

SPETEC® PU H40

POLYURETHANE INJECTION RESIN FOR SOIL CONDITIONING



DESCRIPTION

Solvent and phthalate free, water reactive, hydrophobic, one-component low viscosity polyurethane injection resin designed for soil stabilisation.

ADVANTAGES

- One component.
- Very low viscosity.
- Different reaction times are possible by adjusting the percentage of SPETEC® H40 Acc accelerator.
- Injections in compact soil layers up to coefficient 10-6 m/s are possible.
- Cured polyurethane chemically anchored with substrate exhibits high strength and good chemical resistance. (contact our Technical Service department for more information)
- Cured polyurethane is harmless for the environment and resistant to biological attacks.

FIELD OF APPLICATION

- Soil and gravel layer stabilisation.
- Pre- and post-injections in mines, tunnels, pipe jacking, drill & blast and TBM applications.
- Injections in combination with cement and micro fine cement.
- Anchoring and micropiles.
- Stabilisation of quay walls, floor slabs, roads, slopes and sewers.
- Curtain grouting
- Damming of chemically contaminated soil.

APPLICATION

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

PRELIMINARY ANALYSES

Check if the soil is porous enough to allow the resin to flow. Clay soils cannot be injected. Check the depth of the eventual water table.

REQUIRED TOOLS

Appropriate injection pipes of the correct length.
Appropriate machinery to install the injection pipes into the soil substrate.
Injection pump; manual, pneumatic or electric.

PREPARATION OF THE SUBSTRATE

Install the appropriate injection devices at the right position. Injection can be done via strainer pipes or Manchette pipes (TAM pipes) / Sleeve pipes.

The exact position, spacing and matrix layout of the injection pipes has to be determined by the consulting engineer.

PREPARATION OF THE PRODUCT

Read the technical and safety data sheets prior to commencement of the injection works.

Vigorously shake the SPETEC® H40 Acc before use and pour the required quantity (0.5-2%) into the SPETEC® PU H40 resin. Mix the accelerator homogeneously into the resin and protect against moisture and rain to prevent premature reaction.

PREPARATION OF THE EQUIPMENT

Depending on the application, injection can be carried out using a hand pump, pneumatic pump or electric pump. Preferably use a separate pump for injection of water and polyurethane resin. Prior to injection, the pump must be flushed with SPETEC® PUMP CLEANER and be completely free of water to prevent pump blockage.

INJECTION

In case of Strainer pipes.

Start the injection at the first injection pipe. Start the pump. Inject at the pressure where the resin begins to flow. Do not over pressurise during injection. Measure the amount of resin being pumped into the strainer pipe and stop when the required quantity has been injected. After this move to the next strainer pipe. Continue until the whole matrix has been injected.

In case of Manchette pipes.

Put the inflatable packer at the lowest point of the TAM pipe and start the pump. Inject at the pressure where the sleeve opens and the resins starts to flow into the soil. Measure the amount of resin being pumped. Stop after the predetermined quantity of resin has been injected. Move the inflatable packer up to the next sleeve and repeat the injection procedure. Continue till you reach the last upper sleeve of the TAM pipe. Repeat the procedure for every TAM pipe in the matrix.

APPLICATION CONDITIONS

Avoid injecting by temperatures below -20°C. In extreme cold conditions it is recommended to warm the resin and catalyst.

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

ADVICE / FOCAL POINTS

Water must always be present during the injection of SPETEC® PU H100 as it is a water-reactive resin. Avoid injecting at shallow depths; this can result in distorting the cohesion of the upper soil layer.

TECHNICAL DATA**APPEARANCE**

SPETEC® H40 Acc, Accelerator for SPETEC® PU H40 (appearance: black liquid)		
Viscosity at 25°C	Brookfield SPIII / 200 tr	±20 mPa.s
Flash point		>150°C
Density	EN ISO 2811-1	±0.93 kg/dm ³

REACTION TIMES

SPETEC® H40 Acc	5°C		15°C		25°C	
	Start	End	Start	End	Start	End
0,5	620"	2210"	560"	1940"	540"	1800"
1	480"	1100"	280"	810"	240"	660"
2	330"	660"	240"	540"	180"	360"

CONSUMPTION

Consumption has to be assessed by the consulting engineer.

TECHNICAL DATA

SPETEC® PU H40 + Accelerator cured (with sand 0.4-0.8 mm)		
Compressive strength	EN ISO 844	>10 MPa
Flexural strength	EN ISO 1209	±2 MPa
Density	EN ISO 2811-1	±1 kg/dm ³

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)

PACKAGING

SPETEC® PU H40	20 kg	Pails	24 pails/pallet
	200 kg	Steel drums	4 drums/pallet
SPETEC® H40 Acc	2 kg	Plastic Bottles	4 bottles/box 44 boxes/pallet
	20 kg	Metal Cans	24 pails/pallet

STORAGE AND SHELF LIFE

SPETEC® PU H40 is moisture sensitive and should be stored in a dry area between 5°C and 30°C.

Shelf life: 24 months in original packaging.

Shelf life of the accelerator: 24 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.

Note: the information and recommendations provided in this technical data sheet is given in good faith and based on laboratory test and on the job experience of the manufacturer. In practice, site conditions and substrates might be such that the manufacturer cannot warrant the fitness for each individual purpose. The user of the product must test the product for its intended use and ascertain himself that the product will work under the specific conditions of the jobsite. The manufacturer does not accept any liability based on the content of the technical data sheet. The user must verify that he holds the latest version of the technical data sheet. The manufacturer reserves the right to change the properties of the product. Products must be properly stored, handled and applied in line with manufacturer's recommendations. Version 1.0 Date: 2 August 2018 4:45 PM