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Agrément Certificate

13/5038

Product Sheet 1

EUROROF CALTECH LIQUID-APPLIED ROOF WATERPROOFING SYSTEM

EUROROF CALTECH

This Agrément Certificate Product Sheet⁽¹⁾ relates to Eurorof Caltech, a liquid-applied, reinforced polyurethane membrane roof waterproofing system, for use on new and existing 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 the building (see section 6).

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

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

Resistance to mechanical damage — the system will accept, without damage, 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 of up to 25 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

Date of Second issue: 26 April 2017

Originally certificated on 30 September 2013

John Albon – Head of Approvals
Construction Products

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

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, Eurorof Caltech, 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 will enable a roof to satisfy this Requirement. See section 6.1 of this Certificate.
Regulation:	7	Materials and workmanship
Comment:		The system 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 use of the system satisfies the requirements of this Regulation. See sections 10 and 11 and the <i>Installation</i> 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, is 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 satisfying 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:		All 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)	Fitness of materials and workmanship
Comment:	(b)(i)	The system is acceptable. See section 11 and the <i>Installation</i> 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 will 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 section: **3 Delivery and site handling (3.2 to 3.4)** of this Certificate.

Additional Information

NHBC Standards 2017

NHBC accepts the use of Eurorof Caltech, provided it is installed, used and maintained in accordance with this Certificate, in relation to *NHBC Standards, Part 7 Roofs, Chapter 7.1 Flat roofs and balconies*.

Technical Specification

1 Description

1.1 Eurorof Caltech is a cold liquid-applied polyurethane membrane, reinforced with an embedded glassfibre matting.

1.2 The system is applied by brush, roller or airless spray to provide a waterproofing layer with a minimum coating thickness of 1.7 mm.

1.3 The system is built up by applying the following components on site:

- Caltech Porous Primer — a single-component stabiliser and primer for use on concrete, mastic asphalt and reinforced bituminous membrane substrates prior to the application of Caltech Base Coat
- Caltech Base Coat — a one-component liquid applied polyurethane coating that cures to form an elastomeric waterproofing membrane
- Caltech RF 100 Glassfibre Matting — a chopped strand glass mat with a nominal weight per unit area of 100 g·m⁻², for setting into the Caltech Base Coat for reinforcement
- Caltech Top Coat — a one-component liquid-applied polyurethane based coating, which cures to form an elastomeric waterproofing and UV-resistant coating. It is available in light grey and dark grey.

1.4 Other materials available for use with the system but outside of the scope of this Certificate include:

- Caltech Bonding Primer — a one-component primer for use on plastic, PVF₂, polyester/acrylic coatings and GRP
- Caltech Metal Primer — a one-component anti-corrosive primer for use on steel
- Caltech Fungicidal Wash — a biocidal wash for use on masonry against mould, fungi and moss
- Caltech Fibreforce — a one-component liquid-applied polyurethane containing reinforcing fibres
- Caltech Solvent — a xylene/methyl propoxol acetate for cleaning equipment and for use as a solvent wipe to reactivate existing coating during repairs.

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 of the system are delivered to site in sealed containers labelled with the manufacturer's name, product description and the appropriate hazard and risk labels. They are available in the pack sizes given in Table 1.

3.2 All containers should be stored under cover in a cool, dry and ventilated place away from other chemicals and protected from frost. Components kept in sealed unopened containers and stored in accordance with the manufacturer's instructions will have a shelf-life as detailed in Table 1.

Table 1 Pack weights and storage lives

Component	Pack size (litres)	Pack weight (kg)	Storage life (months)
Caltech Porous Primer	5	5.4	12
Caltech Base Coat	12.5	17.5	6
Caltech Top Coat	12.5	19.2	6
Caltech Bonding Primer	5	6.9	6
Caltech Metal Primer	5	5.9	12
Caltech Fibreforce	5 and 12.5	7.4 and 19.0	6
Caltech Fungicidal Wash	5	5.3	60
Caltech Solvent	5	5	indefinite

3.3 Caltech RF 100 Glassfibre Matting is delivered to site in rolls with the following nominal dimensions and weight:

Length (m) 100
Width (cm) 100
Roll weight (kg) 10.

