

Geocast® Geopolymer Mortar

Sewer Infrastructure Rehabilitation



General Description

Geocast® Geopolymer Mortar is for rehabilitation of sanitary sewers, horizontal concrete and corrugated steel culvert pipes; and vertical shafts, main sewers and stormwater drain workings. The Geocast® Geopolymer Mortar restores inverts in existing deteriorated pipes, stops water infiltration and exfiltration and prevents undercutting of pipe beddings. The Geocast® Geopolymer Mortar is comprised of inorganic microsilica geopolymer minerals, pozzolan binders, polypropylene fibers and select admixtures for protecting concrete [brick] and fiberglass manholes against hydrogen sulfide attack.

Application

Geocast® Geopolymer is a wet-mix [dry] gunned shotcrete, pneumatically used (hand applied) or as a centrifugally applied liner for existing stormwater pipes, sanitary sewers and manhole rehabilitation. It provides extreme workability and applications to 3-inch thickness in one single-pass.

Abrasion and crack resistant mortar gains high early strength quickly, provides increased bond and reduced permeability. Enhanced freeze thaw durability for northern regions.

Structural restoration of damaged concrete and brick tunnels, lift station wet wells, filtration basins, wastewater treatment plant structures, bridges, parking garages, and dam structures to extend their service life beyond their original design.

Protection Levels

Geocast® Geopolymer protects against microbiologically induced corrosion (MIC), sulfates, chlorides, water vapor transmission and dilute acids to pH 1.25. Geocast® provides superior hydraulic abrasion and chemical resistance.

Mixing

Use clean, potable water. Do not add Portland cement or any admixtures to this product.

Performance Properties

Property	PSI		
Compressive Strength	24h	7d	28d
ASTM C 109	2,800	6,370	8,290
Flexural Strength	24h	7d	28d
ASTM C 293	*	1,170	1,665
Splitting Tensile Strength			28d
ASTM C 496			685
Modulus of Elasticity			3.85 x 10 ⁶
ASTM C 496/ C 469M			
Shrinkage at 50% RH			-0.178%
ASTM C 596			
Chemical Resistance-90 days:			
ASTM C 267			
2,000 ppm (sulfuric acid)			0% weight loss No defects
20,000 ppm (sulfuric acid)			0.15% weight loss Slight discoloration
Freeze Thaw Resistance-300 cycles			
ASTM C 666			98%
Slant Shear Bond Strength			28d
ASTM C 882			2,930
Rapid Chloride Permeability			28d
ASTM C 1202			311 & Very low
Density			135 ± 2 lbs.

Coverage Rate

7.5 ft² per bag at 1" thick
0.68 ft³ per 75-pound bag

Working Time

254-minutes at 72°F

Equipment

The applicator shall use an approved Sewer Manhole Masters™ Repair Trailer or approved equal.

Surface Preparation

The surface preparation required depends on the condition and nature of the substrate against which Geocast® is to be placed. Most importantly, all substrates or surfaces should be clean, free of dust, oil, excessive water and other contaminants which might interfere with bond. For concrete and masonry substrates: All loose, cracked or deteriorated surfaces should be removed and taken back to sound concrete. Water blasting, chipping, scabbling, light hydro demolition or other mechanical means should be used to abrade the surface using either of these mechanical methods to achieve a minimum concrete surface profile of CSP 5 to CSP 10 according to ICRI Guideline No. 310.2R-2013.

Placement & Curing

Ambient temperatures and job conditions will govern specific curing requirements. Take special care during hot or cold weather conditions. Place immediately by hand, pneumatic shotcrete or centrifugal spray applied method. Follow ACI 201.2R "Guide for Durable Concrete" and ACI 308R-01 "Practices for Curing Concrete". Make no application when the ambient temperatures are less than 40°F or freezing temperature is expected within 24-hours. Trail batches are recommended.

Safety

Caution: this product contains amorphous cement powders - May Cause Eye and Skin Irritation. Only experienced persons are recommended for using

this product. Use personal protective equipment when handling this material and refer to the product safety data sheet for details. Clean up with soap and water. Avoid prolong exposure. Wash with water immediately after handling. If skin problems arise, flush with water and get medical help. Keep out of reach of children.

Storage & Packaging

Store this product in a dry cool place.

Packaged in 75-pound bags

Technical Service

The manufacturer provides onsite technical support upon request. Contact your sales representative for assistance.

Warranty Information

Standard Cement Materials, Inc. offers this information for the user's consideration. The corporation warrants this product to be of good quality and performance as published and free from material defects and made within the product specification tolerances. The manufacturer reserves the right to determine whether any claim is specifically related to another cause; and makes no other warranties, either expressed or implied and in no event intends to infringe on any established patents or trademarks. Contact the manufacturer for warranty details. All rights reserved 2024©.

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