

## Technical Information Sheet Article No. 1072

# Silicate Strengthener

Water soluble strengthener and rapid-setting cement. Silicate solution (alkaline preparation).

### Range of use

To be used for strengthening the structure (by injection) and the surface (pressureless) of friable old masonry work in fine pored areas.

It can also be used for rapid sealing of leaking areas and water running cracks in basement and shaft construction by adding it to Portland cement and mortar.

### Property profile

As an alkaline, cementitious strengthener, this product forms a silicate gel. It strengthens the surface and the structure (capillary pores and fine cracks) of old masonry work but is not water repelling. **Does not produce a hydrophobic effect.**

It reacts immediately with cement or cement mixtures as a rapid binder, e.g. for shotcrete and for plugging.

### Working

1. Strengthening
  - a) Surface strengthening is carried out by pressureless saturation of the damp substrate with Silicate Strengthener. Concrete and screed should be prewet in time (1 day before saturating is best).

### Characteristic data of the product

Density:	approx. 1.15 g/cm <sup>3</sup>	
pH value:	approx. 11.5	
Viscosity DIN 53211,	nozzle 2:	approx. 68 sec.
	nozzle 4:	approx. 12 sec.
	nozzle 6:	approx. 4 sec.
Colour:	clear	
Strengthening:	4-8 N/mm <sup>2</sup> , dependent on application.	

The surface, which should be dry but the substrate still dark from moisture, should be saturated several times (wet-on-wet) by spraying or brushing on Silicate Strengthener. To accelerate silica gel precipitation, wash down after 1 day with Combi WR diluted 1:1 with water.

- b) To strengthen the structure, drill holes in intervals of 20-30 cm with a diameter of 18-30 mm, dependent on wall thickness. If the substrate is dry, it should be lightly prewet with lime water one day in advance after placing the packers. Larger cracks, hollow cavities and missing areas in the masonry work should be injected with Injection Mortar.

After the Injection Mortar has been distributed and hardened, inject Silicate Strengthener with at least 3 bar (light pressure packers, diameter 17 mm) for up to 50 cm wall thickness or at least 10 bar (high pressure packers, diameter 32 mm) for walls greater than 50 cm thick. The reaction may be accelerated after injection with, e.g. organic hardener (fast) or water and spirit diluted 1:1 (slow). After pressure equalisation, the packers are removed or if they are to be used for injection again, the nipples are replaced.

2. Fast sealing:
  - a) Plugging  
For fast sealing, cracks, holes, etc. are chiselled out wedge-shaped approx.

5 cm deep, widened towards the inside and the dust removed. If there is no inrush of water, prewet. For a plugging mortar, mix Portland cement and sand 1:2 and add undiluted Silicate Strengthener or Silicate Strengthener diluted 1:1 with water. If there is stronger inrush of water, a plug is produced by dusting Portland cement directly into pure Silicate Strengthener and working immediately after mixing. The mixture should be placed into the widened crack, construction joint, etc. while soft, within 10 seconds. Hardened sealer material cannot be used. If the surface areas to be sealed are too large to be closed with a plug, it is advisable to seal by applying cement and Silicate Strengthener alternately. The sealed seepage areas and surfaces are coated over with Silicate Strengthener and rubbed with dry cement. Sealing is satisfactory when the cement remains the same uniform colour.

- b) Shotcrete  
As an accelerator for setting, add approx. 5% Silicate Strengthener to the cement content.

#### Notes

Silicate Strengthener is not suitable for fair-faced and natural stone masonry work. In these cases, use Funcosil Stone Strengthener for preservation or Funcosil impregnation agents for hydrophobic treatment. Protect glasses, glass, clinker, brick etc. from splashes (cover and wash off immediately with water afterward).

#### Tools and Cleaning

- a) Surface strengthening  
Brush, MV-2 sprayer, K-surface sprayer
- b) Strengthening of the structure  
Injection pumps, e.g. Desoi DeMb03, Hübner Airless 1301 VP, metal packers Nr. 4201-04 with light pressure valve, as well as Niehaus, high pressure percussion packers, diameter 10 mm, with light pressure valve, flow-through nipples.

Clean tools while fresh with clean water.

#### Packaging, application rate, shelf-life

##### Packaging:

10 kg and 30 kg plastic canisters

##### Application rate:

- a) Surface strengthening by saturation:  
0.5 - 1.0 kg/m<sup>2</sup>
- b) Injection:  
30 - 50 kg/m<sup>3</sup> masonry work
- c) Rapid hardening  
0.2 - 0.4 kg per kg cement

##### Shelf-life:

At least 2 years in closed, original containers, stored cool but frost-free.

#### Safety, ecology, disposal

Further information concerning safety during transport, storage and handling as well as for disposal is found in the latest Safety Data Sheet.

The statements above are compiled from our field of production and according to the latest technological developments and application techniques.

Since application and working are beyond our control, no liability of the producer can be derived from the contents of this information sheet. Any statements made beyond the contents of this information must be confirmed in writing by the producer.

In all cases, our general conditions of sale are valid. With the publication of this Technical Information Sheet all previous editions are no longer valid.

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