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Agrément Certificate

13/4994

Product Sheet 1 Issue 4

SIKA HYDROPHILIC WATERSTOPS

SIKASWELL A2010 AND SIKASWELL A2005

This Agrément Certificate Product Sheet⁽¹⁾ relates to SikaSwell⁽²⁾ A2010 and SikaSwell A2005, flexible, hydrophilic waterstops, for use at construction joints and penetrations in underground reinforced and waterproof concrete structures.

(1) Hereinafter referred to as 'Certificate'.

(2) SikaSwell is a registered trademark.

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 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 Fourth issue: 17 May 2023

Originally certificated on 2 May 2013

Certificate amended on 1 June 2023 to change 'Hydrophobic' to 'hydrophilic'

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

Having assessed the key factors, the opinion of the BBA is that SikaSwell A2010 and SikaSwell A2005, 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 Building Regulations 2010 (England and Wales) (as amended)

Requirement:	C2(a)	Resistance to moisture
Comment:		The products provide an effective barrier to water under hydrostatic pressure. See section 3 of this Certificate.
Regulation:	7(1)	Materials and workmanship
Comment:		The products are acceptable. See sections 8 and 9 of this Certificate.



The Building (Scotland) Regulations 2004 (as amended)

Regulation:	8(1)	Fitness and durability of materials and workmanship
Comment:		The products are acceptable. See sections 8 and 9 of this Certificate.
Regulation:	9	Building standards applicable to construction
Standard:	3.4	Moisture from the ground
Comment:		The products are an effective barrier to water under hydrostatic pressure, with reference to clauses 3.4.1 ⁽¹⁾⁽²⁾ , 3.4.5 ⁽¹⁾⁽²⁾ and 3.4.7 ⁽¹⁾⁽²⁾ of this Standard. See section 3 of this Certificate.
Standard:	7.1(a)	Statement of sustainability
Comment:		The products can contribute to satisfying the relevant requirements of Regulation 9, Standards 1 to 6, and therefore will contribute to a construction meeting a bronze level of sustainability as defined in this Standard.
Regulation:	12	Building standards applicable to conversions
Comment:		All comments given for the 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(1)(a)(i)	Fitness of materials and workmanship
Comment:	(iii)(b)(i)	The products are acceptable. See sections 8 and 9 of this Certificate.
Regulation:	28(a)	Resistance to moisture and weather
Comment:		The products are an effective barrier to water under hydrostatic pressure. See section 3 of this Certificate.

Additional Information

NHBC Standards 2023

In the opinion of the BBA, SikaSwell A2010 and SikaSwell A2005, 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* (requiring proprietary waterproofing materials to comply with Technical Requirements R3).

Unless it can be demonstrated that the water table is permanently below the underside of the slab, the products must be used within a Type B⁽¹⁾ waterproofing protection product, in combination with either a Type A⁽¹⁾ or C⁽¹⁾ waterproofing protection where Grade 3⁽¹⁾ 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).

(1) As defined in BS 8102 : 2022.

Fulfilment of Requirements

The BBA has judged SikaSwell A2010 and SikaSwell A2005 to be satisfactory for use as described in this Certificate. The products have been assessed as flexible, hydrophilic waterstops, for use at construction joints and penetrations in underground reinforced and waterproof concrete structures.

ASSESSMENT

Product description and intended use

The Certificate holder provided the following description for the products under assessment:

SikaSwell A2010 and SikaSwell A2005 are flexible, hydrophilic waterstops for use at construction joints and penetrations in underground reinforced and waterproof concrete structures. The products comprise:

- SikaSwell A2010 — flexible, hydrophilic waterstop based on synthetic rubber
- SikaSwell A2005 — flexible, hydrophilic waterstop based on synthetic rubber.

The products have the nominal characteristics given in Table 1.

Table 1 Nominal characteristics of SikaSwell A2010 and SikaSwell A2005

Characteristic (unit)	SikaSwell A2010	SikaSwell A2005
Cross sectional dimensions (mm)	20 x 10	20 x 5
Colour	Red	Red

Ancillary Items

The following ancillary items are essential to use with the products and have been assessed with the products:

- SikaSwell S-2 — a one-component, hydrophilic, polyurethane adhesive/sealant used to secure SikaSwell A2010 and SikaSwell A2005 to the concrete substrate and around penetrations. It is supplied in one colour: red oxide.

The Certificate holder recommends the following ancillary items may be used with the product, but these materials have not been assessed by the BBA and are outside the scope of this Certificate:

- Suitable steel ties to additionally secure the waterstop, when fixing SikaSwell A2010 and SikaSwell A2005 around penetrations.

