

EMACO® R350 CI

Polymer-modified lightweight vertical and overhead repair mortar with integral corrosion inhibitor

PRODUCT DATA

3 03930

Concrete Rehabilitation

Description

Emaco® R350 CI is a one-component low-density, polymer-modified renovation mortar that contains an integral corrosion inhibitor. It is ideally suited for patching and resurfacing distressed concrete. Its lightweight nature allows for excellent build without sagging. Emaco® R350 CI repair mortar can be used both interior and exterior.

Yield

Yield is approximately 0.61 ft³ (0.017 m³), which will cover approximately 7.4 ft² (0.69 m²) at a 1" (25 mm) depth without waste.

Packaging

55 lb (25 kg) multi-wall bags

Shelf Life

9 months when properly stored

Storage

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

Features

- Low permeability
- Contains an integral corrosion inhibitor
- Low modulus of elasticity
- One component
- Excellent yield per bag; low unit weight
- Shrinkage compensated
- Polymer modified

Where to Use

APPLICATION

- Spalled areas
- Building facades
- Balconies and columns
- Beam and soffit repair
- Bridges and parking garages
- Retaining walls
- Tuckpointing

LOCATION

- Vertical and overhead surfaces

Benefits

- Resists moisture and chloride intrusion
- Prevents corrosion from a wide range of sources and environments
- Improved compatibility for surface renovation
- Easy mixing and handling; components not damaged by freezing
- Economical repairs
- Reduces stress at bondline
- Improved bond to surrounding concrete

How to Apply

Surface Preparation

CONCRETE

1. Perform surface preparation in compliance with ICRI Technical Guideline No. 03730 "Guide for Surface Preparation for the Repair of Deteriorated Concrete Resulting from Reinforcing Steel Corrosion."
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 and remove unsound and delaminated concrete to a depth of 1/8" (3 mm) or to whatever additional depth is necessary to reach sound concrete. Limit the size of chipping hammers to 15 lbs (6.8 kg) to reduce micro fractures. Hydrodemolition may be used. 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.



Technical Data

Composition

Emaco® R350 CI is a blend of cement, microsilica, graded aggregates, dry polymer, lightweight fillers, integral corrosion inhibitor, and set-control additives.

Typical Properties

PROPERTY	VALUE
Unit weight , lb/ft ³ (kg/m ³)	103 (1,650)
Working time , min	30
Set time , hr:min (ASTM C 266)	
Initial set	0:45
Final set	1:30

Test Data

PROPERTY	RESULTS			TEST METHODS
	1 Day Psi (MPa)	7 Days Psi (MPa)	28 Days Psi (MPa)	
Compressive strength	1,500 (10.4)	3,500 (24.2)	5,000 (34.5)	ASTM C 109
Splitting tensile strength	200 (1.4)	300 (2.1)	600 (4.1)	ASTM C 496
Flexural strength	250 (1.7)	700 (4.8)	900 (6.2)	ASTM C 348
Direct-shear bond strength	250 (1.7)	300 (2.1)	400 (2.8)	Michigan DOT
Slant shear bond strength	500 (3.5)	1,100 (7.6)	1,500 (10.4)	ASTM C 882, Modified ¹
Modulus of elasticity , psi (GPa)	2.0 x 10 ⁶ (14.0)			ASTM C 469
Rapid chloride permeability , coulombs	300			ASTM C 1202 / AASHTO T 277
Freeze/thaw resistance , % RDM, at 300 cycles	100			ASTM C 666, Procedure A
Scaling resistance at 50 cycles	1; very slight scaling			ASTM C 672

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

Results were obtained when material was mixed with 0.98 gallons (3.7 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.

4. After concrete removal, thoroughly abrade the roughened surface and exposed reinforcement to remove all bond-inhibiting materials such as rust, dirt, loose chips, dust, oil, and grease.

5. Saturate the area thoroughly with water for several hours before placing Emaco® R350 CI.

6. Immediately before mixing, blow off or remove all excess water from repair area. Surface should have a saturated surface-dry (SSD) condition during placement.

STEEL

1. Remove 3/4" (19 mm) of concrete behind the corroded reinforcing steel to provide adequate space for preparation and material placement.

2. 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® P22 or Emaco® P24 rebar coatings.

Mixing

1. Use a slow-speed drill (400 – 600 rpm) with a Jiffy-type paddle or an appropriately sized mortar mixer.

2. Add 0.95 – 1.1 gallons (3.6 – 4.1 L) of clean potable water per 55 lb (25 kg) bag of Emaco® R350 CI. Pour approximately 90% of the mix water into the mixing container, then charge the mixer with the bagged material. Add remaining mix water as required for vertical or overhead applications.

3. Mix to a uniform consistency. Typical mixing time is 3 – 5 minutes. Do not mix longer than 5 minutes.

Application

1. Remove excess water from the saturated surface-dry (SSD) substrate.

2. Scrub a bond coat of Emaco® R350 CI repair mortar into the prepared surface with a stiff-bristled broom or brush. Emaco® R350 CI repair mortar must be placed before the bond coat dries. Do not dilute the bond coat with water.

3. Apply material while taking proper consideration for compaction around reinforcing steel.

4. When applying in multiple lifts, scratch the preliminary lift before initial set. Apply the next lift after the preliminary lift has reached final set. If the next lift will not be placed immediately, keep the surface continually moist.

5. Cut off or level as required to match the original concrete elevation. Maximum application thickness is 2-3/4" (70 mm).

6. Where rapid drying conditions exist (e.g., hot, dry, windy conditions) use Confilm® evaporation reducer. Refer to the Confilm® product data sheet for more information.
7. Finish the final surface as required.

Curing

1. Proper curing is extremely important and should be conducted in accordance with ACI 308, "Standard Practice for Curing Concrete."
2. Apply a curing compound that complies with the moisture-retention requirements of ASTM C 309 or ASTM C 1315. Apply curing materials as soon as the surface cannot be marred by the application.
3. Sheeting material, wet burlap, or fog spray may be used in place of curing compounds. Minimum wet-curing time is 2 – 3 days.

For Best Performance

- Do not mix partial bags.
- Give mortar extra time for curing in temperatures below 50° F (10° C).
- 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.
- Do not use in horizontal applications where wheeled traffic is anticipated.
- Make certain the most current versions of product bulletin and MSDS are being used; call Customer Service (1-800-433-9517) to verify the most current versions.
- Proper application is the responsibility of the user. Field visits by Degussa 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® R350 CI

Caution

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

0 lbs/gal or 0 g/L.

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

Degussa Building Systems

889 Valley Park Drive
Shakopee, MN, 55379

www.degussabuildingsystems.com

Customer Service 800-433-9517
Technical Service 800-243-6739

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