

Rev 1.0 - 14 March 2019

PRODUCT CODE - 323

INTRODUCTION

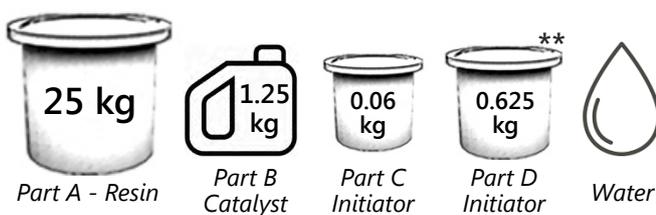
[Newton 323-SA](#) is a four-part, acrylic injection resin which is delivered by conventional packers or via the [Newton 302 Injection Hose](#) joint sealing system, where in certain situations the acrylic resin can be re-injected into the flushed hose system. Newton 323-SA has a controlled linear reaction and its extremely low viscosity ensures the sealing of very fine cracks, deep into the substrate, wet or dry, even where future movement is expected and is one of a range of injection resins that form the [Newton ReSeal System](#) for the sealing of water leaks.

By adjusting the volume of the supplied Part C Initiator, the reaction speed can be adjusted from 10 to 20 minutes, which allows for sufficient time to inject the resin into the Newton 302 Injection Hose. For sealing cracks requiring a faster reaction time, the Part D Initiator should be purchased separately. Adjusting the volume of the Part D Initiator controls the reaction time from 4.8 minutes to just 44 seconds. The cured resin exhibits excellent adhesion and chemical resistance and is hydrophilic, swelling in the presence of water, and retains that moisture so as to not dry or shrink, even under the influence of temperature and seasonal water fluctuations, making it ideal for injecting into the ground with curtain injection operations.

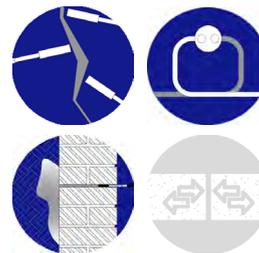
Because of its extremely low viscosity, Newton 323-SA is able to pass around Stage 1 sealing resins to fully seal the surrounding fine cracks, joints and voids to complete the water sealing operation.

Newton 323-SA is a specialist product that should only be applied by trained waterproofing professionals and is injected using a stainless steel three-component pump.

PACKAGING



APPLICATION



SEALING STAGES*



PROPERTIES

E - Expansion; F - Flexibility; V - Viscosity; A - Adhesion; - R¹ - Reaction Time (Quickest) - R² - Reaction Time (Longest)



Green is longer or greater, red is less or lower

ATTRIBUTES

- Very low viscosity
- Hydrophilic
- Non-foaming
- Flexible with high strength
- Controlled and variable linear reaction times
- Very high adhesion to the substrate
- High levels of chemical resistance
- Non-corrosive

KEY BENEFITS

- Penetrates very deep into fine cracks
- Swells in contact with water and retains that moisture even at high temperatures
- Slow reaction times and very long working life
- Suitable for use within injection hose systems such as [Newton 302 Injection Hose](#)



*See page 4 for explanation. **Separate purchase.

