euroroof
roofing systems

ALUMASC
ROOFING SYSTEMS

Product Datasheet
CaltechUV

Description
single component, cold-applied, moisture-triggered polyurethane membrane. It cures to form a seamless, durable and weather-resistant waterproofing solution.

Use
Waterproofing of flat and pitched roof structures, communal walkways, podium decks and terrace roofs, on new construction and refurbishment projects. Applicable to existing concrete, roofing felt, brickwork, asbestos cement decks (subject to condition and priming requirements).

Characteristics / Advantages	Single component, ready to use Cold applied Easy and quick application – by spray, brush or roller Economic – provides a cost efficient life cycle extension of failing roofs Seamless membrane based upon moisture-triggered chemistry Vapour permeable Retains flexibility at low temperatures Waterproof, develops early rain resistance Minimal disruption and low maintenance Elastic properties – tolerant of thermal movement Flexible, impact resistant membrane Can be applied all year round above 2°C Approved to ETAg 005 (Part 6)
Certification	
Approvals / Standards	European Technical Approval No. ETA - 13/0788 External fire performance: BRoof (t4) & classification under BS476 Part 3:2004 EXT.F.AC allowing unrestricted use under the current building regulations.
Product Data	
Form	
Appearance	Pigmented liquid RAL 7032 (Pebble Grey), RAL 7042 (Cement Grey), RAL 7035 (Light Grey) RAL 9016 (White). RAL 7015 (Slate Grey)
Packaging	15 litres

Storage		
Storage Conditions / Shelf Life	Store in original, unopened and undamaged sealed packaging in dry conditions at temperatures >0°C and < 25°C. Protect from frost. A shelf-life of 6 months is achieved when stored in accordance with the above recommendations at a temperature of 20°C. Exposure to higher temperatures will reduce the shelf-life. Reference should also be made to the storage recommendations of the safety data sheet.	
Technical Data		
Chemical Base	One-component moisture-triggered polyurethane	
Density	1.32 kg/L (+20 °C)	(EN ISO 2811-1)
Solid Content	~ 70.9 % by volume / ~ 78.9 % by weight	(EN ISO 3251)
Flash Point	~ 52°C	(EN ISO 3679)
Service Temperature	-30 to +80°C (intermittent)	
Resistance		
Chemical Resistance	Resistant to mild acids, alkalis, detergents and some solvents. Prohesion testing to ASTM G85-94; Annex A5 (1000 hours cyclic exposure) and cyclic salt fog/UV-A exposure to ASTM D 5894 (6 cycles totalling 1000 hours).	

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System Information

Minimum Coverage Rates

Flat Roof Waterproofing Only - 15 year expected durability

Preparation	Prior to priming all substrates must be clean dry and sound free from any oxidisation, mould and any other deleterious materials. For further information please contact technical services	
Embedment Layer*	CaltechUV	1.0 L/m^2
	Caltech G Mat	
Top Coat	CaltechUV	0.75 L/m^2
15 year Integral Gutter system		
Embedment Layer*	Apply an initial embedment coat of CaltechUV to the prepared, sound gutter surfaces	1.0 L/m^2
	Caltech G Mat	
Top Coat:	CaltechUV	1.0 L/m^2

Flat Roof Waterproofing Only - 20 year expected durability

Preparation	Prior to priming all substrates must be clean dry and sound free from any oxidisation, mould and any other deleterious materials. For further information please contact technical services	
Embedment Layer*	CaltechUV	1.0 L/m^2
	Caltech G Mat	
Top Coat	CaltechUV	1.0 L/m^2
20 year Integral Gutter System		
Embedment Layer*	Apply an initial embedment coat of CaltechUV to the prepared, sound gutter surfaces	1.25 L/m^2
	Caltech G Mat	
Top Coat:	CaltechUV	1.0 L/m^2

Stand-alone Gutter Systems

10 year expected durability		
Preparation	Apply an initial embedment coat of CaltechUV to the prepared, sound gutter surfaces	
Embedment Layer*	CaltechUV	1.0 L/m^2
	Caltech G Mat	
Top Coat	CaltechUV	0.75 L/m^2

15 year expected durability		
Preparation	Apply an initial embedment coat of CaltechUV to the prepared, sound gutter surfaces	
Embedment Layer*	CaltechUV	1.0 L/m2
	Caltech G Mat	
First Top Coat:	CaltechUV	1.0 L/m^2

Waterproofing for exposed trafficable areas (eg.communal walkways)
Trafficable 10 (10 year expected durability)

