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Agrément Certificate  
**86/1650**  
Product Sheet 4

## VOLCLAY WATERPROOFING SYSTEM FOR STRUCTURES

### REDSTOP WATERSTOP

#### PRODUCT SCOPE AND SUMMARY OF CERTIFICATE

This Certificate relates to Redstop Waterstop a sodium bentonite/butyl rubber water bar, for use in waterproofing and damp-proofing construction joints in underground structures.

#### AGRÉMENT CERTIFICATION INCLUDES:

- factors relating to compliance with Building Regulations where applicable
- factors relating to additional non-regulatory information where applicable
- independently verified technical specification
- assessment criteria and technical investigations
- design considerations
- installation guidance
- regular surveillance of production
- formal three-yearly review.



#### KEY FACTORS ASSESSED

**Resistance to water and water vapour** — the product provides an effective barrier to the passage of liquid water from the ground in construction joints (see section 5).

**Durability** — when fully protected, the product provides an effective barrier to the transmission of water in construction joints for the life of the building in which it is incorporated (see section 7).

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

Simon Wroe  
Head of Approvals — Materials

Greg Cooper  
Chief Executive

Date of Second issue: 14 April 2010

Originally certificated on 30 June 1997

*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 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, Redstop Waterstop, if used in accordance with the provisions of this Certificate, will meet or contribute to meeting the relevant requirements of the following Building Regulations:



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

Requirement:	C2(a)	Resistance to moisture
Comment:		The product is an effective barrier to water in construction joints. See section 5 of this Certificate.
Requirement:	Regulation 7	Materials and workmanship
Comment:		The product is acceptable. See section 7 and the <i>Installation</i> part of this Certificate.



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

Regulation:	8(1)(2)	Fitness and durability of materials and workmanship
Comment:		The use of the product satisfies the requirements of this Regulation. See sections 6 and 7 and the <i>Installation</i> part of this Certificate.
Regulation:	9	Building standards – construction
Standard:	3.4	Moisture from the ground
Comment:		The product is an effective barrier to water in construction joints, with reference to clauses 3.4.1 <sup>(1)(2)</sup> , 3.4.2 <sup>(1)(2)</sup> , 3.4.5 <sup>(1)(2)</sup> , 3.4.6 <sup>(1)(2)</sup> and 3.4.7 <sup>(1)(2)</sup> respectively. See section 5 of this Certificate.
Regulation:	12	Building standards – conversions
Comment:		All comments given for this product under Regulation 9, 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) 2000 (as amended)

Regulation:	B2	Fitness of materials and workmanship
Comment:		The product is acceptable. See section 7 and the <i>Installation</i> part of this Certificate.
Regulation:	B3(2)	Suitability of certain materials
Comment:		The product does not normally require maintenance. See section 6 of this Certificate.
Regulation:	C4(b)	Resistance to ground moisture and weather
Comment:		The product is an effective barrier to water in construction joints. See section 5 of this Certificate.

## Construction (Design and Management) Regulations 2007

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

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

See section: 2 *Delivery and site handling* (2.1).

# Non-regulatory Information

## NHBC Standards 2008

NHBC accepts the use of Redstop Waterstop, when installed and used in accordance with this Certificate, in relation to *NHBC Standards*, Chapter 5.1 *Substructure and ground bearing floors*.

# Technical Specification

## 1 Description

1.1 Redstop Waterstop is a black extruded strip of sodium bentonite/butyl rubber with dimensions 25 mm by 20 mm and 15 mm by 10 mm cross-section, with one side backed by a silicone treated paper.

1.2 Quality control is exercised over raw materials, during manufacture and on the final product.

## 2 Delivery and site handling

2.1 Coils of Redstop Waterstop are packaged in cartons, each carton contains six coils of 5 m length<sup>(1)</sup>, each box weighs 25 kg.

(1) Weights and sizes are subject to change, users are advised to consult current manufacturer's literature.

2.2 The product must be stored away from direct heat, in dry conditions, under cover and away from the possibility of damage or premature contact with water.

# Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on Redstop Waterstop.

## Design Considerations

### 3 Use

The product is satisfactory for use as a water bar:

- as part of a Volclay waterproofing installation,
- for Type A basement construction grades 2 and 3 as defined in Table 2 of BS 8102 : 2009,
- for construction joints in reinforced concrete structures, or
- for Type B structures as defined in BS 8102 : 2009 to waterproof basements.

### 4 Practicability of installation

4.1 The system should only be installed by contractors who have been trained and approved by the Certificate holder.

4.2 Redstop Waterstop should not be applied during heavy rainfall or where there is free-standing water.

### 5 Resistance to water pressure



Both in its original condition and after hydration, Volclay Redstop Waterstop will provide an effective barrier to liquid water in construction joints of reinforced concrete.

### 6 Maintenance



As the product is confined by the concrete and has suitable durability (see section 7), maintenance is not required.

### 7 Durability



When fully protected, Redstop Waterstop, will provide an effective barrier to the transmission of liquid water in construction joints, for the life of the building in which it is incorporated.

