Eagle Insulations Ltd
39 Alma Road
St Albans
Herts AL1 3AT

Tel: 03304 004170 Fax: 03304 004171
e-mail: info@eagle-insulations.com
website: www.eagle-insulations.com

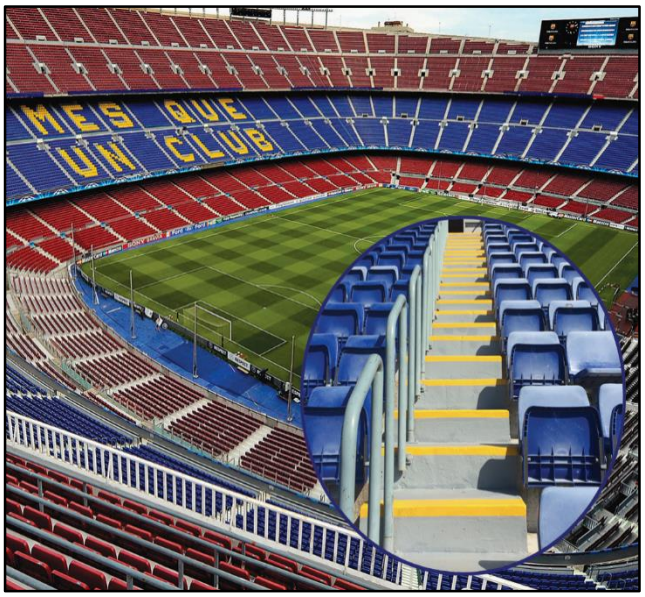
Agrément Certificate
16/5340
Product Sheet 1

EAGLE INSULATIONS ROOF WATERPROOFING SYSTEMS

DESMOPOL ROOF WATERPROOFING SYSTEM

This Agrément Certificate Product Sheet(1) relates to the Desmopol Roof Waterproofing System, a single component, cold liquid-applied polyurethane roof waterproofing membrane for use on pitched and flat roofs with limited access and pedestrian access, including green roofs and roof gardens.

(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 the building (see section 6).

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

Adhesion — the adhesion of the system is sufficient to resist the effects of any likely wind suction and the effects of thermal or other minor movement likely to occur in practice (see section 8).

Resistance to foot traffic — the system will accept, without damage, the pedestrian traffic and loads associated with installation and maintenance of the system (see section 10).

Resistance to penetration of roots — the system will resist penetration by plant roots (see section 11).

Durability — under normal service conditions the system will provide a durable waterproof covering with a service life of at least 25 years (see section 13).

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

Date of First issue: 12 September 2016

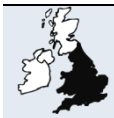
John Albon – Head of Approvals Construction Products

Claire Curtis-Thomas
Chief Executive

Certificate amended on 2 July 2018 to update description on page 1.

Regulations

In the opinion of the BBA, the Desmopol Roof Waterproofing System, 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(2)**	**External fire spread**
Comment:		On suitable substructures the use of the system can enable a roof to be unrestricted under this Requirement. See section 7 of this Certificate.
Requirement:	**C2(b)**	**Resistance to moisture**
Comment:		The system meets this Requirement. See section 6.1 of this Certificate.
Regulation:	**7**	**Materials and workmanship**
Comment:		The system is acceptable. See section 13 and the *Installation* part of this Certificate.

The Building (Scotland) Regulations 2004 (as amended)

Regulation:	**8(1)(2)**	**Durability, workmanship and fitness of materials**
Comment:		The use of the system satisfies the requirements of this Regulation. See sections 12.1 and 13 and the *Installation* part of this Certificate.
Regulation:	**9**	**Building standards applicable to construction**
Standard:	2.8	Spread from neighbouring buildings
Comment:		The system, when applied to a non-combustible substrate, can be regarded as having low vulnerability under clause 2.8.1(1)(2) of this Standard. See section 7 of this Certificate.
Standard:	3.10	Precipitation
Comment:		The use of the system will enable a roof to satisfy the requirements of this Standard, with reference to clauses 3.10.1(1)(2) and 3.10.7(1)(2). See section 6.1 of this Certificate.
Standard:	7.1(a)	Statement of sustainability
Comment:		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.
Regulation:	**12**	**Building standards applicable to conversions**
Comment:		Comments in relation to the system 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)(b)(i)**	**Fitness of materials and workmanship**
Comment:		The system is acceptable. See section 13 and the *Installation* part of this Certificate.
Regulation:	**28(b)**	**Resistance to moisture and weather**
Comment:		The use of the system will enable a roof to satisfy the requirements of this Regulation. See section 6.1 of this Certificate.
Regulation:	**36(b)**	**External fire spread**
Comment:		On suitable substructures the use of the system can enable a roof to be unrestricted under the requirements of this Regulation. 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: 3 *Delivery and site handling* and 9 *Slip resistance* of this Certificate.

