

# KingInject<sup>®</sup> 80PU2

Elastic polyurethane resin based injection system.

## DESCRIPTION

KingInject 80PU2 is a two component; low viscosity polyurethane injection system for elastic sealing of cracks in wet or dry conditions, in concrete structures and masonry. KingInject 80PU2 is also used in conjunction with KingInject 80PU1 for permanent and effective sealing of live cracks in wet conditions.

## APPLICATIONS

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

## ADVANTAGES

- ☞ Solvent and filler free.
- ☞ Excellent bond strength to concrete, brickwork, and masonry in wet and dry conditions.
- ☞ Low viscosity polyurethane system, formulated to allow for small cracks penetration.
- ☞ Outstanding resistance to hydrostatic pressure.
- ☞ Good flexibility.
- ☞ Cures to form permanent and impermeable elastic seal.
- ☞ Exhibits good chemical resistance.
- ☞ Non-toxic, suitable for use in contact with potable water.

## STANDARDS

KingInject 80PU2 is suitable for use in contact with potable water when tested in accordance to 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, KINGKRETE Technical Department should be consulted for assessments and advise.

### 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

Mixed density:	1.1 ± 0.05 g/cm <sup>3</sup> @ 25°C
Viscosity:	125 - 150 mPa.s @ 25°C
Pot life:	35 – 45 min @ 25°C 15 – 20 min @ 40°C
Gel time:	40 – 50 min @ 25°C 18 – 25 min @ 40°C
Tensile strength: ASTM D638	≥ 1.2 MPa @ 7 days
Elongation at break: ASTM D638	≥ 80% @ 7 days
Modulus of elasticity: DIN 53457	4.0 – 4.5 MPa
Shore A hardness: DIN 53505	60 – 90
Slant shear strength: (AASHTO T237)	≥ 1.5 MPa @ 7 days

## INJECTION HOLES DRILLING & FIXING

Holes are drilled to install mechanical packers. Always try to allocate steel re-bars and conduit before drilling.

Using high quality rotary hummer 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 45° C or less to the surface and toward the crack. Depth of the drill holes intersecting the crack should be somewhat close to middle of 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 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 concrete surface. Tight the packer with wrench as much as you can.

# KingInject® 80PU2

## INJECTION

Mix KingInject 80PU2, 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 80PU2 will react fast enough with water and expand rapidly to close these cracks, and the cured KingInject 80PU2 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 "KingPlug" a fast cure water plug. 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 80PU2) 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 80PU2.
- Ⓛ Electrical grinder can be used to remove excess cured resin that flowed out the cracks.

## STATEMENT OF RESPONSIBILITY

The technical information and application advice given in this KingKrete Inc. publication are based on the present state of our best scientific and practical knowledge. As the information herein is of a general nature, no assumption can be made as to a product's suitability for a particular use or application and no warranty as to its accuracy, reliability or completeness either expressed or implied is given other than those required by law. The user is responsible for checking the suitability of products for their intended use.

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## NOTE

Field service where provided does not constitute supervisory responsibility. Suggestions made by KingKrete Inc. either orally or in writing may be followed, modified or rejected by the owner, engineer or contractor since they, and not KingKrete Inc. are responsible for carrying out procedures appropriate to a specific application.

## PACKAGING

KingInject 80PU2 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.

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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 Qatar facility are manufactured under a management system independently certified to conform to the requirements of the quality standard ISO 9001.

\* Properties listed are based on laboratory-controlled tests.

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