

## Britannia Paints Ltd

Unit 7-8, King Street Trading Estate  
Middlewich  
Cheshire CW10 9LF

Tel: 01606 834015 Fax: 01606 837006  
e-mail: sales@britanniapaints.co.uk  
website: www.britanniapaints.co.uk



Agrément Certificate  
**13/5042**  
Product Sheet 1

## BRITANNIA PAINTS ROOF WATERPROOFING SYSTEMS

### POLYSHIELD 15 ROOF WATERPROOFING SYSTEM

This Agrément Certificate Product Sheet<sup>(1)</sup> relates to the Polyshield 15 Roof Waterproofing System, a single-pack, rubber-based, cold liquid-applied reinforced coating for use on flat or pitched roofs with limited access.

(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

**Weathertightness** — the system will resist the passage of moisture into a building (see section 6).

**Properties in relation to fire** — the system will enable a roof to be unrestricted under the Building Regulations (see section 7).

**Resistance to wind uplift** — the system will resist the effect of any likely wind suction acting on the roof (see section 8).

**Resistance to foot traffic** — the system will accept the limited foot traffic and loads associated with installation and maintenance (see section 9).

**Durability** — under normal service conditions, the system will provide a durable roof waterproofing with a service life in excess of 15 years (see section 11).

The BBA has awarded this Certificate to the company named above for the system described herein. This system 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

A handwritten signature in black ink, appearing to be 'Simon Wroe'.

Date of First issue: 27 September 2013

Simon Wroe  
Head of Approvals — Materials

A handwritten signature in black ink, appearing to be 'Claire Curtis-Thomas'.

Claire Curtis-Thomas  
Chief Executive

*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](http://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.*

British Board of Agrément  
Bucknalls Lane  
Watford  
Herts WD25 9BA

tel: 01923 665300  
fax: 01923 665301  
e-mail: mail@bba.star.co.uk  
website: [www.bbacerts.co.uk](http://www.bbacerts.co.uk)

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# Regulations

In the opinion of the BBA, the Polyshield 15 Roof Waterproofing System, if installed, used and maintained in accordance with this Certificate, will meet or contribute to meeting 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)

|                           |  |
|---------------------------|--|
| <b>Requirement:</b> B4(2) | <b>External fire spread</b>  |
| <b>Comment:</b>           | On a suitable substructure, the use of the system will enable a roof to be unrestricted under this Requirement. See section 7 of this Certificate. |
| <b>Requirement:</b> C2(b) | <b>Resistance to moisture</b>  |
| <b>Comment:</b>           | The system will enable a roof to meet this Requirement. See section 6.1 of this Certificate.   |
| <b>Regulation:</b> 7      | <b>Materials and workmanship</b>   |
| <b>Comment:</b>           | The system is acceptable. See section 11 and the <i>Installation</i> part of this Certificate.   |



## The Building (Scotland) Regulations 2004 (as amended)

|                            |   |
|----------------------------|---|
| <b>Regulation:</b> 8(1)(2) | <b>Fitness and durability of materials and workmanship</b>  |
| <b>Comment:</b>            | The use of the system satisfies the requirements of this Regulation. See sections 10 and 11, and the <i>Installation</i> part of this Certificate.  |
| <b>Regulation:</b> 9       | <b>Building standards applicable to construction</b>  |
| <b>Standard:</b> 2.8       | <b>Spread from neighbouring buildings</b>   |
| <b>Comment:</b>            | The system, when applied to a suitable substructure, is regarded as having low vulnerability and will enable a roof to be unrestricted under this Standard, with reference to clause 2.8.1 <sup>(1)(2)</sup> . See section 7 of this Certificate.                                 |
| <b>Standard:</b> 3.10      | <b>Precipitation</b>  |
| <b>Comment:</b>            | The use of the system will enable a roof to meet the requirements of this Standard, with reference to clauses 3.10.1 <sup>(1)(2)</sup> and 3.10.7 <sup>(1)(2)</sup> . See section 6.1 of this Certificate.  |
| <b>Standard:</b> 7.1(a)    | <b>Statement of sustainability</b>  |
| <b>Comment:</b>            | The system 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.  |
| <b>Regulation:</b> 12      | <b>Building standards applicable to conversions</b>   |
| <b>Comment:</b>            | Comments made in relation to the system under Regulation 9, Standards 1 to 6, also apply to this Regulation, with reference to clause 0.12.1 <sup>(1)(2)</sup> and Schedule 6 <sup>(1)(2)</sup> .<br>(1) Technical Handbook (Domestic).<br>(2) Technical Handbook (Non-Domestic). |



