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Agrément Certificate
09/4668
Product Sheet 1

SIKA ROOF WATERPROOFING SYSTEMS

SIKA-TROCAL MECHANICALLY FASTENED SYSTEM — SIKA-TROCAL S

PRODUCT SCOPE AND SUMMARY OF CERTIFICATE

This Certificate relates to Sika-Trocal S, for use as a mechanically fastened waterproofing layer on pitched, flat and curved roofs with limited access.

AGRÉMENT 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 system and joints in the system, when completely sealed and consolidated, will resist the passage of moisture to the interior of the building (see section 5).

Properties in relation to fire — tests indicate that the system will enable a roof to be unrestricted under Building Regulations (see section 6).

Resistance to wind uplift — the system will resist the effects of any wind suction likely to occur in practice (see section 7).

Resistance to foot traffic — the system will accept the limited foot traffic and loads associated with installation and maintenance of the system without damage (see section 8).

Durability — under normal service conditions the system will provide a durable waterproof covering with a service life of at least 30 years (see section 10).

The BBA has awarded this Agrément Certificate to the company named above for the system described herein. The system 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

Simon Wroe
Head of Approvals — Materials

Greg Cooper
Chief Executive

Date of First issue: 3 June 2009

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.

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Regulations

In the opinion of the BBA, Sika-Trocal S if used in accordance with the provisions of this Certificate, will meet or contribute to meeting the relevant requirements of the following Building Regulations:



The Building Regulations 2000 (as amended) (England and Wales)

Requirement:	B4(2)	External fire spread
Comment:		Test data to BS 476-3 : 2004 indicate that on suitable substructures the use of the system will enable a roof to be unrestricted under this Requirement. See sections 6.1 and 6.2 of this Certificate.
Requirement:	C2(b)	Resistance to moisture
Comment:		Tests for water resistance on the system, including joints, indicate that the system meets this Requirement. See section 5.1 of this Certificate.
Requirement:	Regulation 7	Materials and workmanship
Comment:		The system is acceptable. See section 10 and the <i>Installation</i> part of this Certificate.



The Building (Scotland) Regulations 2004 (as amended)

Regulation:	8(1)(2)	Fitness and durability of materials and workmanship
Comment:		The system can contribute to a construction meeting this Regulation. See sections 9, 10 and the <i>Installation</i> part of this Certificate.
Regulation:	9	Building standards – construction
Standard:	2.8	Spread from neighbouring buildings
Comment:		Test data to BS 476-3 : 2004 indicate that on suitable non-combustible substructures the use of the system can be regarded as having a low vulnerability under clause 2.8.1 ⁽¹⁾⁽²⁾ of this Standard. See sections 6.1 and 6.2 of this Certificate.
Standard:	3.10	Precipitation
Comment:		Tests for water resistance of the system, including joints, indicate that the use of the systems 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 5.1 of this Certificate.
Regulation:	12	Building standards – conversions
Comment:		All comments given for this system under Regulation 9, 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) 2000 (as amended)

Regulation:	B2	Fitness of materials and workmanship
Comment:		The system is acceptable. See section 10 and the <i>Installation</i> part of this Certificate.
Regulation:	B3(2)	Suitability of certain materials
Comment:		The system is acceptable. See section 9 of this Certificate.
Regulation:	C4(b)	Resistance to ground moisture and weather
Comment:		Tests for water resistance on the system, including joints, indicate that the use of the system can enable a roof to satisfy the requirements of this Regulation. See section 5.1 of this Certificate.
Regulation:	E5(b)	External fire spread
Comment:		Test data to BS 476-3 : 2004 indicate that on suitable substructures the use of the system will be unrestricted under the requirements of this Regulation. See sections 6.1 and 6.2 of this Certificate.

Construction (Design and Management) Regulations 2007

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

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

See sections: 1 *Description* (1.3) and 2 *Delivery and site handling* (2.3).

Non-regulatory Information

NHBC Standards 2008

NHBC accepts the use of Sika-Trocal S when installed and used in accordance with this Certificate, in relation to NHBC Standards, as meeting Technical Requirement R3 in relation to *NHBC Standards*, Chapter 7.1 *Flat roofs and balconies*.

Zurich Building Guarantee Technical Manual 2007

In the opinion of the BBA, Sika-Trocal S, when installed and used in accordance with this Certificate, satisfies the requirements of the *Zurich Building Guarantee Technical Manual*, Section 4, *Superstructure*, Sub-section *Flat roofs*.

