

## A Better Bonding Agent



The statue's original pieces were repaired and replacement pieces were created by mixing marble dust with injection grout (IG); a suitable alternative to epoxy. I use IG almost exclusively to mend broken marble grave markers and only choose epoxy for limited applications.

After eight years of using epoxy, making a change was difficult however, after working with injection grout for the past two seasons, I am sold on the product. Also, there were three other factors that supported my decision to change from epoxy to a non-toxic bonding agent: (1) chemicals used in epoxy, (2) epoxy getting on the skin, and (3) solvent required removing it. Epoxy is a product that must be carefully handled whereas injection grout does not require any special handling or training.

Historically, injection grout is natural cement made from argillaceous (clayey) limestone that was used to build structures like the Brooklyn Bridge, Erie Canal, Grand Central Station and the U.S. Corp of Engineers selected this natural cement to construct early coastal military forts.



For many reasons, injection grout is an excellent product for repairing marble grave stones because (1) it sets quickly, (2) allows moisture to pass through, (3) it is composed of natural materials, and (4) contains no chemicals.

### INJECTION GROUT 10 (IG10)

#### Product Strong Points

Injection grout 10 (IG10) is cement based, high performance, injection material that is formulated to stabilize and repair historic stone markers. The product is formulated to be manually applied, gravity fed, or pressure injected into cracks 1/16" to 1/4". Because of its fluid like texture, deep penetration into cracks is easily achieved. Injection grout may also be used to repair broken pieces of marble or similar porous aggregate. IG10 is a non-shrink material that has excellent bond strength and it will not delaminate due to temperature change.

Unlike epoxy or similar adhesives, injection grout does not create a vapor barrier and moisture will pass through it. It is a completely breathable material. IG10 is a cement based, single component product that is mixed with water and will begin to set within ten (10) minutes. It does not shrink and is not affected by ultraviolet rays. IG10 is formulated by using natural specialty cements; there are no synthetic polymers or additives in the product. It is easy to use or apply and no special training or certification is required.

### Surface Preparation

Remove all loose or deteriorated material. Clean areas to be repaired with water and a bristle brush. Neutralize any salt deposits (efflorescence) with distilled water.

### Mixing and Application

Prior to the IG10 application, dampen surface with water until glistening with no standing moisture. Mix approximately 1 part water to 4 parts powder. Spread IG10 onto both surfaces and apply pressure to or clamp the mating surfaces. Remove any excess material with damp sponge or cloth. Cured IG10 can be removed mechanically.

### Setting Time to Complete Cure

Like most adhesives, IG10 is affected by the elements of time, temperature, humidity or moisture. Surface and ambient temperature should be between 40° F and 90° F. Initial set begins in about 10 minutes with a complete cure in 24 hours.

### Storage

Shelf life is about 18-24 months when stored under cool, dry, and clean conditions. High temperature, high humidity, or air exposure will reduce shelf life.

### Injection Grout (IG10) Source

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