

# Reliner MSP<sup>®</sup> Cement

Sewer Manhole Repair Mortar, Non-sag

**STANDARD CEMENT MATERIALS, INC<sup>®</sup>**

## Product Data Sheet

### GENERAL

Reliner MSP<sup>®</sup> Cement is a polymer - modified cement mortar for concrete and brick sewer manholes. The high performance cement mortar with densified microsilica powder, pozzolanic materials, and other select admixtures is designed to coat both new and existing structures, restore structural integrity, stop water infiltration and protect against hydrogen sulfide induced corrosion in sewerage works, including concrete lift stations, pipes, and water treatment plant structures.

### APPLICATIONS

**A Sustainable Green Technology Product, the patented original Reliner MSP<sup>®</sup> Cement** is a gunned shotcrete coating for horizontal and overhead surfaces in concrete and masonry up to 5 – inch thicknesses. Combined with dispersible copolymer powders and synthetic polypropylene fibers, the trowel - grade cement produces an abrasion resistant mortar and reduced shrinkage cracking. Repair defects in cast-in-place [precast] structures, junction boxes, dams, raw water treatment plant structures and tunnels. The modified cement offers other advantages like increased freeze thaw durability and resistance to de-icing salts.

### PROTECTION LEVELS

**Corrosion Resistance:** composed primarily of finely divided cement and dry microsilica powder, the Reliner MSP<sup>®</sup> Cement adds open time performance and lower permeability to protect against low pH ranges found in damp, sewer environments, hydrogen sulfide (H<sub>2</sub>S) gas corrosion, sulfates, salt water, chlorides, water vapor, oils, grease, gases and dilute acids to pH 2.0.

**Chemical Composition:** its dense chemical make-up differs significantly from the common Portland calcium silicate hydrates cement blends. In contrast, the Reliner MSP<sup>®</sup> Cement will not corrode or attack the reinforcement steel.

### PLACEMENT

Place immediately by a wet applied shotcrete or gunite method. Working time is approximately 150 minutes at 73°F. Trail batches are recommended; always follow ACI 302 "GUIDE FOR CONCRETE FLOORS AND

SLAB CONSTRUCTION." and ACI 308 "STANDARD PRACTICE FOR CURING CONCRETE" to avoid problems due to rapid drying and shrinkage cracking.

### MIXING

Add clean, potable water for mixing. Do not add Portland cement, admixtures or other ingredients.

### TECHNICAL INFORMATION

Property	psi		
Compressive Strength	24-h	7-d	28-d
ASTM C 109	3,500	4,500	>9,000
Tensile Strength			
ASTM C 496	*	*	570
Flexural Strength			
ASTM C 78	*	*	>1,000
Bond Strength/ Slant Shear			
ASTM C 882			>2,675
Modulus of Elasticity			
ASTM C 496/ C 469M			4,375,233
Shrinkage at 90% RH			
ASTM C 596			0.0%
Chloride Permeability			
AASHTO T 277			<300
Freeze Thaw Durability-300 Cycles			
ASTM C 666			No Damage
Sulfate Resistance-90 days:			
ASTM C 267			
2,000 ppm (sulfuric acid)			Good
20,000 ppm (sulfuric acid)			Slight scaling
Applied Density (28 days)			125 ± 2

### EQUIPMENT

The manufacturer or a certified applicator shall apply the cement using a **SEWER MANHOLE MASTERS<sup>™</sup> REPAIR TRAILER**. The pump equipment must supply line pressure at 350-psi maximum and 11 cubic feet per minute air pressure at the nozzle.

### CURING

Follow ACI 302, 308, 305 and hot weather concrete

placement practices to minimize problems caused by decreased bleeding. Protect the cement mortar from hot weather extremes, air movement and dry conditions, and direct exposure to sunlight. Cure immediately as soon as the surface begins to harden, cover with wet burlap coverings, plastic sheets or use an acceptable liquid membrane-forming curing compound per ASTM C 309. The curing compound shall contain a minimum of 25% solids and prevent a maximum loss of water up to 0.4-kg/m<sup>3</sup> in 72 hours. Apply the curing compound in layers while the cement is still soft. Allow to cure approximately 4-½ to 24-hours. The ambient temperature and job conditions will govern specific cases, however, normal curing is adequate, but, in some situations such as hot or cold weather, special care is sometimes needed. Therefore, it is important to keep the concrete 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.

#### **SAFETY**

Caution: the cement contains fused calcium hydrates—May Cause Eye and Skin Irritation. 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**

Store the product in a dry cool place. The cement is stocked in a 75-lb double paper lined bag.

#### **TECHNICAL SERVICE**

Standard Cement Materials Inc provides technical on-site assistance within 48-hour notice. Please contact us if you are looking for something special.

#### **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 specified and is free from material defects within the warranty period. "Failure" will be determined (1) upon inspection of each sanitary sewer application (2) within each specific pH limit, and (3) maintain its adherence to the existing structure wall. If failure occurs within the specified period, the damage will be repaired to its previous state at no cost to the Owner (or within 30-days after written notification). "Failure" does

not include consequential damage resulting from mechanical or chemical maltreatment or act of God. Mechanical or chemical abuse means exposing the cement liner surface to any mechanical force or action taken or chemical substance not customarily used in connection with normal wear and typical use of the structure. Report all product failures within 30-days from the application date. The manufacturer's liability and sole obligation and the Buyer's single remedy in connection with the product shall be limited, at its option, to either replacement of the product not conforming to this warranty only or credit to Buyer's account in the amount of the invoiced product. Standard Cement Materials Inc 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. © All rights reserved 2011.

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