



Construction Chemicals, Inc.

PO Box 1219, 18314 Mathis Road, Waller, TX 77484-1219 • 409-372-9185 • 409-372-9897 Fax

Injection Grouting (Section _____)

Part I – General

1.01 Scope

- a. Furnish all labor, materials, tools, and equipment and perform all operations necessary to repair water leaking cracks and voids in the structure.
- b. The operation of drilling test holes, grout holes, and the injection of grouting shall proceed as indicated in the sequence of work.
- c. The injection of grout is for filling of voids and for the repair of water leaking cracks. The contractor will provide the temporary lighting required for the inspection.
- d. Holes will be drilled as required and grout injected at the cracks. All grout will be injected under such pressure so as not to damage the existing structure.

1.02 Quality Assurance

- a. Components shall be installed in accordance with manufacturers' specifications and as indicated on the contract drawings.
- b. The work of this section shall be performed by a firm with a minimum of three years experience installing these type of materials and be authorized by the manufacturer.

1.03 Submittals

- a. Product Data: Submit Manufacturer's product literature and installation instructions.
- b. Substitutions: All products to be considered as equals to the specified product must be submitted for approval to the engineer prior to the bid date.

1.04 Product Delivery, Storage and Handling

- a. Delivery: Materials shall be delivered in original sealed containers, clearly marked with supplier's name, brand name and type of material.
- b. Storage and Handling: Recommended material storage temperature is 75°F. Handle products to avoid damage to the container.

1.05 Safety Precautions

- a. Each employee who works with chemical grouting products must wear chemical goggles, face shields, NBR gloves (Edmont or equal), foul weather gear and boots.
- b. A pressurized source of water shall be provided at the work site, the use of which should be restricted only for first aid in the event of chemical contact to the employees' skin.
- c. A portable eye wash unit must also be provided near the work site for immediate use in an emergency.

Part II – Products

2.01 Chemical Grout

- a. The sealing materials shall be polyurethane grout and accelerator system marketed under the names of Hydro-Active Flex LV with accelerator Hydro-Active Flex Cat supplied by De Neef Construction Chemicals, Inc. (800) 732-0166 or approved equal. (All products to be considered as equals to the specified product must be

submitted to the engineer for approval prior to the bid date.)

b. Grouts shall be non-toxic.

c. The grouting compound shall be a hydrophobic polymer of the isocyanate type to be mixed with an accelerator based on tertiary amines with a controlled reaction time of one to 10 minutes depending on the mix preparation.

d. When the grout is mixed with 0.5% to 5% accelerator, the mixture will react upon contact with water and expand to five to seven times its original volume and cure to a polyurethane foam.

2.02 Physical Properties

<i>Hydro Active Flex LV Uncured</i>		
Solids	100%	ASTM D-1010
Viscosity	650 cps @ 68° F	ASTM D-1638
Color	Pale yellow	-
Density	8.75 – 9.17 lbs./gal.	ASTM D-1638
Flashpoint	> 270°F COC	ASTM D-93
Corrosiveness	Non-corrosive	-
<i>Hydro Active Flex Cat</i>		
Appearance	Pink transparent liquid	-
Viscosity	5 cps @ 68°F	-
Flashpoint	338°F COC	-
<i>Hydro Active Flex Cured</i>		
Density	8.75 – 9.17 lbs./gal.	ASTM D-3574
Tensile strength	150 psi	ASTM D-190-1963
Elongation	250%	ASTM D-3574
Shrinkage	< 4%	ASTM D-1042
Toxicity	Non-Toxic	-

Part III – Execution

3.01 Preparation

- a. Remove loose, disintegrating and porous concrete at leaking cracks.
- b. Drill a hole for the injection packer at a 45° angle to intersect the crack at the approximate midpoint of thickness of the wall, floor or ceiling of the structures.
- c. Insert a packer and remove the grease fitting to allow water to flow through the open packer.
- d. Seal the surface of the crack with hydraulic cement or fast setting epoxy.
- e. Inject water into the cracks.
- f. Inspect all packers for dry holes and re-drill as necessary to insure intersection with the crack.

3.02 Application

- a. Hand operated, air driven or electrical positive displacement pumps may be used. One to five gallon per minute delivery is normally satisfactory. Pumps must be flushed with washing agent for at least two minutes before and after the grouting operation.
- b. Mix grout and accelerator in a plastic or metal pail. Concrete or wood containers should not be used. Add accelerator to grout and stir to an even consistency.
- c. Inject accelerated grout mixture through packers from the lowest point of the structure moving from packer to packer taking care to assure a continuous flow of grout throughout the crack.

d. In the case of dry cracks inject water into the cracks prior to grout mixture to insure adequate water is present for proper grout reaction.

3.03 Cleaning

a. Remove excess grout and sealing material from the surface of the structure.

b. Remove all packers and fill packer holes with suitable cementitious patching material.