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Agrément Certificate

05/4217

Product Sheet 1 Issue 7

KRYSTOL WATERTIGHT CONCRETE SYSTEM

KRYSTOL INTERNAL MEMBRANE (KIM)

This Agrément Certificate Product Sheet⁽¹⁾ relates to Krystol Internal Membrane (KIM), a reactive crystalline admixture for use in concrete mixes to provide watertight concrete suitable for basements, roofs, swimming pools, tunnels, and culverts, without the requirement for additional applied protection.

(1) Hereinafter referred to as 'Certificate'.

The assessment includes

Product factors:

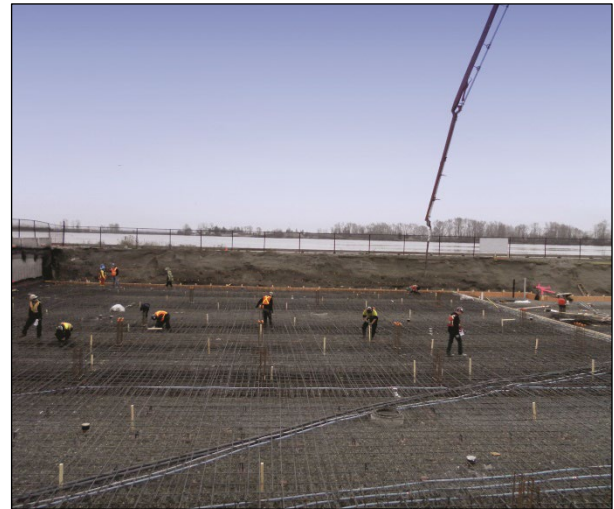
- compliance with Building Regulations
- compliance with additional regulatory or non-regulatory information where applicable
- evaluation against technical specifications
- assessment criteria and technical investigations
- uses and design considerations

Process factors:

- compliance with Scheme requirements
- installation, delivery, handling and storage
- production and quality controls
- maintenance and repair

Ongoing contractual Scheme elements†:

- regular assessment of production
- formal 3-yearly review



KEY FACTORS ASSESSED

- Section 1. Mechanical resistance and stability
- Section 2. Safety in case of fire
- Section 3. Hygiene, health and the environment
- Section 4. Safety and accessibility in use
- Section 5. Protection against noise
- Section 6. Energy economy and heat retention
- Section 7. Sustainable use of natural resources
- Section 8. Durability

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 Seventh issue: 14 March 2024

Originally certified on 30 March 2005

Hardy Giesler
Chief Executive Officer

This BBA Agrément Certificate is issued under the BBA's Inspection Body accreditation to ISO/IEC 17020. Sections marked with † are not issued under accreditation.

The BBA is a UKAS accredited Inspection Body (No. 4345), Certification Body (No. 0113) and Testing Laboratory (No. 0357).

Readers MUST check that this is the latest issue of this Agrément Certificate by either referring to the BBA website or contacting the BBA directly.

The Certificate should be read in full as it may be misleading to read clauses in isolation.

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

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SUMMARY OF ASSESSMENT AND COMPLIANCE

This section provides a summary of the assessment conclusions; readers should refer to the later sections of this Certificate for information about the assessments carried out.

Compliance with Regulations

In the opinion of the BBA, the use of Krystol Internal Membrane (KIM), is not subject to the national Building Regulations.

Additional Information

NHBC Standards 2024

In the opinion of the BBA, Krystol Internal Membrane (KIM), 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 5.4 *Waterproofing of basements and other below ground structures*.

Unless it can be demonstrated that the water table is permanently below the underside of the slab, the product should be used in combination with either a Type A or C waterproofing protection where Grade 3 protection is required, and the below ground wall retains more than 600 mm (measured from the top of the retained ground to the lowest finished floor level).

Fulfilment of Requirements

The BBA has judged Krystol Internal Membrane (KIM), to be satisfactory for use as described in this Certificate. The product has been assessed as a reactive crystalline admixture for use in concrete mixes to provide watertight concrete suitable for basements, roofs, swimming pools, tunnels, and culverts, without the requirement for additional applied protection.