General

The Sika-Trocal S system is manufactured in Germany by SSC AG and marketed in the UK by the Certificate holder.

The system should only be installed by contractors who have been trained and approved/registered by the Certificate holder. The Registered Contractors Scheme records will be audited by the BBA as part of its programme of surveillance of the Certificate.

Technical Specification

1 Description

1.1 Sika-Trocal S membranes are manufactured by calendaring plasticised PVC into sheets. Two of these calendared sheets are thermally fused into one homogenous sheet, additionally, the SG membrane has a centrally placed layer of random glassfibres. The sheet is then cut to width and reeled onto cardboard cores.

1.2 The membranes are available in two grades manufactured to the nominal characteristics given in Table 1.

Characteristics (units)	Sika-Trocal S/SG	Sika-Trocal SX
Thickness (mm)	1.5	2.0
Roll length (m)	20, 15	15
Roll width (m)	1.1, 2.0	1.1
Weight (kgm ⁻²)	1.9	2.5
Colour		
upper face	light grey, anthracite, slate grey	light grey
lower face	medium grey	medium grey

1.3 Ancillary items for use with Sika-Trocal S sheets include:

- Sika-Trocal THF Welding Agent — tetrahydrofuran (THF) for the cold welding of laps between individual sheets and securing the discs to the underside of the membrane
- Sika-Trocal PVC Solution — consists of plasticised PVC dissolved in tetrahydrofuran, used for sealing lap joints
- Sika-Trocal L100 Cleaning agent — ethyl acetate based solution for the cleaning of heavily soiled membrane prior to welding
- Sika-Trocal metal discs — round washers, manufactured from Sika-Trocal laminated metal with a mechanical fastener through the centre, used to secure the Sika-Trocal membrane against wind uplift forces by welding them to the underside of the sheet. Provision has been made for the use of thermally broken types of fastener. Fasteners to suit from SFS Intec and Olympic International and FRS Global range
- Sika-Trocal metal sheets — used to produce profiles for perimeter flashings, connections and fixings. Sheets consist of 0.6 mm thick sheet, galvanized steel with upper side coated with a 0.8 mm thick layer of plasticised PVC, coloured light grey and slate grey
- Sika-Trocal polyester fleece (Type T) — a needle-punched non-woven layer (300 gm⁻²) for use as a protective and separating layer preventing contact between the waterproofing sheets and any rough/abrasive surfaces or incompatible materials
- Sika-Trocal polypropylene fleece (Type A) — (300 gm⁻²) for use as a protective and separating layer preventing contact between the waterproofing sheets and any rough/abrasive surfaces or incompatible materials, only suitable for use under membranes
- Sika-Trocal SBV — a PVC-skinned polyester fleece for use as a heavy-duty protective sheet
- Sika-Trocal WBP — a 1.5 mm thick layer of pyramidically embossed plasticised PVC, for welding to Sika-Trocal S as a slip-resistant walkway. Available to clearly define the walkway routes
- Sika-Trocal HD WBP — a heavy-duty thicker version of Sika-Trocal WBP. Available in dark grey to clearly define the walkway routes
- Sika-Trocal S Vap 500E vapour check — a polyethylene sheet, offering resistance to the passage of water vapour into the roof construction from below
- Sika-Trocal corner pieces — S membrane preformed in corner pieces, for ensuring the waterproofing integrity of the corner detail.

1.4 Quality control checks are carried out during production and on the final product. Checks on the final product include:

- tensile strength and elongation
- dimensions
- dimensional stability.

2 Delivery and site handling

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

2.2 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.

2.3 Items containing THF are 'flammable' with a flashpoint below 32°C and are all classified as 'highly flammable' under *The Chemicals (Hazard Information and Packaging for Supply) Regulations 2002 (CHIP3)*, and bear the appropriate hazard warning and should be stored accordingly. THF has a short-term exposure limit of 200 parts per million and there must be adequate ventilation when these products are used in confined spaces.

Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on Sika-Trocal S mechanically fastened system.

Design Considerations

3 General

3.1 Sika-Trocal S 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.

3.2 The Sika-Trocal S membrane can be applied to vertical surfaces up to 1 m. For other applications, the Certificate holder's advice regarding the fire performance should be sought.

3.3 Limited access roofs are defined for the purpose of this Certificate as those roofs subjected only to pedestrian traffic for maintenance of the roof covering and cleaning of gutters, etc. Where traffic in excess of this is envisaged special precautions, such as additional protection to the sheets, must be taken.

