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Agrément Certificate

18/5509

Product Sheet 1

DELTA MEMBRANE SYSTEMS

KÖSTER DEUXAN 2C

This Agrément Certificate Product Sheet⁽¹⁾ relates to KÖSTER Deuxan 2C, for use in waterproofing new or existing horizontal and vertical surfaces in above ground and basement constructions to form a damp-proof and waterproof membrane on solid floors and tanking below ground.

(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

Resistance to water and water vapour — the system provides an effective barrier to the passage of water under hydrostatic pressure and water vapour from the ground (see section 6).

Resistance to mechanical damage — the system will accept the limited foot traffic and loads associated with installation (see section 7).

Durability — under normal service conditions and when suitably protected, the system will provide an effective barrier to the transmission of liquid water and water vapour for the design service life of the structure in which it is incorporated (see section 9).



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

Date of First issue: 4 April 2018

John Albon – Head of Approvals
Construction Products

Claire Curtis-Thomas
Chief Executive

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, KÖSTER Deuxan 2C, 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:	C2(a)	Resistance to moisture
Comment:		The system will enable a structure to satisfy this Requirement. See section 6.1 of this Certificate
Regulation:	7	Materials and workmanship
Comment:		The system is acceptable. See section 9 and the <i>Installation</i> part of this Certificate.



The Building (Scotland) Regulations 2004 (as amended)

Regulation:	8(1)	Durability, workmanship and fitness of materials
Comment:		The system can contribute to a construction satisfying this Regulation. See section 9 and the <i>Installation</i> part of this Certificate.
Regulation:	9	Building standards applicable to construction
Standard:	3.4	Moisture from the ground
Comment:		The system will enable a structure to satisfy the requirements of this Standard, with reference to clause 3.4.7 ⁽¹⁾⁽²⁾ . See section 6.1 of this Certificate.
Standard:	7.1(a)(b)	Statement of sustainability
Comment:		The system 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 made in relation the system 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 system is acceptable. See section 9 and the <i>Installation</i> part of this Certificate.
Regulation:	28(a)(b)	Resistance to ground moisture and weather
Comment:		The system will adequately resist the passage of moisture. See section 6.1 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 section: 3 *Delivery and site handling* (3.1 and 3.2) of this Certificate.

Additional Information

NHBC Standards 2018

In the opinion of the BBA, KÖSTER Deuxan 2C, 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*.

Where Grade 3 waterproofing 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) the system should be used in combination with either a Type B or C waterproofing protection.

In the opinion of the BBA, the system is suitable for use on existing structures when installed and used in accordance with this Certificate and *NHBC Standards for Conversions and Renovations*, taking account of other relevant guidance within this document on the suitability of the substrate to receive the system, and where necessary, the relevant Chapters of NHBC Standards.

CE marking

The Certificate holder has taken the responsibility of CE marking the system, in accordance with harmonised European Standard BS EN 15814 : 2011. 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 KÖSTER Deuxan 2C is a liquid applied, two component, fibrated, polymer modified bitumen thick film sealant for waterproofing solid floors and tanking below ground concrete structures.

1.2 Components of the system include:

- KÖSTER Deuxan 2C — a two-component, cold-applied, polymer modified bitumen waterproofing coating
- KÖSTER Glass Fibre Mesh — a nominal 75 g·m⁻² glass fibre mesh used as a reinforcement at areas where there is a high risk of cracking in the substrate, eg at changes of direction, over existing cracks and at corners
- KÖSTER Polysil TG 500 — a penetrating primer
- KÖSTER Joint Tape — for sealing expansion joints prior to the application of KÖSTER Deuxan 2C coating.

1.3 Ancillary products available for use with the system, but outside the scope of this Certificate, are:

- KÖSTER Repair Mortar Plus — used for the installation of fillets in the wall/floor junction prior to the application of KÖSTER Deuxan 2C
- proprietary drainage and protection boards
- cleaning solvents.

1.4 Application rates and nominal weights of the system components are subject to individual site surveys, and are dependent upon the porosity and surface finish of the substrate. See sections 10.6 and 10.7.

2 Manufacture

2.1 The system components are manufactured by batch-blending processes, and a series of quality control checks are conducted on each batch and on the mixed components.

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 systems of the manufacturer have been assessed and registered as meeting the requirements of BS EN ISO 9001 : 2008 by DNV (Certificate 187433-2015-AQ-NLD-RvA).

