holder has been assessed and registered as meeting the requirements of EN ISO 9001 : 2015 by DQS GmbH (Certificate 000093 QM15).

3 Delivery and site handling

3.1 Rolls of membrane are delivered to site in packages that carry a label bearing the Certificate holder's name, the grade identification and the BBA logo incorporating the number of this Certificate.

3.2 The rolls should be stored flat on their sides, on a smooth, clean, dry surface, under cover and protected from sunlight.

3.3 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 DuPont AirGuard Control Air Leakage Barrier.

4 Use

4.1 DuPont AirGuard Control Air Leakage Barrier is for use as an air barrier and is satisfactory for use as an alternative to traditional vapour control layers/air barriers in slated or tiled roofs, using a low resistance (LR) roof tile underlays, for pitched warm roof constructions at the rafter line and at ceiling level in cold roof constructions.

4.2 Further information is given in BRE Guidance Report No 262 *Thermal insulation : avoiding the risks*.

4.3 Where constructions need to comply with *NHBC Standards 2020*, specifiers should observe the requirements of this document.

4.4 It is essential that proper care and attention be given to maintaining the product's integrity and continuity.

4.5 In ceilings, the product is placed directly between the underside of the rafters and the ceiling lining to cover the insulation on the warm side as an air barrier.

4.6 Slated and tiled pitched roofs should be designed and constructed in accordance with BS 5534 : 2014.

5 Practicability of installation

The product is designed to be installed by competent slaters/tilers experienced with this type of product.

6 Risk of condensation

6.1 The risk of condensation occurring will depend upon the properties and vapour resistance of other materials used in the construction, the internal and external conditions, and the effectiveness of the product's installation.



6.2 The product can contribute to satisfying the relevant requirements of the national Building Regulations.

6.3 Consideration must be given in the overall installation to minimising penetrations by services. Joints at ceilings/walls must be sealed to offer significant resistance to water vapour transmission. Sealing should also be carried out in accordance with the Certificate holder's instructions.

6.4 Constructions should be in accordance with the nominal recommendations of BS 5250 : 2011 Annex H, and favourably assessed in accordance with Annex D, using a minimum air layer equivalent value (S_a) of not less than 2 m (equivalent to a water vapour resistance of $10 \text{ MN}\cdot\text{s}\cdot\text{g}^{-1}$) for the product.

7 Air permeability



When lapped, fixed and taped correctly, the product acts as an air barrier and can contribute to elements and junctions minimising heat loss by unplanned air infiltration and exfiltration. Guidance in this respect can be found in the documents supporting the national Building Regulations.

8 Strength

The product will resist the loads associated with installation of the roof.

9 Properties in relation to fire



9.1 The product is classified as Class E in accordance with EN 13501-1 : 2018.

(1) Report reference FIRES-CR-182-19-AUPE issued by FIRES. Report is available from the Certificate holder upon request.

9.2 The product, when used in pitches of greater than 70°, should not be used on buildings in England and Wales 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.

9.3 The product will have similar properties in relation to fire to those of traditional polyethylene roof tile underlays.

9.4 When the product is used unsupported, there is a risk that fire can spread if it is accidentally ignited during maintenance works, eg by a roofer's or plumber's torch. As with all types of underlay, care should be taken during building and maintenance to avoid the material becoming ignited.

10 Maintenance

As the product is confined within a roof structure and has suitable durability (see section 11), maintenance is not required.

11 Durability



The product will have a service life equal to that of the building in which it is installed.

12 Reuse and recyclability

The product is made from a mix of polyolefins that can be recycled.

Installation

13 General

13.1 Installation of DuPont AirGuard Control Air Leakage Barrier should be in accordance with the Certificate holder's instructions, the provisions of this Certificate, BS 9250 : 2007 and good building practice (see Figures 1 to 3).

