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Agrément Certificate

20/5816

Product Sheet 1

TECHNOELAST ROOF WATERPROOFING MEMBRANES

TECHNOELAST SBS EPP AND TECHNOELAST SBS EKP ROOF WATERPROOFING MEMBRANES

This Agrément Certificate Product Sheet⁽¹⁾ relates to Technoelast SBS EPP and Technoelast SBS EKP Roof Waterproofing Membranes, reinforced styrene-butadiene-styrene (SBS) polymer modified membranes for use as fully or partially adhered waterproofing on flat or pitched roofs, or as loose-laid or ballasted waterproofing on flat roofs with limited access, or under heavy protection, for 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 into the interior of a building (see section 6).

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

Resistance to wind uplift — when correctly specified, 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 the 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: 16 November 2020

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, Technoelast SBS EPP and Technoelast SBS EKP 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(1)	External fire spread
Comment:		The products are restricted by this Requirement, in some circumstances. See section 7.4 of this Certificate.
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 sections 7.1, 7.2 (Wales only) and 7.3 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 of this Certificate.
Regulation:	7(1)	Materials and workmanship
Comment:		The products are acceptable. See section 11.1 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 11.1 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, are classified as having a low vulnerability and can enable a roof to be unrestricted under this Standard, with reference to clause 2.8.1 ⁽¹⁾⁽²⁾ . See sections 7.1 and 7.3 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 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 11.1 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 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 sections 7.1 to 7.3 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 and 3.4) of this Certificate.

Additional Information

NHBC Standards 2020

In the opinion of the BBA, Technoelast SBS EPP and Technoelast SBS EKP 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*.

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

CE marking

The Certificate holder has taken the responsibility of CE marking the products, in accordance with harmonised European Standard EN 13707 : 2013.

Technical Specification

1 Description

1.1 Technoelast SBS EPP and Technoelast SBS EKP Roof Waterproofing Membranes comprise:

- Technoelast SBS EPP — a polyester/glass composite reinforced (180 g·m⁻² nominal) SBS polymer-modified bitumen membrane, with either a sand finish or a thermofusible plastic film on both surfaces to prevent the roll upper from adhering to itself
- Technoelast SBS EKP — a polyester/glass composite reinforced (180 g·m⁻² nominal) SBS polymer-modified bitumen membrane, with a mineral finished upper surface and either a sand finish or a thermofusible plastic film on the lower surface to prevent the roll upper from adhering to itself.

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

Table 1 Nominal characteristics

Characteristic (unit)	Technoelast SBS EPP	Technoelast SBS EKP
Thickness (mm)	4	4 ⁽¹⁾
Roll length (m)	10 ⁽²⁾	8 ⁽²⁾
Roll width (m)	1	1
Mass per unit area (kg·m ⁻²)	4.8	5.8
Roll weight (kg)	48	46.4

(1) Excluding mineral granules.

(2) Other roll sizes are available.

1.3 The nominal physical characteristics of the membranes are given in Table 2.

Table 2 Nominal physical characteristics

Characteristic (unit)	Technoelast SBS EPP	Technoelast SBS EKP
Tensile strength (N per 50 mm)		
Longitudinal	1000 ⁽¹⁾	1000 ⁽¹⁾
Transverse	700 ⁽¹⁾	700 ⁽¹⁾
Elongation at break (%)		
Longitudinal	50 ⁽²⁾	50 ⁽²⁾
Transverse	50 ⁽²⁾	50 ⁽²⁾
Nail tear (N)		
Longitudinal	300 ⁽³⁾	300 ⁽³⁾
Transverse	350 ⁽³⁾	350 ⁽³⁾
Dimensional stability (%)	≤±0.3	≤±0.3
Low temperature flexibility (°C)	-25	-25
Flow resistance (°C)	100	100
Watertightness	Pass	Pass
Water vapour transmission (μ)	20000	20000

(1) ±20% tolerance on tensile strength.

(2) ± 15% absolute tolerance on elongation at break in both directions.

(3) -30≥ tolerance on nail tear.

1.4 Verprim Primer, a solution of bitumen in a mixture of aliphatic, aromatic and chlorinated hydrocarbons for use with the membranes on substrates which require priming.

2 Manufacture

2.1 The products are manufactured by using traditional methods for reinforced bitumen waterproofing membranes. The membranes have a sand or mineral finish, or a thermofusible plastic film applied as appropriate.

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 LLC Technoflex (Vyborg) has been assessed and registered as meeting the requirements of BS EN ISO 9001 : 2015 by ACERT Bureau (Certificate NG-08.00.05d).

3 Delivery and site handling

3.1 The products are delivered to site in rolls sealed with tape on pallets shrink-wrapped in plastic. The roll sealing tape bears the product name, identification code and the BBA logo incorporating the number of this Certificate.

