

ECMAGROUT PU R 440

**TWO COMPONENT, LOW VISCOUS, POLYURETHANE INJECTION SYSTEM
FOR THE PERMANENT & STRUCTURAL SEALING OF CRACKS**

Description

ECMAGROUT PU R 440 is a two component, low viscous, solvent and phthalate free, polyurethane injection system for the structural sealing of cracks in concrete structures.

Mixing ratio 1:1 in volume

When mixed in the proportions supplied ECMAGROUT PU R 440 reacts to form a permanent and structural seal with excellent mechanical properties.

Advantages

- Low viscosity allows full penetration in fine cracks and voids
- High mechanical properties like compressive and tensile strength for the structural strengthening and sealing of cracks in structural constructions.
- Suitable for hot and cold climates
- Good adhesion to dry, moist and wet concrete or masonry.
- Can withstands high hydrostatic pressures as the cured resin is impermeable to water.
- The cured material is stable after curing
- Can be pumped as a 1 component premix because of the long pot life; therefore, a single component injection pump can be used
- The cured material is non toxic
- The system is suitable for use in contact with potable water
- During injection the viscosity is low and increases shortly before gelling.

Uses

- For leaking cracks, the water is stopped by the ECMAGROUT PU F 200 (water stop foam) as a temporary stop; the crack can be permanent sealed by an after injection with the ECMAGROUT PU R 440 to form a structural seal.
- Because of the long pot life, it is possible to inject dripping cracks on the same packer 2 or 3 times until solid resin comes out of the front/crack.
- Sealing and stabilizing of cracks & cavities in concrete, loose rock, mountain rocks or similar constructions
- Sealing of sheet pilings, diaphragm wall, beams, columns etc.
- Sealing joints in precast elements, concrete columns etc.

Packaging

11 kg packs

ECMAGROUT PU R 440 (Part A) = 5 kg

ECMAGROUT PU R 440 (Part B) = 6 kg



Technical Specification at 25°C and 50% R.H

Property	Typical Results
Mixing ratio p.b.v.	1:1
Mixing ratio p.b.w.	100:118
Viscosity of the Mix mPa.s	100-150
Pot life at 25C (minutes)	30-40
Gel time at 25C (minutes)	40-60
Tensile strength MPa	50-60
Elongation at Break (%)	4-6
Shore D Hardness	75-85
Intended use	Structural sealing of cracks
Min. width of the crack in mm	0.1
Moisture state of the crack	Dry, wet, moist cracks
Min and max use temperature	5°C-45°C
Adhesion by tensile bond str. (MPa)	>3
Adhesion by slant shear strength	Monolithic failure
Corrosion behavior	Deemed to have no corrosive effect

Installation Guidelines

- ECMAGROUT PU R 440 should be applied by experienced grouting crews.
- ECMAS provides detailed method of statements on all its products for use in various applications and must be referred to prior to starting the work.
- The information below is a summary intended for guidance only. Detailed information and guidance of pump and packer selection for specific requirements are available from ECMAS.
- ECMAGROUT PU R 440 is carried out through packers installed in holes drilled into the concrete.
- The holes should be drilled at 45 degree to the concrete surface and intercept at the mid-point of the estimated crack depth.
- Large cracks should be sealed with the fast setting ECMAREP 504 prior to injection. Allow ECMAREP 504 to harden completely before injecting ECMAGROUT PU R 440
- When a large flow of water is present, pre-inject with ECMAGROUT PU F 200.
- Prior to injection, the crack could be flushed with water to remove salt, dust etc. from the crack.

Mixing

- Due to the long pot life for the ECMAGROUT PU R 440, it can be pumped as a single component pre-mix.
- Pour the content of the Part A into a CLEAN, DRY plastic bucket.
- Add the required quantity of Part B
- Mix thoroughly either manually or with a slow speed mixer (stirrer fixed to a drilling machine) for about a minute until the mix is homogeneous.

Injection Process

- Polyurethanes are water sensitive and to avoid pump and hose blockages they should be flushed with a suitable cleaning agent like ECMACLEAN prior to using the polyurethanes
- ECMAGROUT PU R 440 is then injected into the holes with a high-pressure pump having a covered reservoir to avoid moisture comes into the pre-mix and is capable of reaching pressures up to 200 bar. This forces the ECMAGROUT PU R 440 deep into the structure and allows penetration into the smallest cracks.

- Inject the packers sequentially; on a vertical crack start the injection from the lowest packer and continue to the next packer etc.
- For small cracks pump according to the previous point and if foam comes out of the front from the crack do a second injection according to the same procedure. If still foam comes a third time until pure resin comes out on the front from the crack.

Cleaning

Injection pumps should be flushed and tools cleaned immediately after use, before the resin sets, using ECMACLEAN. Once the resin has set, it can only be removed by mechanical means.

Precautions

- Avoid skin contact.
- Do not discard unmixed or partially mixed material into the water system. If any doubts arise concerning temperature, application or substrate conditions, consult the local ECMAS office.
- To avoid condensation drums should only be opened when the material in the drum has the same or slightly higher temperature than the temperature on the working place.

Shelf Life & Storage

The shelf life is 6 months when stored between 5°C and 35°C with a less than 50% RH in a dry store in original, unopened containers. Once a pack has been opened, use immediately. Purging a part pack with nitrogen is essential. Contact ECMAS for more details.

Health and Safety

- These products are for industrial use only by trained operatives.
- Products should be disposed-off according to the local legislation. Refer to the MSDS for general recommendations.
- All persons in contact with the materials (or in the neighborhood of the injection) should wear the appropriate protective clothing, gloves and safety glasses.
- In case of spills and accidents, refer to the MSDS of the products or when in doubt contact your local ECMAS representative.
- Always wear appropriate protective gear for the job at hand according to local guidelines and regulations.
- Protective goggles should always be worn when handling chemical products.
- Please refer to the MSDS for further recommendations prior to use these products.

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