



The Chemical Company

PRODUCT DATA

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Maintenance of Concrete

EMACO® R300 CI

Surface-renovation mortar with integral corrosion inhibitor

Description

Emaco® R300 CI repair mortar is a one-component thixotropic polymer-modified cement-based profiling mortar with an integral corrosion inhibitor. Emaco® R300 CI is used for leveling or resurfacing distressed concrete both interior and exterior. It is shrinkage compensated, fast setting, and chloride and carbon resistant.

Yield

Approximately 0.43 ft³ (0.013 m³) per 55 lb (25 kg) bag

Approximately 21.6 ft² (2.0 m²) at 1/4" (6 mm) depth without any waste.

A 55 lb (25 kg) bag will cover approximately 10.8 ft² (0.28 m²) at a 1/2" (12.5 mm) thickness.

Packaging

55 lb (25 kg) multi-wall bags

Shelf Life

9 months when properly stored

Storage

Store in unopened containers in a clean, dry area between 45 and 90° F (7 and 32° C).

Features

- Low permeability
- Contains an integral corrosion inhibitor
- Sprayable
- One component
- Low modulus of elasticity
- Versatile
- Early strength gain

Benefits

- Resists moisture and chloride intrusion
- Prevents corrosion from a wide range of sources and environments
- Reduces labor requirements
- Easy mixing and handling; components not damaged by freezing
- Improved compatibility for surface renovation
- Use on vertical and overhead surfaces or horizontal surfaces with foot traffic
- Ready for pedestrian traffic in 6 hours

Where to Use

APPLICATION

- Leveling and resurfacing distressed concrete
- Repairing bugholes and honeycombs

LOCATION

- Horizontal and vertical surfaces

How to Apply

Surface Preparation

CONCRETE

1. Perform surface preparation in compliance with ICRI Technical Guideline No. 03732 "Selecting and Specifying Concrete Surface Preparation for Sealers, Coatings, and Polymer Overlays."
2. Square cut or undercut the perimeter of the area being patched to a minimum depth of 1/8" (3 mm) to prevent featheredges. Do not cut reinforcement.
3. Chip unsound concrete within the patching area to a depth of 1/8" (3 mm) or to whatever additional depth is necessary to reach sound concrete and provide a substrate profile that meets ICRI CSP 5.

4. Thoroughly abrade the roughened surface and exposed reinforcement to remove all bond-inhibiting materials, such as rust, dirt, loose chips, dust, oil, and grease. Do not use a method of surface preparation that will fracture the concrete. Verify the absence of microcracking or bruising in accordance with ICRI Guideline No. 03732.

5. Saturate the area thoroughly with water for several hours before placing Emaco® R300 CI.

6. Before mixing, blow off or remove all excess water from repair area. Surface should be saturated surface dry (SSD).

STEEL

Sandblast or shotblast corroded reinforcing steel 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® P24 rebar coating or install Emaco® Corr-Stops® CM galvanic anodes.



Technical Data

Composition

Emaco® R300 CI repair mortar is a blend of cement, graded aggregate, dry polymer, and set-control additives.

Typical Properties

PROPERTY	VALUE
Unit weight , lb/ft ³ (kg/m ³)	132 (2,115)
Working time , min	30
Set times , hr:min (ASTM C 266)	
Initial set	1:30
Final set	2:00

Test Data

PROPERTY	RESULTS	TEST METHODS
Drying shrinkage , %, at 28 days	0.10	ASTM C 157, modified ¹
Modulus of elasticity , psi (GPa), at 28 days	2.7 x 10 ⁶ (18.6)	ASTM C 469
Rapid chloride permeability , coulombs, at 28 days	1,087	ASTM C 1202 / AASHTO T 277
Freeze/thaw resistance , % RDM, at 300 cycles	93.7	ASTM C 666, Procedure A
Scaling resistance , 50 cycles	None	ASTM C 672
Abrasion resistance		ASTM C 779A
Duration	Depth of wear, in (mm)	
30 min	0.038 (0.97)	
60 min	0.065 (1.65)	

	1 Day Psi (MPa)	7 Day Psi (MPa)	28 Day Psi (MPa)	
Direct tensile bond strength	150 (1.0)	175 (1.2)	200 (1.4)	ACI 503R, Appendix A
Direct shear bond strength	150 (1.0)	250 (1.7)	300 (2.1)	Michigan DOT
Slant shear bond strength	750 (5.2)	1,750 (12.1)	2,100 (14.5)	ASTM C 882, modified ²
Splitting tensile strength	350 (2.4)	450 (3.1)	550 (3.8)	ASTM C 496
Flexural strength	550 (3.8)	650 (3.8)	1200 (8.3)	ASTM C 348

	6 Hour 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)

¹ICRI Guideline No. 03733, 1 by 1 by 10" (25 by 25 by 250 mm) prism, air cured.

