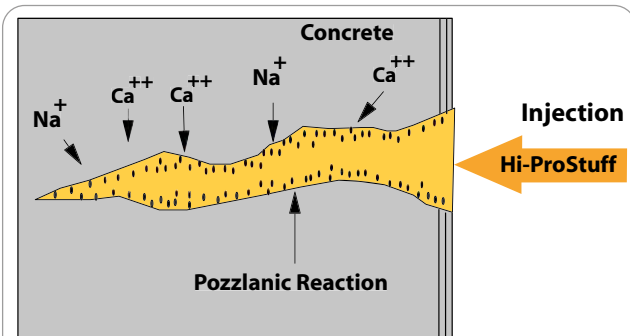
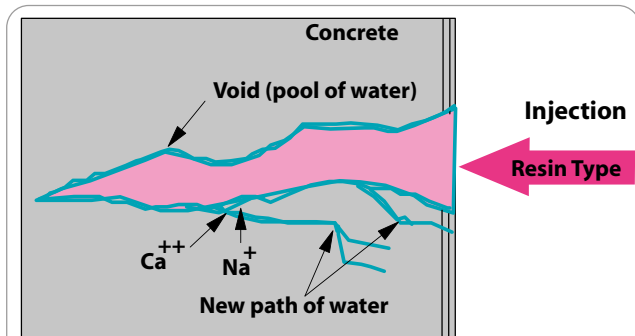


HI-PROSTUFF INJECTION GROUT

Hi-ProStuff consists of specially developed super fine furnace slag cement (2.8 μm) to stop water leakages in concrete walls of tunnels, sewage, dams, etc to penetrate up to 0.03 mm cracks in concrete. It is effective in the cracks containing sufficient water or slowly dripping water. After Hi-ProStaff hardens in cracks, the amount of water absorption becomes almost the same as the concrete without cracks.



Once Hi-ProStuff is injected into cracks, alkali (Na^+ , Ca^{++}) eluted from concrete reacts with Hi-ProStaff immediately. As a result, firm and durable calcium silicate hydrate is formed. This integrated structure develops long term durable sealing effect.

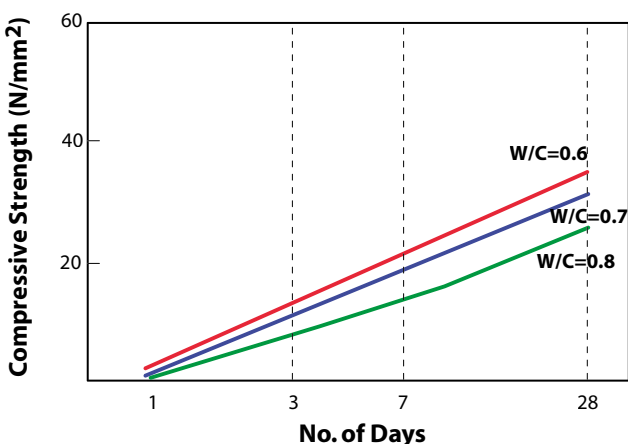


Unlike Hi-ProStuff, injected resin harden only by the polymerization. As a result, water in the cracks remains non-reacted and cause gradual detaching the harden resin from the contacts. This will diminishing the water proofing capability in a short time.

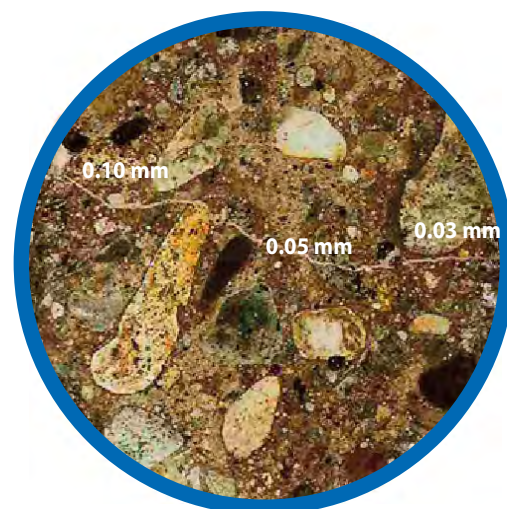
Features

- It is highly durable.
- It is effective in water filled cracks in concrete.
- Can be injected up to 0.05 mm of crack width.
- It controls alkali-silica reaction.
- It is environmentally friendly.

