EUCOINJECT PU GEL

1 COMPONENT POLYURETHANE INJECTION RESIN, FLEXIBLE - GEL OR FOAM

FIELD OF APPLICATION

EUCOINJECT PU GEL is a highly concentrated, hydrophilic, water-miscible polyurethane injection gel. By adding water (mixing with drinking water) it reacts to a very elastic gel. Depending on the amount of water that will be added to the resin, it reacts to a flexible gel or a flexible foam. After the material has fully cured, it is waterproof against water under pressure.
EUCOINJECT PU GEL is used in various application areas.

- Screen injections behind tunnel walls, concrete, masonry, sewers, inspection holes, basements, car parks, ...
- Sealing of water leaks in concrete, masonry, sewer systems, manholes ,... where movement or settlements are expected.
- Injection of defective membranes and tunnel liners.
- Soil stabilization.
- Soil stabilization before excavation.
- Sealing of expansion joints (underground).
- Filling of cavities and voids.
- Injection of preventively installed injection hoses, such as EUCOPREV TUBE & EUCOPREV TUBE PRO.
- Etc...

BENEFITS & FEATURES

- Hydrophilic (miscible with water).
- 1 component resin with drinking water as catalyst.
- Very elastic
- No free isocyanates
- Curing as a gel or as a hydrophilic foam
- Perfect adhesion to absorbent surfaces
- Low injection viscosity - deep penetration
- Mixing ratio 1: 1 to 1:13 with water
- Reaction time adjustable between 10 seconds and 20 minutes
- Not corrosive and not affecting steel reinforcements.
- Application with 2 component injection pump.

APPLICATION

Application conditions

Avoid injections at temperatures below +5°C.

Tools & complementary products

- Power drill and drills of suitable diameter and length.
- Packers of suitable diameter and length. (Or strainer or TAM)
- 2 component Injection pump.
- Clear drinking water as a catalyst
- EUCOPROOF CEM PLUG
- EUCOSEAL MORTAR THIX
- EUCOSOLV PUMP CLEAN

Preparations

Before starting the injection procedure, an analysis of the situation is required. Based on the analysis results (water situation, crack properties, crack width, occurrence of cavities, water temperature, soil type, etc.) it is necessary to choose the correct mixing ratio (resin:water).
Injection of active seams and joints:
Check how the seams and joints are positioned to avoid drilling blind holes. Blind holes are drilled holes that have not been drilled through the seam or joint.
Leaking active cracks:
Drill injection holes alternately left and right, or above and below the crack and at a 45° angle towards the crack. This is to ensure that the drill holes go through the crack.
The drill holes must cross the crack, seam, joint halfway through the thickness of the concrete wall or floor. Blow the dust out of the injection hole. Place a packer of the correct diameter in the drill holes. If necessary, the packers can be fixed with EUCOPROOF CEM PLUG quick cement.
Screen injection:
Drill the necessary injection holes and use the appropriate injection packers. A sufficiently large injection pattern must be worked out. The holes for screen injection go through the full thickness of the wall or floor slab. The area to be sealed is provided with packers in a 2-dimensional grid of max. 20 to 30 cm. The packers are mounted horizontally and each subsequent row is offset from the first. If necessary, the packers can be fixed with EUCOPROOF CEM PLUG quick cement.
Soil injection:
Use the appropriate injection packers for soil injections (Strainers / TAM). Install the injection tubes in the correct position, according to the correct distance, length and correct injection pattern (to be determined by the project engineer).
Expansion joints:
The holes go through the full thickness of the wall or floor slab. If necessary, the packers can be fixed with EUCOPROOF CEM PLUG quick cement. Make sure that the drilled holes do not pierce the cast-in joint strips.
For special applications it is advisable to consult your EUCOCHEM BV representative.

Preparation of the product and the equipment

See below to determine resin / water mixing ratios per application. These are indicative values as various factors influence consumption, reaction speed, etc. it is therefore advisable to perform a cup test. Put the desired amount of A (resin) and the desired amount of B (water) in a plastic cup and mix by alternately pouring the contents of the cups together. See how long it takes for a reaction to start. If necessary, adjust the mixing ratio of resin and water.

Mixing ratio resin: Water	Application time	Reaction time	Application
1 : 13	12'	16'	Soil injection
1 : 10	3'	9'	Screen injection
1 : 3 tot 1 : 5	1.5'	3'	Expansion joint
1 : 1	15"	1'	Acrive cracks and joints

Use a 2 component Injection pump with a variable volume ratio. Attach the hoses with the correct length to the pump and to the injection head equipped with a static mixer and flushing system.

