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Agrément Certificate

90/2548

Product Sheet 4

TYVEK CONSTRUCTION MEMBRANES

DUPONT AIRGUARD CONTROL AIR LEAKAGE BARRIER/VAPOUR CONTROL LAYER

This Agrément Certificate Product Sheet⁽¹⁾ relates to DuPont AirGuard Control⁽²⁾ Air Leakage Barrier/Vapour Control Layer, for use in walls and floors as an air and vapour control layer (AVCL).

(1) Hereinafter referred to as 'Certificate'.

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

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 has a high resistance to water vapour transmission and 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 the loads associated with the construction of the wall or floor (see section 8).

Durability — the product will have a service life comparable with other similar elements of construction, eg vapour control layers (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

John Albon — Head of Approvals
Construction Products

Claire Curtis-Thomas
Chief Executive

Date of Third issue: 6 January 2016

Originally certificated on 8 April 2008

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 are advised to check the validity and latest issue number of this Agrément Certificate by either referring to the BBA website or contacting the BBA direct.

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Regulations

In the opinion of the BBA, DuPont AirGuard Control Air Leakage Barrier/Vapour Control Layer, 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:	C2(c)	Resistance to moisture
Comment:		The product can contribute to limiting the risk of interstitial condensation. See section 6 of this Certificate.
Requirement:	L1(a)(i)	Conservation of fuel and power
Comment:		The product can contribute to meeting this Requirement. See section 7 of this Certificate.
Regulation:	7	Materials and workmanship
Comment:		The product is acceptable. See section 11 and the <i>Installation</i> part of this Certificate.



The Building (Scotland) Regulations 2004 (as amended)

Regulation:	8(1)(2)	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 contribute to limiting the risk of interstitial condensation, with reference to clauses 3.15.1 ⁽¹⁾⁽²⁾ and 3.15.5 ⁽¹⁾⁽²⁾ of this Standard. See section 6 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 this Standard, with reference to clauses 6.1.1 ⁽¹⁾ , 6.1.2 ⁽²⁾ , 6.1.6 ⁽¹⁾ , 6.1.7 ⁽¹⁾ , 6.1.10 ⁽²⁾ , 6.2.4 ⁽¹⁾ , 6.2.6 ⁽²⁾ , 6.2.9 ⁽¹⁾ , 6.2.10 ⁽¹⁾ , 6.2.11 ⁽²⁾ , 6.2.12 ⁽²⁾ and 6.2.13 ⁽¹⁾⁽²⁾ . See section 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.
Regulation:	12	Building standards applicable to conversions
Comment:		Comments made 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)(iii)(b)(i)	Fitness of materials and workmanship
Comment:		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 limiting the risk of interstitial condensation. See section 6 of this Certificate.
Regulation:	39	Conservation measures
Regulation:	40	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) 2007

Information in this Certificate may assist the client, Principal Designer/CDM co-ordinator, designer and contractors to address their obligations under these Regulations.

See section: 1 *Description* (1.2) of this Certificate.

Additional Information

NHBC Standards 2016

NHBC accepts the use of DuPont AirGuard Control Air Leakage Barrier/Vapour Control Layer, provided it is installed, used and maintained in accordance with this Certificate, in relation to *NHBC Standards*, Chapters 6.2 *External timber framed walls* and 9.2 *Wall and ceiling finishes*.

CE marking

The Certificate holder has taken the responsibility of CE marking the product in accordance with EN 13984 : 2013. An asterisk (*) appearing in this Certificate indicates that data shown are given in the manufacturer's Declaration of Performance.

Technical Specification

1 Description

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

1.2 The product has the nominal characteristics of:

Thickness* (mm)	0.25
Mass per unit area* ($\text{g}\cdot\text{m}^{-2}$)	108
Roll length (m)	50
Roll width (m)	1.5
Water vapour transmission – s_d * (m)	
minimum	2
nominal	5
Tensile strength* ($\text{N}\cdot 50\text{ mm}^{-1}$)	
longitudinal	200
transverse	170
Elongation* (%)	
longitudinal	38
transverse	38
Nail tear* (N)	
longitudinal	240
transverse	240.

1.3 Ancillary items for use with the product include:

- TYVEK 2060B Tape — a single-sided tape for sealing joints
- TYVEK Acrylic Tape (double-sided) — for use in repairing and sealing the membrane (see sections 14 and 15).

2 Manufacture

2.1 The membrane is manufactured by spinning strands of polypropylene and bonding them together with heat and pressure to form a flexible sheet. The sheet 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 operated by the manufacturer are being maintained.

