

EMACO® R300 CI

One-component, polymer-modified, shrinkage-compensated profiling mortar with integral corrosion inhibitor

DESCRIPTION:

EMACO® R300 CI repair mortar is a one-component, shrinkage-compensated, fast-setting, polymer-modified cement-based profiling mortar with an integral corrosion inhibitor. It is ideally suited for leveling and/or resurfacing distressed concrete and is designed for both interior and exterior use.

Application Thickness:

Vertical/Overhead: Featheredge to 1 in. (25 mm) per lift
Horizontal: Featheredge to 1/4 in. (6 mm) per lift

RECOMMENDED FOR:

- Leveling and resurfacing distressed concrete
- Providing consistent color and texture
- Horizontal and vertical surfaces
- Repair bugholes and honeycombs

FEATURES/BENEFITS:

- Corrosion resistant - contains an integral corrosion inhibitor
- One component - easy mixing and handling
- Polymer modified - resists moisture and chloride intrusion
- Low modulus of elasticity - improved compatibility for surface renovation
- Early strength gain - ready for pedestrian traffic in six hours
- Versatile - use vertical, overhead or on horizontal surfaces subject to foot traffic
- Sprayable - reduced labor requirements

PACKAGING/ESTIMATING:

EMACO R300 CI profiling mortar is packaged in 55 lb (25 kg) moisture-resistant bags which yield approximately 0.45 ft³ (0.013 m³). This will cover approximately 21.6 ft² (2.0 m²) at 1/4 in. (6 mm) depth before waste.

PERFORMANCE DATA:

Results were obtained when material was mixed with 0.8 gal (3.0 L) of water per bag and cured at 70 °F (21 °C). Reasonable variations can be expected depending upon mixing equipment, temperature, application methods, test methods and curing conditions.

PLASTIC PROPERTIES:

Unit Weight 132 lb/ft³ (2,115 kg/m³)

Working Time 30 minutes

Set Times (h:min) Initial Set Final Set
(ASTM C 266) 1:30 2:00

HARDENED PROPERTIES:

	1 Day psi (MPa)	7 Day psi (MPa)	28 Day psi (MPa)
Direct Tensile Bond Strength (ACI 503R, Appendix A)	150 (1.0)	175 (1.2)	200 (1.4)
Direct Shear Bond Strength (Michigan DOT)	150 (1.0)	250 (1.7)	300 (2.1)
Slant Shear Bond Strength (ASTM C 882, Modified ¹)	750 (5.2)	1750 (12.1)	2100 (14.5)
Drying Shrinkage at 28 Days (ASTM C 157, Modified ²)	0.10%		

Modulus of Elasticity at 28 Days 2.7 x 10⁶ psi (18.6 GPa)
(ASTM C 469)

Rapid Chloride Permeability at 28 Days 1087 coulombs
(ASTM C 1202/AASHTO T 277)

Freeze-Thaw Resistance at 300 Cycles 93.7% RDM
(ASTM C 666, Procedure A)

Salt Scaling Resistance, 50 Cycles None
(ASTM C 672)

Abrasion Resistance (ASTM C 779A)	Duration	Depth of Wear
	30 minutes	0.038 in. (0.97 mm)
	60 minutes	0.065 in. (1.65 mm)

	1 Day psi (MPa)	7 Day psi (MPa)	28 Day psi (MPa)
Splitting Tensile Strength (ASTM C 496)	350 (2.4)	450 (3.1)	550 (3.8)
Flexural Strength (ASTM C 348)	550 (3.8)	650 (4.5)	1200 (8.3)

	6 Hours psi (MPa)	1 Day psi (MPa)	7 Day psi (MPa)	28 Day psi (MPa)
Compressive Strength (ASTM C 109)	350 (2.4)	2000 (13.8)	5000 (34.6)	7000 (48.3)

¹ No epoxy-bonding agent used, air cured per ASTM C 1042.

² ICRI Guideline #03733, 1 in. x 1 in. x 10 in.
(25 mm x 25 mm x 250 mm) prism, air cured.

SURFACE PREPARATION:

Concrete

Perform surface preparation in compliance with ICRI Technical Guideline No. 03730 "Selecting and Specifying Concrete Surface Preparation for Sealers, Coatings, and Polymer Overlays". Remove all unsound or delaminated concrete providing a substrate profile that meets ICRI CSP 5. For horizontal applications subject to traffic, the perimeter of the area to be resurfaced should be sawcut to a minimum depth of 1/8 in. (3 mm) to prevent feathered edges. Immediately prior to application, thoroughly clean roughened surface to remove all bond-inhibiting materials from the concrete substrate. Pre-soak the prepared concrete surface to provide a saturated, surface dry (SSD) condition.

Corroded Reinforcing Steel

Remove all oxidation and scale from the exposed reinforcing steel in accordance with ICRI Technical Guideline No. 03730 "Guide for Surface Preparation for the Repair of Deteriorated Concrete Resulting from Reinforcing Steel Corrosion". For additional protection from future corrosion, coat the prepared reinforcing steel with EMACO P22 or EMACO P24 rebar coatings.

MIXING:

Horizontal Applications

Add 0.80 to 0.90 gallons (3.0 to 3.4 liters) of potable water per 55 lb (25 kg) bag of EMACO R300 CI profiling mortar.

Vertical and Overhead Applications

Add 0.75 to 0.80 gallons (2.8 to 3.0 liters) of potable water per 55 lb (25 kg) bag of EMACO R300 CI profiling mortar.

Mechanically mix using mortar mixer of an appropriate size. Pour approximately 90% of the mix water into the mixing container then slowly charge the mixer with the bagged material. Add the remaining mix water as required to obtain desired consistency. Mix 3 to 5 minutes until a homogeneous consistency is achieved.

APPLICATION:

Concrete

Scrub a bond coat of EMACO R300 CI profiling mortar into the prepared saturated surface with a stiff bristle broom or brush. EMACO R300 CI profiling mortar must be placed before the bond coat dries. Level as needed to match the original concrete elevation. Where rapid drying conditions exist (such as hot, dry or windy conditions) use CONFILM® evaporation reducer. Finish the final surface as required.

CURING:

Proper curing is extremely important and should be conducted in accordance with ACI 308 "Standard Practice for Curing Concrete". Apply a water-based curing compound that complies with the moisture retention requirements of ASTM C 309 such as MASTERKURE® 100W or 200W curing compounds; or moist cure for a minimum of 2 days.

LIMITATIONS:

Maximum application thickness is 1/4 in. (6 mm) for horizontal applications, 1 in. (25 mm) for vertical and overhead applications. Minimum ambient and surface temperatures should be 45 °F (7 °C) and rising at the time of application. Do not use solvent-based curing compounds. Do not mix longer than 5 minutes.

STORAGE AND SHELF LIFE:

Unopened bags have a shelf life of 18 months when stored under cover in dry conditions between 45 and 90 °F (7 and 32 °C).

RELATED BULLETINS:

Material Safety Data Sheet — EMACO R300 CI
Installation Bulletin (7I54) #112673 — EMACO R300 CI
Specification Bulletin (7S54) #112643 — EMACO R300CI

For additional information, contact your local Master Builders representative.

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