NEWTON 323-SA

Flexible Acrylic Sealing Injection Resin

NEWTON RESEAL SYSTEM - TECHNICAL DATA

PROPERTIES	320-FP	321-FSP	322-SP	323-SA	324-SR
MAIN USE	Stage 1 stemming of high flow water leaks	Stage 1 stemming and Stage 2 sealing of water leaks	Stage 2 sealing of water leaks & Injection Hoses	Stage 2 sealing of water leaks, Injection Hoses & Curtain Injection	Where movement or settlement is expected. Movement joints.
Material	Polyurethane	Polyurethane	Polyurethane	Acrylic	Acrylic Rubber
Foaming	Yes - with water	Yes - with water	Yes - with water	No	No
Sealing	No	No	Yes - No water	Yes	Yes
Parts	2	1	2	4 (one being water)	5
Catalyst	Yes	No	No	Yes	Yes
Pack size - kg	25 + 2.3	25	12 + 13.2	25 + 1.25 + 0.06	See pages 1 & 3
Part A	Polyurethane	Polyurethane	Polyurethane - A	Acrylic resin	Acrylic resin
Part B	Catalyst	N/A	Polyurethane - B	Catalyst	Additive
Part C	N/A	N/A	N/A	Initiator	Catalyst
Part D	N/A	N/A	N/A	Water	Strengtheners
Part E	N/A	N/A	N/A	N/A	Initiator
Viscosity at 20°C	111 mPa/s	280 mPa/s	103 mPa/s	60 mPa/s	25 mPa/s
Viscosity Category	Low	Medium - low	Low	Very low	Very low
Is water required	Yes - to foam	Yes - to foam	No - Yes to foam	No - hydrophilic	No
Water source	Within substrate	Within substrate or added	Within substrate	Added	N/A
Controlled reaction	Yes - by catalyst	No	No	Yes - by initiator	Yes - by initiator
Final form	Rigid open cell foam	Flexible closed cell foam	Flexible closed cell foam or resin	Flexible & elastic hydrophilic resin	Very flexible & elastic rubber gel
Final performance	Stable	Stable	Stable	Swells with water	Stable
Shrinkage	No	No	No	Slight	Slight
Flexibility	None	Some	Good	Very good	Extremely good
Working time	Use immediately	Use immediately	60 mins	Working day	Working day
Reaction time	15 sec to 4 min	2 minutes	6 hours to 5 days	44 sec to 20 min	18 sec to 18 min
Rate of expansion	1700-2200%	300%	10%	290%	120%
Adhesion	Good	Good	High	High	Very high
SUBSTRATES	320-FP	321-FSP	322-SP	323-SA	324-SR
Concrete	Yes	Yes	Yes	Yes	Yes
Steel	Yes	Yes	Yes	Yes	Yes
Mortar	No	Yes	Yes	Yes	Yes
USES	320-FP	321-FSP	322-SP	323-SA	324-SR
Running water	Stage 1	Stage 1 & 2	Stage 2	Stage 2	Stage 2
Large dry cracks	No	Yes*	Yes	No	Yes
Fine wet cracks	No	Stage 1 & 2	Stages 1 & 2	Yes	Yes
Fine dry cracks	No	Stage 1 & 2	Yes	Yes	Yes
Voids/porosity - wet	Stage 1	Stage 1 & 2	Stage 2	No	No
Voids/porosity - dry	No	Stage 1 & 2	Yes	Yes	Yes
Injection hoses	No	No	Yes	Yes	No
Curtain injection	No	No	No	Yes	Yes*
Penetrations - wet	Yes	Yes	Yes	Yes	Yes
Penetrations - dry	No	Yes*	Yes	Yes	Yes
Structural repair	No	No	No	No	No
Movement expected	No	Yes*	Yes	Yes	Yes
Movement joints	No	No	No	No	Yes

The above data, even if carried out according to regulated tests are indicative and they may change when specific site conditions vary. *Better options available.

NEWTON 323-SA

Flexible Acrylic Sealing Injection Resin

TECHNICAL DATA				
Features	Resin	Catalyst	Initiator	Units
Appearance	Purple liquid	Yellow liquid	White powder	
Viscosity at 20°C	19	22	N/A	mPas
Density	1.12	1.11	-	g/ml
pH	6.5 - 8	-	-	
Shelf life in original, undamaged and unopened packaging	6			Months
Features	Mixed Product	Units	Test Standard	
Minimum application temperature	5	°C		
Elongation at break	> 50	%		
Watertightness under pressure	Waterproof	2 x 10 ⁵ Pa	EN 14068	
Compatibility with concrete	Pass		EN 12637-1	
Sensitivity to wet-dry cycles	No change in swell capacity	10 wet-dry cycles	EN 14498 B	
Swelling capacity underwater	Capacity reaches a constant level after 20 days		EN 14498 A	
Increase in volume underwater after 20 days immersion at 21°C	290	%	EN 14498	
Reaction Times*				
At 20°C		Solution 1 - 25 kg Resin mixed with 1.25 kg of Part B - Catalyst		
Solution 2 - 23.45 litres of water mixed with Part C - Initiator	0.03 kg	20 minutes		
	0.06 kg	10 minutes		
At 16°C		Solution 1 - 25 kg Resin mixed with 1.25 kg of Part B - Catalyst		
Solution 2 - 23.45 litres of water mixed with Part D* - Initiator	0.25 kg	4.8 minutes		
	0.5 kg	2 minutes		
	1.0 kg	44 seconds		

*To create the resin, ready for injection, two separate solutions must be created using the three product components and additional clean water. Solutions 1 and 2 are outlined in these tables. Reaction times decrease in higher temperatures, and increase in colder temperatures. Reaction times are controlled by using varying volumes of the Initiator.

TYPICAL APPLICATIONS

- Deep sealing of wet or dry joints and fine cracks
- Stage 2 sealing to complete the water sealing operation after Stage 1 has been carried out
- Post construction sealing of construction joints within reinforced concrete structures via Newton 302 Injection Hose
- Ground/curtain injection

SUITABLE SUBSTRATE

- Concrete
- Masonry
- Steel

LIFE EXPECTANCY

When specified, installed and protected in accordance with the Data Sheet, fully and permanently isolated from UV light and physical damage or wearing, and only to those substrates confirmed within, Newton 323-SA has a service life that can be equal to the design life of the structure.