2.3 The management system of DuPont de Nemours (Luxembourg) S.à r.l. has been assessed and registered as meeting the requirements of BS EN ISO 9001 : 2008 by DQS GmbH (Certificate 463950 QM08).

3 Delivery and site handling

3.1 Rolls are delivered to site packaged. Each package carries a label bearing the BBA logo incorporating the number of this Certificate.

3.2 Rolls should be stored on their sides, on a smooth, clean surface under cover and protected from direct sunlight.

Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on DuPont AirGuard Control Air Leakage Barrier/Vapour Control Layer.

4 General

- 4.1 DuPont AirGuard Control Air Leakage Barrier/Vapour Control Layer is satisfactory for use as a vapour control layer/air barrier in new build construction and renovation, as an alternative to more traditional materials.
- 4.2 Further information is given in BRE report (BR 262 : 2002) *Thermal insulation : avoiding the risks*.
- 4.3 Where constructions need to comply with *NHBC Standards* specifiers should observe the requirements of this document.
- 4.4 It is essential that proper care and attention is given to maintaining the product's integrity and continuity.
- 4.5 Walls in new buildings should be designed and constructed in accordance with the relevant recommendations of the UK National Annexes of BS EN 1996-1-1 : 2005 and BS EN 1996-2 : 2006.
- 4.6 Existing walls must be in a good state of repair with no evidence of rain penetration, damp or frost damage.
- 4.7 Suspended concrete and suspended timber ground floors incorporating the product must include suitable ventilation.

5 Practicability of installation

The product can be readily installed by operatives 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 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.

6.3 Constructions should be in accordance with the nominal recommendations of BS 5250 : 2011, Annexes F and G and favourably assessed in accordance with Annex D using a minimum air layer equivalent value ($s_{d,i}$) of not less than 2 m^2 (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 is considered to be an air barrier and will contribute to elements and junctions minimising heat loss by unplanned air infiltration. Guidance in this respect can be found in:

England and Wales — Accredited Construction Details

Scotland — Accredited Construction Details (Scotland)

Northern Ireland — Accredited Construction Details.

8 Strength

The product will resist the normal loads associated with installation of the wall or floor.

9 Properties in relation to fire

9.1 The product will melt and shrink away from heat, but will burn in the presence of a naked flame. The product is classified in accordance with EN 13501-1 : 2007 as a Class E* material.

9.2 In walls, cavity barriers should be used to satisfy the requirements of the national Building Regulations.

10 Maintenance

As the product is confined within a wall or floor structure and has suitable durability (see section 11), maintenance is not required. Any damaged areas should be repaired or replaced before completion in accordance with section 15.

11 Durability



Owing to the position of the product on the warm side of the insulation, it will have a 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, which can be recycled.

13 General

13.1 Installation of DuPont AirGuard Control Air Leakage Barrier/Vapour Control Layer must be in accordance with the Certificate holder's instructions and good building practice (see Figures 1 to 4).

