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Agrément Certificate

17/5437

Product Sheet 3

ICOPAL UNIVERSAL ROOF WATERPROOFING MEMBRANES

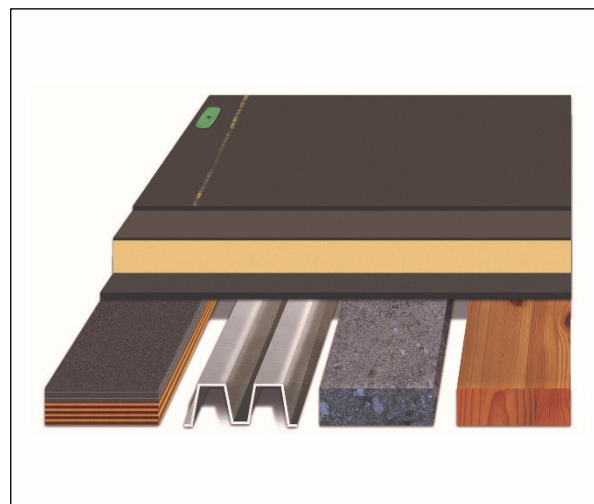
UNIVERSAL AND UNIVERSAL SA ROOF WATERPROOFING MEMBRANES

This Agrément Certificate Product Sheet⁽¹⁾ relates to Universal and Universal SA Roof Waterproofing Membranes, polyester/glass reinforced single-ply polyolefin copolymerisate binder (POCB) membranes for use in mechanically fastened waterproofing systems on flat or pitched roofs with limited or pedestrian 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 products, including joints, will resist the passage of moisture to the interior of a building (see section 6).

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

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

Resistance to mechanical damage — the products will accept, without damage, the limited foot traffic and loads associated with installation and maintenance (see section 9).

Durability — under normal service conditions, the products will provide a durable waterproofing with a service life in excess of 20 years (see section 11).



The BBA has awarded this Certificate to the company named above for the products described herein. These products have been assessed by the BBA as being fit for their intended use provided they are installed, used and maintained as set out in this Certificate.

On behalf of the British Board of Agrément

Date of First issue: 12 September 2019

John Albon
Chief Scientific Officer

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. Any photographs are for illustrative purposes only, do not constitute advice and should not be relied upon.

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Regulations

In the opinion of the BBA, Universal and Universal SA Roof Waterproofing Membranes, 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 products can enable a roof to be unrestricted under this Requirement. See section 7 of this Certificate.
Requirement:	C2(b)	Resistance to moisture
Comment:		The products, including joints, will enable a roof to satisfy this Requirement. See section 6.1 of this Certificate.
Regulation:	7	Materials and workmanship (applicable to Wales only)
Regulation:	7(1)	Materials and workmanship (applicable to England only)
Comment:		The products are 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 products satisfies the requirements of this Regulation. See sections 10.1 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 products, when applied to a suitable substructure, can be classified as having a low vulnerability and can enable a roof to be unrestricted under this Standard, with reference to clauses 2.8.1 ⁽¹⁾⁽²⁾ and 2.8.2 ⁽¹⁾⁽²⁾ . See section 7 of this Certificate.
Standard:	3.10	Precipitation
Comment:		The products, including joints, can 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 products 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 products 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)(i)	Fitness of materials and workmanship
Comment:	(iii)(b)(i)	The products are acceptable. See section 11 and the <i>Installation</i> part of this Certificate.

Regulation:	28(b)	Resistance to moisture and weather
Comment:		The products, including joints, 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 products 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: 1 *Description* (1.2) and 3 *Delivery and site handling* (3.3) of this Certificate.

Additional Information

NHBC Standards 2019

In the opinion of the BBA, Universal and Universal SA Roof Waterproofing Membranes, if installed, used and maintained in accordance with this Certificate, can satisfy or contribute to satisfying the relevant requirements in relation to *NHBC Standards*, Chapter 7.1 *Flat roofs and balconies*.

CE marking

The Certificate holder has taken the responsibility of CE marking the products, in accordance with harmonised European Standard EN 13707 : 2013. An asterisk (*) appearing in this Certificate indicates that data shown are given in the manufacturer's Declaration of Performance.

Technical Specification

1 Description

1.1 Universal and Universal SA Roof Waterproofing Membranes comprise:

- Universal — a POCB membrane, reinforced with a polyester/glass scrim (250 g·m⁻²) with a polypropylene (PP) fleece finishing on the top and bottom. For use as a capsheet
- Universal SA — a POCB membrane, reinforced with a polyester/glass scrim (250 g·m⁻²) with a PP fleece finishing on the top and PP release film on the underside. For use in detailing at roof perimeters and penetrations.