ASSESSMENT

Product description and intended use

The Certificate holder provided the following description for the product under assessment. The product is supplied as a powder consisting of:

- blended Portland cement
- proprietary chemicals.

Applications

Krystol Internal Membrane (KIM) is satisfactory for use in concrete mixes at an addition rate of $7 \text{ kg}\cdot\text{m}^{-3}$ to enhance watertightness and durability in its hardened state and set-retarding properties.

Product assessment – key factors

The product was assessed for the following key factors, and the outcome of the assessment is shown below.

1 Mechanical resistance and stability

Data were assessed for the following characteristic.

1.1 Mechanical properties

1.1.1 Results of mechanical properties tests are given in Table 1.

Table 1 Results of mechanical properties tests

Product assessed	Assessment method	Requirement	Result	
Krystol Internal Membrane (KIM) concrete ⁽¹⁾	Compressive strength to BS EN 12390-3 : 2002 28 days	Control	Value achieved 54.3 MPa	
		Product	Value achieved 59.0 MPa	
		Flexural strength to BS EN 12390-5 : 2000 28 days	Control	Value achieved 5.5 MPa
			Product	Value achieved 5.9 MPa
			Static modulus to BS 1881-122 : 1983 28 days	Control
		Product		Value achieved 40500 MPa

(1) Concrete mixes at an addition rate 7 kg·m⁻³.

1.1.2 The specific effect of the product for a specific mix and site conditions must be evaluated through site-specific trials prior to use.

1.1.3 On the basis of data assessed, the compressive strength of concrete containing the product is higher than that of an equivalent plain concrete with the same slump.

1.1.4 On the basis of data assessed, the flexural strength of concrete containing the product is higher than that of an equivalent plain concrete with the same slump.

1.1.5 The static modulus of elasticity of concrete containing the product is higher than the equivalent plain concrete.

1.1.6 Results of setting characteristics and hardening tests of concrete designed to BS EN 480-1 : 1998 are given in Table 2 of this Certificate.

Table 2 Results of setting characteristics and hardening tests

Product assessed	Assessment method	Requirement	Result	
Krystol Internal Membrane (KIM) concrete ⁽¹⁾⁽²⁾	Slump to BS EN 12350-2 : 2000			
	Control	Value achieved	S2	
	Product	Value achieved	S2	
	Effect of setting of concrete to BS 5075-1 : 1982			
	Setting time			
	Initial set			
	Control	Value achieved	150 minutes	
	Product	Value achieved	200 minutes	
	Final set			
	Control	Value achieved	250 minutes	
	Product	Value achieved	700 minutes	
	Plastic density to BS EN 12350-6 : 2000			
	Control	Value achieved	2410kg·m ⁻³	
	Product	Value achieved	2420 kg·m ⁻³	
Air content in fresh content to BS EN 12350-7 : 2000		≤ 2.0% above control concrete	Pass	
Drying shrinkage to BS 1881-5 : 1970				
Control	Value achieved	0.040%		
Product	Value achieved	0.030%		
Wetting expansion to BS 1881-5 : 1970				
Control	Value achieved	0.030%		
Product	Value achieved	0.020%		

(1) Concrete mixes at an addition rate of 7 kg·m⁻³.

(2) Control water cement ratio 0.49, product water cement ratio 0.47.

1.1.7 The specific effect of the product on these properties, for a particular mix and site conditions, must be evaluated through site-specific trials prior to use.

1.1.8 On the basis of data assessed, the setting time of concrete containing the product will be retarded when compared with an equivalent plain concrete. The amount of retardation will depend on the concrete mix design used and the ambient temperature during placing and curing.

1.1.9 On the basis of data assessed, the drying shrinkage and wetting expansion of concrete containing the product is reduced compared with that of the equivalent plain concrete.

2 Safety in case of fire

Not applicable.

3 Hygiene, health and the environment

Data were assessed for the following characteristics.

