

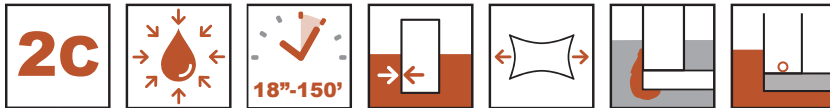


HYCHEM

Infrastructure

# SPETEC® SEAL AG100

ULTRA LOW VISCOSITY ACRYLIC INJECTION RESIN MAINLY APPLIED FOR WATERPROOFING CRACKS, JOINTS AND FOR SCREEN INJECTIONS



## Description

SPETEC® SEAL AG100 is a resin, based on Acrylic monomers. After injection, the resin gels in a few seconds to a few minutes based on the amount of activator/initiator added just before use. The final injected product is a soft and tacky crosslinked gel that provides a waterproofing course.

## Advantages

- Non-toxic for the environment.
- Not flammable.
- No acrylamide.
- Very low viscosity.
- Durable in wet and dry conditions.

## Field of application

### MAIN FIELDS OF APPLICATION

#### WITH WATER OR SPETEC® Reinforcing Agent

- Screen injections behind existing structures.
- Waterproofing – Low flow leaks:
  - Underground structures in concrete and masonry. (ex. basements, underground parking spaces).
  - Cracks in concrete and rock formations.
- Filling and waterproofing gravel nests in concrete.
- Preventive waterproofing of structures with constant water pressure. (If treated during the dry period)
- Injection into very fine leaking cracks or joints.
- Injection of re-injectable injection hoses.

#### ONLY WITH SPETEC® Reinforcing Agent

- Waterproofing voids and joints (max 2–3 mm) of tunnel elements.
- Below grade expansion joints. (Below level of the groundwater table)

### OTHER FIELDS OF APPLICATION

#### WITH WATER OR SPETEC® Reinforcing Agent

- Sewer joint repair (only manual method)

#### ONLY WITH WATER

- Filling hollow spaces and gaps behind structures (If the soil around the gap is to loose, product flows into the soil)

## Application

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

## Preliminary analyses

Check if the site allows the gel to be kept moist at all times. Below grade injections are recommended. Make sure the movement of the water table over time is not too big.



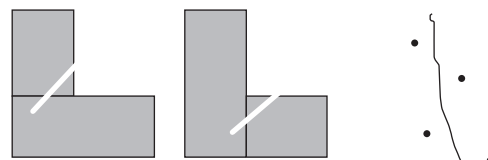
# SPETEC® SEAL AG100

## Required tools

- 2 Component stainless steel pump. The injection head needs to have a water flush option in order to rinse the mixing chamber between injection runs.
- Stainless steel mixer, plastic or wooden rod.

## Preparation of the substrate

- Clean the surface and remove all alien debris. For expansion joint injections, if possible, make sure that the surfaces of the expansion joints are clean and free from oil.
- Drill the necessary injection holes and install appropriate packers. For screen injections, a matrix grid of appropriate size has to be observed (typically 50 by 50 cm).
- For crack or joint injections drill into the crack or joint under a 45 degree angle.



## Preparation of the product

The injection grout needs to be prepared immediately before the injection.

- Depending on the type of application, set the appropriate reaction time by mixing the correct amounts of SPETEC® TEA 30 and SPETEC® SP into the respective A and B components.
- Add the required quantity of SPETEC® TEA 30 catalyst to the SPETEC® SEAL AG100 resin and mix thoroughly.
- Add the required quantity of SPETEC® SP to the B vessel which is filled with 20 kg of water and mix thoroughly.
- Depending on the concentrations of SPETEC® TEA 30 catalyst and SPETEC® SP initiator in their respective blends, varying gel times can be obtained. Consult the mixing tables to achieve the required gel times.
- Mix the SPETEC® SEAL AG100 comp A + SPETEC® TEA 30 and comp B + SPETEC® SP resin with a stainless steel mixer, plastic or wooden rod.

Once the A and B sides of the resins have been mixed, it is recommended to perform a so called “cup test”.

- Take an equal amount of A and B mixture in a small plastic cup and mix them by continuously pouring them from one cup into the other. Measure the time when gelling starts to occur. The reaction time should be close to the times mentioned in the reaction table. If the gelling time deviates too much from the values in the reaction times table, change the concentration of SPETEC® SP and SPETEC® TEA 30 in the A and B side respectively in order to adjust the reaction time.
- You can replace the water in the B component with SPETEC® Reinforcing Agent. When using the reinforcing agent, an end product is obtained that is more flexible, sticky and resistant to shrinkage.