1.2 The products are manufactured to the nominal characteristics given in Table 1.

Table 1 Nominal characteristics

Characteristic (unit)	Universal	Universal SA
Thickness (mm)	4.0	4.0
Roll width (m)	1	1
Roll length (m)	10	8.0
Roll weight (kg)	32.0	35.0
Mass per unit area (kg·m ⁻²)	4.8	6.0
Tensile strength (N per 50 mm)		
longitudinal direction	1250	1250
transverse direction	1250	1250
Elongation at break (%)		
longitudinal direction	30	30
transverse direction	30	30
Tear resistance – nail (N)		
longitudinal direction	>400	>400
transverse direction	>400	>400
Resistance to cold bend (C°)	-25	-25
Watertightness	Pass	Pass
Peel resistance of joints (N)	>130	>130
Shear resistance of joints (N)	>900	>900
Resistance to static loading (kg)	>20	>20
Resistance to impact (mm)	≥1250	≥1250
Surface finish		
upper	PP-fleece	PP-fleece
lower	PP-fleece	PP-film

1.3 Ancillary items necessary for installation of the membranes and included in this assessment are:

- Icopal Fasteners — mechanical fixings and pressure plates for attachment of membranes and insulation boards
- Thermazone Roofboard — a HCFC and CFC-free rigid polyisocyanurate foam, faced with mineral-coated glass tissue.

1.4 Other items or components which may be used with the products, but which are outside the scope of this Certificate are:

- vapour control layers
- parapet outlets, roof outlets, vent pipes, cable and pipe ducts
- lightning conductor pads
- universal cowed telescopic vent
- universal internal and external corner reinforcements.

2 Manufacture

2.1 The products are manufactured by impregnating the reinforcement with a modified POCB coating and finished with a either spunbonded PP fleece or removable PP film.

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 Icopal BV has been assessed and registered as meeting the requirements of EN ISO 9001 : 2015 by Kiwa NV (Certificate K74027/03).

3 Delivery and site handling

3.1 The membranes are delivered to site in roll form stood on end on pallets and covered by a shrink-wrap bag bearing the Certificate holder's name and the BBA logo incorporating the number of this Certificate.

3.2 Rolls should be stored on end, upright on a clean level surface and not exposed to excessive heat.

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 Universal and Universal SA Roof Waterproofing Membranes.

Design Considerations

4 General

4.1 Universal membrane is satisfactory for use as a mechanically fastened system, single-layer waterproofing on flat or pitched roofs with limited access. Universal SA membrane is for use in completing detailing.

4.2 Decks must comply with the relevant requirements of BS 6229 : 2018 or BS 8217 : 2005 and, where appropriate, *NHBC Standards 2019*, Chapter 7.1.

4.3 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. Where traffic in excess of this is envisaged, special precautions, such as additional protection to the membranes, must be taken (see section 9).

4.4 Pedestrian access roofs are defined for the purpose of this Certificate as those not subjected 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. For design purposes, twice the minimum finished fall should be assumed, unless a detailed analysis of the roof is available, including overall and local deflections and direction of falls.

4.6 Pitched roofs are defined for the purpose of this Certificate as those having falls in excess of 1:6.

4.7 Insulation systems or materials used in conjunction with the products must 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 limitations of, that Certificate.

4.8 Contact with hydrocarbon and/or solvent based products such as white spirit, Naphtha, paraffin and creosote must be avoided as the membranes are not compatible with these substances. Timber used in the construction of the roof deck must not be treated with solvent based preservatives.

5 Practicability of installation

The products are designed to be installed only by installers trained and approved by the Certificate holder.

6 Weathertightness



6.1 The products, including joints, when completely sealed and consolidated, will adequately resist the passage of moisture to the interior of a building and enable a roof to comply with the requirements of the national Building Regulations.

6.2 The products are impervious to water and, when used as described in this Certificate, will give a weathertight roof covering capable of withstanding minor structural movements without damage.

7 Performance in relation to fire



7.1 A system comprising an 18 mm thick plywood deck, a layer of bituminous TA vapour control layer, 120 mm thick glass tissue faced PIR insulation, and one layer of Universal membrane, mechanically fastened, achieved a B_{ROOF} (t4) classification⁽¹⁾ in accordance with EN 13501-5 : 2016 and is therefore unrestricted under the national Building Regulations.

(1) Report reference 19722B, issued by Warringtonfire. A copy of the report is available from the Certificate holder.

7.2 The designation of other specifications should be confirmed by reference to the requirements of the documents supporting the national Building Regulations.

8 Resistance to wind uplift

8.1 The resistance to wind uplift of a mechanically fastened roof waterproofing system is provided by the fasteners passing through the membranes into the substrate. The amount and position of fixings will depend on a number of factors, including:

- wind uplift forces to be restrained
- pull-out strength of the fasteners
- tensile properties of the membrane
- appropriate calculation of safety factors.