PACKAGING

- Part A - Resin - 25 kg
- Part B - Catalyst - 1.25 kg
- Part C - Initiator - 0.06 kg

*Part D - Initiator - 0.625 kg - Must be purchased separately. Purchase code 323D

NEWTON 323-SA

Flexible Acrylic Sealing Injection Resin

SPECIFICATION

Newton Waterproofing Systems are in partnership with RIBA NBS who publish details of our products and systems within their specification clause library to allow Architects ease of specification through their NBS Plus interface. NBS clauses can be accessed via the technical resources area of the web site where a live NBS Feed is available at [NBS Plus Live Feed](#)

Our website has a wide choice of downloadable [Technical Drawings](#), and a large selection are also available either via [FastrackCAD](#), or as BIM objects on the [National BIM Library](#) and/or [BIMobject.com](#)

METHOD OF APPLICATION

- Pressure injected by pump into packers secured into holes drilled into the substrate
- Pressure injected by pump into Newton 302 Injection Hose via ports within the system

SPECIALIST TOOLS REQUIRED

- Hammer drill
- Drill bits for the size of the packers to be used and of sufficient length to reach just past the crack or void
- Three-component stainless steel pump

For this kind of application, the use of a three-component pump is absolutely necessary. Because of practical limitations related to the ease of use and low flow rate of the injection materials, a three-component, air driven, stainless steel pump should be used.

ACCESSORIES

Newton steel packers, Nipple-Head & Pan-Head in various sizes held in stock - Special sizes by request.

TRAINING & COMPETENCY OF USER

Newton 323-SA should only be used by those with an understanding of the requirement to waterproof retained structures and the knowledge and training to use the product as part of a coordinated approach to the waterproofing of the structure. In many cases this approach will also require further waterproofing products so as to achieve the desired internal environmental grade as defined within BS 8102:2009.

Newton 323-SA is a highly specialist injection waterproofing product that should only be installed by experienced and fully trained resin injection specialist companies.

CHOOSING THE CORRECT RESIN

Ensure you use the correct resin for the desired application. Some problems can only be solved by using a combination of products. To determine what product should be used in which situation, please consult the matrix on page two.

CONSTRUCTION

Newton 323-SA is designed to seal joints and cracks, it is not a repair product.

If the concrete is subject to spalling or is structurally not sound, it must be repaired so that the injected resin is confined, to allow the expansion of the resin to seal the water leaks.

The concrete must have the ability to withstand the forces exerted by the injection process.

INSTALLATION TECHNIQUES

Ensure that the correct resin for the desired application is used. Some leaks can only be solved by using a combination of products. To determine the correct product or combination of products for each situation, please consult the Technical Data Sheets.

Sealing of active leaks is usually a two stage process:

STAGE 1

[Newton 320-FP](#) is a fast-foaming, polyurethane injection resin that reacts with water to form a rigid and hydrophobic seal against water ingress and should be used to stem the water flow

STAGE 2

Once the water flow has been stemmed/stopped, Stage 2 sealing is carried out to permanently seal the leak.

Newton 323-SA penetrates deep into the substrate to permanently seal the leaks.

PREPARATION

Remove all obstructions so that the area to be treated can be clearly seen and accessed so that the drilling patterns for the injection holes can be determined.

Clean the surface to remove dirt, debris and loose and friable material. Make repairs using [Newton 203-RM](#) as required.

DRILLING

- Locate the rebar if possible and plan the pattern to minimize damage to the drill bit during drilling
- Drill with an angle of approximately 45° or less to the surface and towards the crack
- Ensure that the depth of the hole intersecting the crack passes close to and past the centre of the crack
- The distance of the drilled holes varies from 100 mm to 250 mm, according to the width of the crack (the wider the crack, the further apart the drill holes)

INSTALL PACKERS

Use suitable packers.

Place the packers in the holes so that the top of the rubber sleeve is below the concrete surface. Tighten the packer with a wrench or spanner to ensure that the packer is tightly fitted.

Leave some adjacent holes open so you can follow the route of the gel.

NEWTON 323-SA

Flexible Acrylic Sealing Injection Resin

CREATING THE TWO SOLUTIONS

Before installation, the four components (including water) must be used to prepare two solutions. Please refer to the table on page 3 for quantities and reaction times.