3.1 Water penetration and water vapour permeability

3.1.1 Results of water penetration and water vapour permeability tests are given in Table 3.

Table 3 Results of water penetration and water vapour permeability tests

Product assessed	Assessment method	Requirement	Result
Krystol Internal Membrane (KIM) concrete ⁽¹⁾	Water vapour resistivity to BS 3177 : 1959		
	Control	Value achieved	1781 MN·s·g ⁻¹ ·m ⁻¹
	Product	Value achieved	2160 MN·s·g ⁻¹ ·m ⁻¹
	Water permeability to Valenta calculation method		
	Control	Value achieved	4.29 x 10 ⁻¹⁴ m·s ⁻¹
	Product	Value achieved	1.28 x 10 ⁻¹⁴ m·s ⁻¹

(1) Concrete mixes at an addition rate of 7 kg·m⁻³.

3.1.2 The specific effect of the product on these properties, for a particular mix and site conditions, must be evaluated through site-specific trials prior to use.

3.1.3 On the basis of data assessed, concrete containing the product has greater resistance to water penetration and a higher resistance to water vapour diffusion, than the equivalent plain concrete.

3.1.4 The appropriate thickness for concrete with a specific resistivity to achieve a water vapour resistance of 250 or 500 MN·s·g⁻¹ is given by:

$$\begin{aligned} \text{For } 250 \text{ MN}\cdot\text{s}\cdot\text{g}^{-1} & \quad t = 250 \text{ MN}\cdot\text{s}\cdot\text{g}^{-1} / (\text{vapour resistivity}) , \text{ or } t = 250 \text{ MN}\cdot\text{s}\cdot\text{g}^{-1} / 5 \times \mu \\ \text{For } 500 \text{ MN}\cdot\text{s}\cdot\text{g}^{-1} & \quad t = 500 \text{ MN}\cdot\text{s}\cdot\text{g}^{-1} / (\text{vapour resistivity}) , \text{ or } t = 500 \text{ MN}\cdot\text{s}\cdot\text{g}^{-1} / 5 \times \mu \end{aligned}$$

where:

t = concrete thickness (m)

μ = water vapour resistance factor.

3.1.5 Concrete containing the product has greater resistance to carbon dioxide diffusion than the equivalent plain concrete.

4 Safety and accessibility in use

Data were assessed for the following characteristics.

4.1 Reinforcement protection

4.1.1 Result of reinforcement protection tests are given in Table 4.

Table 4 Results of reinforcement protection tests

Product assessed	Assessment method	Requirement	Result
Krystol Internal Membrane (KIM) concrete ⁽¹⁾	Water soluble chloride content to BS EN 480-10 : 1997	≤ 0.1% by mass	Pass
	Bond to steel to a BBA Internal Method T1/19	Comparable adhesion to control	Pass

(1) Concrete mixes at an addition rate of 7 kg·m⁻³.

4.1.2 The specific effect of the product on these properties, for a particular mix and site conditions, must be evaluated through site-specific trials prior to use.

4.1.3 On the basis of data assessed, the high level of alkalinity required to prevent corrosion of the reinforcement (pH > 13) will not be adversely affected by the incorporation of the product in the concrete.

4.1.4 When the product is used in concrete mixes, it enhances durability and improves protection against reinforcement corrosion by providing a concrete with reduced permeability that protects it against water ingress via hydrostatic pressure.

4.1.5 Corrosion of the reinforcement is normally caused by the ingress of chloride to the steel or by the reduction in alkalinity of the concrete by the diffusion of carbon dioxide. The reduced permeability of concrete containing the product will slow down diffusion of aggressive agents into the concrete and so provide improved protection against reinforcement corrosion.

5 Protection against noise

Not applicable.

6 Energy economy and heat retention

Not applicable.

7 Sustainable use of natural resources

Not applicable.

8 Durability

8.1 The potential mechanisms for degradation and the known performance characteristics of the materials in the product were assessed.

8.2 Specific test data were assessed for the following as given in Table 5.

<i>Table 5 Results of durability tests</i>			
Product assessed	Assessment method	Requirement	Result
Krystol Internal Membrane (KIM) concrete ⁽¹⁾	Alkali content (Na ₂ O equivalent) to BS EN 480-12 : 1998	Value achieved	7.15%
	Resistance to freeze/thaw expansion to BS 5075-2 : 1982	Value achieved	
	Control		0.742
	Product		0.099

(1) Concrete mixes at an addition rate of 7 kg·m⁻³.

