

Milliken Infrastructure

GeoStrong™ Repair Mortar

Fast-Setting Geopolymer Mortar for Concrete Repair



BRIDGES + ROADWAYS



BUILDINGS + PARKING FACILITIES



GeoStrong™ Repair Mortar is a one-component, non-shrink, fast-setting geopolymer mortar designed for repairing horizontal, vertical and overhead concrete surfaces where high strength is desired.

GeoStrong mortar is a corrosion-resistant geopolymer mortar that allows for fast application, up to three inches in one layer, with fast finishing and reduced time between lifts.

Benefits

- Geopolymer reaction minimizes/eliminates cold joints between layers
- High early and ultimate strength
- High tensile and flexural strength
- Highly chemical resistant

Property/Test Method	Duration	Results
Compressive Strength ASTM C-39/C-109	1 Day 28 Days	Min. 2,500 psi / 17 MPa Min. 8,000 psi / 55 MPa
Flexural Strength ASTM C-78	7 Day 28 Days	750 psi / 5.2 MPa 1500 psi / 10.3 MPa
Modulus of Elasticity ASTM C-469	1 Day 28 Days	3,000,000 psi / 20700 MPa 5,800,000 psi / 40000 MPa
Bond Strength to Concrete ASTM C-882	1 Day 28 Days	Min 900 psi / 6.2 MPa Min. 2,500 psi / 17 MPa
Set Time ASTM C-807 Initial Cure Time	Initial Set Final Set	60 - 75 Minutes 90 - 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

GeoStrong Repair Mortar can be used for fast repairs to concrete and mortar surfaces below, on, or above grade in Civil Infrastructure and Industrial applications, including:

- Bridges
- Buildings
- Parking structures
- Chemical plants

Storage

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

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Composition

A proprietary micro-fiber reinforced ultra-dense geopolymer mortar designed for GeoStrong. GeoStrong is an inorganic polymeric system that adheres strongly to prepared cement surfaces and itself.

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

Packaging

GeoStrong is available in 50lb (22.7kg) sealed bags.

Cleaning and Preparation

The surface shall be thoroughly cleaned. Remove all deteriorated concrete, all foreign material, including dirt, grit, grease, sludge or other material that may be attached to the existing surface or inhibit bonding. Mechanically abraded the surface to achieve a profile in accordance with ICRI guidelines for surface prep. 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 surface shall be removed prior to application of GeoStrong.

Mixing

Do not extend with aggregate.

Always add material to water. Add 7 pints of potable water to the mixing container for each 50lb bag of GeoStrong Repair Mortar.

Add the powder to the water while continuously mixing with a low speed drill (400-600 rpm) and mixing paddle or mortar mixer. Mix to

uniform consistency - a maximum of 3 minutes. Adjust water dosage, if necessary, to achieve desired consistency. Do not over water.

Work Time

Work time is 30 - 60 minutes at 80°F (27°C).

Application

Once mixed to proper consistency and homogeneity, GeoStrong must be worked into the prepared substrate filling all voids.

Pre-wet substrate to saturated dry (SSD) with no standing water during application. Intimate contact with the substrate is required to achieve good bond. Scrub the material into the substrate, vibrate, or pump under pressure.

In horizontal applications, immediately place the repair mortar from one side of the prepared area to the other. Work the material firmly in the bottom and sides of the path to form a bond.

GeoStrong has an ultra-low abrasion rate on hoses and equipment; they will last much longer, with fewer interruptions and remobilizations.

Finishing

In vertical applications, initial troweling shall be in an upward motion to compress the material into voids and solidify the vertical wall. Take precautions not to overwork the surface.

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

Curing

Optimum curing occurs in a moist and moderate environment. Follow ACI recommendations for curing.

During cold weather conditions, heaters, thermal breaks, and other methods may be used to maintain temperature above that threshold.

Health & Safety

GeoStrong is a cementitious powder that 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 GeoStrong. When using GeoStrong 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

Milliken Infrastructure Solutions, LLC warrants this product to be free of defects in material and manufacturing. Should the product prove to be defective, the liability to Milliken Infrastructure Solutions shall be limited to replacement of the product, exfactory. Milliken Infrastructure Solutions 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.