



**Surface  
Renovation  
Mortars**

# EMACO® R300 CI

**One-component, polymer-modified, thixotropic, chloride- and carbon-resistant surface renovation 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.

## 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 on vertical, overhead, or horizontal surfaces subject to foot traffic
- Sprayable - reduced labor requirements

## Where to Use EMACO® R300 CI

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

### Important: Read This First

ChemRex® does not warrant the performance of this product unless the instructions of this document and other related ChemRex® documents are adhered to in all respects.

## How to Apply EMACO® R300 CI

### Surface Preparation

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.

- 1 Square cut or undercut the perimeter of the area to be patched to a minimum depth of 1/8 inch (3 mm) to prevent featheredges. Do not cut reinforcement.
- 2 Chip unsound concrete within the area to be repaired to a depth of 1/8 inch (3 mm) or to whatever additional depth is necessary to reach sound concrete.
- 3 Remove areas that have been saturated with oil or grease.
- 4 Thoroughly abrade the roughened surface and exposed reinforcement to remove all bond-inhibiting materials such as rust, dirt, loose chips, and dust.

5 Corroded Reinforcing Steel should be sandblasted or shotblasted after chipping to remove oxidation and scale in compliance with ICRI Technical Guideline No. 03730 "Guide for Surface Preparation for 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 and/or install EMACO® Corr-Stops® CI galvanic anodes.

6 Saturate the area thoroughly with water for several hours prior to placing EMACO® R300 CI.

7 Prior to mixing, blow off or remove all excess water from repair area. Surface should be saturated, surface dry (SSD) condition.

### Mixing

#### Horizontal Applications

Add 0.80 to 0.90 gallons (3.0 to 3.4 L) 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.

Mechanical mixing is recommended with use of a slow-speed drill (400 to 600 rpm) and a Jiffy-type paddle, or in an appropriate size mortar mixer. 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. **Do not** mix longer than 5 minutes.

### Application and Finishing:

Apply the mortar on top of the prewetted substrate.

Apply a bond coat of the mortar to a properly prepared saturated surface dry (SSD) substrate by scrubbing a thin layer of EMACO® R300 CI into the surface with a stiff bristle broom or brush. Do not apply more of the bond coat than can be covered with EMACO® R300 CI before the bond coat starts to set. Do not retemper the bond coat.

Maximum application thickness is 1/4 in. (6 mm) for horizontal applications; 1/2" (13 mm) for vertical and overhead applications. EMACO® R300 CI should be finished by hand only. Where rapid surface evaporation may occur (e.g., hot, dry, or windy conditions) use CONFILM® evaporation reducer.

### 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, or moist cure for a minimum of 3 days. Do not use solvent-based curing compounds.

## For Best Performance

- Maximum application thickness is 1/4 in. (6 mm) for horizontal applications, 1/2" (13 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.
- Featheredging will result in reduced performance.
- Make certain the most current version of this data guide is being used; call Customer Service (1-800-433-9517) to verify the most current version.
- Proper application is the responsibility of the user. Field visits by ChemRex® personnel are for the purpose of making technical recommendations only and are not for supervising or providing quality control on the jobsite.

## Technical Data

Results were obtained when material was mixed with 0.8 gallon (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/ft <sup>3</sup> (2,115 kg/m <sup>3</sup> )
Working time	30 minutes
Set times (h:min)	Initial Set 1:30
(ASTM C 266)	Final Set 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 <sup>1</sup> )	750 (5.2)	1,750 (12.1)	2,100 (14.5)	
Drying shrinkage at 28 days (ASTM C 157, Modified <sup>2</sup> )			0.10%	
Modulus of elasticity at 28 days (ASTM C 469)	2.7 x 10 <sup>6</sup> psi (18.6 GPa)			
Rapid chloride permeability at 28 days (ASTM C 1202/AASHTO T 277)		1087 coulombs		
Freeze-thaw resistance at 300 cycles (ASTM C 666, Procedure A)			93.7% RDM	
Salt Scaling resistance, 50 Cycles (ASTM C 672)			None	
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)	2,000 (13.8)	5,000 (34.6)	7,000 (48.3)

<sup>1</sup>No epoxy-bonding agent used, air cured per ASTM C 1042.

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

## Order Information

### Packaging

EMACO® R300 CI

- 55 lb. (25 kg) moisture-resistant bags

### Application Thickness

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

### Shelf Life

- Unopened bags have a shelf life of 1 year when stored under cover in dry conditions between 45 and 90°F (7 and 32°C).

### Coverage

- Yield is approximately 0.43 ft.<sup>3</sup> (0.013 m<sup>3</sup>) per 55 lb. (25 kg) bag. This will cover approximately 21.6 ft.<sup>2</sup> (2.0 m<sup>2</sup>) at 1/4 in. (6 mm) depth before waste. A 55 lb. (25 kg) bag will cover approximately 5.4 ft.<sup>2</sup> (0.56 m<sup>2</sup>) at a 1 inch (25 mm) thickness.

## Caution

EMACO® R300 CI

### Risks

Eye irritant. Skin irritant. Causes burns. Lung irritant. May cause delayed lung injury.

### Precautions

KEEP OUT OF THE REACH OF CHILDREN. Avoid contact with eyes. Wear suitable protective eyewear. Avoid prolonged or repeated contact with skin. Wear suitable gloves. Wear suitable protective clothing.

Do not breathe dust. In case of insufficient ventilation, wear suitable respiratory equipment. Wash soiled clothing before reuse.

### First Aid

Wash exposed skin with soap and water. Flush eyes with large quantities of water. If breathing is difficult, move person to fresh air.

### Waste Disposal Method

This product when discarded or disposed of is not listed as a hazardous waste in federal regulations. Dispose of in a landfill in accordance with local regulations.

For additional information on personal protective equipment, first aid, and emergency procedures, refer to the product Material Safety Data Sheet (MSDS) on the job site or contact the company at the address or phone numbers given below.

### Proposition 65

This product contains materials listed by the state of California as known to cause cancer, birth defects, or reproductive harm.

### VOC Content

This product contains 0 g/L or 0 lbs./gallon.

*For medical emergencies only, call ChemTrec (1/800/424-9300).*

---

#### Limited Warranty Notice

Every reasonable effort is made to apply ChemRex® exacting standards both in the manufacture of our products and in the information which we issue concerning these products and their use. We warrant our products to be of good quality and will replace or, at our election, refund the purchase price of any products proved defective. Satisfactory results depend not only upon quality products, but also upon many factors beyond our control. Therefore, except for such replacement or refund, CHEMREX® MAKES NO WARRANTY OR GUARANTEE, EXPRESS OR IMPLIED, INCLUDING WARRANTIES OF FITNESS FOR A PARTICULAR PURPOSE OR MERCHANTABILITY, RESPECTING ITS PRODUCTS, and CHEMREX® shall have no other liability with respect thereto. Any claim regarding product defect must be received in writing within one (1) year from the date of shipment. No claim will be considered without such written notice or after the specified time interval. User shall determine the suitability of the products for the intended use and assume all risks and liability in connection therewith. Any authorized change in the printed recommendations concerning the use of our products must bear the signature of the ChemRex® Technical Manager.



MBT mark used under license from MBT Holding AG

**ChemRex®**

**Corporate Office:**

889 Valley Park Drive; Shakopee, MN 55379

**Customer Service:** 1/800/433-9517

**Technical Services:** 1/800/ChemRex (1/800/243-6739)

**Web Site:** [www.chemrex.com](http://www.chemrex.com)