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

3.5 Decks to which the system is to be applied must comply with the relevant requirements of BS 6229 : 2003, BS 8217 : 2005 and, where appropriate, *NHBC Standards 2008, Chapter 7.1 Flat roofs and balconies* and *Chapter 7.2 Pitched roofs* or the *Zurich Building Guarantee Technical Manual 2007, Section 4, Superstructure, Sub-sections Flat roofs*, pages 268 to 270.

3.6 Insulation materials used in conjunction with the membranes must meet 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 be used in accordance with, and within the limitations of, that Certificate.

3.7 The membranes must not be laid directly onto certain materials, eg, bituminous felts, certain insulation boards or on 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 Practicability of installation

The system should 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.

5 Weathertightness



5.1 Tests confirm that the membrane and joints in the membrane 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 (see section 14 Table 2 *Physical properties — general*):

England and Wales — Approved Document C, Requirement C2(b), Section 6

Scotland — Mandatory Standard 3.10, clauses 3.10.1 and 3.10.7

Northern Ireland — Regulation C4(b).

5.2 The membrane is impervious to water and, when used in the system described, will achieve a weathertight roof capable of accepting minor structural movement without damage.

6 Properties in relation to fire



6.1 When tested in accordance with BS 476-3 : 2004:

- a system comprising 18 mm thick plywood deck, covered with Sika-Trocal S-Vap 500E vapour control layer, a 145 mm thick high-density mineral fibre foam insulation board faced with glassfibre tissue, covered by 1.5 mm Sika-Trocal S achieved an EXT.F.AB rating
- a system comprising 18 mm thick plywood deck, covered with Sika-Trocal S-Vap 500E vapour control layer, a 100 mm thick rigid polyisocyanurate foam insulation board, covered by 1.5 mm Sika-Trocal S achieved an EXT.F.AC rating
- a system comprising 18 mm thick plywood deck, covered with Sika-Trocal S-Vap 500E vapour control layer, a 100 mm thick foil-faced rigid polyisocyanurate foam insulation board, covered by 2 mm Sika-Trocal SX achieved an EXT.F.AB rating.

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

England and Wales — Test or assessment in accordance with Approved Document B, Appendix A, Clause A1

Scotland — Test to conform to Mandatory Standard 2.8, clause 2.8.1

Northern Ireland — Test or assessment by a UKAS accredited laboratory or an independent consultant with appropriate experience.

7 Resistance to wind uplift

7.1 When the membranes are mechanically fixed, the resistance to wind uplift of the membranes is provided by mechanical fasteners secured to the deck and passing through the membrane. 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.

7.2 The number of fixings used should be established by reference to the wind uplift forces calculated in accordance with BS 6399-2 : 1997 on the basis of maximum permissible loads of 0.40 kN per fixing.

8 Resistance to foot traffic

Tests indicate that the membranes can withstand, without damage, the limited foot traffic and light concentrated loads associated with the installation and maintenance operations. Where traffic in excess of this is envisaged (eg maintenance of roof-mounted plant or regular access to plant rooms), walkways must be provided (eg using the WBP materials), as recommended by the Certificate holder. Reasonable care should be taken, however, to avoid puncture by sharp objects or concentrated loads (see section 14, Table 2 *Physical properties — general*).

9 Maintenance



Roofs covered with the system should be the subject of annual inspections, as is good practice with all roof waterproofing systems, to ensure continued security and performance.

10 Durability



Sika-Trocal S has been used in the United Kingdom since 1972. Accelerated weathering tests and performance in use confirm that satisfactory retention of physical properties is achieved. All available evidence indicates that the sheets should have a life in excess of 30 years.

Installation

11 General

11.1 Installation of Sika-Trocal S must be carried out by trained and licensed installers in accordance with the Certificate holder's instructions and the relevant Clauses of BS 8000-4 : 1990.

11.2 The membranes 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.

11.3 Deck surfaces should be clean, dry, and free from sharp projections such as nail heads, concrete nibs. The membranes are not compatible with bitumen, coal tar, pitch or oil-based products and contact with such products must be avoided. Where necessary, the appropriate separation layer must be interposed between the substrate and the membrane to avoid such contact. The requirement of a vapour barrier should be established in accordance with BS 6229 : 2003 and the Certificate holder's instructions.