3.2 Rolls should be stored in an upright position on a clean, level surface and kept under cover.

3.3 Verprim Primer is supplied in 5, 10 and 20 litre containers. It is an inflammable material and should be kept stored in suitably dry and sealed area.

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 Technoelast SBS EPP and Technoelast SBS EKP Roof Waterproofing Membranes.

Design Considerations

4 General

4.1 Technoelast SBS EPP and Technoelast SBS EKP Roof Waterproofing Membranes are satisfactory for use as fully or partially bonded waterproofing on flat or pitched roofs with limited access, as part of a built-up specification and, where necessary, in conjunction with appropriate reinforced bitumen membranes to BS 8747 : 2007.

4.2 Technoelast SBS EPP is satisfactory for use as a single-ply, loose-laid waterproofing layer, ballasted with aggregate on flat roofs with limited access, or under heavy protection (eg concrete slabs) on flat roofs with regular pedestrian traffic.

4.3 Technoelast SBS EKP is satisfactory for use, where appropriate, as an exposed capsheet or in detail work.

4.4 Decks must comply with the relevant requirements of BS 6229 : 2018 or BS 8217 : 2005 and, where appropriate, *NHBC Standards 2020*, Chapter 7.1.

4.5 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).

4.6 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.

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

4.8 Insulation systems or materials used in conjunction with the products must be either:

- as described in the relevant clauses of BS 6229 : 2018 or
- the subject of a current BBA Certificate and used in accordance with, and within the limitations of, that Certificate.

5 Practicability of installation

The products are designed to be installed by competent roofing contractors experienced with these types of products.

6 Weathertightness



The products, including joints, will adequately resist the passage of moisture into the interior of a building and so satisfies the requirements of the national Building Regulations.

7 Performance in relation to fire



7.1 The products, when used in protected or loose-laid and ballasted roof specifications, including an inorganic covering listed in the Annex of Commission Decision 2000/553/EC, can also be considered to be unrestricted with respect to proximity to a boundary.



7.2 When used on flat roofs with one of the surface finishes defined in The Building Regulations (Wales), Appendix A, Table A5, Part iii, or The Building Regulations (Northern Ireland), Table 5.6, Part IV (and listed below), the roof is deemed to be of classification B_{ROOF} (t4):

- bitumen-bedded stone chipping covering the whole surface to a depth of not less than 12.5 mm
- bitumen-bedded tiles of a non-combustible material
- sand cement screed, or
- macadam.



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



7.4 The products, when used in pitches of greater than 70°, excluding upstands, should not be used on buildings in England and Wales that have a storey at least 18 m above ground level and 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.

8 Resistance to wind uplift

8.1 The adhesion of the bonded products to decking or bituminous felt is sufficient to resist the effects of wind suction likely to occur in practice.

8.2 The precise ballast requirement for a loose-laid system must be calculated by a suitably qualified and experienced individual in accordance with the relevant parts of BS EN 1991-1-4 : 2005 and its UK National Annex, but should not be below a minimum thickness of 50 mm of suitable aggregate. In areas of high-wind exposure, the Certificate holder's advice should be sought. Alternatively, concrete slabs on suitable protective supports can be used.

9 Resistance to mechanical damage

9.1 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 membrane 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.

9.2 The products are capable of accepting minor structural movement while remaining weathertight.

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 14 and the Certificate holder's instructions.

11 Durability



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

11.2 Some localised loss of the mineral surfacing may occur in areas of complex detailing of the roof, eg upstands.

Installation

12 General

12.1 Installation of Technoelast SBS EPP and Technoelast SBS EKP 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 and BS 8217 : 2005, and 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 The substructure must satisfy the requirements of BS 8217 : 2005 and, to prevent damage to the roof covering, one of the appropriate finishes referred to in clause 6.12 of the Code of Practice must be used.

12.5 If the roof is likely to be subjected to uncontrolled pedestrian access, the substructure must satisfy the requirements of the relevant clauses of BS 8217 : 2005, and one of the surface finishes described in clauses 8.19 or 9.2 of the Code of Practice must be used.

12.6 At falls in excess of 1:11 (5°), the normal precautions against slippage and provision for mechanical fixings as required by BS 8217 : 2005 must be observed.

12.7 On completion of flat roof installations, the sand-finish membrane, when used as a top layer, may have a surface finish applied in accordance with BS 8217 : 2005, Clauses 8.19 and 9.2. Surface finishes in the Code of Practice include:

- stone aggregate in dressing compound
- precast concrete paving flags
- proprietary tiles in bonding compound.

13 Procedure

Fully bonded applications

13.1 Bonding is achieved by melting the lower surface by torching and pressing the membrane down. Care must be taken to avoid overheating the coating.

13.2 Side laps should be a minimum of 100 mm and end laps should be a minimum of 150 mm. Where used partially bonded, the membrane must be fully bonded to the substrate at least one metre immediately before and after the end lap. A bead of molten material must extrude from all laps to indicate a satisfactory seal and should be levelled out using a heated, rounded-tip trowel.

