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BRE CERTIFICATION LIMITED

CERTIFICATE NUMBER 155/10
ISSUED: DECEMBER 2010

CERTIFICATE OF ASSESSMENT

PRODUCT
Tyvek® UV Facade Membrane 2524B

SUPPLIED BY
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SUMMARY

Tyvek® UV Facade Underlay 2524B is intended to be used in Façade construction as a secondary, water vapour permeable, weather resistant layer, for protection against wind driven rain or snow and the ingress of dust. It has been designed for use with open or ventilated cladding constructions.

Tyvek® UV Facade 2524B is a UV and heat stabilised Type LR low resistance (breathable) polymeric underlay as defined in BS 5250 *Code of practice for the control of condensation in buildings*. It comprises a 2 layer laminate of high density polyethylene, and a polypropylene fleece. Tyvek® UV Facade 2524B is embossed black on the outer surface (as installed) and white on the inner surface.

It is suitable, within limitations, for use as a breather membrane for use in wall construction with rain-screen cladding, or other cladding, as a secondary weather resistant layer for protection against wind-driven rain.

The characteristics of the product and the method of application have been reviewed with respect to current Building Regulations, British and European Standards and other publications in the United Kingdom and Ireland in December 2010.

The assessment is described in the following pages which form integral parts of this certificate, which should be read in its entirety.

CONDITIONS OF USE

0.1 Tyvek® UV Façade Underlay 2524B is a Type LR low resistance (breathable) membrane as defined by BS 5250 having a water vapour resistance of less than or equal to 0.25 MNs/g. It is intended for use with open and ventilated rain-screen claddings. Designers shall ensure that the wall system is designed in accordance with project requirements for wind and weathertightness.

0.2 Tyvek® UV Façade Underlay 2524B shall be fully protected with cladding within one month of installation.

0.3 Where fixings to support claddings penetrate the membrane suitable arrangements shall be made to ensure weathertightness around the penetration.

0.4 The performance of the product depends on correct installation. Tyvek 2524B shall be installed strictly in accordance with the certificate holder's installation instructions, BS 5250 *Code of practice for the control of condensation in buildings*, and the requirements of this certificate. The quality of installation achieved on site is not covered by this certificate. It is therefore recommended that the quality of installation and workmanship is subject to appropriate checks by a competent person for each installation.

STATEMENT
Tyvek 2524B is satisfactory for use within the stated conditions provided that it is used in accordance with the certificate holder's instructions and the requirements of this certificate.

CONFIRMATION
For and on behalf of BRE Certification

Director
Date: 7th December 2010

1. TECHNICAL SPECIFICATION

1.1 Description of product and method of application

1.1.1 Tyvek® UV Facade 2524B is a UV and heat stabilised polymeric underlay for use in external walls of dwellings and other buildings. It comprises a 2 layer laminate of high density polyethylene, and a polypropylene fleece.

1.1.2 Tyvek® UV Facade 2524B is embossed black on the outer surface (as installed) and white on the inner surface.

1.1.3 Tyvek® UV Facade 2524B is manufactured in rolls as shown below.

Product dimensions		
Characteristic	Nominal value	
Roll length	50m	50m
Roll width	1.5m	3.0m
Weight	15kg	30kg

2 PRODUCT PERFORMANCE

2.1 Tyvek® UV Facade Underlay 2524B provides a factory or site-applied discontinuous low resistance (breather) membrane layer in wall constructions designed and constructed in accordance with BS 5250. It is intended to be used in façade construction as a secondary, water vapour permeable, weather resistant layer, for protection against wind driven rain or snow and the ingress of dust. It has been designed for use with open or ventilated cladding constructions.

2.2. Table 1 lists the results of tests carried out to assess the performance characteristics of Tyvek® UV Facade Underlay 2524B.

Table 1: Technical data for Tyvek UV Façade Membrane 2524B

Performance characteristic	**Test method**	**Test results and manufacturer's declared values [ ]**
Reaction to fire	EN 11925-2 in accordance with BS EN 13501-1	Class E
Water vapour transmission	BS EN ISO 12572 Condition C Diffusion equivalent air layer thickness s_d	0.217 MNs/g [1] 0.043m [0.02-0.05]
Condensation risk	BS 5250 Section 7.7 and Annex D	Can be used without risk of condensation (subject to design check for each use)
Length Width Straightness	BS EN 1848-2	50m 50m [-0] 1.5m 3.0m [-0.5% +1.5%] Met requirements
Resistance to water penetration	EN 1928 before and after ageing to BS EN 13859-2 Annex C	Unaged Pass W1 Aged Pass W1
Mass per unit area	BS EN 1849-2	194 g/m^2 [180 - 210]
Tensile strength	BS EN 12311-1 modified by BS EN 13859-2	Unaged 403 N/50mm MD [330 - 490] Aged 370 N/50mm MD [90% of unaged] Unaged 325 N/50mm CD [260 - 410] Aged 304 N/50mm CD [90% of unaged]

