

## A Hydrophilic Injection Grout For Soil & Rock Consolidation

**Guardian Soil Stab** is a two component low viscosity hydrophilic injection grout used for the consolidation of loose sandy soils, sealing of fractures and cracks in hard rock, containment curtain grouting and pre-injection grouting in tunnels.

### USES & ADVANTAGES

Use in the consolidation of soils and rock. **Guardian Soil Stab** has the following advantages:-

- Adjustable gel time.
- Non flammable.
- Environmentally friendly.
- Low viscosity.
- Can be injected into very small cracks & factures.
- Easily applied through simple mixing & pumping equipment.

### PROPERTIES

	For Part A	For Part B
<b>Appearance:</b>	Turbid liquid	Slight yellow liquid
<b>Viscosity:</b>	Approx. 5 mPa,s	Approx. 8 mPa.s.
<b>SG:</b>	1.1-1.2	1.3-1.4
<b>Mixed Material (25% part B)</b>		
<b>Appearance:</b>	Clear liquid	
<b>Viscosity:</b>	Approx. 5 mPa.s.	
<b>Density:</b>	1.15-1.25	
<b>Cured Material</b>		
<b>Compressive Strength:</b>	1.5-2 N/mm <sup>2</sup> (20% mixture with sand)	

*Note : Properties may vary when the product is modified to specific site conditions.*

### APPLICATION

**Guardian Soil Stab** is used for the consolidation of loose sandy soils and for sealing narrow fractures in hard rock.

Soil characteristics should be investigated prior to commencing injection.

Soil injection should be carried out at the lowest possible pressure this is determined by load pressure on the soil, permeability, resin characteristics and injection speed.

Trial injection should be carried out to determine flow rate and the spacing of injection points.

Before injection and installation of injection tubes check for the presence of utilities and ground water, investigate soil & geological composition of the site & test permeability of the soil for water and grout.

#### Grout Preparation

Recommended equipment: A two component injection pump with variable mix ratio is recommended to use where two hoses are connected with a mixing head before attaching to the injection packers. A single component pump may be used only when the mix ratio of Part A and B is 3:1 and 4:1 by volume i.e. the working time is from 40 minutes to two hours. Do not use with the mix ratio of 1:1 and 2:1 by volume since the gel time is too short to work with a single component pump. Ensure the working time is enough to prevent any clogging.

### CLEANING OF EQUIPMENT

All equipment can be cleaned with fresh water.

## A Hydrophilic Injection Grout For Soil & Rock Consolidation

### MIXING

With two component injection pump no separate mixing procedure is required as the machine is equipped with its own mixing head.

To use with a single component pump at the mix ratio 3:1 and 4:1 by volume, mix Part A and Part B by adding material of Part A into Part B. Mix it thoroughly until the mixture becomes homogeneous which will be after about 2-3 minutes. Ensure Part B is fully premixed into Part A before the grout injection

The following gel time can be varied according to specific site conditions.

Mix ratio by volume Part A : Part B	Gel Time (at 25 °C)
1 : 1	5 minutes
2 : 1	15 minutes
3 : 1	45 minutes
4 : 1	2 hours

### INSTALLATION

Increase in temperature of 10°C will approximately half reaction times.

**Guardian Soil Stab** is injected into the ground via injection packers starting from the lowest depth as needed. Continue the injection with flow rate that allows material to permeate into the ground. The flow rate varies according to soil conditions. The pressure is ideally kept between 3 and 7 bar however may be increased if the soil compaction is too tight to inject the material. Continue injection until the soil condition is improved e.g. the leakage has stopped. Then lift the injection hose up at 30 cm intervals and repeat the above procedure. In hard rock situations packers are to be inserted into the rock. Into sandy soils a strainer pipe can be used.

### CONSUMPTION

Will depend on the compaction of soil & air voids to be filled. The consumption is approximately 1260 kg/m<sup>3</sup> for 100% air void without any sand (or) soil.

### STORAGE & SHELF LIFE

Store in the shade in dry, well-ventilated conditions. Stored in well-sealed drum, in a dry area, at temperatures of 5°C-35°C, the shelf life is approximately 12 months in unopened drums. Do not store near combustible materials.

### HEALTH & SAFETY

Part A is alkali and Part B is acidic. Always wear protective clothing, gloves and safety goggles. Use with adequate ventilation.

**If in Eyes:** Immediately flush eyes and skin with plenty of water for at least 15 minutes, holding lids a part to ensure flushing of the entire surface. Do not rub eyes. Get medical advice immediately.

**Skin:** Immediately flush skin with soap and water for at least 15 minutes. Also call a physician.

**If swallowed/Ingestion:** Do not induce vomiting. If a person is conscious and alert give 2-4 cupfuls of milk or water. Consult a physician immediately. Never give anything by mouth to an unconscious person.

**Inhalation:** Get medical aid immediately. Remove patient from exposure to fresh air immediately.

**For spillages:** Cleanup immediately cover with sand, dry lime or soda ash and place in a closed container for disposal.

### QUALITY ASSURANCE

ISO 9001: 2015 verified by TUV Nord.

### PACKAGING

Guardian Soil Stab

Part A : Available in 1000 L IBC.

Part B : Available in 1000 L IBC.

### TECHNICAL SERVICE

The Guardian Coating Service Department is available to assist you in the correct use of our products and its resources are at your disposal entirely without obligation.