



MIGRATING CORROSION INHIBITORS
FROM GREY TO GREEN

HPRS®

HIGH PERFORMANCE REPAIR SYSTEMS
FROM CORTEC® MCI®



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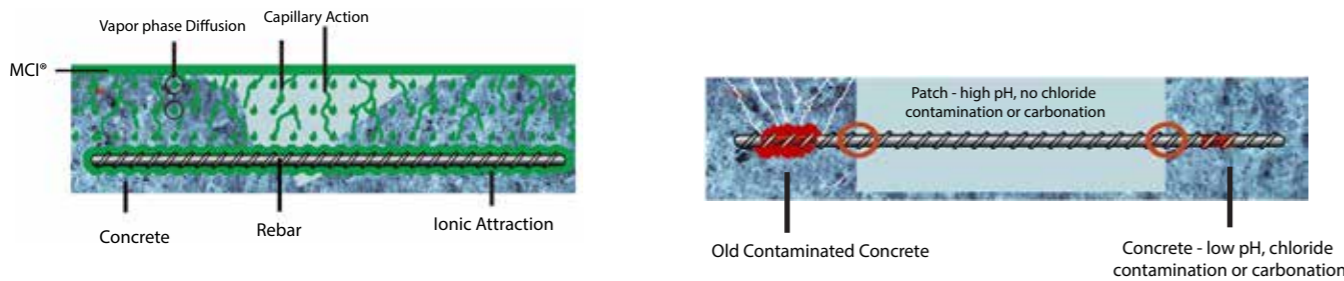
"Your Corrosion Inhibitor Partner"

Enhance the Durability of Your Concrete Repair with MCI® HPRS®

MCI® Technology is centered on the action of Migrating Corrosion Inhibitors. The migration process of MCI® molecules refers to their ability to diffuse in vapor and/or liquid form throughout small concrete pores and cavities.

MCI® molecules are attracted to both anodic and cathodic areas of embedded metallic reinforcement. This physical adsorption onto metal surfaces provides a protective molecular layer that significantly reduces corrosion rates even on rusted surfaces, greatly extending the useful service life of the structure.

MCI® migrates through capillary action, vapor diffusion, and ionic attraction.



MCI® and the Ring-Anode/Halo Effect

A common problem arising from concrete repair is the ring-anode/halo effect. This occurs because the repaired area tends to have a higher pH and resistivity, creating a difference in corrosion potential between new and old concrete. This causes corrosion activity to accelerate in the area in contact with the repair materials. Migrating Corrosion Inhibitors slow this process by working their way into adjacent concrete to form a protective molecular layer on embedded metal reinforcement outside the repair area. This evens out the corrosion potential between new and old concrete, thus reducing the ring-anode/halo effect and helping the repair last longer.



MCI® GPRS® Components

CorrVerter® MCI® Rust Primer

CorrVerter® MCI® is a single-component, fast-drying, water-based primer that converts rusted surfaces to a passive layer. It offers a convenient, low-labor option when performing repairs on heavily corroded rebar or other metal surfaces.



MCI® Mini Grenades

MCI® Mini Grenades consist of Migrating Corrosion Inhibitors packaged in water-soluble PVA bags. When used with repair mortars and grouts, MCI® molecules will migrate toward rebar to provide effective corrosion protection.

MCI®-2039 High Performance Horizontal Repair Mortar System with Migrating Corrosion Inhibitor

MCI®-2039 High Performance Horizontal Repair Mortar System is a single-component, fast-setting, high-strength, cement-based repair mortar enhanced with Migrating Corrosion Inhibitors. It is ideal when high early strength gain is required to speed up work and reduce downtimes.



MCI®-2040 High Performance Vertical and Overhead Repair Mortar with Migrating Corrosion Inhibitor



MCI®-2040 is a single-component, fast-setting, high-strength, cement-based repair mortar that is enhanced with Migrating Corrosion Inhibitors. It is an easy-to-handle patching material for fast-paced repair jobs.

MCI®-2044 Self-Consolidating Concrete Mix with Migrating Corrosion Inhibitor

MCI®-2044 is a single-component, preblended polymer-modified dry concrete mix. It contains aggregate, silica fume, and MCI®.

MCI®-2044 eliminates the need to extend and finish concrete repairs and does not require mechanical consolidation.