2.4 The system is manufactured in Germany and is marketed/distributed in the UK by Delta Membrane Systems Ltd, Delta House, Merlin Way, North Weald, Epping, Essex, CM16 6HR.

3 Delivery and site handling

3.1 The system components are available as shown in Table 1.

<i>Table 1 Packaging</i>		
Component	Unit	Weight
KÖSTER Deuxan 2C	Plastic container (which includes the powder component)	32 kg
KÖSTER Glass Fibre Mesh	1 x 100 m or	7.5 kg
	0.35 x 100 m roll	2.5 kg
KÖSTER Polysil TG 500	Plastic container	5 or 10 kg
KÖSTER Joint Tape	0.3 x 20 m roll or	6.4 kg
	0.2 x 20 m	4.2 kg

3.2 The manufacturer has taken the responsibility of classifying and labelling the system components 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).

3.3 The component containers must be kept tightly sealed and stored under cool but frost free conditions. KÖSTER Deuxan 2C can be stored for approximately six months. KÖSTER Polysil TG 500 can be stored for approximately 12 months.

3.4 KÖSTER Joint Tape must be stored between 5 and 30°C, and can be stored for approximately 12 months.

Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on KÖSTER Deuxan 2C.

Design Considerations

4 Use

4.1 KÖSTER Deuxan 2C is satisfactory for use as a fully bonded, Type A waterproofing protection as defined in BS 8102 : 2009, for waterproofing of new and existing structures.

4.2 The system can be used internally and externally on concrete, brickwork, blockwork or masonry, or as a damp-proof and waterproof membrane for solid floors and tanking below ground to provide an effective barrier to the transmission of liquid water where Grades 1 to 3 waterproofing protection is required, as defined in Table 2 of BS 8102 : 2009.

4.3 Where Grade 3 waterproofing protection is required, the environment must also be controlled by use of ventilation, dehumidification and/or air conditioning, as appropriate, to ensure that dampness does not occur. See also the *Additional Information* section of this Certificate relating to the *NHBC Standards*.

5 Practicability of installation

The system should only be installed by installers trained and approved by the Certificate holder.

6 Resistance to water and water vapour



6.1 The system, will adequately resist the passage of water under hydrostatic pressure and moisture into a structure to comply with the requirements of the national Building Regulations.

6.2 The system is impervious to water and will act as a waterproof layer.

6.3 The system is unable to accommodate cyclic movement and can only be used where such movement is not anticipated, or in conjunction with waterproof movement joints. The system can accommodate minor cracking of the substrate. The Certificate holder's advice on suitable materials should be sought.

7 Resistance to mechanical damage

7.1 The system can accept the foot traffic and light concentrated loads associated with the installation. Reasonable care should be taken to avoid puncture by sharp objects or concentrated loads.

7.2 The system can be detailed to accommodate the movement of designed construction joints and crack-inducing joints. The Certificate holder should be consulted for suitable designs.

8 Maintenance

As the system is either protected by a wall, backfill, pavements or screed and has suitable durability (see section 9), maintenance is not required. However, any damage occurring during installation must be repaired prior to backfilling (see section 13).

9 Durability



Under normal service conditions and when fully protected, the system will provide an effective barrier to the transmission of liquid water and water vapour for the design life of the structure in which it is incorporated.

Installation

10 General

10.1 Installation of KÖSTER Deuxan 2C should be carried out only by the Certificate holder's approved installers, in accordance with this Certificate and the Certificate holder's instructions.

10.2 To assess the suitability of a particular substrate to receive the system, bond tests must be carried out. If bonding problems occur, advice should be sought from the Certificate holder.

10.3 The system must only be applied to substrates that are free from ice and frost.

10.4 The system can be applied between 5 and 35°C, and should not be installed during inclement weather (eg rain, fog or snow).

10.5 For waterproofing against ground moisture and non-retained seepage as well as non-pressurised water, the minimum dry layer thickness must be 3 mm (wet layer thickness 4.0 mm or 4.0 kg·m⁻²).

10.6 For waterproofing against retained seepage, the minimum dry layer thickness must be 4 mm (wet layer thickness 6 mm or 6 kg·m⁻²).

10.7 KÖSTER Glass Fibre Mesh should be embedded at corners, fillets and areas strongly at risk of cracking.

10.8 Checks carried out on site include:

- before installation — a technically qualified representative from the licensee/sub-contractor will visit the site to determine the correct pre-treatment and specification to the project
- during installation — continuous monitoring of environmental conditions and uniformity of coverage of the various layers composing the system
- after installation — a visual inspection is carried out to ensure the system complies with the specification. Checks are made on film thickness, consistency of finish and to identify any faults which must be rectified.

