



WARREN
ENVIRONMENTAL

WARREN 151 INJECTION GROUT

PRODUCT DATA SHEET

WARREN INJECTION GROUT

RANGE OF APPLICATION

- Defective Concrete (Cracked or Honeycombed)
- Concrete Joints
- Limestone
- Brick Construction
- Pipe Intrusions
- Waste Water Tanks
- Drinking Water Reservoirs
- Sewers, Manholes, Utility Boxes, etc.
- Tunnels, Dams
- Also: Soil Stabilization

TYPE OF MATERIAL-Warren Injection Grout

is a hydrophobic water cut-off grout and soil stabilization grout based on a MDI (methylene-diphenyl-isocyanate) polyurethane. The resin is 100% solvent free and 100% solids. The gel-time of the product is adjustable by the mandatory adding of a certain percentage of Accelerator.

Upon contact with water Warren Injection Grout reacts to a foam while expanding its volume 30 to 40 times. The cured material is semi flexible and of a constant volume. Since water is not a component of the foam structure, the cured material is essentially not affected by water or dryness. The reacted material does not shrink or swell.

Depending on the amount of accelerator added and the pressure of injection, Warren Injection Grout reacts to a very dense, closed cell, semi rigid material or an open cell, more flexible product.

Warren Injection Grout is extremely well suited for the filling of large cavernous spaces and cracks in stone or concrete structures as well as for cutting off gushing water of high pressure and speed. Due to the low viscosity of the material, Warren Injection Grout offers superior penetration in hairline crack injection.

Warren Injection Grout is a product of the Warren Environmental resin line and to achieve best results a combination of several products may be recommended in some applications.

The product is also a non-shrink soil stabilization grout when used with very little accelerator. The moisture content of the soil must be sufficient to ensure reaction.

PROCESSING

Warren Injection Grout and the 15X Accelerator are supplied separately to allow adjustment of gel-time and to provide a long shelf life. It is mandatory to add Warren Injection Grout 15X Accelerator to ensure complete reaction as a designed. A

higher percentage of Accelerator added will increase reactive speed and foam volume. Recommended mix ratios are between 5% and 10% of Accelerator added. In extreme situations, ratios may be as low as 1% or as high as 20%.

EPOXY FORTIFIED POLYURETHANE WATER – CUT – OFF & SOIL STABILIZATION GROUT

Examples: In applications of high pressure water-intrusions, the system will react aggressively on contact with water when catalyzed at 10% or more. A slightly catalyzed product at about 2% on the other hand assures good penetration results in very fine capillary crack injection and for soil stabilization purposes.

The accelerator system has been proven superior to solvent-loaded single component materials. The Warren Injection Grout system gives the applicator the choice to control gel-time and reactive properties.

Plan ahead: Observe temperature and humidity of the environment, since both determine the pot-life of the premixed batch. Do not mix more material than the amount that will be pumped within reasonable time. Rule: High temperatures and high humidity – less accelerator.

Since Warren Injection Grout reacts with the moisture in the structure, single component injection equipment is recommended. Warren Injection Grout does not need large amounts of water to react. Simultaneous injections of water are not necessary. If the area of application seems to be completely dry, pre-injection of water is recommended.

Caution: It is essential for all equipment to be dry. Avoid any moisture contact with the mixture to prevent premature reaction of the product. If reaction of the batch occurs while pumping, immediately shut down the machine and flush with a cleaner to avoid built up and clogging of the equipment.

MAINTENANCE OF EQUIPMENT

Remove all excess sealant and any smears. Tools and mixing equipment are best cleaned immediately after use.

Recommended: R70 Pump Flush is a solvent free, non-flammable and for shipping as non-hazardous classified cleaner, which conditions your pump and hoses. Circulate cleaner through pump for several minutes.

Xylol, Toluol, Acetone, M.E.K. and related solvents can be used for initial flushing. Solvents are hazardous, are aggressive towards plastic and rubber and might be in conflict with regulations on the jobsite. Caution! Some cleaners are combustible.

PRECAUTION

Protect your health! While working with Injection Grout materials, safety goggles, gloves and safety clothing must be worn at all times. While injecting, a full face shield is strongly recommended. Spills and blow-outs do happen! Protect yourself and others on the jobsite. Consider property in proximity of the application area to prevent loss or damage. Protect your jobsite from unauthorized persons. Store all materials and equipment safely and out of reach of children!

Observe container MSDS, and instructions before using the product and equipment. In case one of the components comes in contact with the skin, wash thoroughly with soap and water. Provide adequate ventilation in volume and pattern in working area. Further protection: emergency showers and eyewash stations.

WARREN INJECTION GROUT**PRODUCT DATA SHEET**

TECHNICAL DATA	15X ACCELERATOR		
Appearance	Dark Brown	Clear	
Solids	100%	100%	ASTM D 1010
Density, g/ml	1.12	0.93	ASTM D 3800-79
Flash Point, C / F	180/356	170-388	ASTM D 93-85
Viscosity, cps	160-200	20	ASTM D 2196
Mixing Ratio By Volume (2%-10% accelerator)	50-10 parts	1 part	
Solubility in Water	not		
Packaging	1 Gal 5 Gal 55 Gal	0.1 Gal 0.5 Gal	
Storage	Good storage stability for unopened containers at 15 – 30 C 58-85 F in dry, sun free indoors environment 3 years shelf life.		

Accelerator Ratios
 Induction Time, 20C/68F
 Gel time, 20C/68F
 Induction Time, 20C/68F
 Gel time, 20C/68F
Cured Product
 Max. Expansion, %
 Elongation, %
 Tensile Strength
 Shear Strength
 Unconfined Compressive
 Strength (Sand filled)
 Corrosiveness
 Appearance
 Toxicity
 Resistance to Chemicals
 ANS/NSF 61 Certified
 for Potable Water
 Contact

30 sec (10%)
 70 sec (10%)
 15 sec (>15%)
 50 sec (>15%)
 3000-4000
 10-20 ASTM D 638
 65 psi ASTM D 638
 >15 psi ASTM C 273
 5500 psi
 Non-Corrosive
 Gold-Yellow
 Polyurethane Foam
 Essentially Non-Toxic
 In Cured Form
 MDI Based, Drinking
 Water Approved
 Resistant to Most
 Organic Solvents, Mild Acids, Alkali and Micro Organisms
 Hygiene-Institute #C 594

