

EMACO® R320 CI

One-component, polymer-modified, shrinkage compensated, vertical/overhead repair mortar with integral inhibitor

DESCRIPTION:

EMACO® R320 CI one-component, fiber-reinforced, polymer-modified, shrinkage-compensated repair mortar contains an integral corrosion inhibitor. The product is ideally suited for patching and/or resurfacing distressed concrete. EMACO R320 CI repair mortar is designed for both interior and exterior use and can be applied by low pressure spraying or hand troweling.

Application Thickness

- Vertical: 1/4 to 1-1/2 in. (6 to 40 mm)
- Overhead: 1/4 to 3/4 in. (6 to 20 mm)

RECOMMENDED FOR:

- Vertical and overhead surfaces
- Building facades
- Balconies and columns
- Beam and soffit repair
- Bridges and parking garages
- Retaining walls
- General spalled areas
- Tuckpointing

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
- Sprayable - reduced labor requirements

PACKAGING/ESTIMATING:

EMACO R320 CI repair mortar is packaged in 55 lb (25 kg) moisture resistant bags that yield approximately 0.46 ft³ (0.013 m³). This will cover approximately 5.5 ft² (0.51 m²) at a 1 in. (25 mm) depth before waste.

PERFORMANCE DATA:

Results were obtained when material was mixed with 0.84 gallons (3.2 liters) 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 133 lb/ft³ (2,130 kg/m³)

Working Time 30 minutes

Set Times (h:min) Initial Set Final Set
(ASTM C 266) 1:30 3:00

HARDENED PROPERTIES

	1 Day psi (MPa)	7 Day psi (MPa)	28 Day psi (MPa)
Direct Shear Bond Strength (Michigan DOT)	300 (2.1)	400 (2.8)	500 (3.5)

Slant Shear Bond Strength (ASTM C 882, Modified ¹)	900 (6.2)	1800 (12.4)	2300 (15.9)
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Drying Shrinkage, 28 Days 0.12%
(ASTM C 157, Modified²)

Modulus of Elasticity, 28 Days 3.2 x 10⁶ psi (22.1 GPa)
(ASTM C 469)

Freeze-Thaw Resistance RDF @ 300 Cycles 97% RDM
(ASTM C 666, Procedure A)

	1 Day psi (MPa)	7 Day psi (MPa)	28 Day psi (MPa)
Splitting Tensile Strength (ASTM C 496)	350 (2.4)	500 (3.5)	750 (5.2)
Flexural Strength (ASTM C 348)	650 (4.5)	1050 (7.2)	1450 (10.0)
Compressive Strength (ASTM C 109)	1800 (12.4)	5000 (34.5)	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, "Guide for Surface Preparation for the Repair of Deteriorated Concrete Resulting from Reinforcing Steel Corrosion". Remove all unsound or delaminated concrete providing a minimum 1/4 in. (6 mm) substrate profile and 3/4 in. (20 mm) clearance behind corroded reinforcing steel. The perimeter of the area to be patched should be sawcut to a minimum depth of 1/4 in. (6 mm) to prevent featheredges. After concrete removal and prior to placement, mechanically abrade the concrete surface to remove all bond-inhibiting materials from the concrete substrate and to provide additional mechanical bond. Presoak 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:

Add 0.85 to 1.0 gallons (3.2 to 3.8 liters) of potable water per 55 lb (25 kg) bag of EMACO R320 CI repair mortar. Mechanically mix using a mortar mixer that is an appropriate size. Pour approximately 90% of the mix water into the mixing container then charge the mixer with the bagged material. Add the remaining mix water as required. Mix for a total of 3 to 5 minutes until a homogeneous consistency is achieved.

APPLICATION:

For spray applications, contact your local Master Builders representative for equipment recommendations. Remove excess water from the saturated substrate and apply while taking proper consideration for compaction around reinforcing steel. If applying by hand, scrub a bond coat of EMACO R320 CI repair mortar into the prepared surface with a stiff bristle broom or brush. EMACO R320 CI repair mortar must be placed before the bond coat dries. When applying 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 is not to be immediately placed, keep the surface continually moist. Cut-off or level as required matching the original concrete elevation. Where air 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 curing compound that complies with the moisture retention requirements of ASTM C 309 such as MASTERKURE® 100W or MASTERKURE 200W curing compounds; or moist cure for a minimum of 2 days.

SAFETY:

FOR INDUSTRIAL AND PROFESSIONAL USE ONLY. Refer to MSDS before use. Wear appropriate protective clothing and eye protection.

LIMITATIONS:

Minimum application thickness is 1/4 in. (6 mm). Do not mix partial bags. Minimum ambient and surface temperatures should be 45 °F (7 °C) and rising at the time of application.

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 R320 CI
Installation Bulletin #112677 — EMACO R320 CI
Specification Bulletin #112653 — EMACO R320 CI

For additional information, contact your local Master Builders representative.

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