Figure 1 Solid wall

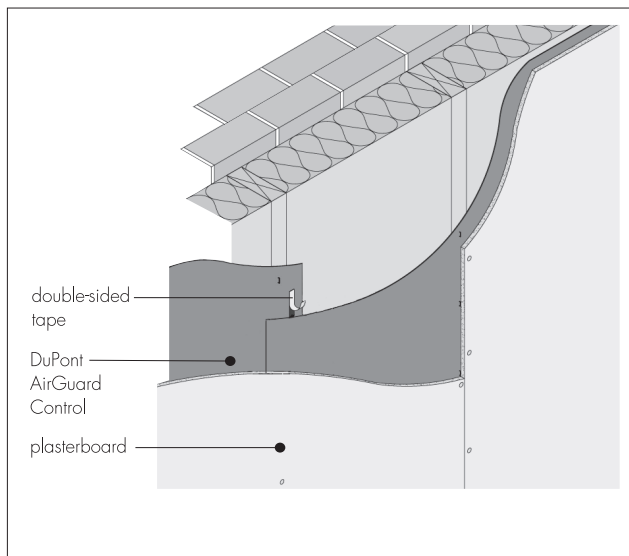


Figure 2 Cavity wall

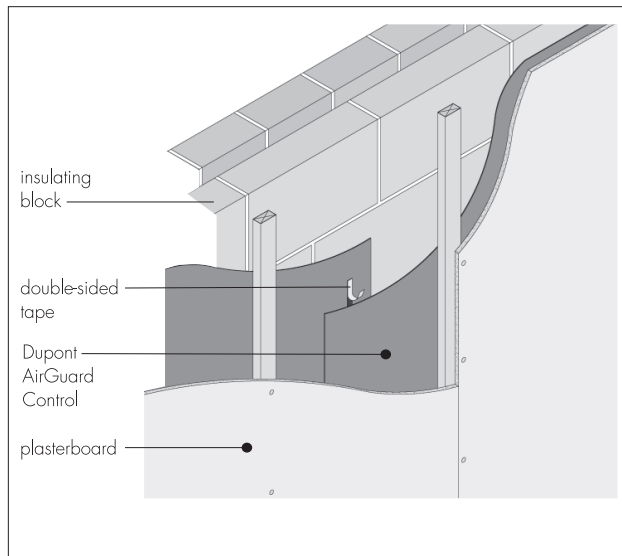


Figure 3 Timber floor

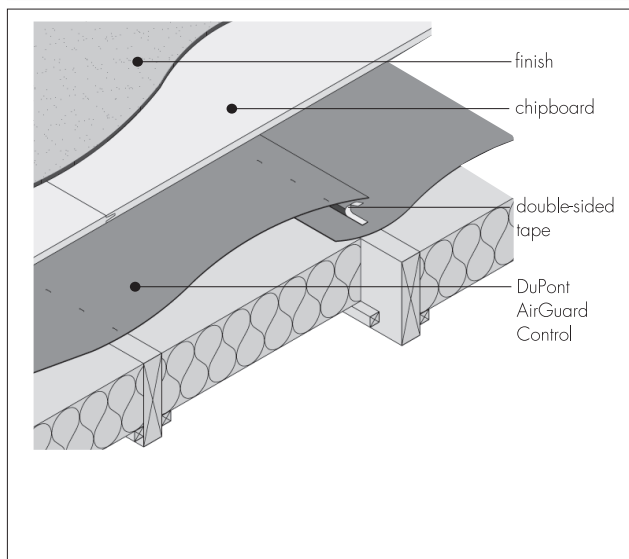
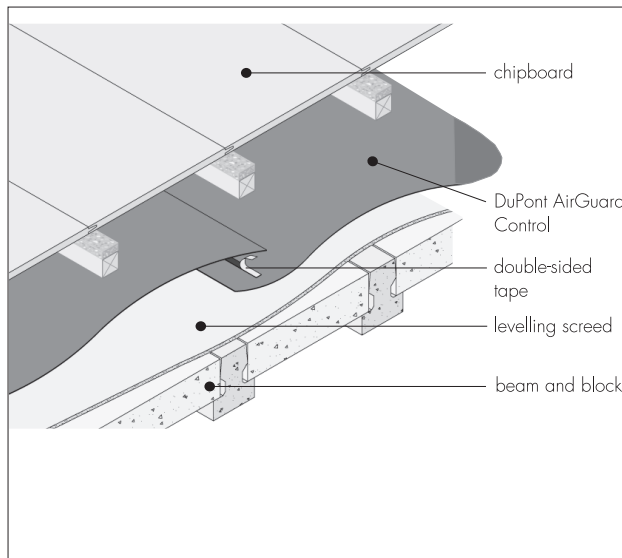


Figure 4 Suspended concrete floor



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 is positioned on the warm side of the thermal insulation and held in place by staples to the background structure. Joints between adjacent sheets of the material should be lapped 100 mm over a support and be sealed with a strip of TYVEK Acrylic Tape (double-sided).

14.2 At all penetrations and abutments the product is cut neatly to fit as closely as possible and the joint sealed with a strip of TYVEK Acrylic Tape (double-sided).

14.3 Internal linings can be applied directly onto the product and fixed through it in the normal manner. Preferably, 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 DuPont AirGuard Control can be repaired with TYVEK 2060B Tape. Extensively damaged areas must be made good by overlaying a new sheet sealed in place with TYVEK 2060B Tape or TYVEK Acrylic Tape (double-sided).

16 Tests

16.1 An assessment was made of data to EN 13984 : 2013 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 in 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 *Code of practice for control of condensation in buildings*

NA to BS EN 1996-1-1 : 2005 UK National Annex to *Eurocode 6 — Design of masonry structures — General rules for reinforced and unreinforced masonry structures*

NA to BS EN 1996-2 : 2006 UK National Annex to *Eurocode 6 — Design of masonry structures — Design considerations, selection of materials and execution of masonry*

BS EN ISO 9001 : 2008 *Quality management systems — Requirements*

EN 13501-1 : 2007 + A1 : 2009 *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*

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.