

Rev 1.0 - 14 March 2019

PRODUCT CODE - 324

INTRODUCTION

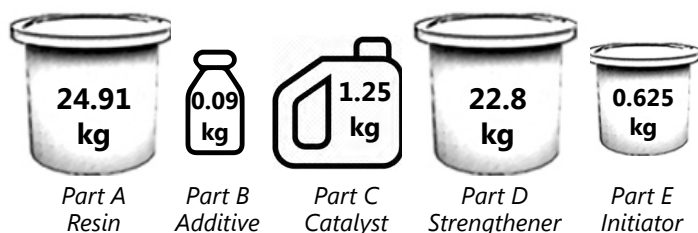
Newton 324-SR is a high-performance, five-part resin that after injection by conventional packers, reacts to form a very durable and flexible acrylic-rubber that exhibits exceptional adhesion, ensuring the comprehensive sealing of water leaks in structures that are subject to settlement or movement. Newton 324-SR is one of a range of injection resins that form the [Newton ReSeal System](#) for the sealing of water leaks.

Unlike most acrylic resins, the Initiator (Part E) is not dissolved in water, but within a solution that contains a strengthening polymer and it is this unique chemistry that produces a chemically resistant resin that also has exceptional flexibility and adhesion to most substrates, making Newton 324-SR ideal for the sealing of movement joints.

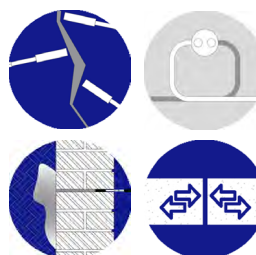
By adjusting the volume of the Part E Initiator, the reaction speed is controllable and very linear, with reaction times ranging from just 18 seconds to 18 minutes. This, coupled with an extremely low viscosity, guarantees deep penetration into fine cracks, even when dry. The cured resin is hydrophilic, swelling in the presence of water, and has outstanding moisture retention so it does not dry or shrink, even under the influence of temperature and seasonal water level fluctuations.

Newton 324-SR 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

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

TYPICAL APPLICATIONS

Where waterproofing the structure imposes difficult requirements on the physical properties of the cured resin, such as where the structure is subject to fluctuating groundwater levels or settlement or where high performance sealing is required to construction joints, expansion joints and even movement joints.

*See page 4 for explanation.



KEY BENEFITS

- Penetrates deep into fine and dry cracks
- Swells in contact with water and retains that moisture even at high temperatures

NEWTON 324-SR

Flexible Acrylic-Rubber 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 324-SR

Flexible Acrylic-Rubber Injection Resin

TECHNICAL DATA

Parts	Part A	Part B	Part C	Part D	Part E
Form	Resin	Additive	Catalyst	Strengthenener	Initiator
Appearance	Purple liquid	Clear liquid	Yellow liquid	White liquid	White powder
Viscosity at 20° C	18 mPas	5 mPas	22 mPas	25 mPas	N/A
Density	1.173	0.931	1.11	1.014	N/A
pH	5 - 6	10 - 11	11 - 12	7 - 8	N/A
Shelf life	6 months				

Mixed Liquid Resin	Result	Units
Colour	Whitish pink	
Viscosity	25	mPas
Flash point	None	V
Density	1.09	g/ml
Solids	40 - 50	%
Corrosiveness	Not corrosive	
Pot life / Working time	Dependent on amount of Part E	

Cured Resin	Result	Units
Watertightness	2×10^5	Pa
Tensile strength	< 0.5	MPa
Elongation at 20° C	> 250	%

Reaction times dependent on weight of Part E (Initiator) within Solution 2 when mixed with Solution 1*

At 20° C	Solution 1 fully mixed with packaged weights of Parts A, B & C	
Solution 2 Part D mixed with varying weights of Part E	1.14 kg	18 seconds
	0.912 kg	19 seconds
	0.684 kg	21 seconds
	0.57 kg	27 seconds
	0.456 kg	36 seconds
	0.228 kg	1 minute 15 seconds
	0.114 kg	2 minutes 54 seconds
	0.057 kg	7 minutes 10 seconds
	0.028 kg	18 minutes

*To create the resin, ready for injection, two separate solutions must be created. Solution 1 is a mixture of the packaged weights of Parts A, B & C. Solution 2 is a mixture of Part D plus varying weights of Part E (INITIATOR). Reaction times decrease in higher temperatures, and increase in colder temperatures.

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 324-SR has a service life that can be equal to the design life of the structure.

PACKAGING

- Part A - Resin - 24.91 kg
- Part B - Additive - 0.09 kg
- Part C - Catalyst - 1.25 kg
- Part D - Strengthenener - 22.8 kg
- Part E - Initiator - 0.625 kg

METHOD OF APPLICATION

Pressure injected by pump into packers secured into holes drilled into the substrate.

NEWTON 324-SR

Flexible Acrylic-Rubber 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](#)



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 324-SR 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 324-SR 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 324-SR 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 324-SR 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)

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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.



CREATING THE TWO SOLUTIONS

Before installation, the five components are mixed to prepare two solutions. Please refer to the table on page 3 for quantities and reaction times:

- Solution 1: Part A - Resin, Part B - Additive & Part C - Catalyst
- Solution 2: Part D - Strengthener & Part E - Initiator

With Solution 1, mix full quantities of the three parts - at 1/1/1. To vary the reaction time, vary the volume of the Part E Initiator in Solution 2 as described on Page 3.

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. Only make as much of the two solutions as can be used in the working day.

Ensure that:

- You have correctly selected a gel time according to the ambient temperature (start with gel times that are very slow and decrease the gel 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 gel 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

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

NEWTON 324-SR

Flexible Acrylic-Rubber Injection Resin

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 at 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 within. 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 Waterproofing Systems Newton House 17-20 Sovereign Way Tonbridge Kent TN9 1RH	PC 509 Rubber Acryl Newton product: 324-SR 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	$\pm 120\%$	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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