DRIZORO® Construction Products

MAXURETHANE® INJECTION

TWO-COMPONENT HYDROREACTIVE POLYURETHANE RESIN FOR STOPPING WATER LEAKS AND SOIL CONSOLIDATION

CE

DESCRIPTION

MAXURETHANE® INJECTION is a two-component, 100% solids, solvent-free polyurethane-based injection resin which reacts quickly with water forming a semi rigid waterproofing foam which expands up to 15 times its original volume.

MAXURETHANE® INJECTION is a water reactive, non hydrophilic but hydrophobic resin, thus the resulting foam does not absorb water and will not be affected by water dryness: it will not shrink or swell.

The gel time of the product is adjustable by adding a certain percentage of catalyst ***MAXURETHANE® INJECTION CAT***.

MAXURETHANE® INJECTION may be used for water leaking control, soil consolidation and voids filling.

APPLICATION FIELDS

- Water cut-off, sealing and filling of cracks and fissures into wet substrates or subjected to high hydrostatic pressure conditions with running water leaks for:
  - Damaged, cracked or honeycombed concrete.
  - Stone or brick masonry.
  - Below grade structures: tunnels, galleries, basements, retaining walls, foundations, etc.
  - Pipe network and retaining structures of drinking water: dams, water tanks, channels, swimming pools, reservoirs, etc.
  - Sewer system: sewers, manholes, utility boxes, waste water tanks, etc.
- Sealing and filling of construction or expansion joints in concrete structures.
- Plugging of running water leaks.
- Filling of large cavernous spaces, voids and cracks in stone substrates or concrete structures.
- Consolidation and stabilization of soils.

ADVANTAGES

- Easy to use. Just requires one-component injection equipments.
- Hydrophobic system: reacts with the flowing water or humidity present in the substrate. No water injection is required.
- Low viscosity, even during injection process which ensures a good and deep penetration into the substrate.
- High expanding ratio, up to 15 times its original volume when exposed to moisture.
- High dimensional stability once cured. Does not shrink or swelling by dryness or wet conditions.
- High chemical stability with long lasting and high mechanical strengths. Withstands high hydrostatic pressure.
- Solvent-free. Environmentally friendly.
- Gel time adjustable depending on the amount of ***MAXURETHANE® INJECTION CAT*** added to resin.

APPLICATION INSTRUCTIONS

For additional information, consult the Technical Dossier for injection procedure detailed in the *"**MAXURETHANE® INJECTION** System"*.

Mixing

Both components of ***MAXURETHANE® INJECTION*** are supplied in 5 kg or 25 kg drums, thus, both components must be mixed in a proper mixing ratio. Check the attached Technical Data chart.

The catalyst ***MAXURETHANE® INJECTION CAT*** is supplied separately to allow adjustment of the gel time and to provide a longer shelf life.

Pour components A and B in a clean and dry container with a proper mixing ratio and proceed to stir and then add the catalyst from 2% to 10% by weight as recommended.

If critical high pressure water intrusions are present, ***MAXURETHANE® INJECTION*** must react immediately as it comes into contact with water. In order to accelerate the reaction rate, a 10% of catalyst must be used. On the opposite, a slightly catalysed product, i.e. 2%, will assure a good penetration when very fine capillary cracks are injected. Check previously the proper catalyst ratio depending on job-site conditions and reaction time desired.

Application

Resin injection; As ***MAXURETHANE® INJECTION*** does not require water for reaction it can be injected with one component injection equipment. Hydrophobic resins, such as ***MAXURETHANE INJECTION*** do not need large amounts of water for the reaction unlike hydrophilic materials that is a simultaneous injection of water is not necessary. Only if the area of application seems to be dry, pre-injection of water with auxiliary equipment is recommended. It is essential to keep the equipment absolutely dry.

Prevent any moisture comes into contact with the mixture in order to avoid a premature reaction of the product. If the reaction of the batch occurs while pumping, the injection machine must be immediately shut down and flushed with ***MAXURETHANE® INJECTION CLEANER*** in order to avoid built-up and clogging of the equipment.

The basic steps for the injection procedure are the followings:

1. Clean the substrate or concrete surface along the joint, crack or fissure.
2. Plan a pattern of the injection points and then, drill holes.
3. Clear the injection holes
4. Set the injection packers.
5. Clear and seal the joints or cracks with a ***MAXPLUG®/MAXREST®*** fast-set repair mortar (Technical Bulletins 4 and 2, respectively).
6. Inject the mix of polyurethane-based resin ***MAXURETHANE® INJECTION*** and the catalyst ***MAXURETHANE® INJECTION CAT.***
7. Clean the surface, tools, mixing equipment and injection equipment of resin.

Application conditions

Both temperature and humidity of the environment must be observed because they will determine the pot life of the already mixed batch. The higher temperature and relative humidity, the shorter is the induction time, and thus less amount of catalyst. Polyurethane resins react with ambient humidity, so it is recommended to add the catalyst just before starting the injection. Do not mix more resin than you can manage in a reasonable time. Nevertheless the resin with catalyst may be stored during 3-4 days in airtight containers.