Check the proper functioning of the pump. Adjust the correct mixing ratio. Check the operation of the injection head and flushing system. The material (resin + water) is mixed in the static mixer of the injection device. That

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is, just before the injection. The mixing ratio of the pump must be set before the injection is started. The correct pressure is the pressure required for the resin to flow through the packer / migrate into the soil.

Application of the product

Injection of leaking active seams, joints or cracks:
Connect the pump to the first packer. Start the injection. When injecting vertical bilge seams or cracks, start at the bottom at the lowest packer. Do not use too much pressure when injecting. The correct pressure is the pressure required for the resin to flow into the crack or bilge seam. Stop the injection from the moment resin emerges from the crack or the seam. Then inject the next packer. Etc... If necessary, the packers can be re-injected with resin.
Screen injection:
The injection starts at an angle on the bottom row. The material is injected until injection gel comes out of the adjacent packer or the correct amount of material is injected. Move to the next packer on the same horizontal line. Etc. Inject the packers line by line and proceed with the injection upwards. The injection must be continuous so that no material reacts in the mixing device. Then completely re-inject the grid.
Soil injection:
Start the injection on the first strainer or TAM of the injection pattern. Inject the required amount of resin into the strainer or TAM. The amount needed depends on the depth of injection, soil type, type of injection packer, the injection pattern and should be calculated by a project engineer. Inject under the lowest possible pressure, the recommended pump pressure is the pressure needed to make the resin flow into the soil.
Move to the next packer when the required amount of resin is injected.
Expansion joints:
For an injection of expansion joints, EUCOPROOF PU GEL must be mixed with water in a ratio of maximum 1: 5 (resin : water). With this mixing ratio, the material forms a sticky foam and achieves high adhesion to the edges of the joint. Connect the pump to the first packer. Start the injection. Do not use too much pressure when injecting. The correct pressure is the pressure required for the resin to start flowing. Stop the injection from the moment resin emerges from the next packer. Then inject the next packer. Etc... If necessary, the packers can be re-injected with resin.

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Finishing

After the injection works, remove the packers and fill the borehole with EUCOPROOF CEM PLUG quick cement, with EUCOSEAL MORTAR THIX or another suitable material.

Cleaning of the tools

After injection works, rinse and clean the resin pump with EUCOSOLV PUMP CLEAN. If the pump will not be used in the coming days, it can be filled with oil until the next injection. Never use water to clean or fill the pump during storage.

MAINTENANCE AFTER APPLICATION

Does not apply.

TECHNICAL DATA

Consumption

Consumption is different in every situation and must be estimated on site; it will be affected by the amount of water, thickness of the concrete wall or floor, presence of voids in and around the concrete, size of the voids and cavities to be filled; granulometry and type of soil, etc...

Technical data & reaction times

Property	Value
Basic raw materials	Polyurethane prepolymer
Density	approx. 1,18 kg/dm^3
Viscosity pure (resin without water) (Brookfield)	approx. 700 mPas (+25°C)
Viscosity mixture (resin with water) (Brookfield)	approx. 1.5 - 350 mPas (+25°C) depending on the mixing ratio.
Application temperature	+ 5°C to + 35°C
Colour	Brown

Response times: See “Preparation of the product and the equipment”, as described above.

Chemical resistances

Please note that EUCOINJECT PU GEL cannot be injected into alkaline water, this causes reaction problems. After EUCOINJECT PU GEL has fully cured, it is alkaline stable. For use in chemical and polluted water please contact EUCOCHEM BV.

Additional documentation & referrals

Always consult all technical data sheets and material safety data sheets of the products to be used. Always work with clean tools in good condition.

APPEARANCE - COMPOSITION - PACKAGING

EUCOINJECT PU GEL is available in
10 kg metal cans.
(210 kg drums available on request).
EUCOINJECT PU GEL is moisture sensitive, storage takes place in a dry room between +5°C and +30°C. Shelf life resin: 24 months after production date, in the original and unopened packaging. Opened packages must be processed as quickly as possible.

ADDITIONAL COMMENTS

Depending on the dimensions of the cavities, the aforementioned consumption amounts may vary. Modifications in temperature (air, substrate, material, water) may result in changes in the reaction characteristics of the material. For special applications it is advisable to consult your EUCOCHEM BV representative.

SAFETY PRECAUTIONS

Always use personal protection in accordance with the local guidelines. Consult the appropriate safety sheets before use. All most recent safety data sheets are always available at op www.eucochem.com. When in doubt, contact our technical service.