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Agrément Certificate
05/4203
Product Sheet 2

IKO POLYMERIC SINGLE PLY ROOF WATERPROOFING MEMBRANES

SPECTRAPLAN SG120

This Agrément Certificate Product Sheet⁽¹⁾ relates to IKO Spectraplan⁽²⁾ SG120 adhesively-bonded thermoplastic polyolefin elastomer waterproofing membrane, for use on flat and pitched roofs.

(1) Hereinafter referred to as 'Certificate'.

(2) Spectraplan is a registered trademark of IKO plc.

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 to the interior of the building (see section 6).

Properties in relation to fire — the product, when used in a suitable specification, will enable a roof to be unrestricted under Building Regulations (see section 7).

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

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

Durability — under normal conditions the product will provide a durable waterproof covering with a service life in excess of 30 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 Second issue: 13 October 2015

John Albon — Head of Approvals
Construction Products

Claire Curtis-Thomas
Chief Executive

Originally certificated on 24 October 2014

The BBA is a UKAS accredited certification body — Number 1113. 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, Spectraplan SG120, 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:	Test data indicate that on suitable non-combustible substructures the product will enable a roof to be unrestricted under this Requirement. See section 7 of this Certificate.
Requirement: C2(b)	Resistance to moisture
Comment:	Data for water resistance on the product and its joints indicate that it meets this Requirement. See section 6.1 of this Certificate.
Regulation: 7	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 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: 2.8	Spread from neighbouring buildings
Comment:	Test data indicate that on suitable non-combustible substructures the product will be regarded as having low vulnerability under clause 2.8.1 ⁽¹⁾⁽²⁾ of this Standard. See sections 7.1 and 7.3 of this Certificate.
Standard: 3.10	Precipitation
Comment:	Data for water resistance of the product indicate that its use 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 product 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:	All comments given for 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)(iii)(b)(i)	Fitness of materials and workmanship
Comment:	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:	Data for water resistance on the product indicates that its use 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:	Test data indicate that on suitable non-combustible substructures use of the product will be unrestricted by the requirements of this Regulation. See section 7 of this Certificate.

Construction (Design and Management) Regulations 2015

Construction (Design and Management) Regulations (Northern Ireland) 2007

Information in this Certificate may assist the client, Principal Designer/CDM co-ordinator, designer and contractors to address their obligations under these Regulations.

See sections: 3 *Delivery and site handling* (3.3) of this Certificate.

Additional Information

NHBC Standards 2014

NHBC accepts the use of Spectraplan SG120, provided it is installed, used and maintained in accordance with this Certificate, in relation to *NHBC Standards*, Chapters 7.1, *Flat roofs and balconies* and 7.2 *Pitched roofs*.

CE marking

The Certificate holder has taken the responsibility of CE marking the product in accordance with harmonised European Standard BS EN 13956 : 2012. 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 Spectraplan SG120 is a 1.2 mm thickness, glass tissue reinforced, flexible thermoplastic polyolefin elastomer (TPE), single-ply roof waterproofing membrane, with a polyester fleece backing.

1.2 The membrane is manufactured to the nominal characteristics of:

Thickness +10%/−5% (mm)	1.2 ⁽¹⁾
Length +1%/−0.5% (m)	20
Width available +1%/−0.5% (m)	2.12
Mass per unit area +10%/−5%* kg·m ^{−2}	1.570
Tensile strength MD/TD +/−20%* (N·50 mm ^{−1})	800
Elongation at break % +/−20%* (%)	150
Tear resistance* (N)	>120
Peel strength of joints* (N·50 mm ^{−1})	>300
Shear strength of joints* (N)	>800
Nail tear (N)	500
Dimensional stability 6 hrs at 80°C (%)	≤1.0
Flexibility at low temperatures (°C)	−35
Watertightness	Pass
Equivalent air thickness (S _d) (m)	120
Minimum overlap (mm)	60
Minimum welding width (automatic) (mm)	>30
Minimum welding width (hand welder) (mm)	>60
Hotair welding temperature (°C)	200 – 600
Welding speed (automatic welder) (m·min ^{−1})	2.0 – 7.0

(1) Overall thickness including fleece backing 1.4 mm.

1.3 The membrane is available in Light Grey, approximating to RAL colour reference 7035.

1.4 The membrane is bonded using Spectrabond Low Foaming PU Adhesive, a single component, cold-applied, moisture curing polyurethane adhesive, included in this Certificate.

1.5 Other materials used with the membrane, but outside the scope of this Certificate, are:

- Bond and Seal Activating Cleaner — solution for preparation of non-porous substrates
- Bond and Seal Mastic — elastic polyurethane sealant
- IKO Enertherm boards — polyisocyanurate (PIR) thermal insulation boards
- IKOfix peelstop bar — steel fixing strip for membrane anchorage
- preformed Spectraclad drip and chase termination details
- Spectrabond TPE contact adhesive — for use at details and upstands
- Spectraclad Coated Metal — TPE-coated steel for fabrication used to form perimeter details
- Spectraclip — lightning conductor clips for heat welding to the membranes
- Spectraplan D — homogeneous roofing membrane for use in complex detailing
- Spectraplan SM — for forming linear upstands
- Spectraplan Standing Seam Profile — TPE preformed simulated standing seam profile
- Spectraplan Walkway — heavy-duty grid-patterned TPE membrane for use on walkways
- Spectratex Separation/Levelling Layers — a range of polyester geotextile isolation and protection fleeces
- TPE outlet pipes
- vapour control layers — a range of torch-on, pour-and-roll and self-adhesive bituminous VCLs.

