RESIN INJECTION REPAIR SYSTEMS

DESCRIPTION

SEALOCRETE RESIN INJECTION REPAIR SYSTEMS are complete systems for injecting epoxy resin based materials into wide or fine cracks and/or honeycombed concrete to permanently seal and structurally bond such substrates.

USES

RESIN INJECTION REPAIR systems have been specifically developed to:

Make structural repairs that will restore (and under many circumstances improve) the concrete, brickwork or stonework to its original strength and condition.

Eliminate further damage that is likely to be caused by the passage or leakage of water.

Effectively repair concrete and brickwork without leaving unsightly surface marks

Make more rapid and economical repairs.

ADVANTAGES

RANGE
A range of systems to allow repairs of varying size cracks and for overhead or vertical use.

SELF CONTAINED
Each kit contains all the materials required to effect the repair .

HIGH STRENGTH
Epoxy Resin systems will bond most materials and will provide a repair that is stronger than the original structure.

PRODUCT DATA

Grades Available

RESIN INJECTION LIQUID - PENETRATING
A very low viscosity resin for the finest of hairline cracks. The cure rate of this grade is retarded to permit time for injection into narrow cracks.

THIXOTROPIC RESIN INJECTION LIQUID
A low viscosity but thixotropic liquid for cracks from 500 micron to 4mm. The thixotropic nature of this resin ensures that the injected resin will not drain from the injection point / area of the crack before it has initially cured, but it is sufficiently low in viscosity to be injected into these quite narrow cracks.

THIXOTROPIC RESIN INJECTION GROUT
A heavier bodied resin for gaps and cracks wider than approx 4 mm and with the thixotropic benefits of above.

The SEALOCRETE RESIN INJECTION SYSTEM comprises of the following components:

1. Resin Injection Liquid - Penetrating
   or Thixotropic Resin Injection Liquid
   or Thixotropic Resin Injection Grout

PLUS

2. Resin Injection Gun (not included in basic kit)
3. Resin Injection Flexible connection
4. Resin Injection Flexible connection clips
5. Resin Injection Flanges
6. Resin Injection Plastic Nipples
7. Resin Injection Rubber Stoppers
8. Resin Injection Locating Rod
9. Polyester Adhesive
10. Cleaning Thinners No.3
**TECHNICAL DATA**

<table>
<thead>
<tr>
<th></th>
<th>Pot Life @ 25ºC (1 Litre)</th>
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</thead>
<tbody>
<tr>
<td>Penetrating Injection</td>
<td>90 mins</td>
</tr>
<tr>
<td>Liquid</td>
<td></td>
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<tr>
<td>Thixotropic Injection</td>
<td>25 mins</td>
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<tr>
<td>Liquid</td>
<td>45 mins</td>
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<tr>
<td>Thixotropic Injection</td>
<td></td>
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<tr>
<td>Grout</td>
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<table>
<thead>
<tr>
<th>Viscosity: Penetrating Liquid</th>
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</thead>
<tbody>
<tr>
<td>@ 20ºC - 25ºC 1.0 poise</td>
</tr>
<tr>
<td>@ 4ºC 1.2 poise</td>
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<table>
<thead>
<tr>
<th>Adhesion to concrete</th>
<th>Concrete failure</th>
</tr>
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<table>
<thead>
<tr>
<th>Slant Shear Strength (25ºC)</th>
<th>Control Prism 40N/mm²</th>
</tr>
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<tbody>
<tr>
<td>Injected &amp; Repaired Prism</td>
<td>45.5/Nmm²</td>
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<tr>
<th>Strengths (to BS 6319) @ 28 Days:</th>
<th>N/mm²</th>
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<tbody>
<tr>
<td>Compressive</td>
<td>&gt;70</td>
</tr>
<tr>
<td>Tensile</td>
<td>24 – 26</td>
</tr>
<tr>
<td>Flexural</td>
<td>18</td>
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<tr>
<td>Flexural Modulus</td>
<td>3.2 – 3.5</td>
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<table>
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<tr>
<th>Initial Cure: @ 25ºC (Depends on volume)</th>
<th>1 – 4 Hours</th>
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<tr>
<td>Final Cure: @ 25ºC</td>
<td>7 Days</td>
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<tr>
<th>Application Temperature</th>
<th>4ºC - +35ºC</th>
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<tbody>
<tr>
<td>Service Temperature</td>
<td>-30ºC - +55ºC</td>
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**METHOD OF USE**