²No epoxy-bonding agent used; air cured according to ASTM C 1042.

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

Mixing

Use a slow-speed drill (400 – 600 rpm) with a Jiffy-type paddle or an appropriately sized mortar mixer. Pour approximately 90% of the mix water into the container, then slowly charge the mixer with the bagged material. Add the remaining mix water, as required, to obtain desired consistency. Mix 3 – 5 minutes to achieve a homogeneous mixture. Do not mix longer than 5 minutes.

HORIZONTAL APPLICATIONS

Add 0.80 – 0.90 gallons (3.0 – 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 – 0.80 gallons (2.8 – 3.0 L) of potable water per 55 lb (25 kg) bag of Emaco® R300 CI profiling mortar.

Application

1. Scrub a thin layer of Emaco® R300 CI into the properly prepared saturated surface-dry (SSD) substrate using 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 dry. Do not dilute the bond coat with water. Do not retemper the bond coat.
2. Firmly apply the repair material to the bond coat with a trowel. Maximum application thickness is 1/4" (6 mm) for horizontal applications and 1/2" (13 mm) for vertical and overhead applications.

3. Finish Emaco® R300 CI by hand only, using a wooden, plastic, or sponge float.

4. Where rapid surface evaporation may occur (hot, dry, or windy conditions) use Confilm® evaporation reducer. Refer to the Confilm® product data sheet for more information.

Curing

1. Proper curing is extremely important; conduct it in accordance with ACI 308 "Standard Practice for Curing Concrete."
2. Apply a water-based curing compound that complies with the moisture-retention requirements of ASTM C 309 or ASTM C 1315 or moist cure 2 – 3 days. Do not use solvent-based curing compounds.

For Best Performance

- Allow mortar extra time to harden at temperatures below 50° F (10° C).
- Precondition these materials to approximately 70° F (21° C) for 24 hours before using.
- Protect repairs from direct sunlight, wind, and other conditions that could cause rapid drying of material.
- Maximum application thickness is 1/4" (6 mm) for horizontal applications and 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 reduce the performance of Emaco® R300 CI.
- Do not use in applications where product will be in a continuous wet or immersed condition.
- Do not use in sulfate-containing environments.
- Make certain the most current versions of product data sheet and MSDS are 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 BASF personnel are for the purpose of making technical recommendations only and not for supervising or providing quality control on the jobsite.

Health and Safety

EMACO® R300 CI

WARNING!

Contains silica, crystalline quartz, Portland cement, anhydrite, limestone, gypsum, magnesium oxide.

Risks

Product is alkaline on contact with water and may cause injury to skin or eyes. Ingestion or inhalation of dust may cause irritation. Contains small amount of free respirable quartz which has been listed as a suspected human carcinogen by NTP and IARC. Repeated or prolonged overexposure to free respirable quartz may cause silicosis or other serious and delayed lung injury.

Precautions

Avoid contact with skin, eyes and clothing. Prevent inhalation of dust. Wash thoroughly after handling. Keep container closed when not in use. DO NOT take internally. Use only with adequate ventilation. Use impervious gloves, eye protection and if the TLV is exceeded or used in a poorly ventilated area, use NIOSH/MSHA approved respiratory protection in accordance with applicable Federal, state and local regulations.

First Aid

In case of eye contact, flush thoroughly with water for at least 15 minutes. In case of skin contact, wash affected areas with soap and water. If irritation persists, SEEK MEDICAL ATTENTION. Remove and wash contaminated clothing. If inhalation causes physical discomfort, remove to fresh air. If discomfort persists or any breathing difficulty occurs or if swallowed, SEEK IMMEDIATE MEDICAL ATTENTION.

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 material listed by the State of California as known to cause cancer, birth defects or other reproductive harm.

VOC Content

0 g/L or 0 lbs/gal less water and exempt solvents.

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

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