Preparation	Prior to priming all substrates must be clean dry and sound free from any oxidisation, mould and any other deleterious materials. For further information please contact technical services	
Embedment Layer*	CaltechUV	1.0 L/m^2
	Caltech G Mat	
Top Coat	CaltechUV	0.6 L/m^2
Wearing Coat		
Top Coat	CaltechUV Walkway Coat	0.2 L/m^2
	Caltech Fine Sand	0.2 Kg/m^2

Waterproofing for exposed trafficable areas (eg communal walkways)
Trafficable 15 (15 year expected durability)

Preparation	Prior to priming all substrates must be clean dry and sound free from any oxidisation, mould and any other deleterious materials. For further information please contact technical services	
Embedment Layer*	CaltechUV	1.0 L/m^2
	Caltech G Mat	
Top Coat	CaltechUV	0.6 L/m^2
Wearing Coat		
Top Coat	CaltechUV	0.3 L/m^2
	Caltech Coarse Sand	3.5 Kg/m^2
	CaltechUV Walkway Coat	0.2 L/m^2

Please note: CaltechUV can be used for various applications. Not all substrates would be suitable for all types of project. eg bitumen felt, paints, metals, etc, whilst acceptable for general roofing are unlikely to be suitable for applications with higher levels of access or foot traffic. Please consult Alumasc Roofing Systems for more information.

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Waterproofing for BURIED (eg. communal walkways, podium decks and terrace roofs)
Trafficable 20 (20 year expected durability)

Preparation	Prior to priming all substrates must be clean dry and sound free from any oxidisation, mould and any other deleterious materials. For further information please contact technical services	
Embedment Layer*	CaltechUV	1.0 L/m^2
	Caltech G Mat	
Top Coat	CaltechUV	1.0 L/m^2
Wearing Coat		
	Tiles, Pavers or Screed	As appropriate

For ALL Systems
Note: The application of the system must be approached as one operation. Always plan for reasonable progress of each coat. Work only so far in advance that the existing surface can be overcoated as the next operation. Finish the coating system completely before progressing to the next area. The ideal time between coats is within 48 hours.

It is not good practice to plan breaks between coats of more than 7 days. For periods longer than this and less than 14 days the surface must be reactivated with Alumasc Reactivation Primer. Periods between coats longer than 14 days may affect the normal life term of the system -If this happens consult Alumasc Roofing Systems for advice. Ensure each application/coat is clean and dry prior to overcoating

At no stage should the Alumasc Roofing System or waterproof coating in its finished or intermediate stage be used as a workspace or access floor without adequate protection.

**Please note: the above rates are for smooth substrates only.*

Typical Test Data - System

	Flat Roof System	
Dry Film Thickness (mm)	1.5	
Tensile Strength (N/mm²)	16.7	N ISO 527 - 1/3
Tear Strength (N/30mm)	550	
Tensile Elongation (%)	20	EN ISO 527 - 1/3
Tear Strength (N/mm)	20	
Tear Force (N)	30	

Application Details

Substrate Quality

Cementitious substrates

New concrete should be cured for at least 28 days* and should have a pull off strength ≥1.5 N/mm^2. Inspect the concrete, including upstands, all areas should be hammer tested. Concrete must be suitably finished, preferably by wood float or steel pan. A power float finish is acceptable where the surface is prepared to avoid laitance (a tamped finish is not acceptable). The surface finish must be uniform and free from defects such as laitance, voids or honeycombing. The substrate must be of a suitable quality and condition to receive the system. Please refer to specification for further details.

Brick and stone

Bricks, blocks and mortar joints must be sound and preferably flush pointed.

Slates, tiles, etc.

Ensure all slates/tiles are sound and securely fastened, replacing obviously broken or missing sections and adequate cross ventilation is in place.

Asphalt

Asphalt can contain volatiles which may cause bitumen bleeding and slight non-detrimental staining. The asphalt must be carefully assessed for moisture and/or air entrapment, grade and surface finish prior to any coating works being carried out

Bituminous felt

Ensure that bituminous felt is firmly adhered or mechanically fixed to the substrate. Bituminous felt should not contain any badly degraded areas.

Metals

Metals must be in sound condition

Timber substrates

Timber and timber based panel roof decks are to be well constructed, in good condition, firmly adhered, and with sufficient fixings for the nature and location of the site

Paints/Coatings

Ensure the existing material is sound and firmly adhered.

Existing CaltechUV Systems

The existing CaltechUV System should still be soundly adhered to the substrate.

Substrate Preparation

Cementitious substrates

Laitance, other loose friable material and weak concrete must be completely removed and surface defects such as blowholes and voids must be fully exposed. In severe cases use abrasive blast cleaning, grinding or scarifying equipment to achieve a sound surface.

Repairs to the substrate, filling of joints, blowholes/voids and surface levelling must be carried out using appropriate products.