8.2.1 The specific effect of the product on these properties, for a particular mix and site conditions, must be evaluated through site-specific trials prior to use.

8.2.2 The Certificate holder's declared value of ≤ 10% for the sodium oxide equivalent of the product must be used when calculating its contribution to the total alkali content of a given concrete mix. If resistance to alkali-silica reaction is required, the advice of the Certificate holder must be sought, but such advice is outside the scope of this Certificate.

8.2.3 On the basis of data assessed, the lower permeability of concrete containing the product will reduce the ingress of sulfates. However, if sulfate-resistant concrete is required, the advice of the Certificate holder must be sought, but such advice is outside the scope of this Certificate.

8.2.4 Use of the product will reduce the leaching of lime from the hydrated cement in concrete.

8.3 Service life

8.3.1 Under normal service conditions, concrete containing the product is more durable than an equivalent plain concrete, provided it is designed, installed and maintained in accordance with this Certificate and the Certificate holder's instructions.

8.3.2 Where exposure to aggressive soil conditions or chemicals is anticipated, a full assessment of the site must be made. In these situations, the Certificate holder must be consulted on the suitability of the product, but such advice is outside the scope of this Certificate.

Information provided by the Certificate holder was assessed for the following factors:

9 Design, installation, workmanship and maintenance

9.1 Design

9.1.1 The design process was assessed by the BBA and the following requirements apply in order to satisfy the performance assessed in this Certificate.

9.1.2 Concrete containing the product must be designed in accordance with BS EN 206 : 2013, BS 8500-1 : 2015 and BS 8500-2 : 2015, for use as all normal types, including precast, pre-stressed, post-tensioned, ready-mixed, reinforced, slip-formed, sprayed and pumped concretes. For additional information on required thickness of concrete, the advice of the Certificate holder should be sought, but such advice is outside the scope of this Certificate.

9.1.3 The concrete mixes must have a minimum cement content of $325 \text{ kg}\cdot\text{m}^{-3}$ and be batched with a maximum water/cement ratio of 0.5. Further details of suitable mixes can be obtained from the Certificate holder, but such advice is outside the scope of this Certificate.

9.1.4 The product is compatible with cement blends containing limestone, pulverised-fuel ash, ground granulated blast furnace slag and silica fume blends, as defined in BS EN 197-1 : 2011.

9.1.5 Structures built incorporating the product must be designed to the relevant clauses of BS 8102 : 2022, and BS EN 1992-1-1 : 2004, BS EN 1992-1-2 : 2004 and BS EN 1992-3 : 2006, and their UK National Annexes.

9.1.6 Concrete mixes containing the product are suitable for Type B constructions as defined in BS 8102 : 2022, and can satisfy the requirements for all grades defined in Table 2 of that Standard. For Grade 3 (where control of water vapour is required), it will be necessary to provide a mix with a sufficiently low vapour permeability in combination with an adequate section thickness (see section 3.1). The use of suitable ventilation, dehumidification or air conditioning, appropriate to the intended use, must also be considered.

9.1.7 Basements for dwellings must be designed in accordance with the guidance given in the *Guidance Document — Basements for dwellings*⁽¹⁾.

(1) Published by Basement Information Centre, Product code: TBIC/007.

9.1.8 The use of the product with an air-entraining agent is outside the scope of this Certificate.

9.1.9 When a superplasticiser is required, it must be added after the addition of the product.

9.2 Installation

9.2.1 Installation instructions provided by the Certificate holder were assessed and judged to be appropriate and adequate.

9.2.2 Installation must be carried out in accordance with this Certificate and the Certificate holder's instructions. A summary of instructions and guidance are provided in Annex A of this Certificate.

9.2.3 Concrete containing the product is normally supplied as ready-mixed concrete but may be prepared on sites where there is adequate mix control⁽¹⁾. Preparation of concrete on site must be carried out in accordance with BS 8000-0 : 2014, the Certificate holder's instructions and this Certificate. The prescribed addition range for the product is 3-8 kg/m^3 depending on the application. The Certificate holder's advice must be sought regarding the dosage rate for particular applications, but such advice is outside of the scope of this Certificate.

