



MIGRATING CORROSION INHIBITORS
FROM GREY TO GREEN

MCI®-2040 High Performance Vertical/Overhead Repair Mortar

DESCRIPTION

MCI®-2040 is a single-component, fast-setting, high-strength, cement-based repair mortar that is enhanced with Migrating Corrosion Inhibitors (MCI®). It is an easy-to-handle patching material for fast-paced repair jobs. As part of Cortec's HPRS® (High Performance Repair System), MCI®-2040 offers corrosion protection to reinforcing metals both in the patch and in the surrounding areas. This increases the quality and extends the service life of the repair and surrounding structure.

PACKAGING & STORAGE

Available in 40 lb (18.1 kg) bags.

To ensure best product performance, store in the original, unopened container, away from moisture, under cool, dry conditions and out of direct sunlight at 40-90 °F (4-32 °C).

Shelf life: 1 year (from date of manufacture)



HOW IT WORKS

MCI®-2040 is specifically designed for vertical and overhead repairs. Migrating Corrosion Inhibitors in the repair mortar penetrate the substrate and even out corrosion potentials between patched areas and nearby concrete. Once applied and hardened, MCI®-2040 provides a high level of adhesion and durability, as well as resistance to water and carbonation attack.

WHERE TO USE

Ideal for vertical and overhead repairs of concrete structures including but not limited to:

- Undersides of bridge decks, parking garage decks, balconies, ramps, and more
- Concrete columns, retaining walls, building facades, and soffits
- Industrial, commercial, and residential structures

ADVANTAGES

- Offers a time-proven corrosion inhibiting technology that extends the life of reinforced concrete structures
- High early strength allows for fast repairs and quick turnaround for jobs
- Single-component for ease of use
- Suitable for interior and exterior applications
- Low shrinkage
- Does not require the addition of bonding agents
- 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 | | 20 min |
| Set Time | ASTM C807 | 27 min final |
| Compressive Strength | ASTM C109 | 24 hrs: 3,680 psi 7 days: 6,390 psi 28 days: 6,670 psi |
| Flexural Strength | ASTM C348 | 7 days: 1,680 psi 28 days: 1,870 psi |
| Splitting Tensile Strength | ASTM C496 | 7 days: 583 psi 28 days: 590 psi |
| Shrinkage | ASTM C157 | Wet: +0.098% Dry: -0.051% |
| Maximum Depth | | ¼" (0.64 cm) |
| Maximum Lift | | Vertical: 3" (7.62 cm) Overhead: 2" (5.08 cm) |

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

COVERAGE

40 lb (18.1 kg) bag yields approximately 0.46 ft³ (0.013 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 ±1/16" (1.6 mm) (CSP-5). If substrate is contaminated with oils or greases, use Cortec® MCI®-2060 for cleaning. CorrVerter® MCI® Rust Primer can be used as a primer for corroded steel (refer to steel preparation directions in CorrVerter's data sheet).

MIXING

All materials should be conditioned to 40-75 °F (4-24 °C) at least 24 hours prior to installation.

Mix as close to the area being repaired as possible.

1. 40 lbs (18.1 kg) of MCI®-2040 requires 2.5 qts [2.4 L] of mix water. Add potable water into a mixing container and add repair material while mixing. Hot or cold water can be used to accelerate or retard set times; refer to directions for hot and cold weather placement.
2. Mixing MCI®-2040 can be done in a mortar mixer or by using a paddle attached to a heavy duty 1/2" (1.27 cm) drill (650 rpm). Mix only the amount of material that can be handled and placed within the working time (20 minutes).
3. Mix until trowelable and lump-free consistency is achieved. Smaller quantities can be hand mixed.
4. MCI®-2040 slurry coat (wetter, batter-like consistency) should also be mixed just before application using equal weights of water and powder.

APPLICATION

- Dampen the substrate to saturated surface dry (SSD) condition; then brush the surface with MCI®-2040 slurry using a stiff bristled brush.
- Use trowel to place immediately after mixing. Do not exceed application thickness limits. Firmly work MCI®-2040 in all directions of the substrate to eliminate air pockets and ensure bond. Ideally, work from one side of the cavity to the other, and then screed toward the adjoining concrete.
- For repairs deeper than maximum depth limits: Apply MCI®-2040 in layers, waiting 25 minutes between layer applications. Prior to applying subsequent layers, scratch surfaces and gently wash with clean water.
- Keep patch area damp for 30 minutes after placement. Temperature should be above 40 °F (4 °C) for 24 hours following application. Allow at least two weeks before applying any curing or sealing compounds over patched areas.
- Hot weather placement (80-100 °F [27-38 °C]): Keep the product cool. Pre-soak and then remove standing water from the repair area, resulting in a saturated surface dry (SSD) substrate. Use ice water while mixing MCI®-2040 to extend working time. Protect the repair from rapid dry-out with wet burlap or a water-based curing compound. Refer to ACI 305 Standard on Hot Weather Concreting.
- Cold weather placement (from 20 to 40 °F [-7 to 4 °C]): Do not use antifreeze or accelerators; keep MCI®-2040 warm. Warm up the surrounding concrete. Mix the warmed repair material with warm mixing water. Use a construction insulating blanket after placement for at least 2-3 hours and keep material from freezing. Refer to ACI 306 Standard on Cold Weather Concreting.

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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.

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
- Warm conditions will accelerate set times
- Refrain from using the product when ambient air temperature is below 40 °F (4 °C) or if it is expected to drop below 40 °F (4 °C) within 24 hours of placement
- Protect and shade patches from rapid drying on hot or windy days
- Do not over-mix, retemper, or overwater
- Do not add or modify with other cements or additives
- Follow local building codes and applicable ASTM standards when installing
- Use consistent mixing time, water amounts, and temperatures for all batches

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