## The Building Regulations (Northern Ireland) 2012

|                                |   |
|--------------------------------|---|
| <b>Regulation:</b> 23(a)(b)(i) | <b>Fitness of materials and workmanship</b>   |
| <b>Comment:</b>                | The system is acceptable. See section 11 and the <i>Installation</i> part of this Certificate.  |
| <b>Regulation:</b> 28(b)       | <b>Resistance to moisture and weather</b>   |
| <b>Comment:</b>                | The system will enable a roof to meet the requirements of this Regulation. See section 6.1 of this Certificate.   |
| <b>Regulation:</b> 36(b)       | <b>External fire spread</b>   |
| <b>Comment:</b>                | On a suitable substructure, the use of the system will enable a roof to be unrestricted under the requirements of this Regulation. See section 7 of this Certificate. |

## Construction (Design and Management) Regulations 2007

## Construction (Design and Management) Regulations (Northern Ireland) 2007

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

See sections: 1 *Description* (1.2), 3 *Delivery and site handling* (3.2) and 13 *Precautions* of this Certificate

# Additional Information

## NHBC Standards 2013

NHBC accepts the use of the Polyshield 15 Roof Waterproofing System, provided it is installed, used and maintained in accordance with this Certificate, in relation to *NHBC Standards*, Chapter 7.1 *Flat roofs and balconies*.

## 1 Description

1.1 The Polyshield 15 Roof Waterproofing System is a single-pack, rubber-based, cold liquid-applied, reinforced coating comprising:

- Polyshield Primer — a rubber-based primer for preparation of substrates such as concrete, asphalt, timber and mineral felt
- Britannia Zinc Phosphate Metal Primer — a primer for the preparation of metal substrates
- Britannia QD Universal Primer-Sealer — a primer for the preparation of PVC single-ply membranes
- Polyshield 15 basecoat — a single-pack, rubber-based, cold liquid-applied embedment and saturation layer, available in grey
- Polyshield 15 Topcoat — a single-pack, rubber-based, cold liquid-applied roof waterproofing, available in grey, black and solar reflective white
- Polyshield Scrim — a stitch-bonded polyester mesh for embedding into the basecoat and additional reinforcement for detailing, expansion joints and construction joints.

1.2 Polyshield Scrim has the characteristics given in Table 1.

*Table 1 Polyshield Scrim — characteristics*

| Characteristic (unit)                   | Value |     |
|---|-------|-----|
| Mass per unit area (g·m <sup>-2</sup> ) | 100   |     |
| Width (m)                               | 0.2   | 1   |
| Length (m)                              | 25    | 100 |

1.3 Ancillary components that may be used with the system, but outside the scope of this Certificate, are:

- Britannia Fungicidal Wash — for use in cleaning the substrate of moss and algae prior to the application of the system
- white spirit — for use in cleaning application equipment.

## 2 Manufacture

2.1 The system components are manufactured by batch blending raw materials.

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 Britannia Paints Ltd has been assessed and registered as meeting the requirements of BS EN ISO 9001 : 2008 by ISOQAR Ltd Manchester (Certificate 8516 QM 80001).

## 3 Delivery and site handling

3.1 The Polyshield waterproofing component is delivered to site in metal cans bearing the Certificate holder's name, product name, colour, volume, batch number, health and safety data and the BBA logo incorporating the number of this Certificate. The can size and shelf-life (unopened) of each of the liquid components are given in Table 2.

