

TECHNICAL DATA SHEET

1-component MDI-based hydrophilic, VOC-free, polyurethane based injection system. Reacts in a dense foam, elastomeric gel or a soft gel in combination with water.

Designed for sealing joints, cracks, screen injections and stopping high volumes of water.



I. Applications

TEKINJECT PU 1C HYDROGEL is an injection system used for sealing joints, screen injections, cracks and stopping high volumes of water. In combination with sufficient water, it can be used for sealing of:

- Sealing of cracks (from 0,3 mm up to 20 mm)
- Sealing of joints (up to 20 mm)
- Sealing of water under high flow
- Excellent sealing capabilities to seal tunnel segments
- Screen injection
- Filling voids
- Injection hoses

II. Properties

- TEKINJECT PU 1C HYDROGEL is a 1-component, polyurethane based injection system that needs water in order to react and transforms into a dense closed cell compound material, an elastomeric gel or a soft gel.
- Even in alternating water tables, the hydrophilic capabilities of the resin ensure a long-term sealing by reversible swelling.
- Good chemical resistance against many acids, bases, solvents, and fuels (check chemical resistance list)
- depending on the amount of water used, you get a different reaction:
 - 1 volume of resin – 1 volume of water: dense closed cell compound
 - 1 volume of resin – 5 volume of water: Elastomeric gel
 - 1 volume of resin – 10 volume of water: Soft gel
- The material can be injected directly in the structure using 1 component pump, as long as there is sufficient water present in the structure. Moreover it can be injected using a 2-component pump whereby the second component is water.
- Non-toxic: does not contain solvents.
- Non-flammable.
- Excellent adhesion on mineral building materials such as concrete, cement and brick.

III. Technical Data

- Typical values:

TEKINJECT PU 1C HYDROGEL:

Color	Yellowisch
Viscosity (20°C)	1350 mPa.s
Density (20°C)	1,05 g/cm ³
Flash Point	> 148 °C
Storage temperature	Between 10 °C and 30 °C
Min. application temp	5 °C (lower is possible with adapted techniques)
Expansion Volume	Depending on the volume of water (see 2. Properties)

Mixing ratio by volume(Resin/water @ 20°C)	Gel time (sec)	Tack free time (sec)	End product
1:1	20	30	Strong dens foam
1:5	30	35	Elastomeric strong gel
1:10	35	45	Soft gel

IV. Processing

1. Resin preparation

The TEKINJECT PU 1C HYDROGEL is a pre-catalyzed PU resin and is therefore ready to use. Pour the mixture in a bucket.

Depending on the ambient and structure temperature, the reaction times will vary (check 3. Technical data, Reaction times). The higher the temperature, the quicker the reaction time. As this material is a pre-catalyzed, the reaction time can be altered by using a heat mantle.

2. Substrate preparation

Check the quality of the substrate, injection means increased pressure on the substrate, so the substrate needs to be of sufficient strength.

Determine the packers according to the injection technique, substrate dimensions and type of pump. According to the selected packer and injection technique, the holes in the substrate need to be drilled. Tighten the packers well in order to make sure the injected pressure is distributed.

The distance and pattern of the packers/bore holes depend on the substrate structure and the injection technique. Please consult your TEKINJECT contact person for more information or the specific application manuals of the injection techniques.

3. Injection

Option 1: The material can be injected directly into the structure in combination with water, by using a 2- component pump. This procedure is recommended if you are not sure that sufficient water will be present in the structure and that thorough hydration can take place. Enough water ensures a good reaction of the resin.

The material can be injected directly into the structure, by using a 1- component pump. The resin will react with the water in the structure and will react.

Option 2: The material can be injected directly into the structure, by using a 1- component pump. The resin will react with the water in the structure and will react.

The selected injection pressure is as low as possible. Start at the lowest point and increase until you see the resin flowing. Injection with low pressure ensures a deeper penetration of the resin and complete sealing of the structure.

Start injecting at the lowest point in case of a vertical application and at the widest point for a horizontal application. Open the valve of the gun, hold the pressure, and inject until the resin appears in the next packer. Stop pumping and proceed to the next packers. To make sure the material is penetrated in the full structure, opening and closing the valve and letting the material flow, can be advised. Continue the process until the whole structure is sealed.

4. Cleaning

If the components are liquid, the pump can be cleaned with TEKINJECT PU CLEANER. Hence, we recommend, every time there is a stop of more than 15 minutes, and at the end of the injection works to flush the pumps with TEKINJECT PU CLEANER, which is a cleaner with high flash point.

Hardened material needs to be cleaned with PU dissolver.

Packers can be removed, and the boreholes can be sealed with a fast-setting mortar.

For more details see application manual of the TEKINJECT PU 1C HYDROGEL

V. Packaging

TEKINJECT PU 1C HYDROGEL:	20 kg plastic jerry can
	200 kg metal drum
	1000 kg IBC

VI. Shelf life

12 months after production date in the original, unopened and undamaged packaging, according to the storage instructions of each component (see technical data of this sheet). If the following recommendations are not followed, the shelf life of the material cannot be guaranteed.

VII. Precautions and Safety Recommendations

- Wear safety and protection materials when handling this material (glasses, gloves, protective clothing).
- In the event of contact with the eyes: rinse thoroughly with clean water and consult a doctor.
- In the event of skin contact: rinse with water thoroughly.
- Mix residues of the TEKINJECT PU 1C HYDROGEL with sand and dispose of in accordance with local regulations.
- The resin can react with water or atmospheric humidity to form CO₂ gas. This can build up pressure in a closed package or container that has already been opened.
Consult the Material Data Safety Sheet for more information on health and safety regulations.

VIII. Company Details

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