Details of these products and their specifications can be obtained from the Certificate holder.

2 Manufacture

2.1 The membrane is manufactured by laminating two extruded TPE sheets, sandwiching the glass tissue reinforcement, and a polyester fleece backing is factory bonded to the underside of the membrane.

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 IKO PLC has been assessed and registered as meeting the requirements of BS EN ISO 9001 : 2008 by BSI (Certificate FM 45901).

3 Delivery and site handling

3.1 The membrane is delivered to site in rolls wrapped in plastic with labels bearing the product name, manufacturer's name, product dimensions, article number and batch number.

3.2 The rolls should be stored horizontally under cover on a clean, level surface.

3.3 The Certificate holder has taken the responsibility of classifying and labelling the product 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 Sheets.

Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on Spectraplan SG120.

Design Considerations

4 Use

4.1 Spectraplan SG120 is satisfactory for use in adhered applications on exposed flat or pitched roofs with limited access.

4.2 Limited access roofs are defined for the purposes of this Certificate as those subjected only to pedestrian traffic for maintenance of the roof covering, cleaning of gutters, etc. Where traffic in excess of this is envisaged, additional protection to the membrane must be provided (see section 9).

4.3 Flat roofs are defined for the purpose of this Certificate as those having a minimum finished fall of 1:80. Pitched roofs are defined for the purpose of this Certificate as those having a fall greater than 1:6. When designing flat roofs, twice the minimum finished fall should be assumed, unless a detailed analysis of the roof is available, including, for example, overall and local deflection and direction of falls.

4.4 Structural decks to which the membrane is to be applied must be able to transmit the dead and imposed loads experienced in service.

4.5 Imposed loads, dead loading and wind load specifications are calculated in accordance with BS EN 1991-1-1 : 2002, BS EN 1991-1-3 : 2003 and BS EN 1991-1-4 : 2005, and their respective UK National Annexes.

4.6 Decks to which the membrane is to be applied must comply with the relevant requirements of BS 6229 : 2003, BS 8217 : 2005 and, where appropriate, *NHBC Standards 2014*, Chapters 7.1 *Flat roofs and balconies* and 7.2 *Pitched roofs*. Additional guidance for inverted roof specifications is given in BBA Information Bulletin No 4 *Inverted roofs – Drainage and U value corrections*.

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

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

5 Practicability of installation

The product must be installed by contractors who have been trained and approved by the Certificate holder.

6 Weathertightness

 6.1 The waterproofing membrane and joints, when completely sealed and consolidated, 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 membrane is impervious to water and will provide a weathertight roofing capable of accepting minor structural movement without damage.

7 Properties in relation to fire



7.1 In the opinion of the BBA, a system comprising a 1 mm thickness profiled metal deck, covered on its upper surface with a 0.8 mm thickness polypropylene vapour control layer, and a 100 mm thickness perforated mineral-coated glass-tissue faced polyisocyanurate (PIR) foam insulation board, covered by Spectraplan SG120 TPE membrane, can be classified as B_{ROOF}(t4) in accordance with BS EN 13501-5 : 2005.



7.2 When used on flat roofs with one of the surface finishes defined in Part iii of Table A5 of Appendix A of the Building Regulations (England and Wales), or Technical Booklet E, Table 4.6, Part IV of The Building Regulations (Northern Ireland), the roof is deemed to be unrestricted.



7.3 The designation of other specifications (eg on combustible substrates) should be confirmed by:

England and Wales — test or assessment in accordance with Approved Document B, Appendix A, clause 1

Scotland — tests to confirm compliance with Mandatory Standard 2.8, with reference to 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 Resistance to wind uplift

8.1 The resistance to wind uplift of an adhesively-secured waterproofing layer is provided by the bonding of the membrane into the substrate, which will be dependent on a number of factors, including:

- wind uplift forces to be restrained
- bond strength of the adhesive
- tensile properties of the membrane
- appropriate calculation of safety factors.

8.2 The wind uplift forces are calculated in accordance with BS EN 1991-1-4 : 2005 and its UK National Annex.

9 Resistance to foot traffic

Results of tests indicate that the product can accept, without damage, the limited foot traffic associated with installation and maintenance. Reasonable care should be taken to avoid sharp objects or concentrated loads. Where regular traffic is envisaged, eg for maintenance of lift equipment, a walkway should be provided using concrete slabs supported on bearing pads.

10 Maintenance



The product should be subjected to regular annual inspections, and roof drains kept clear, as is good practice on all flat roofs.

11 Durability



11.1 Accelerated weathering tests confirm that satisfactory retention of physical properties is achieved. The product, when subjected to normal conditions of use in a roof, will retain its integrity for a period in excess of 30 years.

