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Agrément Certificate
21/5916
Product Sheet 1

SIKA WATERPROOFING MEMBRANES

SIKAPLAN DM ROOFPRO MF MEMBRANE

This Agrément Certificate Product Sheet⁽¹⁾ relates to SikaPlan DM RoofPro MF Membrane, PVC sheets for use as waterproofing layers on pitched, flat and curved 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 product will resist the passage of moisture into the interior of the building (see section 6).

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

Resistance to wind uplift — the product will resist the effects of any wind suction likely to occur in practice (see section 8).

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

Durability — under normal service conditions, the product will provide a durable roof waterproofing with a service life in excess of 35 years (see section 11).

The BBA has awarded this Certificate to the company named above for the product described herein. This product 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: 13 September 2021

Hardy Giesler
Chief Executive Officer

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 MUST check the validity and latest issue number of this Agrément Certificate by either referring to the BBA website or contacting the BBA directly.*

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, SikaPlan DM RoofPro MF Membrane, 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(1)	External fire spread
Comment:		The product in some circumstances, is restricted by this Requirement. See section 7.3 of this Certificate.
Requirement:	B4(2)	External fire spread
Comment:		On suitable substructures, the use of the product may enable a roof to be unrestricted under this Requirement. See sections 7.1 and 7.2 of this Certificate.
Requirement:	C2(b)	Resistance to moisture
Comment:		The product, including joints, will enable a roof to satisfy this Requirement. See section 6 of this Certificate.
Regulation:	7(1)	Materials and workmanship
Comment:		The product 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 product 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:	2.6	Spread to neighbouring buildings
Comment:		The product is restricted under clause 2.6.4 ⁽¹⁾⁽²⁾ of this Standard in some circumstances. See section 7.4 of this Certificate.
Standard:	2.8	Spread from neighbouring buildings
Comment:		When applied to a suitable substructure, the product may enable a roof to be unrestricted under clause 2.8.1 ⁽¹⁾⁽²⁾ of this Standard. See sections 7.1 and 7.2 of this Certificate.
Standard:	3.10	Precipitation
Comment:		The product, including joints, 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 of this Certificate.
Standard:	7.1(a)	Statement of sustainability
Comment:		The product 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:		Comments in relation to the product 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 product is acceptable. See section 11 and the <i>Installation</i> part of this Certificate.
Regulation:	28(b)	Resistance to moisture and weather
Comment:		The product, including joints, will enable a roof to satisfy the requirements of this Regulation. See section 6 of this Certificate.
Regulation:	36(b)	External fire spread
Comment:		On suitable substructures, the use of the product can enable a roof to be unrestricted under the Requirement. See sections 7.1 and 7.2 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* (1.1), 3 *Delivery and site handling* (3.2 and 3.4) and 14 *Procedure* (14.6) of this Certificate.

Additional Information

NHBC Standards 2021

In the opinion of the BBA, SikaPlan DM RoofPro MF Membrane, 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, terraces and balconies*.

The NHBC Standards do not cover the use of the product in the refurbishment of existing roofs.

CE marking

The Certificate holder has taken the responsibility of CE marking the product in accordance with harmonised European Standard EN 13956 : 2012.

Registered Contractor Scheme⁽¹⁾

The Certificate holder operates a Registered Contractor Scheme for the product under which contractors are trained, registered and regularly reviewed by the Certificate holder to demonstrate that they are competent to carry out installation in accordance with this Certificate. Details of Registered Contractors are available from the Certificate holder. Registered Contractors are responsible for each installation of the products they undertake.

(1) The Certificate holder's records relating to the Registered Contractors Scheme will be audited annually by the BBA as part of its programme of surveillance.

Technical Specification

1 Description

1.1 SikaPlan DM RoofPro MF Membrane is PVC roof waterproofing membranes reinforced with polyester. The membranes are manufactured to the nominal characteristics given in Table 1.