For slow reactions

- Solution 1: Part A - Resin and Part B - Catalyst
- Solution 2: Either 0.03 kg or 0.06 kg of Part C - Initiator and 23.45 litres of clean water

For quicker reactions

- Solution 1: Part A - Resin and Part B - Catalyst
- Solution 2: Varying weights of Part D - Initiator and 23.45 litres of clean water

Always use clean water for Solution 2.

Consider the temperature when mixing and injecting the solutions, as an increase in temperature will accelerate the reaction times, whilst colder temperatures will reduce the reaction time.

Agitate the mixed products for 30 seconds to ensure a good mix. Stand for 5 minutes and then agitate again for 30 seconds.

Ensure that:

- You have correctly selected a reaction time according to the ambient temperature (start with very slow reactions and decrease the reaction time by adding more initiator).
- You have prepared the two solutions correctly and the parts that make the solutions are mixed well
- You have been accurate with the dosing
- You have tested the reaction time
- Containers are never switched

INJECTION OF THE RESIN

- Begin the injection at the lowest point on a vertical crack and the narrowest area on a horizontal surface
- Holding the pressure line allows the operator to feel the pump pulsations. If a pressure gauge is available, the pressure should be monitored and kept in a range suitable enough to allow a good flow of material
- When resin is directly emerging from the crack when starting to inject the first packer, pause for a few minutes so the resin can react with the water. The reacted resin will form a surface seal and will allow the injected resin to penetrate fully into the crack
- If the resin still emerges freely after the pause, stop pumping and apply a surface seal over the crack with rapid setting cement
- Proceed pumping until the resins emerges from the hole of the next packer
- Stop pumping, disconnect pressure line and proceed to the next packer
- Continue the procedure until the crack is completely filled

NEWTON 302 INJECTION HOSE

Please read the Newton 302 Injection Hose data sheet for installation instructions.

Only use the Part C Initiator for injection of Newton 323-SA into Newton 302 Injection Hose.

POT LIFE & FURTHER USE

The two mixed solutions must be used within the reaction times confirmed on Page 3.

When used with a three-component pump and so not mixed, unused resin can be stored within the supplied and sealed container and must be used within three months of opening.

REMOVING THE PACKERS

- Wait until all resin has reacted
- Remove packers according to standard procedure
- Close the drill hole with a fast-setting mortar
- Overflowing resin can be easily removed by scraping once cured

CLEANING

Clean the pump and equipment every time there is a stop of more than 15 minutes using clean water, or whenever necessary.

Once all works have been completed, the pump should be flushed with clean water. Dispose of in accordance with local waste regulations.

STORAGE

Store in dry conditions with temperatures between +10°C and +30°C. Do not expose to freezing conditions.

SHELF LIFE

12 months after production date in original, unopened and undamaged packaging.

Once opened, the shelf life is greatly diminished and the product should be used as soon as possible.

HEALTH & SAFETY

Use appropriate PPE for the environment the system is installed in. Use products only as stated within this Data Sheet and the [Safety Data Sheet](#) which is available upon request from Newton Waterproofing Systems or via our website or mobile app. Please see contact details below.

- Avoid contact with the skin and eyes
- Wear safety glasses, gloves and overalls
- In case of contact with the skin, wash with lots of water and soap. Rinse well afterwards
- In case of contact with the eyes, rinse the eyes for several minutes with clean water. Consult a doctor
- Absorb spilled product with sand and dispose of according to the local regulations

NEWTON 323-SA

Flexible Acrylic Sealing Injection Resin

		Newton Waterproofing Systems Newton House 17-20 Sovereign Way Tonbridge Kent TN9 1RH	PC 509 ZL Acryl Newton product: 323-SA EN 1504-5:2004 0749 Concrete grouting product in accordance with EN 1504-5:2004, category S, U(S1)W(1)(1/2/3/4)(5/30)	
Essential characteristics	Declared Performance		Test Standard	Harmonised Technical Standard
Watertightness	$\geq 2 \times 10^5$ Pa		EN 14068	BS EN 1504-5:2004
Workability - Viscosity	≤ 60 mPas		EN ISO 3219	
Corrosion behaviour	NPD			
Expansion ratio and evolution in the event of water storage	290%		EN 14498	
Durability - sensitivity to water	The expansion reaches a constant level		EN 14498	
Durability - sensitivity to wet / dry cycles	No change in the expansion ratio		EN 14498	
Durability - compatibility to concrete	Successful		EN 12637-1, 6.2 & 7.3.1	
Dangerous substances	In accordance with 5.4 of EN 1504-5:2004			
NPD: No Performance Declared				

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