## Installation

### 8 General

8.1 Redstop Waterstop should not be applied during heavy rainfall or where there is free-standing water.

8.2 The product is not designed for use in movement joints.

8.3 The product must never remain permanently exposed.

## 9 Procedure

### Surface preparation

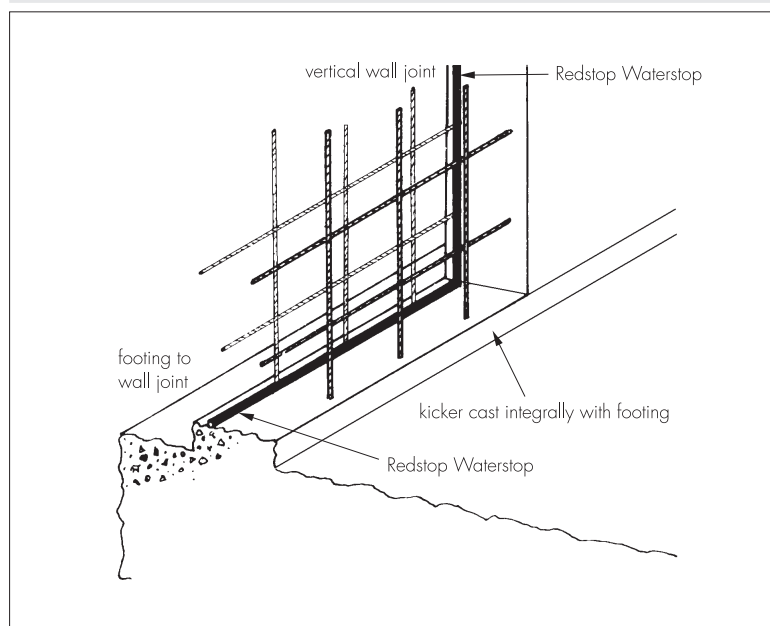
9.1 Joint surfaces should be clean, dry and free from cavities and spalling. Any irregularities in the surface do not normally need to be filled. If required, these can be filled with a suitable strength cement grout or mortar while the concrete is still green, and made smooth.

9.2 Redstop Waterstop is positioned in the centre of the reinforced concrete construction joint, ensuring that a minimum of 75 mm concrete cover is provided to all sides of the product.

### Installation

9.3 A strip of Redstop Waterstop is uncoiled and placed in position leaving the release paper temporarily intact so it can be pushed firmly in place into any undulations in the concrete surface (see Figure 1). Once sufficient product is positioned, the release paper is removed.

Figure 1 Redstop Waterstop installation details



9.4 Continuity of consecutive strips is maintained by butt jointing.

9.5 To prevent movement during concrete placement, the strips of Redstop Waterstop are covered by placing Revofix mesh over the product. The successive lengths of mesh are overlapped and fixed using nails at each overlap and at a spacing of approximately 300 mm in between.

### Swelling

9.6 If the material exhibits considerable swelling prior to confinement in the joint, it must be replaced with new material.

### Concrete casting

9.7 Casting of retaining walls and floor slabs is carried out immediately after fixing Redstop Waterstop in position.

## Technical Investigations

### 10 Tests

The following tests were carried out:

- characterisation
- resistance to hydrostatic pressure, and observations were made of the ease of installation, in particular around obstructions.

### 11 Investigations

11.1 Details were obtained of the manufacturing process, including the methods adopted for quality control.

11.2 Existing data on the effectiveness and durability of natural (Wyoming) sodium bentonite as a waterproofing membrane were examined.

11.3 Visits were made to a site in progress to assess the practicability of installation.

11.4 A survey of known users was conducted to assess the performance in use.

11.5 An assessment was made of the original data resulting in the issue of Certificate 83/1081.

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

## 12 Conditions

12.1 This Certificate:

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

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

12.3 This Certificate will remain valid for an unlimited period provided that the product/system and the manufacture and/or fabrication including all related and relevant processes thereof:

- are maintained at or above the levels which have been assessed and found to be satisfactory by the BBA
- continue to be checked as and when deemed appropriate by the BBA under arrangements that it will determine
- are reviewed by the BBA as and when it considers appropriate.

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

- the presence or absence of any patent, intellectual property or similar rights subsisting in the product/system or any other product/system
- the right of the Certificate holder to manufacture, supply, install, maintain or market the product/system
- individual installations of the product/system, including the nature, design, methods and workmanship of or related to the installation
- the actual works in which the product/system is installed, used and maintained, including the nature, design, methods and workmanship of such works.

12.5 Any information relating to the manufacture, supply, installation, use and maintenance of this product/system which is contained or referred to in this Certificate is the minimum required to be met when the product/system is manufactured, supplied, installed, used and maintained. It does not purport in any way to restate the requirements of the Health & Safety at Work etc Act 1974, or of any other statutory, common law or other duty which may exist at the date of this Certificate; nor is conformity with such information to be taken as satisfying the requirements of the 1974 Act or of any statutory, common law or other duty of care. In granting this Certificate, the BBA does not accept responsibility to any person or body for any loss or damage, including personal injury, arising as a direct or indirect result of the manufacture, supply, installation, use and maintenance of this product/system.