11.4 The membranes 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. Rigid, plastic foam 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.

12 Procedure

12.1 Installation of the roofing system should ideally commence from the roof perimeters with sufficient amounts of underlays and insulation boards being installed to permit the fixing of the Sika-Trocal metal profiles.

12.2 Sika-Trocal metal profiles should be fixed in place, over any insulation when present, at the roof perimeters and internal corners and penetrations as work progresses.

12.3 The installation of the membranes should be started from a suitable Sika-Trocal metal section at the perimeter. The system should be installed in stages, and not by completing one layer totally before starting the next layer.

12.4 The membrane should be unrolled, over the substrate and on top of any separating layers, taking care not stretch it. Edge and end laps should be a minimum width of 50 mm.

12.5 The membrane should be initially loose-laid without folds or ripples, only the UV stabilised upper surface, which is the inside face of the roll, can be exposed to the elements.

12.6 The membrane is then secured to the Sika-Trocal metal sheets at edges and upstands. The lap joints are made by cold or hot air-welding in the manner described in sections 12.15 and 12.18. Prefabricated corner sections should be used where possible for detail work.

12.7 The loose-laid membrane should be secured by mechanically fixing using Sika-Trocal metal discs, proprietary pressure plate systems may also be used using their appropriate fasteners from the listed suppliers.

12.8 Using the Sika-Trocal metal discs, the lower surface of the membrane is welded to the PVC surface of the disc. Pressure plates are generally located in the seams between the individual sheets. When extra fasteners are required, the plates may be located on the general surface of the membrane and subsequently covered with straps or roundels of membrane.

12.9 The discs/plates must be fixed to the substrate by means of corrosion-resistant fittings through the thermal insulation and protective or separating layer to the supporting substructure. Where the substructure is trapezoidal metal decking, the fixing must be effected in the top web.

Solvent welding

12.10 Welding must be achieved using Sika-Trocal THF Welding Agent. The THF chemical used in welding laps has a low flashpoint and where it is to be used in enclosed spaces adequate ventilation must be provided.

12.11 The lap joint areas on both sheets must be cleaned to a minimum width of 50 mm and then dried.

12.12 Both surfaces must be coated with Sika-Trocal THF Welding Agent, to a minimum width of 30 mm and welded together. The welded laps should be consolidated by the application of firm, even pressure to ensure a watertight seal.

12.13 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.

12.14 All laps must finally have a bead of Sika-Trocal PVC Solution applied to the exposed edge and injected into voids to close capillaries.

Hot-air welding

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

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

12.17 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.

12.18 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 which must be rectified immediately using hot-air welding techniques.

Flashing

12.19 A range of profiles and shapes can be fabricated from Sika-Trocal metal sheets to deal with parapet, edge and gully details. These are mechanically fixed to the substructure and the membrane is continuously welded to them.

13 Repair

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

Technical Investigations

14 Tests

Details of tests on Sika-Trocal S carried out by the BBA or assessed by the BBA, which show typical results for the materials, are summarised in Tables 2 and 3.

Table 2 Physical properties — General (Sika-Trocal S — 1.5 mm thick)

Test (units)	Mean result		Method ⁽¹⁾
	Longitudinal	Transverse	
Apparent density (gcm ⁻³)			Direct measurement
top layer	1.25		
bottom layer	1.24		
Water vapour transmission at 25°C/75% RH (gm ⁻² day ⁻¹)	1.7		BS 3177
Vapour resistance (MNsg ⁻¹)	121		BS 3177
Ash content (%)			ISO 1270
top layer	4.98		
bottom layer	1.46		
Shore A hardness (°)	85		DIN 53505
Static indentation			MOAT 27 : 5.1.9
hard substrate	L ₄		
soft substrate	L ₄		
Low temperature flexibility (°C) (-20)	satisfactory		DIN 53361
Peel strength mean load (N per 10 mm) strip Sika-Trocal metal	12.0		MOAT 27 : 5.1.3
Effectiveness of joints	satisfactory		MOAT 27: 5.2

(1) Test documents are detailed in the *Bibliography*. Numbers in the table refer to section/parts of the various documents.

