TECHNICAL DATA

Advanced
Construction
Technologies

Crack Injection

SPETEC PUR F400

Hydrophobic Closed Cell Polyurethane Foam Injection Resin

Product Identifier

Product Name

SPETEC PUR F400

SPETEC PUR F400 is a solvent and phthalate free, water-reactive, hydrophobic, closed cell, low viscosity, shrink-free, flexible, one component polyurethane injection resin designed to shut off water leaks.

Supplier Details

Alchatek
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Emergency Phone Numbers

Call CHEMTREC
Day or Night

1-800-424-9300
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Description

SPETEC PUR F400 is a solvent and phthalate free, water-reactive, hydrophobic, closed cell, low viscosity, shrink-free, flexible, one component polyurethane injection resin designed to shut off water leaks.

Uses

- Shut off water leaks in concrete, brickwork and sewers where movement and settlement may occur.
- Water cut-off of water leaks in foundations such as diaphragm walls, sheet piling and secant piles.
- Sealing water-carrying cracks and joints in tunnel segments.
- Curtain grouting behind tunnel, concrete, brickwork and sewer walls.
- Injection of water cut-off membranes and liners in tunnels.

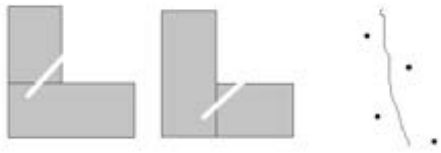
Advantages

- One component.
- Different reaction times are possible by adjusting the percentage of Alchatek Gen Cat or Alchatek Gen Cat Fast accelerator.
- The closed-cell structure of cured polyurethane ensures permanent flexible sealing of cracks and joints.
- Cured polyurethane is flexible, shrink-free and exhibits good chemical resistance (contact our Technical Service for chemical resistance).
- Cured polyurethane is harmless for the environment and resistant to biological attacks.
- Certified by ALS Global to NSF/ANSI/CAN 61 (approved for contact with drinking water).

Application

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

PRELIMINARY ANALYSIS
For leaking joints, identify if the cold joint runs vertically or horizontally. Injection holes have to be angle 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 the crack.



PREPARATION OF THE SUBSTRATE
Drill at 45° angle into the crack or joint. Ideally the injection hole should intersect the joint or crack half way through the thickness of the wall or slab. Blow the dust out of the injection hole with a probe that reaches the back of the 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. Vigorously shake the Alchatek Gen Cat or Alchatek Gen Cat Fast accelerator before use and add the required quantity (2-10%) into the SPETEC PUR F400 resin. Mix the accelerator homogeneously into the resin and protect against moisture and rain to prevent premature reaction. Only mix the amount of material that can be used the same day.

PREPARATION OF THE EQUIPMENT
Depending on the application, injection can be carried out using a hand pump, pneumatic pump or electric pump. Use separate pumps for injection of water and polyurethane resin. Check that the pump is working properly. Prior to injection, the resin pump must be flushed with appropriate pump flush and be completely free of water to prevent pump blockage

APPLICATION
- Start the injection at the first packer; for vertical joints or cracks this is usually the lowest packer.
- Do not over-pressurize while injecting; the correct injection pressure is the pressure that allows to resin to flow into the crack or joint. Avoid injecting at pressures of more than 1500psi (100bar).
- If unreacted resin comes out of the joint or crack, stop the injection and move on to the next packer.
- After the last injection of resin into the packer, shoot a little bit of water into the packer in order to make sure that the last injected resin will react as well.
- Only catalyze the resin you will use within the next few hours.
- Do NOT leave resin catalyzed with Alchatek Gen Cat or Alchatek Gen Cat Fast in pumps overnight or material will harden and permanently damage equipment.
- Always flush the pump out at the end of the day, or before extended breaks of hours or more. Resin left in the pump overnight can damage the pump.

REQUIRED TOOLS
Drill and drill bits of appropriate diameter and length. Alchatek mechanical Packers of appropriate diameter and length. Injection pump; manual, pneumatic or electric.