High spots must be removed e.g. by grinding.

Outgassing is a naturally occurring phenomenon of concrete that can produce pinholes in subsequently applied coatings. The concrete must be carefully assessed for moisture content, air entrapment, and surface finish prior to any coating work. Any requirement for priming must also be considered. Installing the membrane either when the concrete temperature is falling or stable can reduce outgassing. It is generally beneficial, therefore, to apply the embedment coat in the late afternoon or evening.

Brick and stone

Thoroughly clean by power wash and allow to dry. Repair any spalling, flaking or other damage and replace any missing jointing.

Asphalt

Thoroughly clean by power wash and allow to dry. All major cracks should be sealed to allow continuity of the CaltechUV System. Asphalt must be carefully assessed for moisture and/ or air entrapment, grade and surface finish prior to any coating works being carried out. Any priming requirement must also be considered

Bituminous felt

Thoroughly clean by power wash and allow to dry. Treat blisters by star cutting and removing any underlying water. Allow to dry and re-adhere. Badly degraded areas should be replaced with Carrier Membrane.

Single ply

Various types of single ply sheeting can be coated. For further information, please consult Alumasc Roofing Systems Technical Services team.

Bituminous coatings

Remove loose, degraded, tacky or mobile coatings. Apply the CaltechUV System directly.

Metals

Steelwork is ideally prepared to Sa2½ (Swedish Standard SIS 05: 5900 = 2nd quality BS4232 = S.S.P.C. grade SP10) OR as indicated by the blasting specification which may be of a higher standard. Where blasting to Sa2½ (Swedish Standard SIS 05: 5900 = 2nd quality BS4232 = S.S.P.C. grade SP10) is not permitted alternative blast media or clean metal preparation by pin hammer, etc. is acceptable. Less effective methods of preparation that leave corrosion in-situ may reduce expected life term.

Non-ferrous metals are prepared as follows. Remove any deposits of dust and oxidation and abrade to bright metal. Wire brushing can be used for soft metal such as lead. The surface must be clean and free from grease which, if present, must be removed with a proprietary solution. Wash with detergent, rinse and dry

Timber substrates

Timber and timber based panel roof decks require a complete layer of Vapour Control prior to the application of the chosen system. The substrate should then be treated as a felt roof. Small timber protrusions may be treated directly, provided that the timber is of exterior quality, e.g. marine plywood, (see Substrate Priming for further information).

Paints/Coatings

Remove loose or degraded coatings returning to a firm, feathered firm edge. Remaining coatings can only be overcoated if soundly adhered. Ensure the surface is clean and free from grease.

Existing CaltechUV Systems

Clean the membrane using a water jet at approximately 14N/mm2 (2000 p.s.i) using detergent and rinse thoroughly. Thoroughly clean by power wash and allow to dry.

Note: For the Waiting Time/Overcoating please refer to the technical datasheet of the appropriate cleaner/primer. Other substrates must be tested for their compatibility. If in doubt, apply a test area first.

Substrate Priming

Substrate	**Primer**
Cementitious Substrates	Caltech Concrete Primer or Caltech Bonding Primer, subject to surface assessment tests
Brick and Stone	Not required
Slate, tiles etc.	Not required

Asphalt	Not required, subject to surface assessment tests
Bituminous Felt	Not required
Single Ply	Adhesion to single ply may vary depending on type, age, etc. Consult Alumasc for further advice on priming requirements.
Bituminous Coatings	Not required
Metals	Caltech Metal Primer
Timber Substrates	Timber based roof decks require a layer of Carrier Membrane. For small areas of exposed timber (i.e. upstands) use Caltech Bonding Primer or Concrete Primer, (exposed timber should be Marine ply to BS 1088 or equivalent).
Paints	Subject to adhesion tests, Caltech Bonding Primer or Caltech Metal Primer for aluminium based solar reflective coatings
Existing CaltechUV	Alumasc Reactivation Primer
Carrier Membrane	As specified

Note: For the Waiting Time / Overcoating you should refer to the technical datasheet of the appropriate cleaner. Other substrates must be tested for their compatibility. If in doubt, apply a test area first.

Application Conditions / Limitations

Substrate Temperature +2 °C min. / +30 °C max.

Ambient Temperature +2 °C min. / +30 °C max.

Substrate Moisture Content Surfaces must be dry and not at risk of condensation forming.

Please note: Reference should also be made to the appropriate primer technical datasheet.

Relative Air Humidity 20% min. / 85% max.

Dew Point Beware of condensation. Surface temperature during application and cure must be a minimum of 3°C above dew point.

Please note: metal surfaces will be more prone to temperature fluctuations occurring and wind chill effects.

