

GT INVERT REPAIR

Geopolymer Mortar



APPLICATIONS

- ◆ Sewers
- ◆ Culverts
- ◆ Pipes
- ◆ Channels
- ◆ Sediment Basins
- ◆ Tunnels

GT Invert Repair Mortar is a high-performance fiber reinforced geopolymer material designed as a flowable fill and grout for civil structures. This high-strength, ultralow porosity material is made from natural mineral polymers and industrial waste streams. GT Invert Repair Mortar can be pumped long distances and quickly sets to superior physical properties.

BENEFITS

- Provides physical properties associated with cement mortars, but with the chemistry similar to that of an engineered stone
- Prevents cold joints between layers from its unique chemical nature; compatible with GeoSpray geopolymer for structural pipe rehabilitation
- Extended working time while pumping
- Ideally suited for pipe invert paving and protection
- Safe and sustainable

TEST METHOD DURATION GT INVERT REPAIR

Compressive Strength ASTM C-39/C-109	1 Day 28 Days	Min. 5,000 psi / 34 MPa Min. 11,500 psi / 79 MPa
Flexural Strength ASTM C-78	7 Days 28 Days	750 psi / 5.2 MPa 1500 psi / 10.3 MPa
Bond Strength to Concrete ASTM C-882	28 Days	Min. 3,000 psi / 20 MPa
Set Time ASTM C-807 Initial Cure Time	Initial Set Final Set	35 - 50 Minutes 85 - 110 Minutes
Freeze Thaw Durability ASTM C-666	300 Cycles	100% Zero Loss
Shrinkage ASTM C-1090	28 Days	0.00% @ 65% R. H.
Tensile Strength ASTM C-496	28 Days	Min. 800 psi / 5.5 MPa

Data shown above reflects results in laboratory controlled conditions. Reasonable variation of data to be expected.

TYPICAL USES

GT Invert Repair geopolymer can be used for rehabilitation of pipes and structures in the Civil Infrastructure and Industrial Markets.



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GT INVERT REPAIR

Geopolymer Mortar



WATER/WASTEWATER

COMPOSITION

A proprietary micro-fiber reinforced ultra dense flowable geopolymer mortar designed for mechanical pumping GT Invert Repair.

CHARACTERISTICS

A dark grey mortar with near-zero porosity. Wet density of ~127 lbs/ft³ or 2035 kg/m³. Largest particle size: 3.0 mm.

YIELD AND COVERAGE

Yields 0.43 ft³ (0.012m³) per 50 lbs. For one 50lb bag, coverage is 10.3 ft² at a 0.5" depth (0.96m² per 12mm depth).

PACKAGING

GT Invert Repair is available in 50 lb (22.7kg) sealed bags or in 2,000 lb (908 kg) super sacks.

CLEANING AND PREPARATION

The surface shall be thoroughly cleaned. Use high-pressure water blasting with a minimum of 3500 psi (or as required by local provisions) to clean and free all foreign material including dirt, grit, roots, grease, sludge or other material that may be attached to the existing surface. All loose or defective brick, grout, or surface irregularities should be removed to provide an even surface prior to application of GT Invert Repair. When grease and oil are present, an approved detergent or muriatic acid shall be used integrally with the high pressure cleaning water. All materials resulting from the cleaning of the pipe shall be removed prior to application of GT Invert Repair.

MIXING

Do not exceed a 0.14w/c ratio. Always add GT Invert Repair to the water. Follow normal industry standards for batching and mixing.

WORK TIME

Working time is 20- 40 minutes at 80°F (27°C) if mixed continuously.

APPLICATION

GT Invert Repair should be pumped from a horizontal mix auger cavity via an adjustable rotor stator pump through a hose for delivery to the appropriate application device.

FINISHING

If necessary, troweling of materials can begin following the application. Initial troweling shall be in an continuous motion to compress the material into voids. Take precautions not to over trowel.

GT Invert Repair can be finished using a magnesium float, wood float, sponge float, broom or brush, depending on the surface texture desired. Do not use a steel trowel.

CURING

Optimum curing occurs in a moist and moderate environment. General underground conditions are usually adequate to meet this requirement. If dry and/or hot conditions are present, the use of a wind barrier and fogging spray will be required. During hot weather conditions, chilled water may be used to mix GT Invert Repair geopolymer. GT Invert Repair geopolymer material should be maintained at a temperature lower than 90°F (32°C). Standard industry practices may be used to maintain proper temperature.

Alternatively, GT Invert Repair should not be placed when the temperature in the curing environment is below 37°F (3°C). During cold weather conditions, heaters, thermal breaks, and other methods may be used to maintain temperature above that threshold. Refer to the GeoTree Cold Weather manual.

QUALITY CONTROL & MATERIAL TESTING

For each section length designated by the owner in the contract documents or purchase order, GT Invert Repair mortar will be collected at the end of the hose near the discharge point. Use 4" x 8" cylinders in accordance with Test Method ASTM C 39/39M.

HEALTH & SAFETY

GT Invert Repair is a cementitious powder, is alkaline, and may cause significant skin and eye irritation. Adequate health and safety precautions should be observed during all storage, handling, use and drying periods. For safety and health precautions, reference the current version of the Safety Data Sheet for GT Invert Repair. When using GT Invert Repair in a confined space or closed area, consult the current OSHA or ANSI bulletins on safety requirements. Do not take internally. If swallowed, call a physician immediately.

WARRANTY

GeoTree Solutions warrants this product to be free of defects in material and manufacturing. Should the product prove to be defective, the liability to GeoTree shall be limited to replacement of the product, ex-factory. GeoTree makes no warranties as to merchantability or fitness for a particular purpose. This warranty is in lieu of all other warranties expressed or implied. Users should determine the suitability of the product for the intended use and assume all risk and liability in connection therewith.

STORAGE

GT Invert Repair geopolymer should be stored in a cool, dry location. Stored under proper conditions, shelf life is one year.



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