Elongation at break	BS EN 12311-1 modified by BS EN 13859-2	Unaged 12.5% MD [9 – 19%] Aged 11.1% MD [80% of unaged] Unaged 18.5% CD [13 – 25%] Aged 17.8 %CD [80% of unaged]
Resistance to tearing (nail shank)	BS EN 12310-1 modified by BS EN 13859-2	308 N MD [200 - 400] 337 N CD [220 - 460]
Dimensional stability	BS EN 1107-2	- 0.1 % MD [±1%] 0.1%CD [±1%]
Flexibility at low temperature (pliability)	BS EN 1109	No cracks were observed in the coating at any of the temperatures down to -40°C
Resistance to artificial ageing (Exposure to UV irradiation and elevated temperature, heat)	Test to BS EN 1296 and BS EN 1297 with modifications from BS EN 13859-2 Annex C. UV for 5000 h BST temp 50 °C 90 days / temp 70 °C	See aged results above
Resistance to air penetration	BS EN 12114 with test area $0.5m^2 \leq A \leq 1.0\ m^2$	0.010 $m^3/(m^2h$ 50 Pa) [0 – 0.1]

Notes to Table 1
1. Calculated value from reported S_d
2. MD = Machine Direction, CD = Cross Direction
3. [ ] = Manufacturers declared values, minimum and maximum production tolerance

2.3 Condensation risk

2.3.1 Tyvek® UV Facade Underlay 2524B is a Type LR low resistance (breathable) membrane as defined in BS 5250 *Code of practice for the control of condensation in buildings.*

2.3.2 Calculations to BS EN ISO 13788 *Hygrothermal performance of building components and building elements. Internal surface temperature to avoid critical surface humidity and interstitial condensation. Calculation method* show that both surface and interstitial condensation are unlikely to occur if the wall is designed and constructed in accordance with BS 5250 Section 8.3.5. However, for each application, condensation risk calculations shall be carried out to ensure that condensation will not occur to a harmful extent.

2.4 Durability

2.4.1 The product is considered to be as durable as traditional wall breather membranes. This is provided that the wall construction is designed and installed in accordance with, the requirements of this certificate, the Certificate holder's installation instructions, and that the cladding is adequately maintained.

3. BUILDING REGULATIONS

3.1 Tyvek® UV Facade Underlay 2524B, when used in accordance with this certificate and the certificate holder's installation instructions, can assist in demonstrating that the works within which the underlay is installed will meet the requirements of the following building regulations.

3.2 Building Regulations

The Building Regulations (England and Wales) 2000 (as amended)
- Requirement C2(b) – Precipitation and wind-driven spray
- Requirement C2(c) – Interstitial and surface condensation
- Requirement Regulation 7 – Materials and workmanship

The Building (Scotland) Regulations 2004 (as amended)
- Regulation 8(1)(2) – Fitness and durability of materials and workmanship
- Regulation 9 – Building standards - construction:
  - Standard 3.10 – Precipitation
  - Standard 3.15 – Condensation

The Building Regulations (Northern Ireland) 2000 (as amended)
- Regulation B2 – Fitness of materials and workmanship
- Regulation B3(2) – Suitability of certain materials
- Regulation C4(b) – Resistance to ground moisture and weather
- Regulation C5 – Condensation

The Building Regulations 1997 Ireland (as amended)
- Regulation C4 – Resistance to weather and ground moisture
- Regulation D1 – Materials and workmanship
- Regulation F1 – Means of ventilation
- Regulation F2 – Condensation in roofs

3.3 CDM Regulations

The Building Construction (Design and Management) Regulations 2007
Construction (Design and Management) Regulations (Northern Ireland) 1995 (as amended)

The certificate should form part of the information used by the client, planning coordinator, designer and contractors to discharge their responsibilities under these regulations.