Application Instructions

Mixing	Gently stir the CaltechUV before use. **Accelerated** Before use slightly stir the CaltechUV then add the full CaltechUV Accelerator unit (180ml CaltechUV PU Accelerator for 15L of CaltechUV) and stir using a drill and paddle until a uniform mix has been achieved. Over-mixing must be avoided to minimise air entrapment.
Application Method	Apply CaltechUV using a roller (short pile mohair roller), brush (soft nylon or bristle brush).
Cleaning of Tools	Clean all tools and application equipment with proprietary cleaning solvent immediately after use. Flush/wash equipment with cellulose thinners or xylene.
Pot Life	The material in opened containers should be applied immediately as a surface film formation will happen within 1 - 2 hours.

Curing Details

Applied Product ready for use

Temperature	Relative humidity	Rain resistant	Touch dry	Full cure
+2°C	50%	12 hour	20 hours	>24 hours
+10°C	50%	9 hour	15 hours	24 hours
+20°C	50%	6 hour	10 hours	18 hours
Accelerated				
+2°C	50%		1.5 hours	6-8 hours
+20°C	50%		4 hours	12-18 hours

Note: *Times are approximate and will be affected by changing ambient conditions.*

Return-to-service times are provided as a guide only and may vary as a result of conditions. Newly installed balconies should be protected from exposure to heavy traffic by overlaying with an appropriate protective covering. This is particularly critical where early access is needed by other construction related traffic. Alumasc Roofing Systems will not be held responsible for damage to balcony surfaces that results from failures to adequately protect newly laid areas.

For further advice, consult Alumasc Roofing Systems Customer Services

Notes on Application / Limitations

Do not use CaltechUV for indoor applications.

Substrate preparation is crucial to ensure durability. Please follow the instructions in the technical datasheet of the corresponding Primer and pretreatment.

Applications of CaltechUV in confined spaces must be undertaken in accordance with material safety data sheet recommendations.

Do not apply close to the air intake vents of running air conditioning units until either switched off or isolated as vapour may be drawn into the building.

All areas requiring anticorrosive protection must be installed over an appropriate metal primer that has been applied directly to bright metal.

All joints; areas subject to differential movement; guttering and drainage channels; and repairs; must be treated with local reinforcement.

Adhesion suitability must be verified practically on site prior to commencing contract. Refer to Alumasc recommendations and this Technical Data Sheet for installation guidance.

The application of the system must be approached as one operation. Always plan for reasonable progress of each coat. Work only so far in advance that the existing surface can be overcoated as the next operation. Finish the coating system completely before progressing to the next area. The ideal time between coats is within 48 hours.

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Value Base

All technical data stated in this Product Data Sheets are based on laboratory tests. Actual measured data may vary due to circumstances beyond our control.

Health and Safety Information

For information and advice on the safe handling, storage and disposal of chemical products, please refer to the most recent Material Safety Data Sheet.

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Disclaimer

The information, and, in particular, the recommendations relating to the application and end-use of Alumasc products, are given in good faith based on Alumasc's current knowledge and experience of the products when properly stored, handled and applied under normal conditions in accordance with Alumasc's recommendations. In practice, the differences in materials, substrates and actual site conditions are such that no warranty in respect of merchantability or of fitness for a particular purpose, nor any liability arising out of any legal relationship whatsoever, can be inferred either from this information, or from any written recommendations, or from any other advice offered. The user of the product must test the product's suitability for the intended application and purpose. Alumasc reserves the right to change the properties of its products. The proprietary rights of third parties must be observed. All orders are accepted subject to our current terms of sale and delivery. Users must always refer to the most recent issue of the local Product Data Sheet for the product concerned, copies of which will be supplied on request.

General Information

Specification assistance

NBS is the industry standard specification system, which allows architects, specifiers and engineers to insert clauses into specifications by manufacturer and product, making the process quicker and more efficient. We are members of NBS Plus and therefore detailed up-to-date product information is readily available to create accurate specifications.

This document provides the most up to date information at the time of print, but is subject to change without notice and should not be used in isolation for pricing purposes. Please refer to Alumasc for project specific information and the latest advice.

Technical Support

- Technical advice is available from Alumasc Technical Services at:

  Telephone: +44 (0)1744 648400
  Email: roofing@alumasc-exteriors.co.uk

NB: Current versions of Euroroof Caltech Product Datasheets can be downloaded directly from: www.alumascroofing.co.uk

The company pursues a policy of constant product development and information contained in this publication is therefore subject to change without notice. The customer is responsible for ensuring that each product is fit for its intended purpose and that the conditions for use are suitable. All quoted data is nominal and subject to production tolerances.