Applications

The products are satisfactory for use as a Type B (structurally integral) protection (as defined in BS 8102 : 2022) to waterproof construction joints and penetrations in underground waterproof reinforced concrete structures.

The products have not been assessed for use in movement joints.

Product assessment – key factors

The products were assessed for the following key factors, and the outcome of the assessments is shown below. Conclusions relating to the Building Regulations apply to the whole of the UK unless otherwise stated.

1 Mechanical resistance and stability

1.1 Adhesion

1.1.1 Results of adhesion tests are given in Table 2.

Table 2 Results of adhesion tests

Product assessed	Assessment method	Requirement	Result
SikaSwell A2010	Peel bond strength to MOAT 27 : 1983	Value achieved	
SikaSwell S-2	24 hours curing time		132 N·50mm ⁻¹
SikaSwell A2010	Peel bond strength to MOAT 27 : 1983	Value achieved	
SikaSwell S-2	24 hours curing time		142 N·50mm ⁻¹
	48 hours curing time		163 N·50mm ⁻¹
SikaSwell A2010	Tensile bond strength to BBA test specification	Value achieved	
SikaSwell S-2	24 hours curing time		0.35 MPa
	48 hours curing time		2.66 MPa
SikaSwell A2010	Tensile strength and elongation to BS EN ISO 527-3 : 1996	Value achieved	
	Tensile strength		0.177 N·mm ⁻²
	Elongation		126.9 %

1.1.2 On the basis of data assessed, the products have satisfactory strength and adhesion.

1.1.3 Substrates must be dry and free from contamination, which could affect the adhesion of the products.

2 Safety in case of fire

Not applicable.

3 Hygiene, health and the environment

Data was assessed for the following characteristics.

3.1 Weathertightness

3.1.1 Results of weathertightness tests are given in Table 3.

<i>Table 3 Results of water resistance and product swelling tests</i>			
Product assessed	Assessment method	Requirement	Result
SikaSwell A2010	Unrestrained swelling and recovery BBA test method	No detrimental effect	Pass
SikaSwell A2010	Confined swell pressure BBA test method	Value achieved	8.5 bar achieved after 28 days
SikaSwell A2010 SikaSwell S-2	Resistance to hydrostatic pressure Vattenfall R&D In-house test method Exposure to 2.5 bar of water pressure for 7 days	No water penetration	Pass
SikaSwell A2005 SikaSwell S-2	Resistance to hydrostatic pressure PG-FBB Part 1 Exposure to 5 bar of water pressure for 14 days Test cycle carried out three times	No water penetration	Pass

3.1.2 The unconfined products will expand in excess of 200% by volume in neutral pH water.

3.1.3 The expansion of the products in an alkaline solution of calcium hydroxide with a pH up to 12.0 and an acidic solution of sulphuric acid with a pH down to 5.0, will be similar to that in neutral water and will not affect the products' ability to form an effective seal.

3.1.4 The products will shrink on drying but will re-hydrate on wetting without detriment to their ability to swell.

3.1.5 On the basis of data assessed, the products form an effective barrier to water under pressure from the ground.

3.1.6 The ability of the products to expand and form an effective seal can be adversely affected by the groundwater chemistry, eg saline conditions, and the products have not been assessed for use under conditions other than those detailed in Table 3. The Certificate holder must be consulted for advice on specific applications, service conditions and groundwater chemistry, but such advice is outside the scope of this Certificate.

3.1.7 The products will develop significant pressure when confined within a concrete structure and must be covered by at least 75 mm of reinforced concrete from each edge to reduce the risk of damaging the concrete.

3.1.8 If covered with unreinforced concrete, the products must be covered by at least 150 mm from each edge to reduce the risk of damaging the concrete.

3.1.9 An appropriate safety factor must be applied to the maximum water pressures given in Table 3 and the use of additional waterproof protection must be considered, depending on the specific risks associated with any particular structure.

4 Safety and accessibility in use

Not applicable.

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 these products were assessed.

8.2 Service life

8.2.1 Under normal service conditions, the products will have a life equivalent to the structure in which they are incorporated, provided they are designed, installed and maintained in accordance with this Certificate and the Certificate holder's instructions.

8.2.2 The durability of the products may be affected if they are dislodged or damaged during or following installation; therefore, care must be taken to ensure that the products remain in position and are not dislodged when concrete is poured over them, or damaged during subsequent actions, eg vibration.

PROCESS ASSESSMENT

9 Design, installation, workmanship and maintenance

9.1 Design

9.1.1 The products swell on contact with water and must be fully confined within the concrete structure to form an effective seal.

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 is provided in Annex A of this Certificate.

