

BCAC-17-002
BDA Component Assessment
Certificate
Newton 315 Polymer – Waterbar
for waterproofing of concrete
joints

SCOPE

This BDA Component Assessment Certificate (hereinafter the Certificate) relates to Newton 315 Polymer–Waterbar (hereinafter the Component). A flexible, hydrophilic waterbar used to waterproof construction joints and penetrations in underground reinforced concrete structures.

DESCRIPTION

The Component is a flexible, hydrophilic waterstop comprising an acrylate-based polymer embedded in a butylene copolymer. Supplied in two versions:

- Cross-sectional dimensions of 20 mm x 10 mm supplied in 10 m rolls which needs minimum 80 mm of properly designed concrete cover.
- Cross-sectional dimensions of 20 mm x 5 mm supplied in 20 m rolls which needs minimum 50 mm of properly designed concrete cover.

The Component is supplied in one colour, white.

COMPONENT ILLUSTRATION



NHBC ACCEPTANCE

In the opinion of Kiwa BDA, the Component, 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)

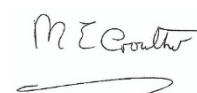
STATEMENT

It is the opinion of Kiwa BDA UK that the Component is fit for its intended use, provided it is specified, installed and used in accordance with this Certificate.

Paul Oakley, BSc
Technical Manager, Building Products



Mark Crowther, M.A. (Oxon)
Kiwa Ltd. Technical Director



SUMMARY OF CERTIFICATE

This Certificate provides independent information to specifiers, building control personnel, contractors, installers and other construction industry professionals considering the fitness for the intended use of the Component. This Certificate covers the following:

- Conditions of use;
- Initial Factory Production Control and Quality Management Systems;
- Points of attention for the specifier and examples of typical details;
- Installation procedure;
- Independently assessed Component characteristics;
- Compliance with national Building Regulations and non-regulatory Requirements;
- Sources, including codes of practice, test and calculation reports.

MAJOR POINTS OF ASSESSMENT

Resistance to water pressure — The Component provides an effective barrier to the passage of moisture from the ground (see section 2.1).

Durability — when fully enclosed in a concrete structure the Component will remain effective as a waterbar for the life of the structure in which it is incorporated (see section 2.1).

CONTENTS

Chapter 1 – General Considerations

1.1 – Conditions of use

1.2 – Initial factory production control

1.3 – Quality management system

Chapter 2 – Technical Assessment

2.1 – Points of attention to the specifier

2.2 – Installation

2.3 – Independently assessed Component characteristics

2.4 – Ancillary items

Chapter 3 – Sources

Chapter 4 – Amendment History

1.1- CONDITIONS OF USE

1.1.1 Design considerations

See section 2.1

1.1.2 Application

The assessment of the Component relates to its use in accordance with this Certificate and the Certificate holder's requirements.

1.1.3 Assessment

Kiwa BDA UK has assessed the Component in combination with its' relevant test reports, DoP and factory visits. Also, the NHBC Standards have been taken into account. Factory Production Control has been assessed by Kiwa N.V., Technical Assessment Body, in the UK represented by Kiwa Ltd.

1.1.4 Installation

It is recommended that the quality of installation and workmanship is controlled by (a) competent person(s). Such person(s) shall be either a qualified employee of the Consulting Engineer or an employee of the installing contractor. The Component shall be installed strictly in accordance with this Certificate and with the Certificate holder's requirements.

1.1.5 Geographical scope

The validity of this document is limited to England, Wales, Scotland and Northern Ireland.

1.1.6 Validity

The purpose of this Certificate is to provide for well-founded confidence to apply the Component within the scope described. The validity of this Certificate is five years after the issue date, and as published on www.kiwa.co.uk/bda. After this, the validity of the Certificate can be extended every five years after a positive review.