Cleaning and maintenance of equipment

All tools, mixing equipment and injection pump are cleaned with ***MAXURETHANE® INJECTION CLEANER*** immediately after use or if works are interrupted for a long period. Circulate the cleaner through pump for several minutes. It is recommended to circulate mineral oil after the cleaner in order to displace the solvent. Once the product cures, only it can be removed with mechanical means.

CONSUMPTION

Consumption varies according with the use. A preliminary test on-site will determine the coverage exactly.

IMPORTANT INDICATIONS

- Inject the resin when cracks and fissures are in the maximum width of their movement cycle.
- Observe the safety precautions of the product and the injection equipment during both the handling and the resin injection process.
- Avoid premature contact of resin with water in order to avoid any reaction for product.
- For further information and other uses not specified in this Technical Bulletin consult our Technical Department.

MAXURETHANE® INJECTION

PACKAGING

Components A and B of ***MAXURETHANE® INJECTION*** are supplied in 5 kg and 25 kg metallic drums.
MAXURETHANE® INJECTION CAT is supplied in 5 kg and 25 kg metallic drums.
MAXURETHANE® INJECTION CLEANER is supplied in 5 l and 25 l metallic drums.

Accessories
DRIZORO® supplies injection equipment consisting of manual pumps such ***DRIZORO® PUMP B1*** and electric powered pumps such ***DRIZORO® PUMP A2***, as well as injection packers, pressure hoses, etc.

STORAGE

Twelve months in its original unopened containers in a dry and covered place. Protect against direct sunlight and frost, at temperatures between 5 ºC and 35 ºC.

SAFETY AND HEALTH

During the mixing and injection do not work without protection of safety rubber gloves, safety clothing, safety goggles and full face shields permanently. Spills and blow outs may happen due to the pump pressure. In case of skin contact, wash with abundant water and soap. If one of the components or mixture comes in contact with the eyes, rinse immediately with clean water but do not rub. If irritation persists, seek medical assistance. If ingested, seek immediate medical assistance. Do not induce vomiting. Provide suitable ventilation in the working area.

Observe the usual precautions necessary for the use and applications of this type of products.
For further information, Safety Data Sheet of ***MAXURETHANE® INJECTION*** is available by request.

Disposal of the product and its empty packaging must be made by the final user and according to official regulations.

MAXURETHANE® INJECTION

TECHNICAL DATA

Product characteristics			
CE Marking, EN 1504-5 Description. Concrete injection for swelling fitted filling cracks. U(S1)W(10)(3/4)(10/30) Uses: Building and civil engineering works Principles / Methods. Protection against ingress by filling cracks (Principle 1-PI / 1.4)			
Characteristics of components	**Component A**	**Component B**	**Catalyst**
Appearance	Viscous liquid	Viscous liquid	Viscous liquid
Colour	Dark brown	Clear	Translucent/ yellowish
Density at 20 °C (g/cm^3)	1,23 ± 0,1	1,00 ± 0,1	0,95 ± 0,1
Melting point (°C)	+ 10	- 31	- 31
Flash point (°C)	> 200	> 200	> 200
Optimum storage temperature range (°C)	20 - 35	10 - 20	10 - 20
Mixing ratio, A:B (by weight)	2:1		
Mixing ratio, A:B (by volume)	1,62:1		
Solid content for mixture A+B (%, by weight)	100		
Catalyst percentage (%, by weight on A+B mixture)	2 – 10		
Application and curing conditions			
Induction time with 2% / 5% / 10% of catalyst (s)	80-90 / 40-45 / 20-25		
Time for total reaction with 2% / 5% / 10% of catalyst (s)	4 min / 140-160 / 80-90		
Cured product characteristics*			
Expansion ratio: (Final volume: Initial volume)	10-20:1		
Density in free foaming (kg/cm^3)	50 – 100		
Compressive strength (kg/cm^2)	30 – 150		
Toxicity	No-toxic for cured form: solvent-free product		
Solubility in water	None		
Chemical resistance	Resistant to most organic solvents, diluted acids and alkalis and micro organisms		

GUARANTEE

The information contained in this leaflet is based on our experience and technical knowledge, obtained through laboratory testing and from bibliographic material. ***DRIZORO®, S.A.U.*** reserves the right to introduce changes without prior notice. Any use of this data beyond the purposes expressly specified in the leaflet will not be the Company's responsibility unless authorised by us. We shall not accept responsibility exceeding the value of the purchased product. The data shown on consumptions, measurement and yields are for guidance only and based on our experience. These data are subject to variation due to the specific atmospheric and jobsite conditions so reasonable variations from the data may be experienced. In order to know the real data, a test on the jobsite must be done, and it will be carried out under the client responsibility. We shall not accept responsibility exceeding the value of the purchased product. For any other doubt, consult our Technical Department. This version of bulletin replaces the previous one.

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