## Preparation of the equipment

- Use a 2 component injection pump with a 1:1 volume ratio.
- Check the pump.
- Adjust the correct 1 to 1 mixing ratio.
- Check the injection head and the flushing system.



# SPETEC® SEAL AG100

## Injection

### For crack or joint injection

- Start the injection at the first injection packer.
- Inject at low pressures. The recommended pressure is that pressure at which the material starts to flow into the joint or crack.
- Move to the next injection packer if material starts flowing out of the crack or joint or out of the adjacent packer.
- After injecting all packers on the joint or crack, return back to the first packer and inject, if possible, some more SPETEC® SEAL AG100 at low pressure.

### For screen injection

- Start the injection at the first injection packer at one of the corners.
- For a matrix grid of 50 X 50 cm inject 20 litre of SPETEC® SEAL AG100 per injection packer. Inject at low pressures. The recommended pressure is that pressure at which the material starts to flow into the soil.
- Move to the next injection packer if:
  - 20 liters of SPETEC® SEAL AG100 has been injected into the injection packer
  - Resin starts flowing out from one of the adjacent injection packers.
- Build up the screen gradually per row of packers.
- After one row of packers, go back to the first packer and inject – if possible 1 to 5 litres more of SPETEC® SEAL AG100 at low pressure.

## Finishing

Allow the resin to harden well before removing the packer. After removing the injection packer, the injection hole can be filled with a hydraulic mortar CERMIREP R4 or a fast cement CERMIPLUG.

## Application conditions

The gelling time is slower at low temperatures, but is still fast even below 0°C. Air, material and environmental temperatures, pH and the nature of the injecting substrate will influence the gel times.

## Cleaning and maintenance

Clean all used materials that have been in contact with the SPETEC® SEAL AG100 resin with water immediately after finishing the injection work.

## Complimentary products

SPETEC® TEA 30

SPETEC® SP

SPETEC® Reinforcing Agent

SPETEC® PACKERS & ACCESSORIES

CERMIREP R4

CERMIPLUG

## Advice/Focal points

The viscosity of the SPETEC® SEAL AG100 injection solution depends on dilution and temperature. This viscosity will remain almost constant up to the setting point.

Resin dilution extends the setting time for constant SPETEC® TEA 30 and SPETEC® SP concentrations.

In acid conditions the reaction is slowed down, while under alkaline conditions the reaction is speeded up. The presence of minerals and metals (especially iron and copper) may increase or decrease the rate of setting, depending on their concentration.



# SPETEC® SEAL AG100

## Dimensional changes of the gels

When immersed in water, the unconfined gel can absorb up to 2 times its own weight of water in a few weeks without cracking. Under humid conditions, the volume of the gel remains approximately constant. In the absence of water, the gel shrinks slowly, without cracking. These dimensional changes are reversible and do not degrade the gel.

## Technical data

SPETEC® SEAL AG100 consists of 3 separate products:

- SPETEC® SEAL AG100, acrylic resin (A1)
- SPETEC® TEA 30, a liquid catalyst for standard setting times between 10s and 30 min. (A2)
- SPETEC® SP, a powder initiator to be dissolved in water (B1)

The products are mixed into a 2 component injection system:

- A side: SPETEC® SEAL AG100 (A1) + SPETEC® TEA 30 (A2)
- B side: Water + SPETEC® SP (B1)

## APPEARANCE

Product	SPETEC® SEAL AG 100	SPETEC® TEA 30	SPETEC® SP
Appearance	Light yellow liquid	Colorless	White powder
Active content	42%	29%	> 99%
pH	6,5-7,0	10-12	–
Density	1,2 g/ml	1,05-1,10	–
Viscosity at 20°C	20-30 cP	< 300 cP	–

## REACTION TIMES

PART A: SPETEC® SEAL AG100 + SPETEC® TEA 30. (from 2 to 8%)

PART B: SPETEC® SP diluted in water. (between 2% and 5%)