4. INSTALLATION

4.1 General

The performance of the Tyvek® UV Facade 2524B depends on correct delivery, storage and handling in accordance with the certificate holder's installation instructions. The quality of installation actually achieved on specific sites is not covered by this certificate. Therefore it is recommended that the quality of installation and workmanship is subject to appropriate checks by a competent person for each installation.

4.2 Installation shall be carried out only by installers trained, approved and monitored by the certificate holder taking into account all relevant health and safety implications.

5. TECHNICAL INVESTIGATIONS

5.1 Laboratory tests and measurements of the typical physical properties of the materials have been made. Tests and inspection of data have been carried out to determine the properties and performance characteristics listed in Table 1 above.

5.2 Quality Control

Traceable quality records are maintained by the manufacturer. The manufacturer carries out checks at regular intervals to ensure the quality of the product is maintained within the defined product specification. BRE Certification undertakes regular monitoring of the factory production audits on the manufacture of the product against an agreed Quality Plan for the product.

5.3 Standards

The following standards have been referred to for this assessment:

BS 5250: 2002	Code of practice for the control of condensation in buildings.
EN 11925-2: 2002	Reaction to fire tests. Ignitability of building products subjected to direct impingement of flame. Single-flame source test
BS EN ISO 12572: 2001	Hygrothermal performance of building materials and products. Determination of water vapour transmission properties
BS EN 1848-2: 2001	Flexible sheets for waterproofing. Determination of length, width and straightness. Plastic and rubber sheets for roof waterproofing
BS EN 1849-2:2009	Flexible sheets for waterproofing. Determination of thickness and mass per unit area. Plastic and rubber sheets
BS EN 1928: 2000	Flexible sheets for waterproofing. Bitumen, plastic and rubber sheets for roof waterproofing. Determination of watertightness
BS EN 13859-2:2004+A1:2008	Flexible sheets for waterproofing. Definitions and characteristics of underlays. Underlays for walls
BS EN 1107-2: 2001	Flexible sheets for waterproofing. Determination of dimensional stability. Plastic and rubber sheets for roof waterproofing
BS EN 1109: 2000	Flexible sheets for waterproofing. Bitumen sheets for roof waterproofing. Determination of flexibility at low temperature
BS EN 1296: 2001	Flexible sheets for waterproofing. Bitumen, plastic and rubber sheets for roofing. Method of artificial ageing by long term exposure to elevated temperature
BS EN 1297: 2004	Flexible sheets for waterproofing. Bitumen, plastic and rubber sheets for roof waterproofing. Method of artificial ageing by long term exposure to the combination of UV radiation, elevated temperature and water
BS EN 12310-1: 2000	Flexible sheets for waterproofing. Determination of resistance to tearing (nail shank). Bitumen sheets for roof waterproofing
BS EN 12311-1: 2000	Flexible sheets for waterproofing. Determination of tensile properties. Bitumen sheets for roof waterproofing
BS EN 12114: 2000	Thermal performance of buildings. Air permeability of building components and building elements. Laboratory test methods
BS EN 13501-1: 2002	Fire classification of construction products and building elements. Part 1 classification using test data from reaction to fire tests.
BS EN ISO 13788: 2002	Hygrothermal performance of building components and building elements. Internal surface temperature to avoid critical surface humidity and interstitial condensation. Calculation method

6. CONDITIONS OF CERTIFICATE ISSUE

6.1 Validity

This certificate will be valid for a period of three years from the date of issue. It will remain valid in so far as:

a. The materials and method of manufacture are unchanged or BRE Certification has assessed any changes and found them to be satisfactory.
b. The designs and specifications are unaltered from those examined by BRE Certification.
c. The certificate holder continues to have the product checked by BRE Certification through factory production control procedures.

6.2 Health and Safety

This certificate and the recommendations herein do not purport in any way to restate the requirements of the Health and Safety at Work Act 1974 or any statutory or common law duty of care which exists now or in the future: nor is compliance with these recommendations to be assumed as satisfying the requirements of the said Act or any existing or future statutory or common law duty of care.

6.3 Reference to Other Documentation

Where reference is made in this certificate to any Act of Parliament, Regulation, Code of Practice, British or other Standard or other publications, it shall be construed as reference to such publication in the form in which it is in force at the date of issue of the certificate.

6.4 Patents

BRE Certification makes no representational warranty that any patent or similar industrial property right is valid or that the manufacture, use, sale, lease or any other dealing or disposition of the product in whole or in part is not an infringement of any patent or industrial property right not owned by the certificate holder.

Confirmation that a certificate is current may be obtained from the BRE Certification website (www.redbooklive.com)