(1) NHBC will only accept use of the admixture where included at the concrete batching plant which must also be either QSRMC or BSI Kitemark registered.

9.2.4 The workability of concrete can be adjusted using a suitable water reducing or superplasticising admixture complying with BS EN 934-2 : 2009, Tables 3.1 and 3.2, to ensure that the maximum water/cement ratio given in section 9.1.3 of this Certificate is not exceeded. The Certificate holder's advice must be sought regarding the suitability and compatibility of water-reducing or superplasticising admixtures, but such advice and materials are outside the scope of this Certificate. Admixtures must be evaluated before use and site trials must be carried out to establish the appropriate dose required.

9.2.5 Once mixed, further materials must not be added to the fresh concrete.

9.2.6 Concrete containing the product must be placed in the same way as normal concrete, in accordance with BS 8000-0 : 2014, BS EN 13670 : 2009, the Certificate holder's Health and Safety guidance and the normal routine precautions for handling concrete.

9.2.7 Concrete containing the product must not be placed at temperatures of 5°C or below.

9.2.8 Concrete containing the product mix must be fully compacted.

9.2.9 The concrete must be cured strictly in accordance with BS EN 13670 : 2009, and BS EN 1992-1-1 : 2004 and its UK National Annex, and the Certificate holder's recommendations (where site specific information exists).

9.2.10 Joints must be designed with waterstops as recommended in BS 8102 : 2022, to maintain the watertightness of the whole structure. The advice of the Certificate holder must be sought on particular applications, but such advice is outside the scope of this Certificate.

9.2.11 Penetrations of the concrete, such as pipe entries or formwork ties, must be securely sealed to maintain watertightness. The Certificate holder can advise on suitable systems, but such advice is outside the scope of this Certificate.

9.3 Workmanship

Practicability of installation was assessed by the BBA and on the basis of the Certificate holder's information. To achieve the performance described in this Certificate, concrete mixes containing the product must be placed, compacted and cured by operatives with experience of using conventional concreting methods and equipment.

9.4 Maintenance and repair

9.4.1 Ongoing satisfactory performance of the product in use requires that it is suitably maintained. The guidance provided by the Certificate holder was assessed by the BBA and found to be appropriate and adequate.

9.4.2 For a specific installations, the maintenance regime must be considered to ensure that the required design life of the concrete is achieved.

10 **Manufacture**

10.1 The production processes for the product have been assessed, and provide assurance that the quality controls are satisfactory according to the following factors:

10.1.1 The manufacturer has provided documented information on the materials, processes, testing and control factors.

10.1.2 The quality control operated over batches of incoming materials has been assessed and deemed appropriate and adequate.

10.1.3 The quality control procedures and product testing to be undertaken have been assessed and deemed appropriate and adequate.

10.1.4 The process for management of non-conformities has been assessed and deemed appropriate and adequate.

10.1.5 An audit of each production location was undertaken, and it was confirmed that the production process was in accordance with the documented process, and that equipment has been properly tested and calibrated.

† 10.2 The BBA has undertaken to review 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.

11 Delivery and site handling

11.1 The Certificate holder stated that the product is delivered to site in shrink-wrapped pallets in the packaging and weights (see Table 6). Each container bears the Certificate holder's and product name, batch number, Health and Safety information and the BBA logo incorporating the number of this Certificate.

Table 6 Packaging and weights

Packaging type	Weight (kg)	No per pallet	Pallet weight (kg)
Pails	5	96	480
	20	36	900
Bag	5-10	96-192	960

11.2 Delivery and site handling must be performed in accordance with the Certificate holder's instructions and this Certificate, including:

11.2.1 The product must be stored in sealed containers in a dry environment and protected from rain or other sources of moisture.

11.2.2 When handling, the normal Health and Safety procedures associated with cementitious materials must be observed.

Supporting information in this Annex is relevant to the product but has not formed part of the material assessed for the 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.

CLP Regulations

The Certificate holder has taken the responsibility of classifying and labelling the product under the *GB CLP Regulation* and *CLP Regulation (EC) No 1272/2008 - classification, labelling and packaging of substances and mixtures*. Users must refer to the relevant Safety Data Sheet(s).