*Table 2 Liquid component — can size and shelf-life*

| Component                             | Can size (l) | ShelfLife (years) |
|---------------------------------------|--------------|-------------------|
| Polyshield 15 Basecoat/Topcoat        | 5 and 20     | 2                 |
| Polyshield Primer                     | 5 and 20     | 2                 |
| Britannia Zinc Phosphate Metal Primer | 1 and 5      | 1                 |
| Britannia QD Universal Primer-Sealer  | 5 and 20     | 1                 |

3.2 The materials are classified under *The Chemicals (Hazard Information and Packaging for Supply) Regulations 2009 (CHIP 4)/Classification, Labelling and Packaging of Substances and Mixtures (CLP Regulation) 2009* and bear the appropriate hazard warning label. The flashpoints and hazard classifications for the components are given in Table 3.

Table 3 Flashpoint and hazard classification of components

| Component <sup>(1)</sup>              | Flashpoint (°C) | Hazard classification                                |
|---------------------------------------|-----------------|--|
| Polyshield 15 Basecoat/Topcoat        | 38              | Flammable, harmful and dangerous for the environment |
| Polyshield Primer                     | 38              | Flammable, harmful and dangerous for the environment |
| Britannia Zinc Phosphate Metal Primer | 25              | Flammable, harmful and dangerous for the environment |
| Britannia QD Universal Primer-Sealer  | 25              | Flammable, harmful and irritant                      |

(1) These components should be stored in accordance with *The Dangerous Substances and Explosive Atmospheres Regulations 2002*.

3.3 Polyshield Scrim should be stored under cover in a dry and clean environment.

## Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on the Polyshield 15 Liquid-Applied Roof Waterproofing System.

## Design Considerations

### 4 General

4.1 The Polyshield 15 Liquid-Applied Roof Waterproofing System is satisfactory for use as a liquid-applied waterproofing layer on flat and pitched roofs with limited access.

4.2 The system is suitable for use on substrates of:

- concrete
- mastic asphalt
- bituminous roofing felt
- steel
- timber
- PVC plastisol coated metal
- PVC single-ply waterproofing membrane.

4.3 Limited access roofs are defined for the purpose of this Certificate as those roofs subjected only to pedestrian traffic for maintenance of the roof covering and cleaning of gutters, etc. Where traffic in excess of this is envisaged, additional protection to the membrane must be provided (see section 9).

4.4 Flat roofs are defined for the purpose of this Certificate as those roofs having a minimum finished fall of 1:80. For design purposes, twice the minimum finished fall should be assumed, unless a detailed analysis of the roof is available, including overall and local deflection, direction of falls, etc. Pitched roofs are defined for the purpose of this Certificate of those having a fall greater than 1:6.

4.5 Decks to which the membranes are to be applied must comply with the relevant requirements of BS 6229 : 2003, BS 8217 : 2005 and, where appropriate, *NHBC Standards 2013*, Chapter 7.1 *Flat roofs and balconies*.

### 5 Practicability of installation

The system should only be applied by installers who have been trained and approved by the Certificate holder.

### 6 Weathertightness

 6.1 The system will adequately resist the passage of moisture into a building and will enable a roof to comply with the requirements of the national Building Regulations:

**England and Wales** – Approved Document C, Requirement C2(b), section 6

**Scotland** – Regulation 9, Mandatory Standard 3.10, clauses 3.10.1 and 3.10.7

**Northern Ireland** – Regulation 28(b).

6.2 The system is impervious to water and will achieve a weathertight roof capable of accepting minor structural movement.

### 7 Properties in relation to fire

 7.1 Results of tests indicate that a system comprising an 18 mm plywood substrate, a 1.6 mm bitumen felt, one layer of Polyshield 15 Basecoat applied at a rate of 1 l·m<sup>-2</sup> with Polyshield Scrim embedded in the coat and one layer of Polyshield Topcoat applied at a rate of 0.5 l·m<sup>-2</sup> is classified under BS EN 13501-5 : 2005 as B<sub>ROOF</sub>(t4).