Temperature (°C)	SPETEC® SEAL AG100 (kg)	SPETEC® TEA 30 (kg = %)	Water (kg)	SPETEC® SP (kg = %)	Gelling Time
20	24	0,48 kg = 2%	20	0,5 = 2,5%	2h 30'
20	24	0,96 kg = 4%	20	0,5 = 2,5%	4'16"
20	24	1,44 kg = 6%	20	0,5 = 2,5%	1'13"
20	24	1,92 kg = 8%	20	0,5 = 2,5%	39"
20	24	0,48 kg = 2%	20	1 = 5%	40'
20	24	0,96 kg = 4%	20	1 = 5%	03'20"
20	24	1,44 kg = 6%	20	1 = 5%	36"
20	24	1,92 kg = 8%	20	1 = 5%	19"



# SPETEC® SEAL AG100

## REACTION TIMES

PART A: SPETEC® SEAL AG100 + SPETEC® TEA 30 (from 2 to 8%)

PART B: SPETEC® SP diluted in SPETEC® Reinforcing Agent (between 2 and 5%)

Temperature (°C)	SPETEC® SEAL AG100 (kg)	SPETEC® TEA 30 (kg = %)	SPETEC® Reinforcing Agent (kg)	SPETEC® SP (kg = %)	Gelling Time
20	24	0,48 kg = 2%	20	0,5 = 2,5%	1h 31'
20	24	0,96 kg = 4%	20	0,5 = 2,5%	4'20"
20	24	1,44 kg = 6%	20	0,5 = 2,5%	1'06"
20	24	1,92 kg = 8%	20	0,5 = 2,5%	37"
20	24	0,48 kg = 2%	20	1 = 5%	43'
20	24	0,96 kg = 4%	20	1 = 5%	02'43"
20	24	1,44 kg = 6%	20	1 = 5%	34"
20	24	1,92 kg = 8%	20	1 = 5%	18"

## 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.

## Reference documents



## Packaging

SPETEC® SEAL AG100	24 kg (=20 Liter)	Plastic jerry cans	24 cans/pallet
	220 kg	Plastic drums	4 drums/pallet
SPETEC® TEA 30	1 kg	Plastic Bottles	6 bottles/box 64 boxes/pallet
	25 kg	Plastic jerry cans	24 pails/pallet
SPETEC® SP	0,5 kg	Plastic cans	12 pots/box 40 boxes/pallet
	25 kg	Pails	24 pails/pallet
SPETEC® Reinforcing Agent	20 kg (=20 Liter)	Plastic jerry cans	24 cans/pallet



# SPETEC® SEAL AG100

## Storage and shelf life

SPETEC® SEAL AG100 can be kept for 12 months in the intact original packaging if stored and transported away from light or sunlight and at a temperature between +0°C and +30°C.

SPETEC® TEA 30 can be kept for 12 months in the intact original packaging if stored away from light or sunlight and at a temperature between +0°C and +30°C.

SPETEC® SP has no shelf life if stored dry in the intact original packaging.

SPETEC® Reinforcing Agent can be kept for 12 months in the intact original packaging if stored away from light or sunlight and at a temperature between +5°C and +30°C.

## Safety precautions

Avoid contact with eyes and skin, always use personal protective equipment in compliance with local regulations.

Read the relevant Material Safety Data Sheet before use. Material Safety Data Sheets are available on [www.spetec.com](http://www.spetec.com)

When in doubt contact SPETEC® Technical Service.

## Warranties and Disclaimers

Hychem warrants that this product shall conform to the technical specifications published in the product literature. The quality and fitness of the product is dependent upon the proper use and application of the product by the applicator. Hychem has no role in the application of the finished polymer other than to manufacture and supply its components. It is vital that the person applying this product understands the product and is fully trained and certified in the use of spray equipment and application of sol-gel materials. There are no warranties that extend beyond the description on the face of this instrument, except when provided in writing, directly by Hychem and executed under seal by a company officer.

## Field Support

Field support where provided, does not constitute supervisory responsibility. Suggestions made by HYCHEM either verbally or in writing may be followed, modified or rejected by the owner, engineer or contractor since they and not HYCHEM are responsible for carrying out procedures appropriate to a specific application.

## Customer Responsibility

The technical information and application advice given in this publication is based on the best information available at the time of print. As the information herein is of a general nature, no assumption can be made as to the product suitability for a particular use or application and no warranty as to its accuracy, reliability or completeness either expressed or implied is given other than those required by Commonwealth or State Legislation. The owner, his representative or the contractor is responsible for checking the suitability of products for their intended use.