11.2 In environments where the membrane is in contact with certain organic solvents and oil-based products, the life expectancy of the membrane may be reduced. In cases of doubt, the advice of the Certificate holder should be sought.

12 Reuse and recyclability

The membrane is made from TPE and polyester, which can be recycled.

Installation

13 General

13.1 Installation of Spectraplan SG120 membrane must be carried out by installers trained and approved by the Certificate holder in accordance with the relevant clauses of the Certificate holder's instructions, BS 8000-0 : 2014, BS 8000-4 : 1989 and this Certificate.

13.2 Substrates to which the membrane is to be applied must be sound, dry, clean and free from sharp projections such as nail heads and concrete nibs.

13.3 Installation should not be carried out during inclement weather (eg rain, fog or snow). When the temperature is below 5°C suitable precautions against surface condensation must be taken, in accordance with the Certificate holder's instructions.

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

14 Procedure

14.1 The Spectrabond PU Adhesive is stirred thoroughly. If necessary the temperature of the adhesive may be raised by heating the container in warm water. In the event of work being interrupted, the container lid should be replaced.

14.2 The membrane must be allowed to condition prior to installing for 5 to 10 minutes, depending on ambient temperature.

14.3 The membrane is unrolled over the prepared substrate and folded back for a distance of approximately half of its length.

14.4 A sheepskin or similar roller is used to apply a coat of Spectrabond PU to the substrate surface, covering only the area where the membrane will be laid.

14.5 The PU adhesive must be given time to activate (ie to reach the point at which it will achieve its greatest bond strength) prior to applying the membrane. This is indicated by a change in the surface colour of the adhesive from pink to opaque.

14.6 The membrane is carefully laid onto the surface and rolled with a water-filled roller or soft-bristled broom, removing any trapped air and pressing firmly into the adhesive.

14.7 The remaining half of the length of the product is folded back and the process repeated..

14.8 The next roll or piece of membrane is unrolled, ensuring that end laps are staggered and with side laps of 60 mm over the previously-installed sheet.

14.9 The adhering process is repeated.

15 Jointing

15.1 The areas to be welded must be clean, dry and free from contamination. Where required, surfaces must be cleaned in accordance with the Certificate holder's instructions.

15.2 Joints are made using either automatic or hand-operated machines, with the temperature set in accordance with the Certificate holder's instructions.

15.3 The final welded width of the joint must be a minimum of 30 mm when welded with an automatic welding machine, and 40 mm when welded with a hand-operated machine.

15.4 The 60 mm side laps are fully hot-air welded and allowed to cool completely.

15.5 The integrity of the seam must be tested with a suitable metal probe and any weaknesses repaired immediately.

15.6 Flashings must be formed in accordance with the Certificate holder's instructions

16 Repair

Any damage can be repaired by cleaning the affected area and applying a patch of the product in accordance with the Certificate holder's instructions.

Technical Investigations

17 Tests

Tests were conducted on the SG120 membrane to BS EN 13956 : 2012 and the results assessed to determine:

- thickness
- mass per unit area
- width
- heat resistance
- tensile strength and elongation
- nail tear
- dimensional stability
- low temperature foldability
- fatigue cycling
- watertightness
- static indentation
- dynamic impact
- shear resistance of joints
- peel strength
- effects of heat ageing

- effects of moisture/vapour
- long term UV ageing
- properties when installed
- bitumen resistance.

18 Investigations

18.1 Existing data on fire performance of the membrane were assessed.

18.2 Resistance to wind uplift of a fully-adhered warm roof system incorporating Spectraplan SG120 membrane was tested and evaluated, and met the requirements of clause 4.3.2 of MOAT 65 — *Resistance to wind uplift*.

18.3 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 476-3 : 2004 *Fire tests on building materials and structures — External fire exposure roof test*

BS 6229 : 2003 *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 sites — Code of practice for waterproofing*

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

BS EN 1991-1-1 : 2002 *Eurocode 1: Actions on structures — General actions — Densities, self-weight, imposed loads for buildings*

NA to BS EN 1991-1-1 : 2002 UK National Annex to *Eurocode 1: Actions on structures — General actions — Densities, self-weight, imposed loads for buildings*

BS EN 1991-1-3 : 2003 *Eurocode 1: Actions on structures — General actions — Snow loads*

NA to BS EN 1991-1-3 : 2003 UK National Annex to *Eurocode 1: Actions on structures — General actions — Snow loads*

BS EN 1991-1-4 : 2005 *Eurocode 1: Actions on structures — General actions — Wind actions*

NA to BS EN 1991-1-4 : 2005 UK National Annex to *Eurocode 1: Actions on structures — General actions — Wind actions*

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

BS EN 13956 : 2012 *Flexible sheets for waterproofing — Plastic and rubber sheets for roof waterproofing — Definitions and characteristics*

BS EN ISO 9001 : 2008 *Quality management systems — Requirements*

19 Conditions

19.1 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.

19.2 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.

19.3 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.

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

19.5 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.

19.6 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.