11 Preparation

11.1 Concrete structures should be designated and built in accordance with BS EN 1992-1-1 : 2004 and its UK National Annex.

11.2 New concrete should be well compacted and finished, preferably by power floating and power trowelling to a dense, smooth finish, free from defects. The substrate should be prepared by captive blasting, hydro-blasting or other methods approved by the Certificate holder. Concrete toppings and screeds should be properly formulated, applied and compacted. They should be bonded to the substrate and have a floated finish with minimum laitance.

11.3 A minimum curing period of 28 days is normally required before new concrete surfaces are primed. The Certificate holder must be consulted for advice if priming is to be carried out before this period.

11.4 Surfaces must be dry and free from laitance and other contaminants likely to affect the adhesion of the system. Any existing coatings must be removed. All loose material should be removed by vacuum cleaning or sweeping the surface.

11.5 Cracks and other defects in the substrate should be repaired using an approved repair material. The advice of the Certificate holder should be sought for suitable products.

12 Application

KÖSTER Polysil TG 500

12.1 Substrates must be primed with KÖSTER Polysil TG 500.

12.2 KÖSTER Polysil TG 500 should not be applied when the surface temperature is less than 0°C.

12.3 KÖSTER Polysil TG 500 can be applied by brush, roller or spray, typically at an application rate of 100 to 130 g·m⁻².

12.4 KÖSTER Polysil TG 500 can be applied on surfaces of high and low porosity, on dry and moist substrates.

12.5 Application of the next layer must be carried out once the system has cured and can be opened to light foot traffic associated with application (typically after 30 minutes on cementitious building materials).

12.6 Once the primer is dry, salts which came through the surface of the substrate during the curing process must be removed by brushing.

KÖSTER Deuxan 2C

12.7 Expansion joints are sealed by applying KÖSTER Joint Tape.

12.8 KÖSTER Deuxan 2C is applied in two layers. The powder is added to the liquid component in portions and continually mixed intensively using a slow rotating stirring device until the material becomes a paste-like, lump-free, homogeneous mass. Mixing time is a minimum of three minutes.

12.9 The layers should be applied shortly after each other using a plastering trowel or steel float. The waterproofing layer must be consistent, free from flaws, and of the required thickness.

12.10 The waterproofing layer of the wall area must extend at least 100 mm onto the front of the floor slab or foundation.

12.11 The system should not be exposed to frost, rain, water or direct sunlight until it has fully cured (approximately 24 hours at 20°C).

13 Repair

13.1 Any damage to the system must be repaired as soon as possible to ensure that the waterproofing integrity is maintained.

13.2 Damaged areas are repaired by removing loose material and blast cleaning the affected area and surrounding installation to give an overlap by 100 mm. The system is then installed to the original specification.

13.3 Where substantial damage has occurred, the Certificate holder should be consulted for a suitable repair specification.

13.4 Repaired areas must be allowed to cure for 24 hours at 20°C before opening to foot traffic.

Technical Investigations

14 Tests

14.1 Tests were conducted on samples of KÖSTER Deuxan 2C and the results assessed to determine:

- water vapour permeability
- water absorption
- resistance to dynamic impact
- resistance to static loading before and after water exposure
- tensile bond strength before and after water exposure
- resistance to fatigue.

14.2 Additional tests were carried out on the system and its component parts, and the results assessed to determine:

- infrared characterisation
- thermogravimetric analysis
- density
- pot life at minimum and maximum application temperatures
- mass per unit area
- tensile strength and elongation.

15 Investigations

15.1 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.

15.2 An assessment was made of existing data for KÖSTER Deuxan 2C from independent laboratories relating to:

- watertightness
- crack bridging ability
- flexibility at low temperature
- water resistance
- resistance to rain
- dimensional stability at high temperatures
- reduction of layer thickness when fully dried
- resistance to compression

- reaction to fire.

Bibliography

BS EN 1992-1-1 : 2004 + A1 : 2014 *Eurocode 2 — Design of concrete structures — General rules and rules for buildings*
NA 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 8102 : 2009 *Code of practice for protection of below ground structures against water from the ground*

BS EN 15814 : 2011 + A2 : 2014 *Polymer modified bituminous thick coatings for waterproofing — Definitions and requirements*

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

16 Conditions

16.1 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 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.

16.2 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.

16.3 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.

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

16.5 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.

16.6 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.