Compressive Strength



Injection Condition



HI-PROSTUFF INJECTION GROUT

Specifications

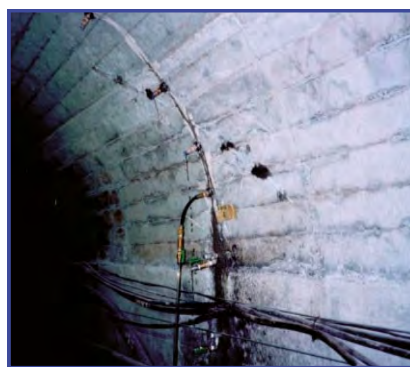
Water Ratio	60%	70%	80%	Note
Bending Strength (N/mm ²)	6.4	5.4	4.7	At 28 days
Tensile Strength (N/mm ²)	2.51	2.16	1.73	
Bonding Strength (N/mm ²)	1.97	1.54	1.45	
Viscosity (mPas)	71	45	35	B type spin viscosity meter
Flow (Sec)	15.0	11.8	11.2	JA Rout

For Crack Width < 0.5 mm

	Water (%)	Water (litter)	Hi-ProStuff (kg)	Hi-ProStuff Aid (ml)	Mix Ration (litter)
Pre- Injection	120	2.4	2	40	3.1
Injection	70	1.4	2	40	2.1

For Crack Width > 0.5 mm

	Water (%)	Water (litter)	Hi-ProStuff (kg)	Hi-ProStuff Aid (ml)	Mix Ration (litter)
Pre- Injection	120	2.4	2	40	3.1
Injection	60	1.2	2	40	1.9



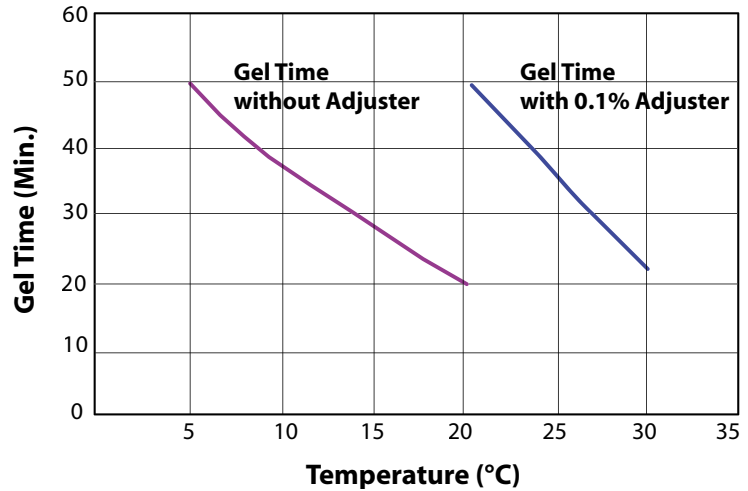
HI-PROSTUFF Z INJECTION GROUT (Quick set)

Features of Hi-ProStuff Z

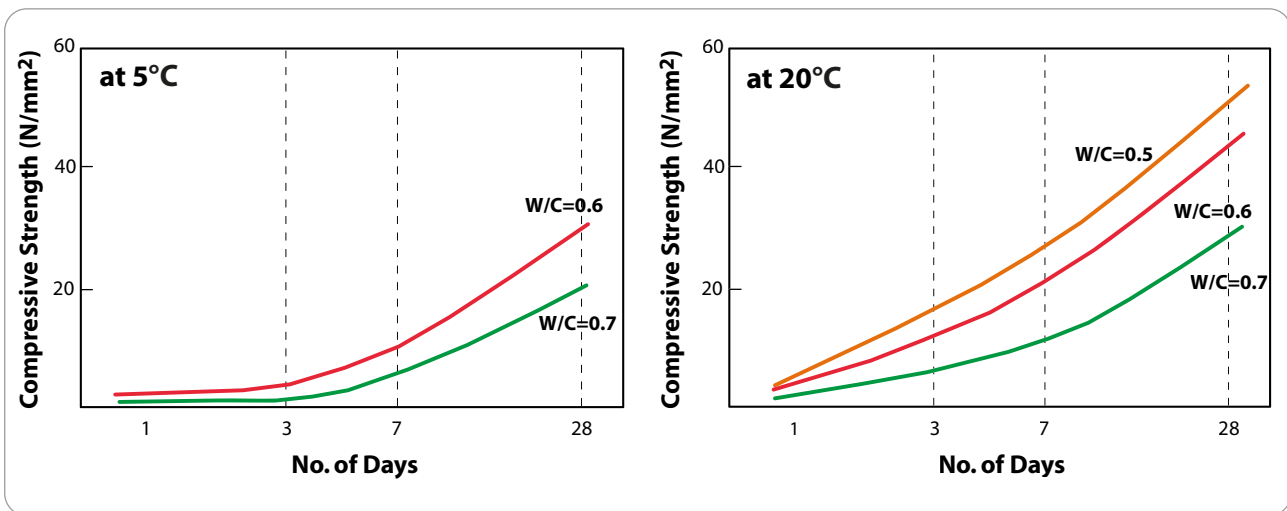
(In addition to the features of Hi-ProStuff)