Additional Information

NHBC Standards 2016

NHBC accepts the use of the Desmopol 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*.

Technical Specification

1 Description

1.1 The Desmopol Roof Waterproofing System consists of:

- Primer PU - 1050 — a two-component, polyurethane-based primer for use over concrete substrates
- Primer EPw - 1070 — a two-component, epoxy water-based primer for use over metal and PU substrates
- Desmopol — a one-component waterproofing based on polyurethane resin
- Tecnotop 2C Coloured — a two-component polyurethane resin UV-protection finishing layer
- Tecnoplastic F — plastic beads mixed in to Tecnotop 2C to provide a rough surface.

1.2 The waterproofing components and primers have the nominal characteristics given in Tables 1 and 2 respectively.

Table 1 Nominal characteristics of waterproofing components

Characteristic (unit)	**Component**	
	Desmopol	**Tecnotop 2C Coloured**
Colour	grey, red tile, white	Component A grey, black, red tile, white Component B orange
Percentage solids (%)	90	60
Viscosity at 23°C (cps)	2.0–8.0	Component A 600 ± 10 Component B 80 ± 100
Specific gravity ($g \cdot cm^{-3}$)	1.30–1.40	1.30

Table 2 Nominal characteristics of primers

Characteristic (unit)	**Component**	
	Primer PU - 1050	**Primer EPw - 1070**
Colour	Component A brown Component B yellow	Component A orange Component B blue
Percentage solids (%)	Component A 0 Component B 0	Component A 60 Component B 75
Viscosity at 23°C (mPa·s)	Component A 450 Component B 900	Component A 600±50 Component B 80±50
Specific gravity ($g \cdot cm^{-3}$)	1.11	1.00

1.3 The system was assessed in accordance with ETA 10/0121 (issued by Consejo Superior de Investigaciones Cientificas, CISC) and ETAG 005, Parts 1 and 6 for the following levels of categories:

Working life	W3
Climatic zone	Severe
User load	
concrete	P4: TH2 P3:TH4
polyurethane foam	P1: TH2
Roof slopes	S1-S4
Minimum surface temperature in use	TL3 (–20°C)
Maximum surface temperature in use	TH4 – TH2.

2 Manufacture

2.1 The liquid components of the system are manufactured by a batch-blending process.

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.

3 Delivery and site handling

3.1 The liquid components are delivered to site in packaging bearing the product name, company name, batch number, health and safety information and weight of contents in kilograms. The packaging details for the liquid components are given in Table 3.

Table 3 Liquid component packaging and size

Component	Packaging	Packaging size
Primer PU - 1050	Clamp top tin	5 kg
Primer EPw - 1070	Clamp top tin	Component A 15 kg Component B 5 kg
Desmopol	Clamp top tin	25, 6 kg
Tecnotop 2C Coloured	Clamp top tin	Component A 17.20, 4.3 kg Component B 2.80, 0.7 kg

3.2 The components must be stored in a dry, well-ventilated area, under cover, within the temperature range recommended by the Certificate holder and away from heat sources.

3.3 The Certificate holder has taken the responsibility of classifying and labelling the system components 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 the Desmopol Roof Waterproofing System.

Design Considerations

4 General

4.1 The Desmopol Liquid Applied Roof Waterproofing System is satisfactory for use as a waterproofing layer on new and existing pitched and flat roofs with pedestrian and limited access, including green roofs and roof gardens.

4.2 The system is for use on concrete, steel and insulation. When used over insulation the system is only suitable for non-accessible areas. The advice of the Certificate holder should be sought for the use of the system on other substrates.

