

GEOROC®

Thin-Spray Geopolymer Coating



BRIDGES/ROADWAYS



BUILDINGS/PARKING



STORM/SANITATION

GeoRoc® geopolymer is a high performance fiber reinforced mortar specifically designed for surface reinforcement and weathering protection of soils, rock and coal strata. This high strength, ultra-low porosity material is made from natural mineral polymers and recycled industrial waste streams. Available in 50 lb (22.7 kg) sealed bags or in 2,000 lb (908 kg) super sacks.

TYPICAL USES

GeoRoc geopolymer is recommended for applications in:

- Civil works
- Mining
- Oil & Gas

TEST METHOD

DURATION

GEOSPRAY

Flexural Strength ASTM C-78	7 Days 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-807-08 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
Surface Flammability ASTM E-162		Class A

Strength Enhancing Mine Sealant, Suitability Number MSHA-S36 - minimum applied thickness ¼ inch.

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BENEFITS

- Adheres to concrete, rock, soil or coal creating a high strength wall
- Designed for mechanical pumping and spraying
- Inorganic polymeric system that adheres strongly to cement surfaces



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Composition

A proprietary micro-fiber reinforced ultra - dense geopolymer mortar designed for mechanical pumping and spraying. GeoRoc geopolymer 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 (0.012m³) per 50 lbs. For one 50lb bag, coverage is 10.3 ft² at a 0.5" depth (0.96m² per 12mm depth).

Packaging

GeoRoc mortar 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 provision) to clean and free all foreign material, including dirt, grit, roots, grease sludge and other materials that may be attached to the surface. All loose or defective brick, grout, should be removed prior to application. When grease and oil are present, an approved detergent, muriatic acid or hot water may be used with the high-pressure cleaning as needed. All materials resulting from the cleaning of the pipe shall be removed prior to application. Well adhered Bitumen coatings on CMP pipe need not be removed. Active infiltration should be sealed to the greatest extent possible prior to application. The surface existing host structure can be damp at installation.

Mixing

Do not exceed a 0.20 w/c ratio. Always add GeoRoc geopolymer to the water. Follow normal industry standards for batching and mixing.

Work Time

Work time is 60 - 90 minutes at 80°F (27°C).

Application

Once mixed to proper consistency and homogeneity, GeoRoc geopolymer can be hand troweled as a repair mortar for crack repair prior to spraying.

GeoRoc geopolymer 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 (spray nozzle or spinner head), and shall be applied to a damp surface.

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

Finishing

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

GeoRoc geopolymer 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. 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 GeoRoc geopolymer. Geo-Roc geopolymer cement should be maintained at a temperature lower than 90°F (32°C). Standard industry practices may be used to maintain proper temperature.

Alternatively, GeoRoc geopolymer 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.

Quality Control & Material Testing

For each section length designated by the owner in the contract documents or purchase order, GeoRoc will be collected at the end of the hose near the discharge point. Use 4" by 8" cylinders in accordance with Test Method ASTM C 39/39M or sprayed panels in accordance with ASTM C1140.

Health & Safety

GeoRoc, 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. When using GeoRoc geopolymer 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.

