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BETTOPUR INJECTION FLEX

Polyurethane Based, One Component, Water Reactive, FCKW and Solvent Free, Highly Flexible and Elastic Injection Resin

MATERIAL DESCRIPTION

BETTOPUR INJECTION FLEX is a one-component, polyurethane-based, highly flexible and elastic injection (resin) material, which reacts with water to form a closed-cell foam texture that acts as a plug. To accelerate the reaction, BETTOPUR INJECTION FLEX ACC is activated. The reacting substance is a polyurethane resin foam and shows a high closed cell ratio in the firmed and free foaming state.

TECHNICAL SPECIFICATIONS

The data indicated are laboratory data. They may change during application due to heat exchange between resin and rock, moisture in the open and other factors.

Reaction Data:				
Bettopur Stop Flex ACC weight share	[%]	1,00	2,00	5,00
Temperature 5°C				
Start time	[sn.]	150	105	50
Freezing time	[sn.]	690	480	240
Temperature 15 °C				
Start time	[sn.]	115	95	45
Freezing time	[sn.]	610	410	195
Temperature 25 °C				
Start time	[sn.]	105	60	42
Freezing time	[sn.]	555	345	165
Temperature 30 °C				
Start time	[sn.]	70	53	30
Freezing time	[sn.]	520	320	150

The reaction takes place by adding 10% clean tap water to the ready mix. Specific contamination of the water at the processing site may result in different reaction times. Foaming factor (free foaming), at 25°C approx. 11

Material Data:				
		Bettopur Inj Flex	ACC	Standard
Density at 25°C	kg/m³	1035 ± 20	1015 ± 20	DIN 12791
Color		yellow, transparent	light yellow, transparent	DIN 53213
Flash point	°C	-	-	
Viscosity at 5°C	mPa*s	3100 ± 50	66 ± 17	ISO 3219
Viscosity at 10°C	mPa*s	2000 ± 50	49 ± 12	ISO 3219
Viscosity at 15°C	mPa*s	1350 ± 50	38 ± 10	ISO 3219
Viscosity at 20°C	mPa*s	970 ± 50	30 ± 8	ISO 3219
Viscosity at 25°C	mPa*s	740 ± 50	25 ± 6	ISO 3219

Composition and properties: Components:
BETTOPUR INJECTION FLEX consists of modified isocyanate and additives. **BETTOPUR INJECTIION FLEX ACC** is a catalyst mixture for adjustment of the reaction rate. After mixing the catalyst, the mixture can be stored for at least 48 hours if protected from moisture or direct water contact.

- Filling the water coming from the negative direction,
- Stopping water flows (including salt water) under high pressure and velocity,
- For consolidation and waterproofing of loose rocks,
- Crack injection and gap filling,
- Deep injections
- Manual injection molding of penetrable ducts and round pipelines,
- It is used for the injection of moderately sensitive to coarse-sized tears, crevices, pebble slots and cast joints.

ADVANTAGES

- Good adhesion to wet surfaces,
- It can be applied by injection pump with the addition of one-component catalyst,
- Reacts with water to form a flexible and elastic foam with closed cell texture,
- Water leaks from cold joints,
- Ready to use and no mixing required,
- Economical, solvent-free.

SURFACE PREPARATION

The surface should be cleaned using pressurized water if possible, removing oil, grease, fuel and paraffin waste, as well as mold release agents, cement residues, chips, loose particles and cured membranes. Large holes or gaps can be filled with polyurethane sealant.

APPLICATION METHOD

BETTOPUR INJECTION FLEX ACC is activated for controlled initiation of the reaction. Before pumping, the specified amount of **BETTOPUR INJECTION FLEX ACC** accelerator is added to the Bettopur Injection Flex resin. In this way, the reaction of the injection material is adapted to the current situation. The two components must be well mixed with each other. If the injection mixture is reliably protected from moisture and water, the finished mixture can be stored for at least 48 hours without a significant increase in viscosity. However, a layer may form on the surface of the liquid due to the reaction with moisture present in the ambient air. This layer does not normally affect the resin underneath, but it is recommended to remove this layer to avoid clogging of the pump.

BETTOPUR INJECTION FLEX and **BETTOPUR INJECTION FLEX The ACC** mixture is injected as a one-component resin, which foams and hardens on contact with sufficient water. If there is too little water in the area to be insulated to activate the effect of all the elements of the injected resin, the full reaction of **BETTOPUR INJECTION FLEX** can be achieved by injecting water at the same time or later.

Unlike dual component systems, **BETTOPUR INJECTION FLEX** does not harden in the high pressure hose. However, it must be ensured that the valve is closed to prevent water from reaching the hose and causing a reaction of the injection mixture there. To prevent the pump and valve from getting algae, it is generally recommended to wash the pump with PU cleaner. In addition, if the operation is interrupted for more than one day, it is recommended to apply PU cleaner to the pump and the parts inside the hose.

Recommendation:
To reach the recommended processing temperature between 15°C and 30°C, we recommend to keep the product at a minimum temperature of 15°C for at least 12 hours before processing. Localized overheating of the resin or catalyst can when heated must be avoided.

System:
BETTOPUR INJECTION FLEX reacts in contact with water as a polyurethane/polyurethane material product, see "reaction time". In practice, the foaming factor depends in particular on the counter-pressure due to the mechanical resistance present in the fluid or generated by the pumping system or the product-specific expansion of the reacting resin. It is generally higher with large tears or dissolved gravels, while fine tears or sand limit the expansion factor. The firmness, opacity and overall strength of the foam increases exponentially. In all cases it is recommended to limit unimpeded expansion by applying sufficient back pressure. The foaming factor of the injection mix does not change due to the circular motion of the flowing water.

CLEANING OF INSTRUMENTS

After application, tools and equipment can be cleaned with cellulosic or po- liurethane thinner.

PACKAGING

BETTOPUR INJECTION FLEX BETTOPUR INJECTION FLEX ACC

25 Kg + 2 Kg

SHELF LIFE

12 months from the date of manufacture under appropriate storage conditions.

STORAGE CONDITIONS

BETTOPUR INJECTION FLEX and **BETTOPUR INJECTION FLEX ACC** are humidity-reactive systems and react very sensitively to air humidity. For this reason they are filled in a dry atmosphere (dry nitrogen). Once opened, the components should be processed as quickly as possible.

SECURITY MEASURES

During application, work clothes, protective gloves, goggles and masks should be worn in accordance with the Occupational Health and Safety Rules. Due to the irritating effects of uncured materials, the components should not come into contact with the skin and eyes, in case of contact, wash immediately with plenty of water and soap, and in case of ingestion, consult a doctor immediately. Food and beverage materials should not be brought into the application areas. Keep out of the reach of children.

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