

Technical Datasheet

Epicon Crack Injection System



Epoxide Resin Crack Injection System

Description


A solvent free epoxide crack injection resin available in either a low viscosity grade where maximum penetration is essential or a thixotropic grade for use where maximum flow is undesirable. Suitable 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 EN1504 Part 5.

Advantages

- Solvent free non-shrink system
- Excellent bond strength with in-built flexibility
- Suitable for use on damp structures
- Available in two grades to cover most applications
- Injection kit available to allow repairs to be completed quickly and simply
- Will penetrate gaps of width 0.1mm and above
- Excellent performance in harsh environments
- Good chemical and water resistance
- Thixotropic grade is suitable for vertical cracks and can be used in inverted situations, where access is limited

Technical Information

	Low viscosity Grade	Thixotropic Grade
Viscosity 5°C	695 cps	>10 000 cps
Viscosity 10°C	450 cps	>10 000 cps
Viscosity 20°C	270 cps	>10 000 cps
Specific Gravity	1.06	1.10
Workable Life	20-30 Minutes	30 Minutes
Pot Life	30-60 Minutes	45 Minutes
Cure Time	24 Hours	24 Hours
Yield	0.945 Litre/kg	0.910 Litre/kg
Compressive Strength	70 MPa	70 MPa
Tensile Strength	30 MPa	30 MPa
Flexural strength	50 MPa	50 MPa

 0086	
Nufins, Kingston House, 3 Walton Road, Pattinson North, District 15, Washington, Tyne & Wear. NE38 8QA 13	
0086-CPD-594215 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	
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	0.1mm Dry and damp
Durability	Pass
Corrosive behaviour	Deemed to have no corrosive effect
Dangerous substances	Complies with 5.4

Surface Preparation

All surfaces should be free from chemical contamination, oil, grease and debris. Oil and grease can be removed using *Desolve*. Concrete should be scarified or acid etched using *Chemclean* to remove any laitance. All surfaces should be free from standing water.



Technical Properties of Epicon Crack Injection Resin.

Properties	Standard	Performance Requirement	Declared Value	
			Low Viscosity	Thixotropic
Appearance			Amber Liquid	Pale Amber Paste
Working time	EN ISO 9514		20-30 Minutes	30 Minutes
Pot Life	EN ISO 9514		30-60 Minutes	45 Minutes
Temperature for application			5°C to 35°C	5°C to 35°C
Viscosity	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	EN1771	<4 minutes >90% >7 MPa	<4 minutes >90% >7 MPa	N/A
Injectability into non dry medium; Percentage of the crack filled Splitting strength	EN1771	<4 minutes >90% >7 MPa	<4 minutes >90% >7 MPa	N/A
Glass Transition Temperature	EN12614	≥ 40°C	≥ 40°C	≥ 40°C
Compressive Strength	EN12190		70 MPa @ 24 Hr	70 MPa @ 24 Hr
Tensile strength development	EN1543	>3MPa @ 72Hr	>3MPa	>3MPa
Tensile Strength	BS6319-7		30 MPa	30 MPa
Flexural Strength	BS6319-3		50 MPa	50 MPa
Tensile Bond Strength to Concrete	EN12618-2	Substrate Failure	>2MPa Substrate Failure	>2MPa Substrate Failure
Slant Shear Adhesion - Concrete	EN12615	Substrate Monolithic Failure	Substrate Monolithic Failure	Substrate Monolithic Failure
Adhesion after thermal and wet/dry cycling	EN12618-2	< 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.

$$1 \text{ N/mm}^2 = 1 \text{ MPa}$$

$$1 \text{ kN/mm}^2 = 1 \text{ GPa}$$

Application Instructions

Epicon Crack Injection L.V. is typically poured into horizontal cracks, however when injecting vertical/inverted applications (with either version) the crack will require some preparation to install injection flanges as well as sealing the face of the crack with *Formfil*.

Instructions For Vertical & Inverted Injections

1. Mix the *Formfil* by placing a small amount of the resin paste onto a flat board, approximately the size of a golf ball. Squeeze out a strip of hardener approximately 25mm long and mix thoroughly with a putty knife until a smooth even colour paste is obtained.
2. Use the *Formfil* to bond the injection flanges to the crack, using the locating pins to ensure the correct positioning.
3. Ensure the flanges do not become blocked with *Formfil*.
4. Flanges should be bonded at between 200mm-500mm centres depending on the width and depth of the crack.
5. *Formfil* should also be used to seal the surface of the crack inbetween flanges. *Formfil* will harden in approximately 20 minutes after which time injection can commence.
6. Mix the Epicon Crack Injection Resin by adding the entire contents of the hardener tin to the base tin and slowly stir until the materials are thoroughly mixed. A pallet knife may be needed for the Thixotropic grade, to scrape the hardener out of its tin.
7. Place the mixed resin into the assembled cartridge and fit into the skeleton gun.
8. Attach a suitable length of plastic tubing to the cartridge nozzle and fit to the first inject flange (the lowest flange for vertical applications), gently injecting the resin.
9. When the resin appears at the second flange cease injecting and plug the first flange. Repeat the operation for the subsequent flanges.
10. Clean all equipment with Nuwash.
11. After 24 hours remove the nozzles and make good any surface defects with *Formfil*.

Packaging

Epicon Crack Injection resin is available in 0.25kg and 0.5kg units, yielding 0.22 litres and 0.45 litres respectively.

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.

Limitations

If injecting below 5°C contact Nufins technical department. As with all Epoxy products an exotherm will be generated, which is volume dependent.

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.

Epicon Crack injection resin Kit

Description

A pre-packed kit containing Epicon Crack Injection resin is available as either Low Viscosity or Thixotropic resin, together with all the ancillary equipment required to enable small scale crack injection to be carried out. Typically each kit contains enough material to repair approximately 10 metres of crack length.

Kit Consists of:

Item	Quantity
10" Skeleton Gun (320cc)	1
Cartridges Complete (320cc)	4
Injection flanges c/w plugs	20
Flange locating Pins	20
Plastic Tubing	1.0 metre
Injection Resin	4 x 250g
Formfil	1.5kg
Tube of Formfil Hardener	2
Nuwash	1 litre
Plastic Scrappers	2
Pairs of Plastic Gloves	2