<i>Table 1 Nominal characteristics</i>	
Characteristic (unit)	SikaPlan DM RoofPro MF
Thickness (mm)	1.5
Mass per unit area (kg·m ⁻²)	1.9
Roll length (m)	15
Roll width (m)	2.0
Colour	
upper	lead grey
lower	medium grey
Tensile strength (N·50 mm ⁻¹)	
longitudinal	≥ 1000
transverse	≥ 900
Elongation (%)	
longitudinal	≥ 15
transverse	≥ 15
Tear resistance (N·50 mm ⁻¹)	
longitudinal	≥ 150
transverse	≥ 150
Watertightness	pass
Low temperature foldability (°C)	≤ -25

1.2 Ancillary items for use with the product include:

- proprietary pressure plates — manufactured from either plastic or galvanized steel, used to secure the membranes against wind uplift forces by positioning the fixing along the edge of the sheet through the membrane, insulation and into the decking. Provision has been made for the use of thermally broken types of fastener
- Sika-L100 Cleaning Agent — ethyl acetate-based solution for the cleaning of heavily soiled membrane prior to welding
- Metal Sheets — 0.6 mm thick galvanized steel sheets, the upper side coated with a 0.8 mm thick layer of plasticised PVC, coloured light grey and slate grey, used to produce profiles for perimeter flashings, connections and fixings.

1.3 Other items which may be used with the product, but which are outside the scope of this Certificate, include:

- Sika Sarnavap 500E Vapour Check — air vapour control layer based on Polyethylene (PE).

2 Manufacture

2.1 SikaPlan DM RoofPro MF Membrane is manufactured by extrusion coating plasticised PVC into sheets. Two calendered sheets are thermally fused into one homogeneous sheet, sandwiching a polyester reinforcement. The sheets are cut to width and reeled onto cardboard cores.

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.

3 Delivery and site handling

3.1 The membranes are delivered to site in rolls on pallets either with a corrugated cardboard outer or wrapped in polythene film. The wrapper bears the Certificate holder's name, product identification, roll width and length, colour and the BBA logo incorporating the number of this Certificate.

3.2 Rolls should be stored horizontally under cover and on a clean, level surface in a dry environment. Pallets may be stacked to a maximum of three high.

3.3 Ancillary products should be stored in a similar environment.

3.4 The Certificate holder has taken the responsibility of classifying and labelling the products 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 SikaPlan DM RoofPro MF Membrane.

Design Considerations

4 General

4.1 SikaPlan DM RoofPro MF Membrane is satisfactory for use as mechanically fixed roof waterproofing on pitched, flat and curved roofs of less than 20 m radius and with limited access.

4.2 Decks to which the product is to be applied must comply with the relevant requirements of BS 6229 : 2018, BS 8217 : 2005 and, where appropriate, *NHBC Standards 2021*, 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.

4.4 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 deflection, direction of falls, etc.

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

4.6 Insulation materials used in conjunction with the product must satisfy the requirements stated by the Certificate holder and must be one of the following:

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

4.7 The product must not be laid directly onto certain materials, eg bituminous felts, certain insulation boards or timber substrates which have been impregnated with oil-based preservatives. If contact with such products is likely, a separating layer should be used. Where doubt arises, the advice of the Certificate holder should be sought.

4.8 The NHBC requires that the waterproofing membranes, once installed, are inspected in accordance with *NHBC Standards 2021*, Chapter 7.1, Clause 7.1.12, including the use of an appropriate integrity test, where required. Any damage to the membrane is repaired in accordance with section 15 of this Certificate and reinspected.

5 Practicability of installation

The product must only be installed by installers who have been trained and approved by the Certificate holder. The records relating to this will be audited by the BBA as part of its programme of surveillance on the Certificate.