7.2 The designation of other specifications should be confirmed by:

**England and Wales** – test or assessment in accordance with Approved Document B, Appendix A, clause 1

**Scotland** – test to conform to Mandatory Standard 2.8, clause 2.8.1

**Northern Ireland** – test or assessment by a UKAS accredited laboratory, or an independent consultant with appropriate experience.

## 8 Adhesion

The adhesion of the system to the substrates listed in section 4.2 is sufficient to resist the effects of wind suction, thermal cycling or other minor structural movement likely to occur in service. Acceptable adhesion to other substrates should be confirmed by test.

## 9 Resistance to foot traffic

The system can accept the limited foot traffic and light concentrated loads associated with installation and maintenance, but reasonable care must be taken to avoid puncture by sharp objects or concentrated loads. Where traffic in excess of this is envisaged, such as maintenance of lift equipment, a walkway should be provided, for example, using concrete slabs supported on bearing pads. Results of dynamic and static indentation tests are given in Table 4.

Table 4 Dynamic and static indentation

| Test                          | Result         | Method      |
|-------------------------------|----------------|-------------|
| Dynamic indentation on steel  |                |             |
| control                       |                |             |
| tested at 23°C                | I <sub>4</sub> | EOTA TR-006 |
| heat aged <sup>(1)</sup>      | I <sub>4</sub> |             |
| tested at -20°C               | I <sub>4</sub> |             |
| UV aged <sup>(2)</sup>        | I <sub>4</sub> |             |
| tested at -10°C               | I <sub>4</sub> |             |
| Static indentation on steel   |                |             |
| control                       |                |             |
| tested at 23°C                | L <sub>4</sub> | EOTA TR-007 |
| tested at 80°C                | L <sub>1</sub> |             |
| water exposure <sup>(3)</sup> |                |             |
| tested at 80°C                | L <sub>1</sub> |             |

(1) Heat aged for 100 days at 80°C.

(2) UV aged using UVA lamps at an exposure of 400 MJ·m<sup>-2</sup> at 50°C.

(3) Water exposure at 60°C for 30 days.

## 10 Maintenance



10.1 Systems must be the subject of annual inspections and maintenance to ensure continued performance.

10.2 Maintenance should include checks and operations to ensure, where applicable, that:

- the membrane and drainage outlets are free from the build-up of silt and other debris
- protection layers, eg walkways, are in good condition.

10.3 Should the system become contaminated by oil, grease or other chemicals, the advice of the Certificate holder must be sought.

## 11 Durability



Accelerated weathering tests and evidence from existing installations confirm that satisfactory retention of physical properties is achieved. Under normal conditions, the system will have a service life in excess of 15 years.

## Installation

## 12 General

12.1 The installation of the Polyshield 15 Roof Waterproofing System must be carried out only by trained and approved roofers in accordance with the installation instructions.

12.2 Installation must not be carried out during inclement weather (eg rain, fog or snow). Application of the system is carried out at a minimum temperature of 2°C and a maximum of 35°C. When the temperature is below 5°C, suitable precautions against surface condensation on the substrate must be taken.

12.3 Application must not be carried out in direct hot sunlight as this may cause the coating to skin and affect the system's final properties.

12.4 Substrates on which the system is applied must be sound, dry, frost-free, clean and free from sharp projections such as nail heads and concrete nibs. The Certificate holder's advice should be sought on suitable cleaning procedures and the use of a proprietary surface cleaner/fungicidal wash.

12.5 Adhesion checks must be carried out to ensure that the system is compatible with the substrate and to determine whether the surface requires priming before application.

12.6 Prior to application of the system, some features must be treated or prepared in accordance with the Certificate holder's instructions, including:

- defects in existing waterproofing layers, eg cracks and blisters
- expansion or construction joints (must be additionally reinforced prior to the application of the main waterproofing layer)
- detailing, such as upstands and penetrations
- large cracks in the substrate.

### 13 Precautions

13.1 Vapours from components of the system may cause sensitisation and irritation to the respiratory system, eyes and skin. The system should be used only in areas with sufficient ventilation to prevent the build-up of vapours. Contact with the skin, eyes and clothes must be avoided. The manufacturer's material safety data sheets must be consulted for detailed information on the safe handling and use of the products.