1.2 – INITIAL FACTORY PRODUCTION CONTROL (FPC)

- Technical Assessment Body Kiwa N.V. represented by Kiwa Ltd. has determined that the Certificate holder has fulfilled all provisions of the specifications described in this certificate in respect of the Component.
- The initial FPC audit demonstrated that the Certificate holder has a satisfactory Quality Management System (QMS) and are committed to continuously improving their FPC operations.
- A detailed Production Quality Specification (PQS) has been compiled to ensure traceability and compliance under the terms of this Certificate.

1.3 - QUALITY MANAGEMENT SYSTEM

- The Certificate holder:
 - has an effective and well maintained QMS in operation which covers the necessary clauses required for certification.
 - is committed to continually improving their FPC, QMS and associated procedures.
- Document control and production line procedures were deemed satisfactory, with sufficient evidence provided in support of certification requirements.

2.1 - POINTS OF ATTENTION TO THE SPECIFIER**2.1.1 Design Considerations**

The Component can be used as an effective barrier to the transmission of liquid water through structural concrete joints where Grade 1 to 3 waterproofing protection is required as defined in Table 2 of BS 8102.

The Certificate holder's advice should be sought in respect of underground basement waterproofing, as the Component should be used in combination with other waterproofing products as a System.

The Component is suitable for construction joints, day joints and shrinkage joints in the following:

- Concrete walls above a concrete kicker
- Within concrete walls
- Within concrete rafts or slabs
- Concrete slab to concrete or steel wall
- Concrete slab to brick/block wall (use 20 mm x 10 mm Component option only)
- Joints to pre-cast concrete elements
- Steel beams protruding through concrete

The Component is not suitable for the following:

- Kickerless horizontal construction joints; in this application the Certificate holder's advice should be sought
- Movement or isolation joints

The Component:

- Swells on contact with water and must be fully confined within the concrete structure to form an effective seal
- Will expand in excess of 900% by volume in neutral pH water and in excess of 140% in seawater
- Will shrink on drying but will re-hydrate on wetting without detriment to its ability to swell

The Component will develop significant pressure when confined within a concrete structure and must be covered to reduce the risk of damaging the concrete by at least:

- 80 mm of properly designed concrete cover for cross-sectional dimensions of 20 mm x 10 mm
- 50 mm of properly designed concrete cover for cross-sectional dimensions of 20 mm x 5 mm

The Certificate holder must be consulted for advice on specific applications, service conditions and groundwater chemistry.

2.1.2 Durability

Under normal conditions of use, the Component will provide an effective barrier to the transmission of liquid water for the life of the building to which it is applied. The durability of the Component may be affected if it is dislodged or damaged during or following installation, therefore care must be taken to ensure that it remains in position and is not displaced when concrete is poured over it, nor damaged during subsequent actions, e.g. vibration.

2.2 - INSTALLATION**2.2.1 General**

Installation of the Component shall be in accordance with the Certificate holder's requirements and current good building practice.

The Component should be used by those with an understanding of the requirement to waterproof retained structures and the knowledge and training to use it as part of a coordinated approach to the waterproofing of the structure, which in many cases will require further waterproofing products to achieve the required habitable grade as defined by BS 8102. Workmanship should comply with BS 8000-0, BS 8000-3 and BS 8000-4 and the concrete design should be in accordance with BS EN 1992-1-1 and BS EN 1992-3 as appropriate.

The Component must be installed by contractors who have been trained and approved by the Certificate holder or by installers familiar with the Component and its' properties.

2.2.2 Delivery and site handling

Store in dry conditions at temperatures between 5°C and 25°C with containers fully sealed. Do not expose to freezing conditions and avoid mechanical damage caused by pressure. If the geometrical size of the tape has been damaged by pressure, the Component must not be used. If these conditions are maintained and the packaging is unopened, the shelf life is 2 years.

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

2.2.3 Substrate preparation

The Component must be applied to sound substrates that are clean, dry or 'mat dry' and free from surface contamination.

