

# GeoCast® Geopolymer Mortar

Structural Repair Mortar for Sewer Infrastructure Renewal

## GENERAL

GeoCast™ Geopolymer Mortar is a microsilica geopolymer with fly-ash binder, pozzolan powder, polymer modified and fiber reinforced mixture with select admixtures for rehabilitation of horizontal concrete pipes, corrugated steel culverts, sewer manholes, and Water Treatment Plant structures. The chemical resistance GeoCast™ Geopolymer Mortar, withstands hydrogen sulfide corrosion and offers [optional] benefit of corrosion inhibitor; a calcium nitrate additive for marine environments.

## APPLICATIONS

The GeoCast© Mortar 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 application.

- Abrasion and crack resistant mortar gains high early strength quickly, provides increased bond and reduced permeability.
- **Enhanced freeze thaw durability for northern regions.**
- Structural reinstatement of damaged concrete and brick tunnels, lift station wet wells, filtration basins, WTP constructions, bridges, parking garages, and dam structures to extend their service life beyond their original design.

## PROTECTION LEVELS

GeoCast© Geopolymer Mortar protects against microbiologically induced corrosion (MIC), sulfates, chlorides, water vapor transmission and acids to pH 1.

## YIELD

For estimating purpose only, adjust for waste, and cut-offs that reduces the coverage:

Coverage Rate: 7.5 ft<sup>2</sup> at 1-in. thickness  
0.63 ft<sup>3</sup> per 75 lb. bag

Working time: 254-minutes (73°F)

## PACKAGING

Stocked in 75 lb. bags, pallets and truckloads.  
Shelf life 1 year when properly stored.

## MIXING

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

## TECHNICAL INFORMATION

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			
	ASTM C 496/ C 469M		3.85 x 10 <sup>6</sup>
Shrinkage at 50% RH			
	ASTM C 596		-0.178%
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.

## EQUIPMENT

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

## SURFACE PREP

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 the aforementioned mechanical methods to achieve a minimum concrete surface profile of CSP-7 according to ICRI 310.

## PLACEMENT/ CURING

Ambient temperatures and job conditions will govern specific curing. Take special care during hot or cold weather. Place immediately by hand, pneumatic shotcrete (guniting); or centrifugal spray method. Follow ACI 302 Guide for Concrete Floors and Slab Construction and ACI 308 Standard Practice for Curing Concrete to avoid any shrinkage cracking problems due to decreased bleeding. Protect the cement from hot weather extremes, air movement and dry conditions, and direct sunlight. Cure as soon as the surface begins to harden, cover with plastic sheets or use an acceptable liquid membrane-forming curing compound per ASTM C 309 Liquid membrane-Forming Compounds Having Special Properties. The curing compound shall contain a minimum of 25 % solids and prevent water loss of up to 0.4-kg/m<sup>3</sup> in 72 hours. Apply the curing compound in layers while the cement is still soft to keep the cement moist and at a favorable temperature during the early hardening period. Make no application when the ambient temperatures are less than 40°F or freezing temperature is expected within 24-hour. Trial batches are recommended.

## STORAGE

Store in unopen containers in a clean dry area raised up off the floor.

## SAFETY

Caution: contains fused calcium hydrates—May Cause Eye and Skin Irritation. Clean up with soap and water. Avoid prolonged exposure. Wash with water immediately after handling. If skin problems arise, flush with water and get medical help. Store in a dry, cool place, and stocked in a 75-lb bag. Keep out of reach of children.

## TECHNICAL SERVICE

Manufacturer provides technical and on-site assistance within 48-hours' notice.

## WARRANTY

The manufacturer warrants this product to be of good quality and free from defects within the warranty period. Failure does not include acts of God, consequential damage resulting from workmanship, mechanical and chemical maltreatment or exposure not customarily used in connection with the structure. The manufacturer's liability and the Buyer's single remedy in connection with the product shall be limited to replacement of the product not conforming to this warranty. The manufacturer reserves the right to determine whether any claim is specifically related to another cause. The corporation makes no other warranties, either expressed or implied and in no event intends to infringe on any established patents or trademarks.

### **Customer Service:**

Standard Cement Materials, Inc.  
[www.standardcement.com](http://www.standardcement.com)  
[support@standardcement.com](mailto:support@standardcement.com)  
March.2020.