

# TYTRO SI 550

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## Product Description

(Formerly DE NEEF® Organosol 550 DT)

Fast reacting, non-foaming, two-component urea-silica injection grout.

TYTRO SI 550 is fast reacting, non-foaming, non-expanding, 2-component urea-silicate injection grout for the void filling, anchoring/stabilization of fragmented rock formations and very rough sands. It is designed for consolidating and bonding loose, broken, and delaminated strata in underground mining, tunnelling, geotechnical applications and other excavations where non-expanding grouts are preferred. TYTRO SI 550 has a low exothermic reaction temperature of less than 100°C.

- A-component: silicate resin.
- B-component: polyurethane.
- Mixing ratio: 1/1 volumetric

## Product Advantages

- Non-expanding, safe for weak strata and soils.
- Reacts underwater without dilution.
- High bond and compressive strength.
- Fire resistant, Class B2 per DIN 4102 Part 1.
- Fast reaction time
- Reaction temp. < 100°C
- 1:1 volumetric mix ratio
- Good mixing without marbling
- Phthalate free, REACH compliant

## Product Applications

- Bonding and consolidating strata in underground constructions such as tunnels.
- Bonding and consolidating strata in mining operations such as long walls, mine seals and shafts.
- Soil and rock injections where nonexpanding grouts are required.
- Sealing and water control injection in underground excavations.
- Anchoring self-drilling anchors and cable heads.

Warning Consult the Technical Data Sheets and MSDS before using.

#### 1. Equipment -

- 2- component pumps with a 1:1 ratio such as the DE NEEF® IP 2C-Highflow™ equipped with pressure gauges on both product lines and regulators to compensate pressure and flow rate to assure 1:1 mixing ratio.
- Mixing head with static mixer with at least 24 mixing elements, 36 elements is advised.

#### 2. Injection -

- Injection pressures vary for different applications: e.g.: smaller cracks will result in higher friction losses, to be overcome by higher pump pressures. Larger cracks will require lower injection pressures. Usually the rise in pumping pressures will become evident at the final stage, when the crack is completely volume-filled.
- Pressures during injections in rock and soil, such as generated by compression and friction, during the permeation in low-permeability, low-cohesion soils or fractured rock formations are to be limited below the maximum stress bearing capacity of the given formation. In these conditions, the injection pressures will be decided after a thorough analysis of the geological and structural conditions, counter pressures and substrate stability.

#### 3. Packers -

- Mechanical or inflatable packers are used. Size and length of packers is determined according to the application.

#### 4. Cleaning -

- After injection, disconnect/ remove the packer.
- Close the valve of the B-component and flush only A-component through the mixers and packer. If the solution is clear and colourless, disconnect the mixers.
- Flush the line of the A-component with tap water and flush the line of the B-component with DE NEEF® Washing Agent Eco.
- Then flush both lines with DE NEEF® Separation Oil and leave this in the pump for overnight or longer storage.
- Cured material can be removed mechanically. Spills of uncured material need to be contained with absorbent material and disposed according to local guidelines, regulations and laws.

## Appearance

- A-component: transparent, light brown liquid.
- B-component: dark brown liquid.

## Consumption

Has to be estimated by the engineer or operator and depends on width and depth of the cracks and voids to be filled.

## Packaging

- 40 l kit
- Resin
  - 20 l plastic jerry-can = approx. 29.6 kg.
- Hardener
  - 20 l metal drum = approx. 23.2 kg.
- 1 pallet TYTRO SI 550
  - 12 plastic jerry-cans A-component.
  - 12 metal drums B-component.

## Storage

TYTRO SI 550 is sensitive to moisture and frost and should be stored in original containers in a dry and frostfree environment. Storage temperature must be between 5 °C and 30 °C. Once the packaging has been opened, the useful life of the material is greatly reduced and should be used as quickly as possible. Shelf life at 20 °C: 2 years.

## Accessories

To be ordered separately

- DE NEEF® IP 2C-Highflow pneumatic
- 2-component injection pump.
- DE NEEF® Washing Agent Eco
- DE NEEF® Separation Oil
- Packers and connectors.

(See respective Technical DataSheets)

## Health & Safety

Users must read and understand the product label and safety data sheet (SDS) for each system component before use. All users should acquaint themselves with this information prior to working with the material. Carefully read detailed precaution statements on the product label and SDSs before use. The most current SDSs can be obtained from the GCP website at [gcpat.com](http://gcpat.com) or by contacting GCP at +1-703-741-5970.

## Technical data/properties

PROPERTY		VALUE	STANDARD
A-Component			
Density 25 °C	Kg/dm <sup>3</sup>	1.48	EN ISO 2811
Viscosity 25 °C	cPs	Approx. 200-400	EN ISO 3219

**B-Component**

Density 25 °C	Kg/dm <sup>3</sup>	1.16	EN ISO 2811
Viscosity 25 °C	cPs	Approx. 110	EN ISO 3219

**Mixed material**

Mixing ratio by volume		1:1	
Mixing ratio by mass	Kg	100:78	
Static mixer	Mixing plates	Minimum 24 to 36	

**Cured material**

Gel time 22 °C		Approx. 2'30"	Cup test
Expansion rate	V	1V	Internal test
Reaction exotherm	°C	< 100	Internal test
Bond strength to dry concrete	mPa	> 4	EN ISO 4624
Compressive strength, lab samples at 20 °C			EN 12190
Pure resin 15 min		Approx. 20	
Pure resin 30 min		Approx. 24.5	
Pure resin 24 hours		Approx. 33.5	
Resin/gravel – 24 hours		Approx. 34	
Resin/water filled gravel – 24 hours		Approx. 20	
Flexural strength – 24 hours	mPa	Approx. 24	EN 12190

All tests made under laboratory conditions according to mentioned standards to the current product standard and testing methods. GCP Applied Technologies reserves the right to change data from test results pending updated information.

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[gcpat.uk/solutions/products/de-neef-waterproofing-injection-solutions/tytro-si-550](http://gcpat.uk/solutions/products/de-neef-waterproofing-injection-solutions/tytro-si-550)