4.3 Limited access roofs are defined for the purposes of this Certificate as those subjected only to pedestrian traffic for maintenance of the roof covering, cleaning of gutters, etc. Where traffic in excess of this is envisaged, special precautions, such as additional protection to the membrane, must be taken.

4.4 Pedestrian access roofs are defined for the purposes of this Certificate as those not subject to vehicular traffic.

4.5 Flat roofs are defined for the purpose of this Certificate as those having a minimum finished fall of 1:80. Pitched roofs are defined as those having falls in excess of 1:6.

4.6 When designing flat roofs, 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.

4.7 Decks to which the system is to be applied must comply with the relevant requirements of BS 6229 : 2003, BS 8217 : 2005 and, where appropriate, *NHBC Standards* 2016, Chapter 7.1.

4.8 Insulation materials to be used in conjunction with the system must be in accordance with the Certificate holder's instructions and be either:

- as described in the relevant Clauses of BS 8217 : 2005, or
- the subject of a current BBA Certificate and used in accordance with, and within the scope of, that Certificate.

4.9 Recommendations for the design of green roofs and roof garden specifications are available within the latest edition of *The GRO Green Roof Code — Green Roof Code of Best Practice for the UK*.

4.10 The drainage system for both green roofs and roof gardens must be correctly designed, and provision made for access for maintenance purposes. Dead loads for green roofs and roof gardens can increase if the drains become partially or completely blocked causing waterlogging of the drainage layer.

5 Practicability of installation

Installation of the system must be carried out only by specialist roofing contractors trained and approved by the Certificate holder.

6 Weathertightness

6.1 the system will adequately resist the passage of moisture to the inside of the building and so meet or comply with the relevant requirements of the national Building Regulations.

6.2 The system is impervious to water and, when used as described, will give a weathertight roofing capable of accepting minor movement without damage.

6.3 To achieve a weathertight coating it is essential that the application rate is as quoted in the Certificate holder's literature for the relevant system.

7 Properties in relation to fire

7.1 When tested to DD CEN/TS 1187 : 2012, Test 4, a system comprising 12 mm calcium silicate board, a coat of Desmopol and an overcoat with Tecnotop 2C achieved a classification of $B_{ROOF}(t4)$ under BS EN 13501-5 : 2005.

7.2 The designation of other specifications, eg when used on combustible substrates or combinations of other roof components, 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[(1)(2)]
(1) Technical Handbook (Domestic).
(2) Technical Handbook (Non-Domestic).
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 concrete and insulation is sufficient to resist the effects of any wind suction, elevated temperatures, thermal shock or minor movement likely to occur in practice.

9 Slip resistance

The system, when incorporating Tecnoplastic F, has adequate slip resistance in wet conditions and may be used in pedestrian access areas. The system has an Rd value of 50 when tested to DD ENV 12633 : 2003.

10 Resistance to foot traffic

10.1 The system, when applied on concrete substrates, can accept without damage the limited foot traffic and light concentrated loads associated with installation and maintenance and pedestrian traffic. However, reasonable care should be taken to avoid puncture by sharp objects or concentrated loads.

10.2 When applied over polyurethane foam, the system must only be accessed when a suitable protection, such as pavers, is used.

11 Resistance to penetration of roots

The system will resist penetration by plant roots and can be used as a waterproofing system in green roof and roof garden specifications.

12 Maintenance

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

- protection layers are in good condition
- the exposed membrane is free from the build-up of silt and other debris, and unwanted vegetation is cleared.

12.2 Where damage has occurred it should be repaired in accordance with section 17 and the Certificate holder's instructions.

13 Durability

The Desmopol Roof Waterproofing System will achieve an initial life expectancy of at least 25 years.

Installation

14 General

14.1 Installation of the Desmopol Roof Waterproofing System is carried out in accordance with the Certificate holder's instructions.

14.2 The system must be applied when the air and substrate temperatures are greater than 5°C. Special precautions may be necessary when temperatures exceed 30°C, as shown in the Certificate holder's Technical Data sheets.

15 Site and surface preparation

15.1 Substrates to which the system is to be applied must be properly prepared in accordance with the Certificate holder's instructions.

15.2 Adhesion to substrates will depend on the condition and cleanness of the substrate. Substrates must be visibly dry, sound and free from loose materials or contamination (eg moss or algae).