CE marking

The Certificate holder has taken the responsibility of CE marking the product in accordance with harmonised European Standard EN 934-2 : 2009 (Table 8).

Additional information on installation

A.1 The product is added to the concrete mix at the correct doses (see application section and 9.2.3) in accordance with the Certificate holder's instructions.

A.2 When water-based products are used to coat the hardened concrete, a bonding agent may be required. For specific cases, advice must be sought from the Certificate holder, but such advice and materials are outside the scope of this Certificate.

A.3 The resulting concrete is mixed in accordance with Certificate holder's instructions to ensure even distribution of the product throughout the concrete.

Bibliography

- BS 1881-5 : 1970 *Testing concrete — Methods of testing hardened concrete for other than strength*
BS 1881-122 : 1983 *Testing concrete — Method for determination of water absorption*
- BS 3177 : 1959 *Method for determining the permeability to water vapour of flexible sheet materials used for packaging*
- BS 5075-1 : 1982 *Concrete admixtures. Specification for accelerating admixtures, retarding admixtures and water reducing admixtures*
BS 5075-2 : 1982 *Concrete admixtures — Specification for air-entraining admixtures*
- BS 8000-0 : 2014 *Workmanship on construction sites — Introduction and general principles*
- BS 8102 : 2022 *Protection of below ground structures against water ingress — Code of practice*
- BS 8500-1 : 2015 + A2 : 2019 *Concrete — Complementary British Standard to BS EN 206 — Method of specifying and guidance for the specifier*
BS 8500-2 : 2015 + A2 : 2019 *Concrete — Complementary British Standard to BS EN 206 — Specification for constituent materials and concrete*
- BS EN 197-1 : 2011 *Cement — Composition, specifications and conformity criteria for common cements*
- BS EN 206 : 2013 + A1 : 2021 *Concrete — Specification, performance, production and conformity*
- BS EN 480-1 : 1998 *Admixtures for concrete, mortar and grout. Test methods. Reference concrete and reference mortar for testing*
BS EN 480-10 : 1997 *Admixtures for concrete, mortar and grout – Test methods – Determination of water soluble chloride content*
BS EN 480-12 : 1998 *Admixtures for concrete, mortar and grout – Test methods – Determination of the alkali content of admixtures*
- BS EN 934-2 : 2009 + A1 : 2012 *Admixtures for concrete, mortar and grout — Concrete admixtures — Definitions, requirements, conformity, marking and labelling*
- BS EN 1992-1-1 : 2004 + A1 : 2014 *Eurocode 2 : Design of concrete structures — General rules and rules for buildings*
NA + A2 : 14 to BS EN 1992-1-1 : 2004 + A1 : 2014 *UK National Annex to Eurocode 2 : Design of concrete structures — General rules and rules for buildings*
BS EN 1992-1-2 : 2004 + A1 : 2019 *Eurocode 2 : Design of concrete structures — General rules — Structural fire design*
NA to BS EN 1992-1-2 : 2004 *UK National Annex to Eurocode 2: Design of concrete structures — Structural fire design*
BS EN 1992-3 : 2006 *Eurocode 2 : Design of concrete structures — Liquid retaining and containing structures*
NA to BS EN 1992-3 : 2006 *UK National Annex to Eurocode 2: Design of concrete structures — Liquid retaining and containing structures*
- BS EN 12350-2 : 2000 *Testing fresh concrete — Slump test*
BS EN 12350-6 : 2000 *Testing fresh concrete — Density*
BS EN 12350-7 : 2000 *Testing fresh concrete — Air content — Pressure methods*
- BS EN 12390-3 : 2002 *Testing hardened concrete — Compressive strength of test specimens*
BS EN 12390-5 : 2000 *Testing hardened concrete — Flexural strength of test specimens*
- BS EN 13670 : 2009 *Execution of concrete structures*

Conditions of Certificate

Conditions

1 This Certificate:

- relates only to the product 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.

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.

3 This Certificate will be displayed on the BBA website, and the Certificate Holder is entitled to use the Certificate and Certificate logo, provided that the product 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.

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

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

6 Any information relating to the manufacture, supply, installation, use, maintenance and removal of this product which is contained or referred to in this Certificate is the minimum required to be met when the product 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.

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