Carefully prepare construction joint surfaces to expose the coarse aggregate in order to increase the bond strength and to provide aggregate interlock as outlined in relevant standards/codes of practice. Construction joint surfaces should be clean and free of dust, dirt, debris and standing water. Loose/flaking concrete or laitance should be removed by scabbling, using a needle gun, sandblasting, jet-washing etc.

2.2.4 Installation

Apply a 5 mm wide bead of Newton 306-SwellMastic or Newton 309-M Adhesive to the centre of the joint. Un-coil the Component and place into the adhesive, pressing slightly to displace it. Allow the adhesive to fill undulations within the concrete surface.

At changes in direction and at end joints, use simple butt joints. Do not overlap at joints nor stretch the Component to fit in place. When the adhesive is cured sufficiently that is not displaced by pressing down, secure with masonry nails at approximately 250 mm centres fixed with a gas nail gun used by trained and competent operatives, using appropriately sized Hard & Steel Concrete Pins (for example a Spit Pulsa Nail Gun with Flush Head HC6 Pins). Care should be taken during installation of nails not to damage the Component by impact.

When the adhesive is cured, carefully place the concrete wall elements, being careful not to damage the Component during compaction vibrating. As recommended within BS 8102, placement of the concrete should commence as soon as the Component is in position.

2.3 - INDEPENDENTLY ASSESSED COMPONENT CHARACTERISTICS

Feature	Result	Units
Material	TPE with hydrophilic polymers	
Colour	White	
Density/Specific gravity	1.26	
Profile	20 x 10 and 20 x 5	mm
Coil length	10 and 20	m
Shelf life	24	Months
Application temperature	+5 to +40	°C
Substrate application temperature	+5 to +30	°C
Service temperature	-30 to +60	°C
Minimum Concrete cover	80 and 50	mm
Initial delay of swelling	7	Days
Full swell achieved	28	Days
Increase in mass (Neutral water – 7 pH)	900	%
Increase in mass (High alkaline water – 12.5 pH)	350	%
Increase in mass (Aggressive water – DIN 4030)	330	%
Increase in mass (Seawater – 3% NaCl)	140	%
Max swelling pressure (confined within joint)	2.8	N/mm ²
Water resistance (tested)	5.0	bar
Working water resistance (safety factor of 2.5)	2.0	bar

2.4 – ANCILLARY ITEMS

Ancillary items for the installation of the Component, but not included in this assessment are:

- Newton 306 SwellMastic 290 ml Cartridge covering 6.5 to 8.5 linear metres, a one component, hydrophilic polymeric adhesive sealant used to secure the Component to the concrete substrate.
- Newton 309-M Adhesive 290 ml Cartridge covering 6 to 8 linear metres.

CHAPTER 3 - SOURCES

- NHBC Standards 2018 Chapter 2.1 The Standards and Technical Requirements and Part 5 Substructure, ground floors, drainage and basements, Chapters 5.1 Substructure and ground bearing floors and 5.4 Waterproofing of basements and other below ground structures
- BS 8102:2009 Code of practice for protection of below ground structures against water from the ground
- BS 8000-0:2014 Workmanship on construction sites - Introduction and general principles
- BS 8000-3:2001 Workmanship on building sites - Code of practice for masonry
- BS 8000-4:1989 Workmanship on building sites - Code of practice for waterproofing
- BS EN 1992-1-1:2004+A1:2014 Eurocode 2: Design of concrete structures. General rules and rules for buildings
- BS EN 1992-3:2006 Eurocode 2, Design of Concrete Structures. Liquid retaining and containing structures

Remark: apart from these sources confidential reports may also have been assessed; any relevant reports are in the possession of Kiwa Ltd and kept in the Technical Assessment File of this Certificate; the Installation Guides are current at the time of publication and may be subject to change, the Certificate holder should be contacted for clarification of revision.

CHAPTER 4 - AMENDMENT HISTORY

Revision	Amendment Description	Amended By	Approved By	Date
-	Issued to NHBC for comments	E. Tsarouchas	C. Forshaw	November 2017
A	Updated as per NHBC comments	E. Tsarouchas	P. Oakley	January 2018