Table 3 Physical properties — directional (Trocal S)

Test (units)	Mean result		Method ⁽¹⁾
	Longitudinal	Transverse	
Tensile strength (Nmm ⁻²)			DIN 53455
unaged	18.5	17.8	
heat aged ⁽²⁾	19.0	17.4	
SO ₂ ⁽³⁾	17.3	17.3	
Elongation (%)			DIN 53455
unaged	355	375	
heat aged ⁽²⁾	410	400	
SO ₂ ⁽³⁾	410	410	
Dimensional stability (%)			MOAT 29 : 4.15
6 hours at 80°C	-1.60	+0.34	
6 cycles ⁽⁴⁾	-1.65	+0.20	

(1) Test documents are detailed in the *Bibliography*. Numbers in the table refer to section/parts of the various documents.

(2) 28 days exposure at 40°C (DIN 50018).

(3) 72 hours at 80°C/24 hours at 23°C.

(4) 12 months in an oven at 80°C.

15 Investigations

15.1 A re-examination was made of the data and investigations on which the previous Certificate 95/3092 was based.

15.2 Existing data on the fire performance to BS 476-3 : 2004 were examined.

15.3 The manufacturing process was assessed, including the method adopted for quality control, and details were obtained of the quality and composition of the materials used.

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

15.5 Visits were made to existing sites to assess the products' performance in use.

15.6 An assessment on test data for the 1.5 mm Sika-Trocal S membrane was made for tear strength and resistance to water pressure properties.

15.7 Existing data on the mechanical fixings, and wind uplift testing on the mechanically fixed system, from WSP (Aachen), were examined.

15.8 A survey of known users of Sika-Trocal S was carried out to assess the performance in United Kingdom conditions.

15.9 A reassessment of the Durability statement was made based on visits to old existing sites and results of tests conducted on unaged and natural-aged materials.

Bibliography

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

BS 2782-3.360B : 1991 *Methods of testing plastics — Mechanical properties — Determination of tear resistance of plastics film and sheeting by the trouser tear method*

BS 3177 : 1959 *Method for determining the permeability to water vapour of flexible sheet materials used for packaging*
BS 6229 : 2003 *Flat roofs with continuously supported coverings — Code of practice*
BS 6399-2 : 1997 *Loading for buildings — Code of practice for wind loads*
BS 8000-4 : 1989 *Workmanship on building sites — Code of practice for waterproofing*
BS 8217 : 2005 *Reinforced bitumen membranes for roofing — Code of practice*
DIN 50018 : 1997 *Sulfur dioxide corrosion testing in a saturated atmosphere*
DIN 53361 : 1982 *Testing of artificial leather and similar sheet materials; Determination of suppression at groove in coolness*
DIN 53455 : 1981 *Testing of plastics, tensile test*
DIN 53505 : 1987 *Shore A and Shore D hardness testing of rubber*
ISO 1270 : 1975 *Plastics — PVC resins — Determination of ash and sulphated ash*
MOAT No 27 : 1983 *General Directive for the Assessment of Roof Waterproofing Systems*
MOAT No 29 : 1984 *Directives for the Assessment of Roofing Systems using PVC sheets without reinforcement, loose laid under heavy protection and not compatible with bitumen*
MOAT No 55 : 1991 *UEAtc Supplementary guide for the assessment of mechanically fastened roof waterproofing*

Conditions of Certification

16 Conditions

16.1 This Certificate:

- relates only to the product/system that is named and described on the front page
- is granted only to the company, firm or person named on the front page — no other company, firm or person may hold or claim any entitlement to this Certificate
- 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.

16.2 Publications and documents referred to in this Certificate are those that the BBA deems to be relevant at the date of issue or re-issue of this Certificate and include any: Act of Parliament; Statutory Instrument; Directive; Regulation; British, European or International Standard; Code of Practice; manufacturers' instructions; or any other publication or document similar or related to the aforementioned.

16.3 This Certificate will remain valid for an unlimited period provided that the product/system and the manufacture and/or fabrication including all related and relevant 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.

16.4 In granting this Certificate, the BBA is not responsible for:

- 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
- individual installations of the product/system, including the nature, design, methods and workmanship of or related to the installation
- the actual works in which the product/system is installed, used and maintained, including the nature, design, methods and workmanship of such works.

16.5 Any information relating to the manufacture, supply, installation, use and maintenance 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 and maintained. It does not purport in any way to restate the requirements of the Health & Safety at Work etc Act 1974, or of any other statutory, common law or other duty which may exist at the date 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. In granting this Certificate, the BBA does not accept responsibility to any person or body for any loss or damage, including personal injury, arising as a direct or indirect result of the manufacture, supply, installation, use and maintenance of this product/system.