6 Weathertightness



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

7 Properties in relation to fire



7.1 The following systems will be unrestricted with respect to proximity to a boundary under the national Building Regulations:

- when tested to BS 476-3 : 2004, a system comprising an 18 mm thick plywood deck, one layer of Sika Sarnavap 500E Vapour Check layer, a 100 mm thick foil-faced PIR insulation board, and mechanically fastened 1.5 mm thick SikaPlan DM RoofPro MF Membrane, achieved a fire classification of EXT.F.AC
- when tested and classified in accordance with BS EN 13501-5 : 2005, a system comprising an 18 mm thick plywood deck, one layer of Sika Sarnavap 500E Vapour Check layer, a 100 mm thick-foil faced PIR insulation board, and mechanically fastened 1.5 mm thick SikaPlan DM RoofPro MF Membrane, achieved a fire classification of B_{ROOF}(t4).

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



7.3 The product, when used in pitches greater than 70°, should not be used on buildings in England and Wales that have a storey at least 18 m above ground level and which contain one or more dwellings, an institution, a room for residential purposes (excluding any room in a hostel, hotel or boarding house), student accommodation, care homes, sheltered housing, hospitals or dormitories in boarding schools.



7.4 The product, when used in pitches greater than 70°, excluding upstands, should not be used on buildings in Scotland that have a storey more than 11 m above ground level.

8 Resistance to wind uplift

8.1 When the product is mechanically fixed, the resistance to wind uplift is provided by mechanical fasteners secured to the deck and passing through the membranes. The number of fixings and their position will depend on:

- wind uplift forces to be resisted
- pull-out strength of fasteners
- elastic limit of the sheet
- appropriate safety factors.

8.2 The number of fixings used should be established by reference to the wind uplift forces calculated by a suitably competent and experienced individual in accordance with BS EN 1991-1-4 : 2005 and its UK National Annex, on the basis of maximum permissible loads of 0.40 kN per fixing.

9 Resistance to mechanical damage

9.1 The product can withstand, without damage, the limited foot traffic and light concentrated loads associated with installation and maintenance. Reasonable care should be taken to avoid puncture by sharp objects or concentrated loads.

9.2 Where traffic in excess of this is envisaged, such as for maintenance of roof-mounted plant or for regular access to plant rooms, walkways must be provided (eg using SikaPlan WBP), as recommended by the Certificate holder.

9.3 The system is capable of accepting minor structural movement while remaining weathertight.

10 Maintenance



10.1 The roof systems must be the subject of six-monthly inspections and maintenance in accordance with BS 6229 : 2018, Chapter 7, to ensure continued satisfactory performance.

10.2 Any damage must be repaired in accordance with section 15 and the Certificate holder's instructions.

11 Durability



Under normal service conditions, the product will have a life in excess of 35 years.

12 Reuse and recyclability

The product comprises PVC and glass, which can be recycled.

Installation

13 General

13.1 Installation of SikaPlan DM RoofPro MF Membrane must be carried out by trained and licensed installers in accordance with the Certificate holder's instructions, the relevant clauses of BS 8000-0 : 2014, BS 8000-4 : 1989 and BS 8217 : 2005, the 2020 SPRA *Single Ply Design Guide (S1/2020)*, and this Certificate.

13.2 The product may be laid in conditions normal to roofing work and should not be laid in wet or damp weather, or at temperatures below 5°C, unless suitable precautions are taken.

13.3 Deck surfaces should be clean, dry and free from sharp projections such as nail heads and concrete nibs. The product is not compatible with bitumen, coal tar, pitch or oil-based products, and contact with such materials must be avoided. Where necessary, the appropriate separation layer must be interposed between the substrate and the membranes to avoid such contact. The requirement of a vapour control layer should be established in accordance with BS 6229 : 2018 and the Certificate holder's instructions.

13.4 The product may be applied over insulation boards, provided the insulation material has been fixed to the substructure by methods that will not impair the performance of the membranes. EPS/XPS insulation boards require a suitable isolating layer to prevent the risk of plasticiser migration. The boards must be firm, of uniform density and, where appropriate, capable of spanning the deck flute space under foot traffic.