Partially bonded applications

13.3 A layer of type 3G reinforced bitumen membrane to BS 8747 : 2007, Annex C, should be loose-laid edge to edge over the substrate.

13.4 The membrane is fully torch-welded onto the perforated layer ensuring that the bitumen seeps evenly into the perforations.

Loose-laid and ballasted applications

13.5 Side and end laps should be a minimum of 100 mm. The laps should be welded by torching the lower surface and pressing the membrane down.

13.6 The membrane should be ballasted to combat the effects of wind uplift. This can be achieved by:

- a 0.2 mm thick polyethylene protective sheet covered by at least 50 mm of well-rounded gravel (gravel size 15/30 mm)
- a 0.2 mm thick polyethylene protective sheet covered by a 20 mm thick layer of sand and a 0.05 mm thick polyethylene sheet overlaid with a layer of concrete paving slabs
- If paving on plastic pads is used, a separation layer of either 0.2 mm thick polyethylene or a non-woven (polyester) sheet (of minimum mass 300 g·m⁻²) should be used.

14 Repair

In the event of damage, the installed membrane 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.

Technical Investigations

15 Tests

15.1 An assessment was made on test data for the membranes in relation to:

- tensile strength and elongation at break
- tear strength
- dimensional stability
- head of water
- low temperature flexibility
- heat resistance
- static indentation
- dynamic indentation
- fatigue cycling
- slip resistance
- peel strength from concrete, membrane-faced Rockwool and membrane-faced polyurethane
- heat ageing for 180 days at 70°C followed by low temperature flexibility and heat resistance
- heat ageing for 28 days at 70°C followed by fatigue cycling and peel resistance
- water exposure for 28 days at 23°C followed by peel resistance.

15.2 An assessment was made for test data on joints in relation to:

- airtightness of joints
- tensile strength of end and side laps
- t-peel
- heat ageing for 28 days at 80°C followed by air pressure, tensile strength and t-peel
- water exposure for 7 days at 60°C followed by airtightness of joints, tensile strength and t-peel.

15.3 An assessment was made on test data for the coating mass in relation to:

- softening point (ring and ball)
- elastic elongation

- fines content
- low temperature flexibility
- heat ageing for 180 days at 70°C followed by softening point, elastic elongation and low temperature flexibility.

15.4 An assessment was made on test data for the reinforcement in relation to:

- mass per unit area
- tensile strength and elongation at break.

16 Investigations

16.1 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.

16.2 Existing data for fire performance 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 8747 : 2007 *Reinforced bitumen membranes (RBMs) for roofing — Guide to selection and specification*

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*

BS EN ISO 9001 : 2015 *Quality management systems — Requirements*

EN 13707 : 2013 *Flexible sheets for waterproofing — Reinforced bitumen sheets for roof waterproofing — Definitions and characteristics*

17 Conditions

17.1 This Certificate:

- relates only to the product/system that is named and described on the front page
- is issued only to the company, firm, organisation or person named on the front page – no other company, firm, organisation or person may hold 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.

17.2 Publications, documents, specifications, legislation, regulations, standards and the like referenced in this Certificate are those that were current and/or deemed relevant by the BBA at the date of issue or reissue of this Certificate.

17.3 This Certificate will remain valid for an unlimited period provided that the product/system and its manufacture and/or fabrication, including all related and relevant parts and processes thereof:

- are maintained at or above the levels which have been assessed and found to be satisfactory by the BBA
- continue to be checked as and when deemed appropriate by the BBA under arrangements that it will determine
- are reviewed by the BBA as and when it considers appropriate.

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

17.5 In issuing this Certificate the BBA is not responsible and is excluded from any liability to any company, firm, organisation or person, for any matters arising directly or indirectly from:

- the presence or absence of any patent, intellectual property or similar rights subsisting in the product/system or any other product/system
- the right of the Certificate holder to manufacture, supply, install, maintain or market the product/system
- actual installations of the product/system, including their nature, design, methods, performance, workmanship and maintenance
- any works and constructions in which the product/system is installed, including their nature, design, methods, performance, workmanship and maintenance
- any loss or damage, including personal injury, howsoever caused by the product/system, including its manufacture, supply, installation, use, maintenance and removal
- any claims by the manufacturer relating to CE marking.

17.6 Any information relating to the manufacture, supply, installation, use, maintenance and removal of this product/system which is contained or referred to in this Certificate is the minimum required to be met when the product/system is manufactured, supplied, installed, used, maintained and removed. It does not purport in any way to restate the requirements of the Health and Safety at Work etc. Act 1974, or of any other statutory, common law or other duty which may exist at the date of issue or reissue of this Certificate; nor is conformity with such information to be taken as satisfying the requirements of the 1974 Act or of any statutory, common law or other duty of care.