3.4 The Certificate holder has taken the responsibility of classifying and labelling the system 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 Euroroof Caltech.

Design Considerations

4 General

4.1 Euroroof Caltech is satisfactory for use as a waterproofing layer on flat or pitched roofs, for new work or for repairing or maintaining the waterproof layer of existing structurally sound roofs with limited access.

4.2 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 and direction of falls etc. Flat roofs are defined as those having a minimum finished fall of 1:80. Pitched roofs are defined as those having falls in excess of 1:6.

4.3 Decks to which the system is to be applied must comply with the relevant requirements of BS 6229 : 2003, BS 8217 : 2005 or, where appropriate, *NHBC Standards 2017*, Chapter 7.1.

4.4 Limited access roofs are defined for the purpose of this Certificate as those subjected only to pedestrian traffic for maintenance of the roof covering, cleaning of gutters etc.

4.5 The system can be used on the following substrates:

- concrete⁽¹⁾
- mastic asphalt (roofing grade)⁽¹⁾⁽²⁾
- roofing felt⁽¹⁾⁽²⁾.

(1) Primed with Caltech Porous Primer.

(2) Owing to the variable nature of these materials, acceptable adhesion should be confirmed by test.

5 Practicability of installation

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

6 Weathertightness



6.1 Euroroof Caltech will adequately resist the passage of moisture to the inside of the building and so meet the requirements of the national Building Regulations.

6.2 The system will maintain its integrity as a watertight coating under normal conditions of exposure and can accept, without damage, minor movements of the substrate.

7 Properties in relation to fire



7.1 In the opinion of the BBA, the system, applied to a substructure comprising a 6 mm calcium silicate board and two layers of a 2 mm thick bituminous felt, can be classified as B_{ROOF}(t4) in accordance with BS 13501-5 : 2005.

7.2 The designation of other specifications (eg on combustible substrates and sloping surfaces) should be confirmed by:

England and Wales – test or assessment in accordance with Approved Document B, Appendix A, clause A1

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 the substrates listed in section 4.5 is sufficient to resist the effects of any wind suction, elevated temperature, thermal shock or structural movement likely to occur in practice.

9 Resistance to mechanical damage

9.1 The system can accept, without damage, the limited foot traffic and light concentrated loads associated with installation and maintenance. Reasonable care is required, however, to avoid puncture by sharp objects.

9.2 Suitable footwear should be worn on the roof and any equipment carried onto the roof should be placed on suitable protection to prevent damage to the system.

10 Maintenance



10.1 Roofs should be inspected bi-annually, in autumn after leaf fall and in the spring, to ensure that vegetation and other debris from the roof and drainage outlets are cleared.

10.2 Washing of the membrane may be carried out using mild detergent, water and a soft brush. Strong alkali solutions, eg caustic soda or bleach, must not be used.

10.3 In the event of contamination of the system by chemicals, oils and greases, the advice of the Certificate holder should be sought.

11 Durability



With adequate maintenance and repair, the system will have a service life of up to 25 years.

Installation

12 General

12.1 Eurorof Caltech must be applied in accordance with the Certificate holder's instructions.

12.2 Work must not be carried out if rain is imminent, and the temperature at the time of laying must be between 5°C and 40°C.

12.3 Substrates to which the system is to be applied must be dry, clean and free from loose particles, fungal growth, paint, grease, oil or other contaminants which may affect the adhesion. The Certificate holder's advice should be sought for suitable cleaning procedures and the use of Caltech Fungicidal Wash.

12.4 Previously-coated areas must be checked for integrity and adequate adhesion to the substrate.

12.5 Defects in the substrate, eg cracks, should be suitably repaired prior to application, in accordance with the Certificate holder's instructions.

