

SPETEC® SEAL N450

2 COMPONENT POLYURETHANE INJECTION RESIN FOR THE REDUCTION OF LARGE FLOW HIGH PRESSURE WATER LEAKS, STABILISATION APPLICATIONS AND VOID FILLING WHERE HIGH COMPRESSIVE STRENGTH IS REQUIRED.



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INFRASTRUCTURE SOLUTIONS



DESCRIPTION

Medium viscous, 2 components, phthalate free, expansive, polyurethane resin developed for the reduction of large flow high pressure water leaks, for improving and stabilisation of various loose types of soil and filling voids where high compressive strength is required.

ADVANTAGES

- Excellent adhesive strength to different substrates
- Outstanding structure reinforcing properties
- High compressive strength
- Fast reaction time
- Expansion up to 750%
- Cured polyurethane is shrink-free and exhibits good chemical resistance (contact our Technical Service for more information)
- Cured polyurethane is functional between - 40°C and +100°C
- Cured polyurethane is harmless for the environment and resistant to biological attacks.

FIELD OF APPLICATION

- Sealing large water leaks and cracks in mines, tunnels and underground foundations.
- Wet and dry foundation stabilisation.
- Sealing large cracks and voids where high compressive strengths are required.

APPLICATION

Note : the following is a typical application description. In case of other jobsite parameters, please contact our technical department.

PRELIMINARY ANALYSES

For leaking joints, check how the joint runs into the construction. Injection holes have to be drilled into the joint.
For leaking cracks, drill the injection holes in a zig-zag pattern around the crack to make sure that the injection hole intersects with the crack.



In case of stabilisation applications, check whether the soil or the area to be injected is porous enough. This, to be sure if the resin will penetrate sufficiently into the substrate.
Clay soil types can not be injected.
Check the level of the groundwater table if possible.
Consider all existing structural elements in the area and the possible consequences that may be caused by the injection works. If necessary, consult a geotechnical and / or structural stability engineer.

Locate all available utilities in the area and / or in the soil before the start of the application.

REQUIRED TOOLS

2 components, injection pump with a 1:1 volume ratio.
Hoses.
Injection gun equipped with a static mixer and a flush system.

PREPARATION OF THE SUBSTRATE

Depending on the application, drill holes with the correct diameter according to the type of injection needle, injection tube or packer or install the injection tubes in the correct position, according to the correct distance, length and the correct injection pattern (to be determined by the project engineer).
In case of injecting joints and cracks, drill under an angle of 45° into the crack or joint. Ideally the injection hole should intersect the joint or crack about half way the thickness of the wall or slab.
Blow the dust out of the injection hole.
Fix a packer of the right diameter into the injection hole.

PREPARATION OF THE PRODUCT

Read the technical and safety data sheets prior to commencement of the injection works.
Open the packaging and insert a measuring rod in one of the components. This is to check the consumption of resin during the injection.

PREPARATION OF THE EQUIPMENT

Use a 2 component injection pump with a 1:1 volume ratio.
Attach the hoses with the correct length, depending on the application, to the pump and to the injection gun, equipped with a static mixer and flush system.
Check the pump.
Adjust the correct 1 to 1 mixing ratio.
Check the injection gun and the flushing system.

INJECTION

SPETEC® SEAL N450 is injected with a one to one volume ratio, 2-component pump. A and B components must be kept separate at all times and supplied in separate hoses up to the injection gun.
Flush the injection gun with SPETEC® PUMP CLEANER through the flushing system every time the injection stop occurs to avoid blocking the injection gun.

FINISHING

Remove any remaining packers after the injection works and fill the remaining hole with a fast curing cement or other suitable material.

APPLICATION CONDITIONS

The recommended application temperature of the product is 20°C.
The reaction slows down at lower temperatures.

CLEANING AND MAINTENANCE

After the injection, clean the pump with SPETEC® PUMP CLEANER. If the pump will not be used for several days, put oil into the pump and leave it there until the next usage. Never rinse the pump with water.

COMPLIMENTARY PRODUCTS

SPETEC® PUMP CLEANER
 SPETEC® PACKERS & ACCESSORIES
 CERMIPLUG

ADVICE / FOCAL POINTS

The static mixer must be long enough and have sufficient elements to obtain a correct mixing.
 Without a flushing system, the injection gun will block after each injection stop.

TECHNICAL DATA**APPEARANCE - COMPOSITION**

SPETEC® SEAL N450 A COMPONENT (Appearance: Component A - yellow liquid)		
Viscosity at 20°C	Brookfield SP4 - 200 rpm	± 600 mPa.s
Density at 20°C	EN ISO 2811-1	± 1,05 kg/dm ³

SPETEC® SEAL N450 B COMPONENT (Appearance: Component B - dark brown liquid)		
Viscosity at 20°C	Brookfield SP4 - 200 rpm	± 300 mPa.s
Density at 20°C	EN ISO 2811-1	± 1.23 kg/dm ³

SPETEC® SEAL N450 mixed - not reacted (mix ratio at volume 1/1)		
Viscosity at 20°C	Brookfield SP4 - 200 rpm	±450 mPa.s

REACTION TIMES

SPETEC® SEAL N450 mechanically mixed at 20°C (mix ratio at volume: 1/1)		
Start	End	Free expansion
6"	21"	7.5V

CONSUMPTION

Consumption has to be assessed on site and is influenced by the amount of water leaking, thickness of the concrete slab or wall, presence of voids in and around the concrete etc.

TECHNICAL DATA

SPETEC® SEAL N450 mixed - cured		
Density freely foamed	EN ISO 2811-1	± 150 kg/m ³
1 bar counter pressure		± 250 kg/m ³
2 bar counter pressure		± 360 kg/m ³
Compressive strength freely foamed	EN ISO 2109	> 1.5 kg/cm ²
2 bar counter pressure	EN ISO 2109	> 3 kg/cm ²

CHEMICAL RESISTANCES

Cured polyurethane exhibits good chemical resistance, is harmless for the environment and resistant to biological attack. (contact our Technical Service for more information)

REFERENCE DOCUMENTS

Fire class: DIN 4102-1 B3 EN ISO 13501-1 E

**PACKAGING**

SPETEC® SEAL N450	COMP. A	21 kg	Plastic cans	12 cans A + 12 cans B / pallet
	COMP. B	25 kg		
SPETEC® SEAL N450	COMP. A	210 kg	Steel drums	2 drums A + 2 drums B / pallet
	COMP. B	250 kg		

STORAGE AND SHELF LIFE

SPETEC® SEAL N450 A and B components should be stored in a dry area between 10°C and 30°C.
 Shelf life: 12 months in original packaging.
 Once opened, containers should be used as soon as possible.

SAFETY PRECAUTIONS

Avoid contact with eyes and skin, always use personal protective equipment in compliance with local regulations.
 Read the relevant safety data sheets before use. Material Safety Data Sheets are available on www.spetec.com. When in doubt contact SPETEC® Technical Service.



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