Figure 1 Ceiling — cold pitched roof

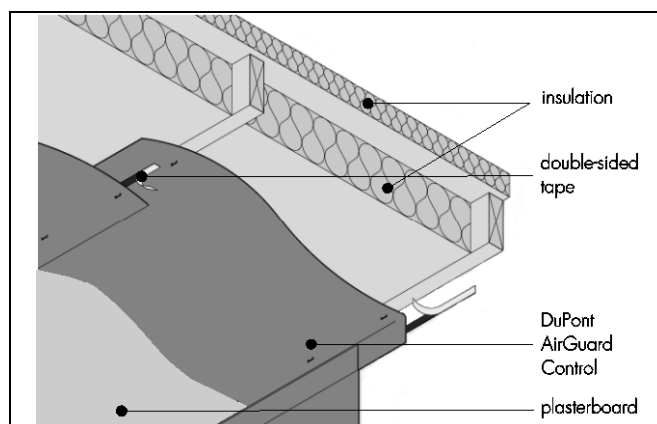


Figure 2 Warm pitched roof — rafter line

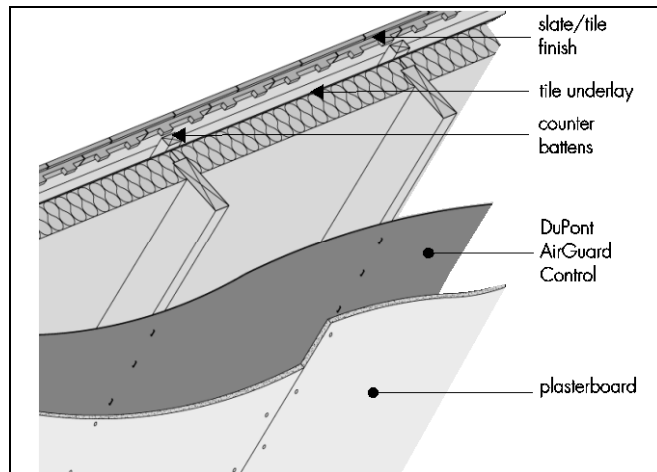
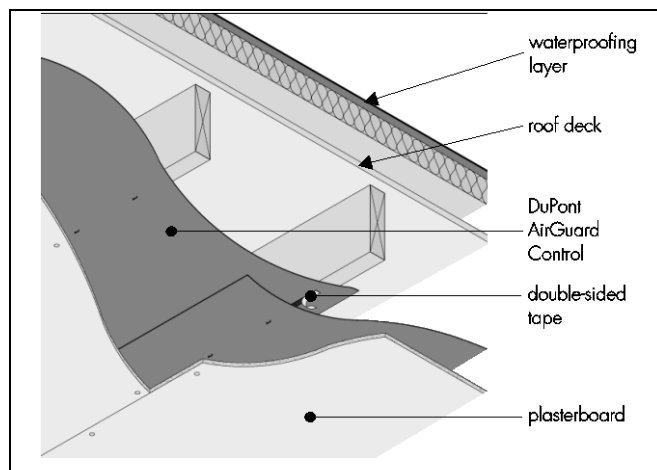


Figure 3 Flat roof



13.2 Where wood preservatives and damp-proofing treatments containing solvents have been applied, sufficient time must be allowed for solvents to disperse before the product is installed.

14 Procedure

14.1 The product should be positioned on the warm side of the thermal insulation and held in place if required by suitable fasteners to the background structure. Joints between adjacent sheets of the material should be lapped 150 mm over a support and be sealed with a strip of TYVEK 2060B Tape.

14.2 At all penetrations and abutments, the product should be cut neatly to fit as closely as possible, and the joint sealed with a strip of TYVEK 2060B Tape.

14.3 Internal linings can be applied directly onto the product and fixed through it in the normal manner. Alternatively, the internal lining may be set on spacer battens, leaving a gap behind the lining which can accommodate wiring and other services and reduce the need for penetrations of the vapour control layer/air leakage barrier.

15 Repair

Damage to the product can be repaired with TYVEK 2060B Tape. Extensively damaged areas are made good by overlaying a new sheet sealed in place with TYVEK 2060B Tape or TYVEK Double-sided Tape.

16 Tests

16.1 An assessment was made on data in relation to:

- dimensions
- mass per unit area
- tensile strength and elongation
- resistance to nail tear
- watertightness
- water vapour transmission properties
- effect of heat ageing
- reaction to fire.

16.2 Tests were carried out to determine:

- air leakage at joints
- air permeability

in order to assess:

- performance during service.

17 Investigations

17.1 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.

17.2 Calculations on the risks of interstitial condensation occurring in various constructions were carried out.

Bibliography

BS 5250 : 2011 + A1 : 2016 *Code of practice for control of condensation in buildings*

BS 5534 : 2014 + A2 : 2018 *Slating and tiling for pitched roofs and vertical cladding — Code of practice*

BS 9250 : 2007 *Code of practice for design of the airtightness of ceilings in pitched roofs*

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

EN 13984 : 2013 *Flexible sheets for waterproofing — Plastic and rubber vapour control layers — Definitions and characteristics*

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.