MCI® -2020

MCI®-2020 is a surface applied Migrating Corrosion Inhibitor™ designed to penetrate through cementitious materials including concrete, mortar, and limestone. It provides corrosion protection against carbonation, chlorides, and other contaminants.



MCI® EcoRainbow® Architectural Coating

MCI® EcoRainbow® Architectural Coating is a water-based primer/topcoat that acts as a sealer to block out water, chloride ingress, and carbonation. It also provides a great finished appearance to concrete repairs and can be clear or tinted.



"Your Corrosion Inhibitor Partner"

BEFORE



AFTER



MCI® Water Repellents

MCI® water repellents include MCI®-2018, MCI®-2019, and MCI®-2021. These combine Migrating Corrosion Inhibitors with water repellency for two-in-one protection to resist moisture ingress and actively fight corrosion at the rebar level.



The Five Steps of MCI® HPRS®

1 Prepare the Substrate

Chip out all loose, defected, and deteriorated concrete until a sound clean concrete substrate is achieved. Complete the surface preparation following ICRI Guideline No. 310.2R-2013 or another engineering guide.



Treat and Clean Rusted Rebars 2



If exposed metallic reinforcement contains red rust, clean loose rust with a wire brush and then apply CorrVerter® MCI® Rust Primer at a thickness of 3-5 mils (75-125 µm) DFT. CorrVerter® MCI® modifies surface rust into a hydrophobic passive layer. Alternatively, rusted surfaces can be blasted to a bright metal before applying repair materials.

3 Application of Repair Materials

Cortec's repair materials contain Migrating Corrosion Inhibitors, which not only protect the steel reinforcement embedded in the patched area, but also migrate to adjacent old concrete surfaces. This evens out the difference in potentials for corrosion and slows down the ring-anode/halo effect.



A. Horizontal Repairs

Use MCI®-2039. Substrate needs to be at SSD (saturated surface dry) condition and a slurry coat of the product should be applied. Do not allow the slurry coat to dry before applying MCI®-2039.

B. Vertical and Overhead Repairs

Use MCI®-2040. Substrate needs to be at SSD before applying MCI®-2040. Maximum depth is 2 inches (5.08 cm) for overhead repairs and 3 inches (7.62 cm) for vertical repairs.

C. Form and Pour Applications

Use MCI®-2044. After preparing the substrate and installing forms according to an engineering guide (such as ACI 347R), prepare MCI®-2044 as per instructions; then place the material immediately. Cure exposed surfaces immediately after placement.



4 Surface Applied Corrosion Inhibitor Application

A. Pure Surface Applied Corrosion Inhibitors

For added corrosion protection, MCI®-2020 can be applied on the finished surfaces when the curing of patch repairs is complete. MCI®-2020 can be followed with a top coating to further protect the concrete from corrosives and contaminants. For maximum protection, MCI®-2020 can be used with waterproofing membranes or a coating system.



B. Water Repellents with Surface Applied Corrosion Inhibitors



These two-in-one products have MCI® chemistry that allows them to reach the embedded reinforcement and protect it from corrosion; they also contain a penetrating water repellent to keep moisture out. MCI® water repellents are ideal for protecting the concrete from water intrusion if no membrane or coating systems are utilized.

5 Final Coating

An optional final coat of MCI® EcoRainbow® Architectural Coating can be applied over the surface applied corrosion inhibitors. MCI® EcoRainbow® Architectural Coating will protect against water intrusion and carbonation and provide a great finished look. Its color can be matched to satisfy project needs. Other coatings can be used as well, but compatibility should be verified through testing or site mockups.



Simple, Economical, and Effective MCI® HPRS® System

Before



After



Before



After





DENİZ YAPI
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DEYAP ABOUT US

Deniz Yapi Sanayi ve Tic. A.Ş. in 1992 to carry out corrosion prevention and surface cleaning works, DEYAP is the Turkish distributor and licensor of Cortec Corporation and Mykal, the leading companies in the world.

Our company, which realized the supply (1992), production and project design (1995) of VpCI for the first time in Türkiye, provides the production of VpCI film and paper products specific to the demands of its customers in its 2500 m² production area located in Kocaeli Dilovasi and the supply of anti-corrosion chemicals, dehumidifiers, surface cleaning chemicals and auxiliary packaging materials. All of its production is carried out under ISO - 9001:2015 quality system.

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