The exact technique of dealing with each repair will vary according to the particular features of the job and the structural problem to overcome. The details given in this publication are therefore based on the more common situations. Further information can be obtained from the Sealocrete Technical Services Department.

The RESIN INJECTION REPAIR SYSTEMS involve three types of epoxy resin, suitable for application to overhead, vertical and horizontal situations (including hollow floor screeds and renderings).

It is not always possible to ensure that the cracks or gaps to be injected will be perfectly dry, but all three systems have the ability to displace water and bond to damp surfaces.

**Preparation**

If necessary, clean the face of the substrate in the vicinity of the crack to remove loose material. Do not allow dust to enter the crack. Vacuum out the crack where possible.

**Application of Injection Flanges**

IN DRY CONDITIONS mix a small quantity of POLYPASTE ADHESIVE by stirring together a 25mm length of catalyst and 50gms of resin paste. The usable life of this mix will about 15 minutes at 25ºC.

Carefully apply the mixed adhesive in a thin layer to the back of each flange. Avoid blocking the hole with adhesive. Locate each flange centrally over the crack by use of the locating rod supplied. Push each flange down the locating rod and firmly onto the substrate face straddling the crack at intervals of between 75mm and 300mm. This distance is only a guide. Where the depth of crack is known, the flanges should normally be spaced at intervals equal to the crack depth. This is because the injected resin spreads from the injection point in a semi circular pattern and will therefore extrude from adjacent flanges at the same time as reaching the base of the crack. Absence of leaks at the edges of each flange can be ensured by applying additional adhesive.
IN DAMP CONDITIONS use EPOXY ADHESIVE in place of POLYPASTE. Mix equal volumes (or weight) of Pack A and Pack B together until a uniform grey colour is obtained. Apply to each flange and fix as described above. A modification will be necessary in the case of very wide cracks, when it may be convenient to insert an injection nipple (obtainable from SEALOCRETE) or 6mm O.D. pipe into the crack, rather than bond the flange over the crack surface.

SEALING THE CRACK SURFACE

Seal the surface of the crack with either POLYPASTE in dry conditions or EPOXY ADHESIVE in damp conditions. Note that the injection may proceed between 1 to 2 hours, depending on temperature, after application of POLYPASTE, but it will be necessary to leave EPOXY ADHESIVE for approximately 24 hours to cure, again depending on temperature.

The correct sealing of the crack or surface is most important to avoid unwanted loss of resin, especially when using the low viscosity grade.

In situations where no central crack is visible, as in the case of honeycombed concrete, the entire area will need to be covered and sealed with a SEALOTAK SBR slurry (see technical data sheet). Then injection points should be drilled and plastic nipples or 6 mm O.D. pipes located in a grid pattern at suitable intervals dependent upon the extent of air voids present in the concrete. Injection of RESIN INJECTION LIQUID - PENETRATING should be carried out in the usual manner.

Resin Injection

When the adhesive or sealing slurry coats have cured, injection may proceed. In some cases at this stage it may be necessary to flush out any dust etc, that may have accumulated in the crack. Such situations may be where the crack has been in existence for some time or where shear movement has taken place, sufficient to grind dust into the crack. It will be found most convenient to use the actual injection gun for the flushing operation commencing at the uppermost injection point for vertical cracks. Water is most commonly used for flushing and the process also provides an indication of whether the crack or surface has or has not been completely sealed. If the flushing operation using water carries the risk of further corrosion of reinforcement, flush out with THINNERS No.3.