8.2 The wind uplift forces are calculated by a suitably experienced and competent individual in accordance with BS EN 1991-1-4 : 2005 and its UK National Annex. On this basis, the number of fixings required should be established using a maximum permissible load of 0.53 kN per fixing.

8.3 The Certificate holder provides a design service which takes into account all the relevant information supplied and a specification for the position of fastening bars or washers, and the number of fixings required.

9 Resistance to mechanical damage

The products can withstand the limited foot traffic and light concentrated loads associated with installation and maintenance. Where traffic in excess of this is envisaged, additional protection to the membranes in accordance with the Certificate holder's instructions must be provided. In all applications, care must be taken to avoid puncture by sharp objects or concentrated loads.

10 Maintenance



10.1 The products should be the subject of six monthly inspections and maintenance in accordance with BS 6229 : 2018, Chapter 7, to ensure continued performance.

10.2 Where damage has occurred, it should be repaired in accordance with section 15 and the Certificate holder's instructions.

11 Durability



Under normal conditions, the products will have a service life in excess of 20 years.

12 General

12.1 Installation of Universal and Universal SA Roof Waterproofing Membranes must be carried out by installers trained and approved by the Certificate holder in accordance with the relevant clauses of BS 8000-0 : 2014, BS 8000-4 : 1989, BS 8217 : 2005, the Certificate holder's instructions and this Certificate.

12.2 Substrates to which the products are to be applied must be firm, dry, clean and free from sharp projections such as nail heads and concrete nibs. When used over a rough substrate, a suitable protection must be placed over the substrate.

12.3 The products must not be laid in rain, snow or heavy fog, nor if the temperature falls below 5°C, unless precautions against condensation can be taken.

12.4 Detailing must be formed in accordance with the Certificate holder's instructions.

13 Procedure

13.1 Universal membrane must be unrolled onto the substrate without undulations, with 130 mm minimum side and end laps.

13.2 The membrane is fixed to the deck through the insulation boards using Icopal tube fasteners and fixings, in the joint overlaps (minimum 80 mm) prior to welding seams in accordance with the Certificate holder's instructions.

14 Jointing and flashing procedure

Hot-air welding

14.1 The welding area must be dry and clean. If the membrane in the weld area has become contaminated, it must be cleaned in accordance with the Certificate holder's instructions.

14.2 Welding is achieved with an Icopal-approved hot air welder in accordance with the Certificate holder's instructions.

14.3 All overlaps should be welded as work proceeds, with minimum 130 mm side laps and minimum 150 mm end/head laps, and an overlap of 150 mm. A continuous bead of bitumen must extrude from all laps as work proceeds. On completion of the weld, the seam should be tested with a suitable metal probe, and any weakness repaired immediately.

Flashing

14.4 Universal SA membrane is used to complete detailing areas by heating the bottom layer using electric hot air equipment to activate the self-adhesive bitumen backing on the membrane having removed the release film.

14.5 The membrane must be dressed at all upstands to a minimum of 150 mm above the finished roof level and fully bonded to the membrane using electric hot air equipment and ensuring a continuous 5 mm bead of bitumen extrudes from all overlaps as works proceeds. Terminations should be completed in accordance with the Certificate holder's instructions and the membranes installed over 200 mm should also be mechanically fixed.

15 Repair

In the event of damage, the installed membranes can be repaired by cleaning the affected area and bonding patches of the appropriate membrane over it, as described by the Certificate holder's instructions.

16 Tests

16.1 An assessment was made on data to EN 13707 : 2013 in relation to:

- dimensions
- mass per unit area
- tensile strength and elongation at break
- foldability at low temperature
- effect of heat ageing
- effect of artificially ageing
- flow resistance at elevated temperature
- watertightness
- tear resistance
- dimensional stability.

16.2 Tests were carried out and the results assessed to determine:

- foldability at low temperatures on control and UV aged samples
- resistance to slippage
- water vapour permeability
- resistance to dynamic and static indentation.

17 Investigations

17.1 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.

17.2 Existing data for fire performance and resistance to wind uplift were assessed.

Bibliography

BS 6229 : 2018 *Flat roofs with continuously supported flexible waterproof coverings — Code of practice*

BS 8000-0 : 2014 *Workmanship on construction sites — Introduction and general principles*

BS 8000-4 : 1989 *Workmanship on building sites — Code of practice for waterproofing*

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

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*

EN 13501-5: 2016 *Fire classification of construction products and building elements- Part 5 Classification using data from external fire exposure roofs tests*

EN 13707 : 2004 *Flexible sheets for waterproofing — Reinforced bitumen sheets for roof waterproofing — Definitions and characteristics*

EN ISO 9001 : 2015 *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.