

# Mainstay® ML-CA™

## Pure Calcium Aluminate Cement Mortar



### FEATURES/BENEFITS

EASY TO USE AND FINISH	HIGH BUILD
WATERPROOFS/DAMP-PROOFS	VERY LOW SHRINKAGE
SUPERIOR CORROSION RESISTANCE	HIGH FLEXURAL AND BOND STRENGTH
HIGH EARLY AND ULTIMATE STRENGTH	RESTORES DETERIORATED SURFACES

### PRODUCT DESCRIPTION

**M**AINSTAY ML-CA is a ready-to-use pure calcium aluminate cement mortar specifically designed for the rehabilitation of deteriorated concrete and brick structures in wastewater environments subject to biologically induced hydrogen sulfide (H<sub>2</sub>S) corrosion with a pH of 2 or higher. MAINSTAY ML-CA produces excellent adhesion to properly prepared existing concrete or brick surfaces, restores structural integrity, seals rough, deteriorated surfaces, and resists both external hydrostatic water pressure and repeated freeze/thaw. MAINSTAY ML-CA is suitable for permanent immersion in water, saltwater, oils, gases, and many dilute acids.

MAINSTAY ML-CA can be used to repair floors and vertical and overhead surfaces of deteriorated concrete structures such as manholes, lift stations, wet wells, sewer pipes, culverts, pits, sumps, trenches, tunnels, bridges, piers, or any concrete structure that has experienced deterioration from exposure to aggressive environments.

### PRODUCT DATA

#### COMPOSITION:

A ready-to-use pure calcium aluminate cement mortar with thermoplastic fiber.

#### COLOR:

Dark gray.

#### YIELD:

0.54 cubic feet (ft<sup>3</sup>) per 65-pound (lb) bag when mixed correctly.

#### COVERAGE:

Approximately 13 square feet (ft<sup>2</sup>) per bag at 1/2". Allowances should be made for waste.

#### THICKNESS:

Depends on the application. 1" is generally sufficient for smoothing concrete that has experienced surface attack (exposed aggregate). Minimum thickness is usually 1/2". Consult a Mainstay Technical Representative for specific recommendations.

#### PACKAGING:

Normally stocked in 65-lb bags. Also available in 2,000-lb and 3,000-lb bulk sacks.

#### SURFACE PREPARATION:

Prepare surfaces to be repaired by Low Pressure Water Cleaning (LP WC, 4,000 psi minimum), abrasive blasting, hand, or power tool cleaning to remove all unsound concrete, contaminants, dirt, debris, and/or deteriorated reinforcing steel. Refer to the International Concrete Repair Institute (ICRI) technical guideline titled *Surface Preparation Guidelines For The Repair Of Deteriorated Concrete Resulting From Reinforcing Steel Oxidation* and/or contact a Mainstay Technical Representative for information on removal techniques that are best for your application. Surfaces should have a minimum ICRI Concrete Surface Profile (CSP) #5 (preferably with aggregate exposed) and should be inspected for soundness prior to the application of MAINSTAY ML-CA. Saturate all surfaces thoroughly with clean water and allow to surface dry just prior to the application of MAINSTAY ML-CA.

#### MIXING:

Add 1.1 gallons of clean water per 65 lb bag. Mix thoroughly using a gasoline, electric or hydraulically powered paddle-type mixer. Additional water, up to 1 pint per bag MAXIMUM, may be added to increase workability. However, physical strengths will be reduced accordingly. **Trial batches and testing concrete materials are recommended before construction start up.**

#### WORKING TIME:

Approximately 20 minutes at 80° Fahrenheit (F). The working time will be extended at lower temperatures and shortened when higher.

#### APPLICATION:

MAINSTAY ML-CA can be applied by low to medium velocity wet mix shotcrete equipment (pneumatic spray) or by hand using a trowel. MAINSTAY ML-CA can also be applied to round structures using spincasting equipment such as the Mainstay Mortar Spinner for vertical applications or the Mainstay Horizontal Spinner and

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Cable Puller for horizontal applications. Application thicknesses up to 3" in a single or multiple passes are possible depending on the amount of water added, the condition of the surfaces being treated, and jobsite conditions. A variety of piston, systolic, and rotor/stator pumps may be used depending on job requirements and desired production rates. Consult a Mainstay Technical Representative for information regarding equipment that is best suited for your job.

### FINISHING:

MAINSTAY ML-CA can be finished using a steel trowel, wood float, sponge float, broom, or brush, depending on the surface texture desired.

### CURING:

No special curing requirements are necessary when applied in moist subterranean structures. When placed under fast drying conditions (in direct sunlight, high winds, or high temperatures), MAINSTAY ML-CA may be treated with a curing compound or wetted occasionally during the first 24 hours of cure to slow the evaporation of mix water.

### CLEAN UP:

Clean equipment and tools with clean tap water.

### DELIVERY & STORAGE:

Check containers for damage, and verify quantities before accepting shipments. Store MAINSTAY ML-CA in a cool, dry place.

### SHELF LIFE:

6 months, depending on storage conditions, subject to reinspection thereafter.

### SAFETY:

KEEP OUT OF REACH OF CHILDREN.

FOR INDUSTRIAL USE ONLY.

MAINSTAY ML-CA contains calcium aluminate cement and chemicals that *MAY CAUSE EYE, SKIN, RESPIRATORY, OR NERVOUS SYSTEM SENSITIZATION*. Adequate health and safety precautions should be observed during all storage, handling, use, and drying periods. For best results and safest usage, user is specifically directed to consult the current Safety Data Sheet for this product. When using this product in a confined space or

closed area, consult the current Occupational Safety and Health Administration (OSHA) or American National Standards Institute (ANSI) bulletins on safety requirements. Do not take internally. If swallowed, call a physician immediately. Keep away from open flame, and keep containers tightly closed when not in use.

### WARRANTY:

All technical data, recommendations, and services are rendered by the Seller gratis. They are based on technical data that the Seller believes to be reliable and are intended for use by persons having skill and knowledge at their discretion and risk. Seller assumes no responsibility for results obtained or damages incurred from their use by the Buyer whether as recommended herein or otherwise. Such recommendations, technical advice, or services are not to be taken as a license to operate or intended to suggest infringement of any existing patent. MADEWELL PRODUCTS CORPORATION MAKES NO GUARANTEE OR WARRANTIES EXCEPT AS OTHERWISE PROVIDED IN WRITING AND DISCLAIMS ANY AND ALL WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

Compressive Strength ASTM C-109	24 hours 7 days 28 days	>10,000 psi >12,000 psi >13,000 psi
Flexural Strength ASTM C-293	28 days	>1,400 psi
Shrinkage ASTM C-596	28 days @ 90% Rh	0%
Freeze/Thaw ASTM C-666	323 cycles	No Visible Damage
Tensile Strength* ASTM C-496	28 days	>650 psi
Bond Strength* ASTM C-882	28 days	>3,000 psi
Density		135 lbs/ft <sup>2</sup>

\*Uniaxial tensile bond strength should achieve a minimum of 1 Newton/mm<sup>2</sup> (145 psi) over a sound, properly prepared substrate. However, bond is highly dependent on degree of surface preparation and substrate strength.