Prepare the injection resin by thoroughly mixing together Pack A and Pack B. Fill into the injection gun by unscrewing the barrel cap and pouring in. Connect the flexible connection by pushing the tube onto the injection head. The flexible tube is a tight push fit onto the flange, but clips are also provided and are easily affixed by squeezing the lugs with a pair of pincers. Pump in the resin until it starts to seep out the adjacent injection point. Do not use excessive pressure on the injection gun. Maintain a steady pressure just sufficient to keep the resin moving.

After injection, remove the flexible connection tube by cutting one of the legs of the clips with the pincers or alternatively by cutting the tube off immediately above the injection flange head. Then plug the flange with the stoppers provided, although this will not normally be necessary when using the thixotropic resins.

RESIN INJECTION LIQUIDS & GROUT can be satisfactorily applied by specialised bulk injection equipment.

Other Methods

Under particular circumstances, many other methods of injection or application may be appropriate. For bonding hollow floor screeds and toppings, the resin may be injected through a series of 6 mm holes drilled through the screed or topping, or application may be made by gravity feed through these holes. A 'ponding' method is often convenient, using a putty or All Purpose mastic to form a ‘reservoir’.

Where cracks exist in the screed or topping, it is sometimes more convenient to apply the resin through the cracks, without the need for drilling. This situation occurs where screeds or toppings lift by curling at the edges. EPOXY G P PRIMER is the most suitable product to use in these situations, provided the application rate is fast enough to accommodate the pot life of the material (30 minutes).
Removal of Injection Flanges

After injection the flanges may be removed by tapping with a cold chisel and the surface made good to disguise the cracks in any way desired.

Cleaning of Tools

Equipment may be cleaned immediately after use with the THINNERS No.3 supplied.

STORAGE

All kits and components should be stored in cool dry condition away from frost or direct sunlight. The shelf lives of the epoxy components will be 12 months when these products are stored in these conditions in original unopened containers.

PACKAGING

The basic kits consist of:

1. 1 litre Resin Injection Liquid Penetrating
or 1 litre Thixotropic Resin Injection Liquid
or 1 litre Thixotropic Resin Injection Grout

PLUS

2. 1 kg POLYPASTE consisting of two separate containers – a catalyst tube and tin of resin paste.

PLUS

3. 1 pack containing:

   - 10 INJECTION FLANGES
   - 5 INJECTION FLANGE RUBBER STOPPERS
   - 1 INJECTION FLEXIBLE CONNECTION STOPPERS
   - 5 INJECTION FLEXIBLE CONNECTION CLIPS
   - 5 RESIN INJECTION LOCATING ROD

PLUS

4. 1 litre THINNERS No. 3

SEALOCRETE RESIN INJECTION GUNS (Capacity 500mls) and plastic nipples are available separately to the basic kits as described above and in any quantity. Items 1, 2, 3, 4 are available in multiples of the sizes or amounts indicated above.

HEALTH & SAFETY

All the above Injection systems contain liquid epoxy resin and a polyamine compound. Do not breathe fumes. Wear suitable gloves and eye/face protection.

POLYPASTE contains unsaturated polyester resin in styrene, and peroxide catalyst. Flammable, flash point 31°C. Irritating to eyes and respiratory system. Keep in a cool place.

For more information refer to the relevant Health and Safety Data Sheet.

We endeavour to ensure that any advice, recommendation or information we may give in product literature is accurate and correct. However, we have no control over the circumstances in which our product is used and it is therefore important that the end user satisfy himself by prior testing that the product is suitable for his specific application and that the actual conditions of use are suitable. Accordingly, no responsibility can be accepted, or any warranty given by ourselves, our representatives, agents or distributors, other than that the product as supplied by us will meet our written specification. Products are sold subject to our standard conditions of sale and each purchaser and end user should at all times ensure that he has consulted our latest product instructions and safety information.