CLEANING AND MAINTENANCE
After the injection, clean the pump with Alchatek Pump Flush. If the pump will not be used for several days, flush the Alchatek Pump Flush out of the pump with lightweight motor oil or hydraulic fluid and leave it there until the next usage. Never flush the pump with water. After injection, remove the packers from the concrete and fill the holes with a fast setting cement or any other appropriate filler material.

COMPLIMENTARY PRODUCTS
For certain application where a faster reaction time is needed a special fast catalyst can be used. Alchatek Pump Flush, Mechanical Packers, Alchatek Oakum, and Injection Needles. SPETEC I.T.S KIT or SPETEC R-I.T.S SYSTEM must be ordered separately. See Technical Data Sheets.

ADVICE / FOCAL POINTS
Avoid injecting when temperatures are below -4°F (-20°C). In extreme cold conditions it is recommended to warm the resin and catalyst. Since SPETEC PUR F400 is water-activated, liquid water should be present.

Technical Data

APPEARANCE

Physical Properties - Uncured - (appearance white liquid)

SPETEC PUR F400		
Viscosity at 77ºF (25°C)	(ASTM D4878-98)	±340cps (±0.34 Pa·s)
Flash Point	(ASTM D1310-86)	>302°F (>150°C)
Density	(ASTM D3505-96 [2000])	1.067 ± 0.005 oz/ft³ (1.068 ± 5.006 g/m³)

Physical Properties - Cured

SPETEC PUR F400		
Tensile Strength	(ASTM D3574-03)	290psi (20 bar)
Elongation at break	-	±100%

Properties will vary depending on application conditions.

Estimating Quantities

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. Please utilize the Alchatek estimating App available at the Apple App Store and Google Play.

REACTION TIMES

Reaction Rate with Alchatek Gen Cat

%	41°F (5°C)		59°F (15°C)		77°F (25°C)	
%	Start	End	Start	End	Start	End
10	60 sec.	165 sec.	24 sec.	104 sec.	17 sec.	73 sec.

Reaction Rate with Alchatek Gen Cat Fast

%	40°F (4.44°C)		60°F (15.56°C)		77°F (25°C)	
%	Start	End	Start	End	Start	End
10	21 sec.	72 sec.	14 sec.	59 sec.	14 sec.	47 sec.

Expansion Factor

Expansion Factor with Alchatek Gen Cat

%	Expansion (volumetric)	Expansion (vol. % increase)
3	4 x	400%
10	6.5 x	650%

Packaging

SPETEC PUR F400 is supplied in:
- 5 Gallon (18.9 Liter) Pails
- 10.5 oz Cartridges, Case of 12
- 4-Pack Kit: 10.5 oz Cartridges (4), 1/2" Drill Ports (8), Large Push Connects (4), Small Push Connects (4), 10 ft Roll Flexible Tubing (1)

Alchatek Gen Cat and Alchatek Gen Cat Fast are supplied in 0.5 gallon (1.89 liter) bottles.

Storage

Store between 50° - 80° F (10° - 29° C).

Safety Precautions

Avoid contact with eyes and skin, always use personal protective equipment in compliance with local regulations. Read the relevant Safety Data Sheet before use. Safety Data Sheets are available on Alchatek.com. When in doubt contact Alchatek Technical Service.

Limited Warranty

Alchatek warrants this product to be free from manufacturer's defects and to meet all published properties on current Technical Data Sheet for a period of one year if used according to published instructions and within the shelf life. The user is responsible for determining suitability for intended use and assumes all risk. No other warranties expressed or implied shall apply including any warranty of merchantability or fitness for a particular purpose. Purchaser's sole remedy is limited to the purchase price or product replacement exclusive of cost of labor or other materials.

Latest Information

Before each use read latest Technical Data Sheets, Safety Data Sheets, and instructions available at Alchatek.com. Nothing contained in any Alchatek materials or verbal instruction relieves the user of the obligation to read and follow all usage instructions and warnings for each product contained in the latest Technical Data Sheets and Safety Data Sheets. All information given by Alchatek about Alchatek products and procedures is given in good faith based on our current experience level and knowledge when materials are properly stored, handled, and applied. Jobsite conditions always vary, and for this reason Alchatek assumes no liability for the provision of such information or instructions. Neither shall any legal relationship be created by the provision of such information.

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