

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 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 | 0.1mm |
| 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 | 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 | < 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 |