

## Sika Ltd

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**Agrément Certificate**

**13/4994**

Product Sheet 1

## SIKA HYDROPHILIC WATERSTOPS

### SIKASWELL A2010

This Agrément Certificate Product Sheet<sup>(1)</sup> relates to SikaSwell<sup>(2)</sup> A2010, a flexible, hydrophilic waterstop for use at construction joints and penetrations in underground reinforced waterproof concrete structures.

- (1) Hereinafter referred to as 'Certificate'.
- (2) SikaSwell is a registered trademark.

#### 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 pressure** — the product provides an effective barrier to the passage of moisture from the ground (see section 6).

**Adhesion** — the product has satisfactory adhesion to well compacted clean and dry concrete and steel (see section 7).

**Durability** — when fully enclosed in a concrete structure the product will remain effective as a waterstop for the 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 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 Third issue: 2 April 2020

Originally certificated on 2 May 2013

Hardy Giesler  
Chief Executive Officer

The BBA is a UKAS accredited certification body – Number 113.

The schedule of the current scope of accreditation for product certification is available in pdf format via the UKAS link on the BBA website at [www.bbacerts.co.uk](http://www.bbacerts.co.uk)  
**Readers MUST check the validity and latest issue number of this Agrément Certificate by either referring to the BBA website or contacting the BBA directly.**

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

#### British Board of Agrément

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## Regulations

In the opinion of the BBA, SikaSwell A2010, 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)

Comment:

**Resistance to moisture**

The product provides an effective barrier to water under hydrostatic pressure. See section 6 of this Certificate.

**Regulation:**

7(1)

**Materials and workmanship**

Comment:

The product is acceptable. See section 9.1 and the *Installation* part of this Certificate.



### The Building (Scotland) Regulations 2004 (as amended)

**Regulation:**

8(1)

**Durability, workmanship and fitness of materials**

Comment:

The product is acceptable. See section 9.1 and the *Installation* part of this Certificate.

**Regulation:**

9

**Building standards applicable to construction**

Standard:

3.4

Moisture from the ground

Comment:

The product is an effective barrier to water under hydrostatic pressure, with reference to clauses 3.4.1<sup>(1)(2)</sup>, 3.4.5<sup>(1)(2)</sup> and 3.4.7<sup>(1)(2)</sup> of this Standard. See section 6 of this Certificate.

Standard:

7.1(a)

Statement of sustainability

Comment:

The product 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:

All comments given for the product under Regulation 9, Standards 1 to 6 also apply to this Regulation, with reference to clause 0.12.1<sup>(1)(2)</sup> and Schedule 6<sup>(1)(2)</sup>.

(1) Technical Handbook (Domestic).

(2) Technical Handbook (Non-Domestic).



### The Building Regulations (Northern Ireland) 2012 (as amended)

**Regulation:**

23(a)(i)(iii)

**Fitness of materials and workmanship**

Comment:

(iv)(b)(i)

The product is acceptable. See section 6 and the *Installation* part of this Certificate.

**Regulation:**

28(a)

**Resistance to moisture and weather**

Comment:

The product is an effective barrier to water under hydrostatic pressure. See section 9.1 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 sections: *3 Delivery and site handling* (3.1, 3.3 and 3.4) of this Certificate.

## Additional Information

### NHBC Standards 2020

In the opinion of the BBA, SikaSwell A2010, 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 Requirement R3).

Unless it can be demonstrated that the water table is permanently below the underside of the slab, the product must be used within a Type B<sup>(1)</sup> waterproofing protection product, in combination with either a Type A<sup>(1)</sup> or C<sup>(1)</sup> waterproofing protection where Grade 3<sup>(1)</sup> 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 : 2009.

## Technical Specification

### 1 Description

1.1 SikaSwell A2010 is a flexible, hydrophilic waterstop based on synthetic rubber, with cross-sectional dimensions of 20 by 10 mm. The product is supplied in one colour, red.

1.2 An ancillary item necessary for installation of the product and included in this assessment is SikaSwell S-2, a one-component, hydrophilic, polyurethane adhesive/sealant used to secure SikaSwell A2010 to the concrete substrate and around penetrations. The product is supplied in one colour, red oxide.

### 2 Manufacture

2.1 The product is manufactured by a batch process. The SikaSwell A2010 compound is extruded into strips and cut to length.

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 : 2015 by SGS (Certificate number CH18/1439..

### 3 Delivery and site handling

3.1 SikaSwell A2010 is supplied as 10 m rolls each weighing approximately 3.5 kg. Each roll is vacuum wrapped in polythene and packed in a cardboard box. Bulk quantities are supplied on pallets (maximum 120 boxes per pallet). Boxes of six rolls are also available on request.

