

Epicon Injection Resin

Epoxide Resin Crack Filling System

Description


A solvent free crack injection resin available in either a Low Viscosity grade where maximum penetration is essential, or Thixotropic grade for use where maximum flow is undesirable. Ideal for injecting cracks in concrete, masonry and brickwork to consolidate the structural element and eliminate water penetration. Epicon Crack Injection is designed to comply with the requirements of EN 1504 Part 5.

Advantages

- Solvent free non-shrink system
- Tolerant of damp situations
- Good chemical & water resistance
- Excellent bond strength with in-built flexibility
- Ideal for structural bonding & void filling
- Penetrates gap widths of 0.1mm to 6mm
- LV grade designed for decks and horizontal substrates
- Thixotropic grade designed for vertical & inverted elevations
- Injection kit available to facilitate quick & easy installation

Technical Information

	Low viscosity Grade	Thixotropic Grade
Viscosity @ 5°C	695 centipoise	>10 000 centipoise
Viscosity @ 10°C	450 centipoise	>10 000 centipoise
Viscosity @ 20°C	270 centipoise	>10 000 centipoise
Specific gravity	1.06	1.10
Working time	15-30 minutes	15-30 minutes
Pot life	20-50 minutes	20-50minutes
Initial cure time	24 hours	24 hours
Full cure time	7 days	7 days
Yield	0.945 litre per kg	0.910 litre per kg
Compressive strength	70 MPa	70 MPa
Tensile strength	30 MPa	30 MPa
Flexural strength	50 MPa	50 MPa

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Nufins, Kingston House, 3 Walton Road, Pattinson North, District 15, Washington, Tyne & Wear. NE38 8QA 23 0086-CPR-774186	
EN 1504-5 Concrete injection product U (F1) W (1) (1/2) (5/35) (0) Intended use Allowed minimum thickness of crack Moisture state of the crack Minimum and maximum use temperature Crack movement during cure	
Adhesive by tensile bond strength	≥2 MPa
Adhesion by slant shear strength	Monolithic failure
Glass transition temperature	≥40°C
Workability; Crack width from Moisture state of the crack	0.1 mm Dry and damp
Durability	Pass
Corrosive behaviour	Deemed to have no corrosive effect
Dangerous substances	Complies with 5.4



Technical Properties of Epicon Injection Resin

Properties	Standard	Performance Requirements	Declared Value Low Viscosity	Declared Value Thixotropic
Appearance			Amber liquid	Pale amber-milky paste
Working time	EN ISO 9514		15-30 minutes	15-30 minutes
Pot Life	EN ISO 9514		20-50 minutes	20-50minutes
Application temperature			5°C to 35°C	5°C to 35°C
Viscosity (centipoise)	EN ISO 3219		695 cps @ 5°C 450 cps @ 10°C 270 cps @ 20°C	>10,000 cps @ 5°C >10,000 cps @ 10°C >10,000 cps @ 20°C
Injectability into dry medium; Percentage of the crack filled Splitting strength	EN 1771	<4 minutes >90 % >7 MPa	<4 minutes >90% >7 MPa	N/A
Injectability into non dry medium; Percentage of the crack filled Splitting strength	EN 1771	<4 minutes >90 % >7 MPa	<4 minutes >90% >7 MPa	N/A
Glass transition temperature	EN 12614	≥40°C	>40°C	>40°C
Compressive strength	EN 12190		70 MPa	70 MPa
Tensile strength development	EN 1543	>3 MPa @ 72hours	>3MPa	>3MPa
Tensile strength	BS 6319-7		30 MPa	30 MPa
Flexural strength	BS 6319-3		50 MPa	50 MPa
Tensile bond strength to concrete	EN 12618-2	Substrate failure	>2MPa Substrate failure	>2MPa Substrate failure
Slant shear adhesion - concrete	EN 12615	Substrate monolithic failure	Substrate monolithic failure	Substrate monolithic failure
Adhesion after thermal and wet/dry cycling	EN 12618-2	<30 % reduction in strength	<30 % reduction in strength	<30 % reduction in strength

Technical data shown are statistical results and do not correspond to guaranteed minima.

Tolerances are those described in appropriate performance standards.

All testing performed at 23°C, unless otherwise stated.

1 N/mm² = 1MPa

1 kN/mm² = 1 GPa

Surface Preparation

Ensure that all cracks and the adjacent surfaces are sound, clean and free from contamination. All dirt, dust and loose material must be removed by raking out, wire-brushing and compressed air.

Fine cracks can be opened up with an angle grinder to facilitate application. Cracks and adjacent surfaces should be free of any standing water and be visibly dry.

Injection Preparation & Set Up

Starting at one end of a crack, drill 8-10mm diameter holes to a nominal depth of 10-15mm, at 200-500mm centres, depending on crack length, width and depth. The final hole to be drilled at the crack termination.