9.2.3 Installation must be carried out in accordance with the relevant requirements of BS 8102 : 2022.

9.2.4 To avoid premature swelling, the products must be protected from contact with water until enclosed in the structure and must not be placed during rain or when rain is forecast.

9.2.5 The products are intended for use on a sound and well compacted concrete substrate. The substrate must be:

- clean and free from surface contamination
- dry
- at a temperature between +5 and +35°C
- free of dust, dirt and other debris (if present, must be removed using a stiff brush and/or suitable mechanical means)
- smooth. Freshly placed concrete can be smoothed with a wooden batten to form a shallow rebate along which the products can be placed.

9.3 Workmanship

9.3.1 Practicability of installation was assessed by the BBA, on the basis of Certificate holder's information and a site visit to witness an installation in progress. To achieve the performance described in this Certificate, installation of SikaSwell A2010 and SikaSwell A2005 must be carried out by contractors who have been trained and approved by the Certificate holder.

9.4 Maintenance and repair

9.4.1 As the products are confined within the structure and have suitable durability, maintenance is neither possible nor required.

10 **Manufacture**

10.1 The production processes for the products 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 products 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.

† 10.1.6 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 products are delivered to site in packaging bearing the Certificate holder's name and traceability information.

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

11.3 The products must be stored under cover, clear of the ground and protected from direct sunlight, moisture, frost and other sources of contamination, at a temperature between 5 and 25°C.

11.4 SikaSwell A2010 is supplied as 10 m rolls, each weighing approximately 3.5 kg. SikaSwell A2005 is supplied as 20 m rolls, each weighing approximately 3.5 kg. Single rolls are packed in vacuum foil; multiple single rolls are packed in cardboard boxes. Bulk quantities are supplied on pallets (maximum 120 boxes per pallet). Boxes of six rolls are also available on request.

11.5 SikaSwell S-2 is supplied in boxes of 20 sachets of 600 ml, each box weighing approximately 18.8 kg. Bulk quantities are supplied on pallets (maximum 48 boxes per pallet).

ANNEX A – SUPPLEMENTARY INFORMATION †

Supporting information in this Annex is relevant to the products 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 products under the *GB CLP Regulation* and the *CLP Regulation (EC) No 1272/2008 - classification, labelling and packaging of substances and mixtures*. Users must refer to the relevant Safety Data Sheet(s).

Management Systems Certification for production

The management systems of the manufacturer have been assessed and registered as meeting the requirements of BS EN ISO 9001 : 2015 by SGS (Certificate CH18/1439).

Additional information on installation

Installation must be in accordance with the Certificate holder's instructions and this Certificate.

Placing

A.1 SikaSwell S-2 is extruded as a narrow bead of approximately 10 mm triangular section and in sufficient quantity to level minor roughness in the substrate. It should be placed centrally between the inner and outer rows of reinforcing bars and to ensure a minimum of 75 mm concrete coverage of SikaSwell A2010 and SikaSwell A2005 strips at all edges.

A.2 SikaSwell A2010 and SikaSwell A2005 are unrolled and pressed into the wet SikaSwell S-2 until a small quantity oozes out at both sides of the strip, to ensure full and continuous contact with the substrate. This must be completed within 30 minutes of applying the adhesive.

Fixing

A.3 End and corner joints must be closely butt jointed and fixed with SikaSwell S-2.

A.4 When fixing SikaSwell A2010 and SikaSwell A2005 around penetrations, the waterstop must be additionally secured with suitable steel ties. The Certificate holder should be consulted for advice, but such advice is outside the scope of this Certificate.

A.5 SikaSwell S-2 must be allowed to cure for twelve to twenty-four hours before placing the concrete and enclosing the waterstop.

Enclosure

A.6 Prior to enclosing SikaSwell A2010 and SikaSwell A2005, the placed products must be inspected for damage and premature swelling. Damaged and/or swollen products must be replaced at this stage.

A.7 Concrete is then poured to enclose the products, compacting well around the waterstop but taking particular care not to dislodge or damage the strip during the process.

Bibliography

BS 8102 : 2022 *Protection of below ground structures against water ingress – Code of practice*

BS EN ISO 527-3 : 1996 – *Plastics – Determination of tensile properties – Part 3 Test conditions for films and sheets*

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

MOAT 27 : 1983 UEAtc General Directive for the Assessment of roof waterproofing systems, Section 5.1.3 Test for Resistance to peel

PG-FBB Part 1 – *Sealing for construction joints, transitions and connections: September 2017 Testing fundamentals for the issuing of General Building Inspection Test Certificates for joint sealing in concrete components with high water penetrate on resistance in the area below ground level*

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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