13.2 Components of the system must not be allowed to enter the waste drainage system. Care must also be taken to prevent vapours entering the inside of the building, eg by closing doors and windows.

### 14 Procedure

14.1 Concrete, mastic asphalt, timber and mineral felt substrates are primed using Polyshield Primer prior to the application of the main waterproofing. The primer is applied by brush or roller at a rate of up to  $5 \text{ m}^2 \cdot \text{l}^{-1}$  depending on the porosity of the substrate. Application of the main waterproofing can take place once the primer is touch dry.

14.2 Metal substrates are primed using Britannia Zinc Phosphate Metal Primer prior to the application of the main waterproofing. The primer is applied by brush or roller at a rate of up to  $13 \text{ m}^2 \cdot \text{l}^{-1}$  and an approximate thickness of  $35 \mu\text{m}$ . Application of the main waterproofing can take place a minimum of two hours after priming.

14.3 PVC single-ply membranes are primed using Britannia QD Universal Primer-Sealer prior to the application of the main waterproofing. The primer is applied by brush or roller at a rate of up to  $10 \text{ m}^2 \cdot \text{l}^{-1}$ .

14.4 The waterproofing layers are applied using either a roller or brush.

14.5 The basecoat is applied at the application rates given in section 14.8 and may require a two-coat application, depending on the roughness of the substrate.

14.6 The Polyshield Scrim is embedded into the wet basecoat, using a roller to ensure the scrim is well saturated and there are no wrinkles in the scrim. If the scrim has a dry appearance when embedded, additional Polyshield 15 is applied with a roller until the scrim is saturated. Adjacent runs of the scrim are overlapped by 75 mm.

14.7 When the basecoat is completely dry, the topcoat is applied at the application rates given in section 14.8. The basecoat must be clean prior to the application of the topcoat — where it is not, the advice of the Certificate holder must be sought on cleaning.

14.8 Application rates for different substrate types are given in Table 5.

| Substrate type | Application rate ( $\text{l} \cdot \text{m}^{-2}$ ) |   |
|----------------|---|---|
|                | Basecoat  | Topcoat                                 |
| Smooth         | 1.00  | 0.75                                    |
| Intermediate   | 1.25 in two coats                                   | 0.75                                    |
| Rough          | 1.5 in two coats                                    | 0.50 (first coat)<br>0.75 (second coat) |

14.9 At each stage of coating, a check must be made for the presence of pinholing and uncoated areas and rectified by applying additional Polyshield as necessary.

### 15 Repair

Should minor damage occur, it can be rectified by cleaning back to unweathered material and applying the system to the damaged area at the appropriate application rate stated in section 14.8. In cases of doubt the advice of the Certificate holder should be sought.

## 16 Tests

Tests were conducted on the Polyshield 15 Liquid-Applied Roof Waterproofing System and the results assessed to determine:

- tensile strength and elongation — control, heat aged and UV aged
- delamination strength — control, heat aged and surface water exposure. Substrates tested were:
  - concrete
  - unprimed asphalt
  - steel
  - mineral finished bitumen felt
  - PVC plastisol
  - plywood
- dynamic indentation — control, heat aged and UV aged
- static indentation — control, heat aged and after surface water exposure
- fatigue cycling — control and heat aged
- resistance to sliding
- water vapour transmission
- watertightness.

## 17 Investigations

17.1 A site in progress was visited to assess the practicability of installation of the system.

17.2 An assessment was made of independent fire test reports relating to the system's performance in respect of external fire performance.

17.3 The manufacturing process was evaluated, including the methods adopted for quality control, and details were obtained of the quality and compositions of materials used.

## Bibliography

BS 6229 : 2003 *Flat roofs with continuously supported coverings — Code of practice*

BS 8217 : 2005 *Reinforced bitumen membranes for roofing — Code of practice*

BS EN 13501-5 : 2005 *Fire classification of construction products and building elements — Classification using data from external fire exposure to roofs tests*

BS EN ISO 9001 : 2008 *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.