KingInject® 80PU1

Polyurethane resin based injection system.

DESCRIPTION

KingInject 80PU1 is a two-component; low viscosity moisture reactive polyurethane system which when reacts with water and expands to form a closed-cell foam barrier. KingInject 80PU1 is used in conjunction with KingInject 80PU2 for permanent and effective sealing of live cracks.

APPLICATIONS

For injection of wet cracks in all types of structural concrete elements, masonry, and brickwork.

ADVANTAGES

- Excellent bond strength to concrete, brickwork, and masonry.
- Low viscosity polyurethane system, formulated to allow cracks penetration.
- Rapid reaction with water; will stop water leakage problems.
- Outstanding resistance to hydrostatic pressure.
- Used with KingInject 80PU1 120 to form a permanently elastic seal.
- Exhibit good chemical resistance.
- Non-toxic, suitable for use in contact with potable water.

STANDARDS

KingInject 80PU1 is suitable for use in contact with potable water when tested in accordance with BS 6920.

METHOD OF USE

Depending on crack width, depth, location, and thickness, many injection techniques requiring different injection tools and equipment may be used.

The injection method given in this Technical Data Sheet is based on the most common situation. For more details, consult KINGKRETE Technical Department for assessments and advice.

Substrate Preparation

The surface of the cracks should be cleaned from dust, oil, plaster, grease, curing compound and corrosion deposits. All cracks to be repaired should be cleaned with compressed air. This should be carried out after drilling of injection holes.

TECHNICAL PROPERTIES

Reaction time with water:	Between 5 – 30 sec @ 25ºC
Mixed density:	1.120 ± 0.05 g/cm³ @ 25ºC
Viscosity:	60 – 120 mPa.s @ 25ºC
Pot life in absence of water:	3 – 4 hr @ 25ºC 2 – 3 hr @ 40ºC

INJECTION HOLES DRILLING & FIXING

Holes are drilled to install mechanical packers. Always try to allocate steel re-bars and conduit before drilling. Using a high-quality rotary hammer drill, and depending on packer diameter used, a suitable drill pit used, usually 13 mm or 16 mm diameter mechanical packers are used.

The angle which drilling should be is 45ºC or less to the surface and toward the crack. Depth of the drill holes intersecting the crack should be somewhat close to the middle of the structure, if possible.

Holes greater than 45 cm are not required even if the concrete being repaired is more than 90 cm thick. Holes should always be staggered from one side of the cracks to the other.

Spacing: distance between drilled holes usually varies from approximately 15 – 50 cm according to the width of the cracks (30 cm is commonly used). Yet the wider the cracks, the further apart are drill holes.

NOTE:

If concrete thickness 15 cm or less, do not attempt angle drilling. Also to minimize concrete damages, packers will be set into the face of the crack.

Fixing of injection mechanical packers (nipples)

Packers shall be placed into drilled holes so that top of the rubber sleeve is below the concrete surface. Tight the packer with a wrench as much as you can.

INJECTION

Mix KingInject 80PU1, resin and accelerator using mechanical slow speed drill. Load the mixed resin and charge the pump, hose and gun. When injecting into a defined crack, the crack surfaces between two mechanical packers exhibits immediate free flow of resin while working the first packer, pause for few minutes, in most cases the foam of KingInject 80PU1 will react fast enough with water and expand rapidly to close these cracks, and the cured KingInject 80PU1 will heal the crack and provide surface seal to contain the material to flow. After 2 - 3 minutes, start pumping again. If the crack between the packers did not heal, then apply “KingStop” a fast cure water plug.

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Begin injection at point of highest resistance to ensure good penetration and minimal loss of materials. The injection is usually started at the lowest point on vertical crack and the narrowest area on the horizontal surface. Injection process will continue until the mixed resins (KingInject 80PU1) travelled to next packer. Disconnect and move to next packer. After completing two packers, return to the first packer and inject again. Continue with this fashion until the crack is filled. Immediately and after water flow stoppage, inject the crack/ honeycombing with a mixed (part A & B) resin using KingInject 80PU2 to permanently seal the crack/ honeycombing.

KingInject 80PU2 is a flexible resin with unique physical properties such as:

- 60 - 80 % elastic properties and
- 2 MPa tensile strength.

CLEANING

- Resins must be cleaned up immediately before it sets.
- Packers must be removed within 24 - 48 hours and patched with appropriate epoxy mortar using KingInject 80PU1 341C.
- Electrical grinder can be used to remove excess cured resin that flowed out the cracks.

PACKAGING

KingInject 80PU1 is available in 1.1 kg (1 litre) and 5.5 kg (5 litre) packs.

STORAGE

Shelf life is 1 year when stored under cover, out of direct sunlight and protected from extremes of temperature.

Failure to comply with the recommended storage conditions may result in premature deterioration of the product or packaging. For specific storage advice consult KingKrete's Technical Services Department.

HEALTH AND SAFETY

As with all chemical products, care should be taken during use and storage to avoid contact with eyes, mouth, skin and foodstuffs. Treat splashes to eyes and skin immediately. If accidentally ingested, seek medical attention. Reseal containers after use. Use in well ventilated areas and avoid inhalation.

NOTE

Field service, where provided, does not constitute supervisory responsibility. For additional information contact your local KingKrete representative. KingKrete Inc. reserves the right to have the true cause of any difficulty determined by accepted test methods.

QUALITY AND CARE

All products originating from KingKrete's Middle East facility are manufactured under a management system independently certified to conform to the requirements of the quality standards ISO 9001, ISO 14001 and ISO 45001.

* Properties listed are based on laboratory-controlled tests.
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