12.6 A bond-breaking tape should be used either side of active cracks or joints. The Certificate holder should be consulted for details.

12.7 The substrate should be prepared and primed in accordance with the Certificate holder's instructions (see section 4.5). Adhesion checks should be carried out to ensure that the system is fully compatible with the existing surfaces and to determine the necessity for a primer.

12.8 All equipment should be cleaned after use with Caltech Solvent.

13 Procedure

13.1 One coat of Caltech Fibreforce should be applied to all upstands, plinths, hard edges, or any other vulnerable details, at a coverage rate of 1 m² per litre and allowed to dry firm.

13.2 A coat of Caltech Base Coat is applied by brush, roller or airless spray to the clean prepared substrate at a minimum application rate of 0.75 litres per m².

13.3 Caltech RF 100 Glassfibre Matting is laid and embedded into the wet coating using a brush or roller until fully saturated, allowing at least a 50 mm overlap over adjacent areas and ensuring that sufficient embedment material is applied to these areas.

13.4 At this point a check should be made to ensure that sufficient embedment material has been applied by noting areas of exposed matting or pinholing. If necessary, additional coating material may be applied to correct any visible faults and to ensure that there are no tented areas.

13.5 When the coating is dry, a check should be made for any upstanding glassfibre strands. These should be cut flush with the surface using a sharp knife, overcoated with Caltech Base Coat and allowed to dry.

13.6 Two coats of Caltech Top Coat are applied by brush, roller or airless spray at a minimum application rate of 0.63 litres per m², allowing the first coat to dry before applying the second. It is recommended that different-coloured top coats are applied to allow easier monitoring of the application of the second coat.

13.7 A check should be made for the presence of pinholes and missed areas. These should be rectified by applying additional coating as necessary.

13.8 If additional slip resistance is required, an extra coat of Caltech Top Coat should be applied at a minimum coverage rate of 0.25 litres per m² and, while wet, broadcast with a suitable anti-slip grit. The Certificate holder should be consulted for suitable grit and broadcast rates.

14 Repair

14.1 Any damage to the system must be repaired as soon as possible to ensure that the waterproofing integrity is maintained.

14.2 The system can be repaired by cutting back the damaged or debonded coating to sound, well-bonded material and reinstating it to the original specification, ensuring an overlap of at least 50 mm onto the existing coating.

14.3 Overlapped areas on the existing coating must be cleaned using Caltech Solvent, prior to overcoating.

14.4 If repairs to the substrate are required, the Certificate holder's advice should be sought for suitable methods.

14.5 On completion, and when the coating has fully cured, the repair should be inspected to ensure that it is sound and well bonded to the existing coating.

Technical Investigations

15 Tests

15.1 Tests were conducted on specimens of Eurorof Caltech as prepared by the Certificate holder, and the results assessed as being satisfactory, in relation to:

- water absorption
- water vapour permeability
- water vapour resistance
- tensile strength and elongation
- resistance to heat ageing at 80°C for 100 days
- resistance to heat ageing at 70°C for 200 days
- resistance to UV ageing at 1000 MJ·m⁻²
- exposure to surface water at 60°C for 60 days
- low temperature flexibility
- tensile bond strength
- resistance to fatigue cycling
- resistance to cracking at -10°C

- resistance to dynamic impact
- resistance to static indentation
- slip resistance (coefficient of friction).

15.2 Additional characterisation tests were carried out on the system and its component parts, the results of which were satisfactory, in relation to:

- density
- ash content
- volatile content
- weight per unit area.

16 Investigations

16.1 An assessment was made of independent fire test reports relating to the system's performance in respect of spread of flame and fire penetration.

16.2 Visits were made to existing sites in the UK to assess the in-service performance of the system.

16.3 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.

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 13501-5 : 2005 + A1 : 2009 *Fire classification of construction products and building elements — Classification using data from external fire exposure to roofs tests*

17 Conditions

17.1 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.

17.2 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.

17.3 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.

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

17.5 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.

17.6 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.