- Quick setting time.
- Effective at low temperatures
- Effective for water flowing cracks.
- No shrinkage.
- It can be adjust the hardening time.

Gel Time vs. Temperature (w/c = 0.7)



Compressive Strength

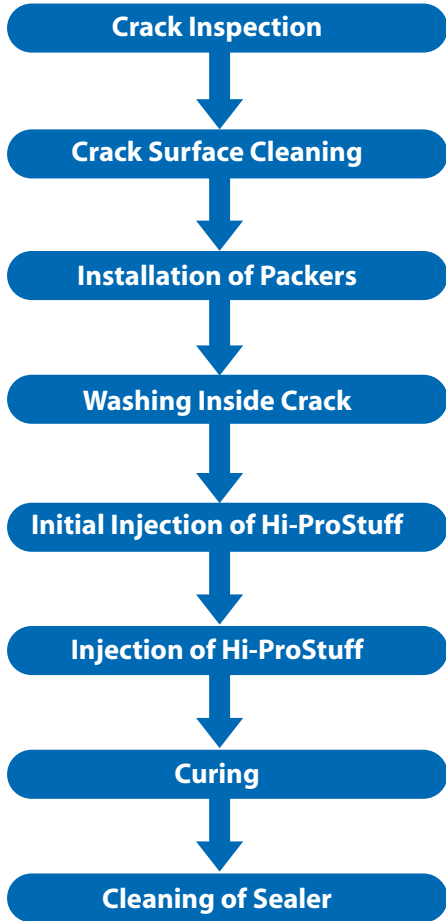








Specifications

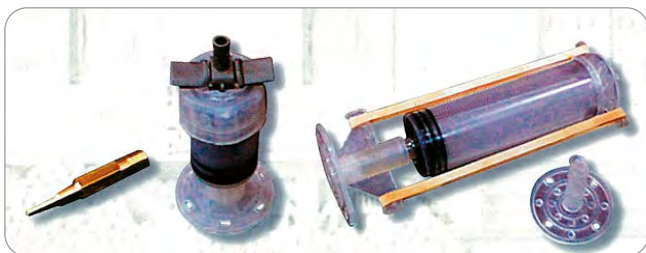
Water Ratio	60%	70%	80%	Note
Bending Strength (N/mm ²)	7.3	6.3	5.5	At 28 days
Tensile Strength	2.84	2.59	2.12	
Bonding Strength (N/mm ²)	1.97	1.54	1.45	
Viscosity (mPas)	28	17	14	B type spin viscosity meter
Flow (Sec)	20.0	13.2	11.5	JA Rout

HI-PROSTUFF Z INJECTION GROUT

Installation Procedure (Example)



<p>1. Inspect crack condition.</p> 	<p>4. Inject Hi-ProStuff from bottom to up.</p> 
<p>2. Drilling for Injection Ports</p> 	<p>5. Make sure that Hi-ProStuff comes out from a upper port</p> 
<p>3. Set packers and seal the cracks on concrete surface</p> 	<p>6. Removal of sealer from the concrete after Hi-ProStuff is cured.</p> 



Portable Packers



Metal Packers (example)