14 Procedure

14.1 The product should be unrolled over the substrate, on top of any protective or isolating layer, taking care to remove any folds or ripples. The edge overlap with adjacent sheets must be 100 mm minimum.

14.2 The position of the fixing elements and the number of fixings required must be in accordance with the specifications and the Certificate holder's instructions.

14.3 When pressure plates are used, the product should be fixed in the joint overlaps. The plates must be installed with their longitudinal side parallel to the outer edge of the membrane sheet, a minimum of 10 mm from the edge. The adjacent sheet is overlapped by a minimum of 100 mm width and jointed with a hot-air weld as recommended by the Certificate holder.

14.4 At the edges, the product should be fixed with mechanical fixings or solvent, or hot-air welding to laminated profiles and lap jointed as described in sections 14.6 to 14.14.

14.5 At upstands, the membranes should be welded to laminated profiles or mechanically fixed.

Solvent welding

14.6 Welding must be carried out using a welding agent. The welding agent used in welding laps has a low flashpoint and, where it is to be used in enclosed spaces, adequate ventilation must be provided.

14.7 The lap joint areas on both sheets are cleaned to a minimum width of 50 mm and then dried.

14.8 Both surfaces are coated with a welding agent, to a minimum width of 30 mm and welded together. The welded laps are consolidated by the application of firm, even pressure to ensure a watertight seal.

14.9 All seams must be tested at least 15 minutes after welding using a metal probe drawn along the seam edge to confirm the integrity of the welded areas.

14.10 Finally, all laps have a bead of sealing lap joints applied to the exposed edge and injected into voids to close capillaries.

Hot-air welding

14.11 Welding can be carried out by automatic or hand-operated hot-air welding machines, with a temperature set in accordance with the Certificate holder's instructions.

14.12 Lap joint areas on both sheets must be cleaned, using a cleaner recommended by the Certificate holder, if the surface has become badly contaminated.

14.13 The welded area in the seam should not be less than 40 mm wide. When using a hand-held welding machine, the seam must be rolled immediately using a seam roller.

14.14 All seams must be tested, at least 15 minutes after welding, with a metal needle drawn along the seam edge to highlight poorly welded areas. These must be rectified immediately using hot-air welding techniques.

Flashing

14.15 A range of profiles and shapes can be fabricated from Metal Sheets for application to parapet, edge and gully details. These are mechanically fixed to the substructure and the membranes are continuously welded to them.

15 Repair

In the event of damage, repairs must be carried out in accordance with the Certificate holder's instructions. A patch of the relevant membrane is applied, extending at least 50 mm beyond the defect. The damaged area is cleaned back to the unweathered material and the patch is hot-air or solvent welded to the roofing sheet.

Technical Investigations

16 Tests

An assessment was made of data to EN 13956 : 2012 in relation to:

- dimensions and tolerances
- water vapour transmission
- tensile strength and elongation
- tear resistance
- low-temperature flexibility
- resistance to impact
- resistance to static loading
- joint strength
- watertightness
- dimensional stability.

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 on the fire performance of the membranes were examined.

17.3 Visits were made to sites in progress to assess the methods of application.

17.4 Visits were made to existing sites to assess the product's performance in use.

17.5 Existing data on the mechanical fixings, and wind uplift testing on the mechanically fixed products, from WSP (Aachen), were assessed.

17.6 A survey of known users was carried out to assess the product's performance in use.

Bibliography

BS 476-3 : 2004 *Fire tests on building materials and structures — Part 3 : Classification and method of test for external fire exposure to roofs*

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

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

BS 8000-4 : 1989 *Workmanship on building site — 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 13956 : 2012 *Flexible sheets for waterproofing — Plastic and rubber sheets for roof waterproofing — Definitions and characteristics*

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.