15.3 Substrates are high-pressure washed and rinsed to remove loose or flaking materials, but must be visibly dry before application of the system. Areas contaminated with moss and lichen are treated with a proprietary fungicidal wash and allowed to dry.

15.4 Deck surfaces must be free from sharp projections, such as protruding fixing bolts and concrete nibs.

15.5 Gutters and outlets must be checked to ensure that they are, and remain, clear of all debris.

15.6 All points of potential weakness such as splits, cracks, joints and crazed surfaces must be reinforced in accordance with the Certificate holder's instructions prior to application of the system.

15.7 Substrates are primed with the appropriate primer at the recommended coverage rate in accordance with the Certificate holder's instructions.

16 Application

16.1 Primer PU-1050 components (Parts A and B) must be thoroughly mixed for 2 minutes using a rod stirrer.

16.2 The mixed primer is applied by to the substrate. Application rate is typically 0.2 $kg \cdot m^{-2}$. The primer must be completely dry before the waterproofing layer is applied.

16.3 Desmopol is applied to the roof at a coverage rate of 1.8 $kg \cdot m^{-2}$ using a roller.

16.4 On completion, the surface must be inspected for any pinholes and a second layer applied if required.

16.5 Tecnotop 2C is applied as a topcoat to increase UV stability. Components A and B must be thoroughly mixed and applied at a coverage rate of 250 $g \cdot m^{-2}$.

16.6 Tecnoplastic (8% weight) is mixed with Tecnotop 2C and applied with a roller onto Desmopol.

17 Repair

The repair of minor damage to the system can be achieved effectively by cleaning back to unweathered material and recoating the damaged area with the membrane at the application rates stated in section 16.

Technical Investigations

18 Tests

18.1 Tests were carried out in accordance with ETAG 005 : 2000 Parts 1 and 4, and the results assessed by the BBA to determine:

- tensile strength and elongation
- water vapour diffusion resistance coefficient μ
- watertightness
- tensile bond strength on concrete
- dynamic indentation
- static indentation
- resistance to fatigue cycling
- resistance to low temperature
- resistance to high temperature
- heat ageing
- resistance to UV ageing
- resistance to water exposure
- effect of application temperatures
- effect of day joints
- external fire performance.

18.2 Additional characteristics tests were carried out on the system and its component parts in respect of density, ash content and viscosity. The results obtained were satisfactory for these types of systems.

19 Investigations

19.1 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.

19.2 Data on fire performance were evaluated.

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 1991-1-1 : 2002 *Eurocode 1 : Actions on structures — General actions — Densities, self-weight, imposed loads for buildings*
NA to BS EN 1991-1-1 : 2002 UK National Annex to *Eurocode 1 : Actions on structures — General actions — Densities, self-weight, imposed loads for buildings*
BS EN 1991-1-3 : 2003 +A1 : 2015 *Eurocode 1 : Actions on structures — General actions — Snow loads*
NA +A1 : 15 to BS EN 1991-1-3 : 2003 +A1 : 2015 UK National Annex to *Eurocode 1 : Actions on structures — General actions — Snow loads*
BS EN 1991-1-4 : 2005 +A1 : 2010 *Eurocode 1 : Actions on structures — General actions — Wind actions*
NA to BS EN 1991-1-4 : 2005 +A1 : 2010 UK National Annex to *Eurocode 1 : Actions on structures — General actions — Wind actions*

BS EN 13501-5 : 2005 +A1 : 2009 *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*

DD CEN/TS 1187 : 2012 *Test methods for external fire exposure to roofs*

DD ENV 12633 : 2003 *Method of determination of unpolished and polished slip/skid resistance value*

EOTA TR-006 May 2004 *Determination of the resistance to dynamic indentation*

EOTA TR-007 May 2004 *Determination of the resistance to static indentation*

20 Conditions

20.1 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 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.

20.2 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.

20.3 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.

20.4 The BBA has used due skill, care and diligence in preparing this Certificate, but no warranty is provided.

20.5 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.

20.6 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.

British Board of Agrément
Bucknalls Lane
Watford
Herts WD25 9BA

tel: 01923 665300
clientservices@bba.star.co.uk
www.bbacerts.co.uk