3.2 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).

3.3 The product 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. When stored correctly in unopened packs, SikaSwell A2010 will have a shelf life of at least three years from the date of manufacture and SikaSwell S-2 will have a shelf life of at least nine months.

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

## Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on SikaSwell A2010.

### Design Considerations

#### 4 Use

4.1 SikaSwell A2010 is satisfactory for use as a Type B (structurally integral) protection (as defined in BS 8102 : 2009) to waterproof construction joints and penetrations in underground waterproof reinforced concrete structures.

4.2 The product is not suitable for use in movement joints.

4.3 The product swells on contact with water and must be fully confined within the concrete structure to form an effective seal.

4.4 The unconfined product will expand in excess of 200% by volume in neutral pH water.

4.5 Tests show that the expansion of the product 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 product's ability to form an effective seal.

4.6 The product will shrink on drying but will re-hydrate on wetting without detriment to its ability to swell.

4.7 The ability of the product to expand and form an effective seal can be adversely affected by the groundwater chemistry, eg saline conditions, and the product has not been assessed for use under conditions other than those detailed in section 4.5. The Certificate holder must be consulted for advice on specific applications, service conditions and groundwater chemistry.

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

#### 5 Practicability of installation

5.1 The product must only be installed by contractors who have been trained and approved by the Certificate holder.

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

#### 6 Resistance to water pressure



6.1 When confined, the product forms an effective barrier to water under pressure from the ground.

6.2 The product was tested at a maximum hydrostatic water pressure of 2.5 bar and remained watertight.

6.3 An appropriate safety factor must be applied to the maximum water pressure given in section 6.2, and the use of additional waterproof protection should be considered, depending on the specific risks associated with any particular structure.

## 7 Adhesion

7.1 The product, when used in conjunction with SikaSwell S-2, applied to a sound and well compacted concrete substrate, has satisfactory adhesion.

7.2 Substrates must be dry and free from contamination that could affect the adhesion of the product.

## 8 Maintenance

As the product is confined within the structure and has suitable in-situ durability (see section 9), maintenance is neither possible nor required.

## 9 Durability



9.1 SikaSwell A2010 will function effectively as a waterstop and provide an effective barrier to water under pressure for the life of the structure in which it is incorporated.

9.2 The durability of the product may be affected if it is dislodged or damaged during or following installation, therefore care must be taken to ensure that the product remains in position and is not dislodged when concrete is poured over it, nor damaged during subsequent actions, eg vibration.

## Installation

### 10 General

10.1 SikaSwell A2010 and SikaSwell S-2 must be applied to sound substrates that are clean, dry or 'mat dry' and free from surface contamination, at a temperature of between 5 and 35°C.

10.2 Application to particularly rough surfaces must be avoided. Freshly placed concrete can be smoothed with a wooden batten to form a shallow rebate along which the product can be placed.

10.3 Dust, dirt and other debris must be removed using a stiff brush and/or suitable mechanical means.

### 11 Procedure

#### Placing

11.1 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 the SikaSwell A2010 strip at all edges.

11.2 SikaSwell A2010 is 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.

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

11.4 When fixing SikaSwell A2010 around penetrations, the waterstop must be additionally secured with suitable steel ties. The Certificate holder should be consulted for advice.

11.5 SikaSwell S-2 must be allowed to cure for two to three hours before placing the concrete and enclosing the waterstop.

#### **Enclosure**

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

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

## **Technical Investigations**

### **12 Tests**

Tests were carried out on Sikaswell A2010 and the results assessed to determine:

- characteristics
- resistance to hydrostatic water pressure
- unrestrained swelling characteristics under alkali, neutral and acidic water conditions
- effect of wet/dry cycles on swelling characteristics
- load developed when restrained
- peel adhesion to concrete.

### **13 Investigations**

13.1 A visit was made to a site in progress to assess the practicability of installation of the product.

13.2 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.

## **Bibliography**

BS 8102 : 2009 *Code of practice for protection of below ground structures against water from the ground*

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

### 14 Conditions

#### 14.1 This Certificate:

- relates only to the product/system that is named and described on the front page
- is issued only to the company, firm, organisation or person named on the front page – no other company, firm, organisation or person may hold or claim that this Certificate has been issued to them
- is valid only within the UK
- has to be read, considered and used as a whole document – it may be misleading and will be incomplete to be selective
- is copyright of the BBA
- is subject to English Law.

14.2 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.

14.3 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.

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

14.5 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.

14.6 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.