To mix *Formfil*; place *Formfil* paste, about the size of a golf ball, onto a flat mixing board. Squeeze a 25mm long strip of hardener, from the tube supplied, onto the paste and vigorously blend with a spatula or putty knife, until a homogenous consistency is obtained.

Use *Formfil* immediately to bond injection flanges over the drilled holes, using locating pins to ensure correct positioning. Once these are installed, seal the crack surface between flanges with *Formfil*.

Allow *Formfil* to fully harden for 45 - 90 minutes before injection commences. Hardening time will be extended in low temperatures.

Fit a short length of plastic tubing provided to each of the flanges.

Mixing Epicon Injection Resin LV & Thixotropic

Part pack mixing of injection resin is not permissible.

Add the entire contents of the Epicon Injection Resin hardener tin to the Epicon Injection Resin base tin and mix together in the tin (or on a spot-board for the Thixotropic grade), using a 25mm spatula or pallet knife. If required, the use of a variable speed drill and paddle is acceptable. Mix or stir vigorously for 1-2 minutes, until the resin is thoroughly blended. Ensure that the hardener tin has been well scraped out, leaving no excess inside.

Use immediately as pot-life is limited.

Packaging

Epicon Injection Resin is available in 0.25kg & 1kg units (yield approx. 0.2 litres & 0.45 litres respectively).

Nuwash is available in 5 & 20 litre drums.

Formfil is available in 1.5kg & 7kg units.

Also available in Kit form (see page following).

Application Instructions

Decks and horizontal substrates;

Gravity feed is acceptable for wider cracks; form a bund either side with tape, putty or sand. Epicon Crack Injection LV is typically poured directly into cracks along the length till filled.

Where injection is required, cracks will require preparation and set up (described above), and installation as described in the following section.

Vertical & Inverted Elevations:

1. Ensure injection flanges are not blocked.
2. Once *Formfil* has hardened and tubing is positioned, mix the Epicon Injection Resin Thixotropic, as described.
3. Load the mixed resin into an empty plastic cartridge, then assemble and fit into a skeleton gun.
4. Locate the cartridge nozzle onto the tube of the first injection flange; the lowermost flange for vertical cracks or either end for lateral cracks.
5. Apply light pressure to the skeleton gun trigger to begin injection. When resin appears at the second flange, cease injecting then clamp off the tube & plug the first flange. Repeat this operation for the subsequent flanges.
6. After 24 hours, remove injection flanges, using a cold chisel or grinder and make good any surface defects with *Formfil*.

Cleaning

Mixing equipment and tools should be cleaned immediately after use and frequently through the day to avoid product build up, using Nuwash.

Storage

The shelf life is 12 months when stored unopened in dry, normal conditions and away from direct sunlight. Protect from frost. If stored in cold conditions the components should be warmed prior to use as this will greatly aid mixing and injection.

Formfil is flammable, due precautions should be taken when handling and storing this material shelf life is 12 months when stored in a cool dry place.

Health and Safety

Product Safety Data Sheets (SDS) are available from Nufins. SDS sheets are provided to help customers satisfy their safe handling, use and disposal needs as well as assist with any conformance requirements made locally by health and safety regulations.

SDS are continually updated to provide the latest information to our customers. We therefore recommend contacting our head office to obtain the most recent and accurate SDS before handling and using any product.

Epicon Crack Injection Resin Kit

A pre-packed kit containing Epicon Injection Resin is available in either Low Viscosity or Thixotropic grades, together with all the ancillary equipment required to enable crack injection to be carried out.

Typically each kit contains sufficient material and equipment to fill cracks of approx. 10 lineal metres x 1mm wide x 100mm deep.

Kit Consists of:

Item	Quantity
10" Skeleton Gun (320cc)	1 no.
Cartridges Complete (320cc)	4 no.
Injection Flange c/w Plugs	20 no.
Injection Flange Locating Pins	20 no.
Plastic Tubing	1 metre
Epicon Injection Resin	4 x 250g units
Formfil	1.5kg unit
Formfil Hardener Tubes	2 no.
Nuwash	1 litre tin

Limitations

For application below 5°C contact Nufins technical department.

As with all epoxy products an exotherm will be generated, which is volume dependent, therefore mixed Epicon Injection Resin should be used immediately without delay.

Disclaimer

The information contained herein is to the best of our knowledge true and accurate and is given in good faith but without warranty. The user will be deemed to have satisfied themselves independently as to the suitability of our products for their own particular purpose. In no event shall Nufins be liable for consequential or incidental damages.

Users must always refer to the most recent issue of the Technical Datasheets, copies of which will be supplied on request.

Technical Support

Through our technical department and laboratories we can offer a comprehensive service to specifiers and contractors. Technical contacts are available to provide additional information and arrange demonstrations.