



MIGRATING CORROSION INHIBITORS
FROM GREY TO GREEN

MCI®-2044 Self-Consolidating Concrete Mix

DESCRIPTION

MCI®-2044 is a single-component, preblended polymer-modified dry concrete mix. In addition to containing aggregate and silica fume, it is enhanced with Migrating Corrosion Inhibitors (MCI®). MCI®-2044 eliminates the need to extend and finish the concrete repairs and does not require mechanical consolidation. As part of Cortec's HPRS® (High Performance Repair System), MCI®-2044 offers excellent corrosion protection to reinforcing metals in the patch area and its vicinity. This increases the quality and extends the service life of the repair and surrounding structure.

PACKAGING & STORAGE

Available in 50 lb (22.7 kg) bags.

To ensure best product performance, store in original packaging, indoors, and out of direct sunlight at 40-100 °F (4-38 °C).

Shelf life: 1 year



HOW IT WORKS

MCI®-2044 is a self-leveling concrete mix that can be used in horizontal, vertical, and overhead repairs. Its Migrating Corrosion Inhibitors penetrate the substrate and offer corrosion protection and extend service life. Once applied and hardened, MCI®-2044 provides a high level of adhesion and durability, as well as impermeability to water and carbonation attack. MCI®-2044 can be used for concrete repairs of 1-8" (2.54-20.32 cm) thick.

WHERE TO USE

Ideal for:

- Full-depth repairs
- Horizontal applications or vertical/overhead applications (with forming)
- Structural repairs: parking garages; bridges; industrial, residential, and commercial structures
- Large volume repairs

ADVANTAGES

- Offers a time-proven corrosion inhibiting technology for extended service life
- Self-leveling and self-consolidating
- Single component for ease of use
- Suitable for interior or exterior applications
- Factory blended coarse aggregate eliminates the need for extending material in the field
- Slows down the ring-anode/halo effect in surrounding concrete
- Does not contain chlorides, magnesium phosphates, or calcium nitrite

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TECHNICAL DATA

Working Time		60 min
Slump/Flow	ASTM C1611	24-30" (61-76 cm)
Compressive Strength	ASTM C39	24 hrs: 2,000 psi 7 days: 5,500 psi 28 days: 6,500 psi
Tensile Strength	ASTM C496	7 days: 750 psi 28 days: 1,000 psi
Flexural Strength	ASTM C78	24 hrs: 500 psi 7 days: 750 psi 28 days: 1,000 psi
Slant Shear Bond Strength	ASTM C882	24 hrs: 1,000 psi 7 days: 1,500 psi 28 days: 2,500 psi
Direct Tensile Bond	ACI 503	7 days: 250 psi 28 days: 300 psi
Modulus of Elasticity	ASTM C469	28 days: 4.06×10^{-6} psi
Shrinkage	ASTM C157	28 days: <0.05%
Chloride Penetrability Resistance	ASTM C1202	<650 coulombs
Freeze Thaw Resistance	ASTM C666b	300 cycles: >99%
Scaling Resistance	ASTM C672 (50 F/T cycles)	Scaled material: 0 lb/ft ² (0 kg/m ²)
Sulfate Resistance	ASTM C1012 @ 6 mo	Length change: 0.006" (0.15 mm)
Minimum Depth		1" (2.54 cm)
Max Lift		8" (20.3 cm)

Note: Independent test results obtained under controlled laboratory conditions at 73 °F (22.7 °C) and 50% relative humidity.

COVERAGE

50 lb (22.7 kg) bag yields approximately 0.45 ft³ (0.01 m³).

PROJECT MOCKUPS

When Cortec® products are used as part of a system with other manufacturers' products, the contractor and/or design professional shall test, document, and confirm performance requirements and compatibility of all the system components according to relevant and accepted industry standards prior to the application.

SURFACE PREPARATION

Remove all loose deteriorated concrete, dirt, and bond-inhibiting materials from surface. Prepare the substrate mechanically to an aggregate surface profile of $\pm 1/8"$ (3 mm) (CSP 7-8). If substrate is contaminated with oils or greases, use Cortec® MCI®-2060 or MCI®-2061 for cleaning. Substrate surface should be prepared to CSP 7-8 and at SSD

condition with no puddling water. CorrVerter® MCI® Rust Primer can be applied as a primer for corroded steel following manufacturer's instructions. Alternatively, mechanical cleaning of rusted reinforcement can be used to achieve bright metal.

MIXING

Mix as close to application area as possible.

1. A 50 lb (22.7 kg) bag of MCI®-2044 requires 4 pts (1.9 L) of mix water. Add potable water into a clean mixing container and add repair material while mixing. Hot or cold water can be used to accelerate or retard set times; refer to ACI 305 and ACI 306 standards for hot and cold weather concreting.
2. Mixing MCI®-2044 can be done in a mortar mixer or by using a paddle attached to a heavy duty $1/2"$ (1.27 cm) drill at low speed (400-600 rpm). Mix only the amount of material that can be handled and placed in 60 minutes.
3. If necessary, additional water can be added sparingly up to 4.5 pts (2.13 L) during mixing (maximum of 3 minutes) to a consistent, lump-free, and uniform mixture.
4. Water temperature can be adjusted during different ambient temperatures to help in controlling workable time.

APPLICATION

Apply to surfaces that will be frost-free with temperatures between 45-100 °F (7-38 °C) 24 hours prior to application and 7 days thereafter.

1. Scrub the material into the substrate or use suitable means such as vibration of the material or pumping under pressure to ensure good close contact with the substrate. Vibrate form while pouring or pumping with a variable pressure pump.
2. Pump until there is an increase of 3-5 psi in normal line pressure; then stop pumping. Form should not deflect. Cap vent when steady flow is evident, and strip forms when appropriate.
3. After application, immediately start moist curing using wet burlap and polyethylene, water misting, or a compatible water-based curing compound. Protect the surface from direct sunlight, wind, rain, and frost.

CLEANING

Use clean potable water to clean all tools immediately after use. Dried material must be mechanically removed. Use a wastewater hardener for cementitious waste disposal.

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CONSIDERATIONS

- Keep powder in its original wrapping and ensure that it is always well sealed
- Do not use opened bags of powder with lumps or caked material
- Condition all materials to 60-85 °F (16-29 °C) 24 hours prior to mixing and installation
- Do not over-mix, or overwater
- Do not add or modify with other cements or additives
- Hand mixing is not recommended
- Follow local building codes and applicable ASTM standards when installing
- Use consistent mixing time and water amounts for all batches
- Application thickness range is 1-8" (25-200 mm)
- Avoid product contact with aluminum to prevent detrimental chemical reactions and possible failure

4119 White Bear Parkway, St. Paul, MN 55110 USA
Phone (651) 429-1100, Fax (651) 429-1122
Toll Free (800) 4-CORTEC
productinfo@cortecvci.com
<https://www.cortecvci.com>
<https://www.cortecmci.com>



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