

TECHNOLOGY THAT EXTENDS THE SERVICE LIFE OF CONCRETE STRUCTURES



MIGRATING CORROSION INHIBITORS
FROM GREY TO GREEN





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What is Cortec® MCI® Technology?

Cortec® Corporation's patented MCI® (Migrating Corrosion Inhibitor™) Technology protects reinforcing metal in concrete from corrosion. Often, corroding rebar in deteriorating concrete is the cause of costly repairs, financial losses, injuries, and even deaths, but Cortec® has the corrosion solution.

MCI® greatly extends the service life of new and existing structures by proactively delaying the onset of corrosion and keeping rates low after initiation. Cortec® MCI® products maintain structural integrity, rehabilitate vulnerable structures, and alleviate environmental concerns.

How Does MCI® Technology Work?

MCIs are based on amine technology (amine alcohols and amine carboxylates). They are classified as mixed inhibitors, meaning they affect both anodic and cathodic portions of a corrosion cell.

MCI® is applied in many forms including as a concrete admixture or a topical treatment. It moves as a liquid through the concrete matrix via capillary action and migrates in a vapor phase throughout the concrete pore structure.

When MCI® comes in contact with embedded metals, it has an ionic attraction to it and forms a protective molecular layer. This film prevents corrosive elements from further reacting with the reinforcement and also reduces existing corrosion rates, greatly extending concrete service life.

Durability and Sustainable Construction

Sustainable construction has become a goal for owners across the globe. While much attention has gone to reducing cement use and minimizing power and water consumption, an often overlooked aspect is the durability and service life of the final structure. However, this is undoubtedly one of the key parameters influencing structural sustainability.

By using MCI® in severely corrosive environments, structures will have a stronger resistance to corrosion and therefore possess greater durability. Increased durability will mean fewer repairs, greater structural integrity, and a longer service life, all leading to greater sustainability.

MCI® is made from a renewable raw material, enabling users to earn certain **LEED** credits. It is an excellent addition to building projects around the world seeking to meet sustainability standards such as the Estidama Pearl Rating System and BREEAM.

Cost Effective Service Life Extension

The Princess Towers in the United Arab Emirate utilize MCI®-2005 in the podium substructure, similar to the Burj Khalifa project. The addition of MCI® into the project more than doubled the Service Life of the building, which cost less than 1/10 of a percent of the total construction costs.



ITEM	COST (USD)
Construction Cost	188,000,000
Construction Cost of MCI®-2005	136,000 (0.07%)
Service Life (Without MCI®)	48 years
Service Life (With MCI®)	103 years

Cortec's MCI® products not only provide corrosion protection to metals on both new and existing structures, they benefit our environment. We have admixtures derived from renewable resources, and many of our products also meet NSF Standard 61 approval for use in structures holding potable water.



Drinking Water System Component
ANSI/NSF 61
36 AL

Admixtures

Time and time again, MCI® products are shown to outperform the competition. Other admixtures rely on pore blockers or are limited by a chloride threshold. In contrast, MCI® admixtures work independently of chlorides, protect even when cracks occur, and can actually delay set time for better workability. They do not affect the physical properties of concrete when used at the recommended dosage rates.

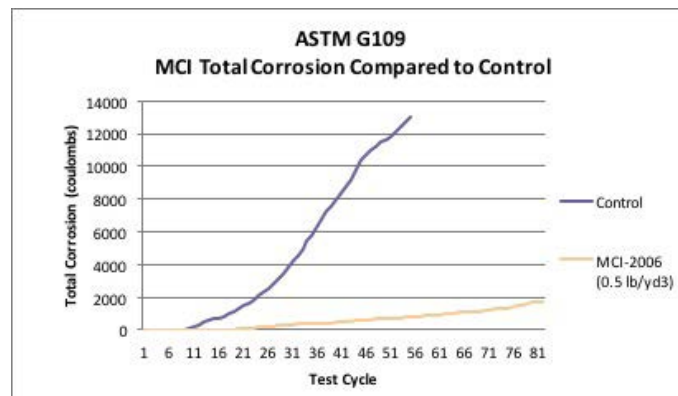
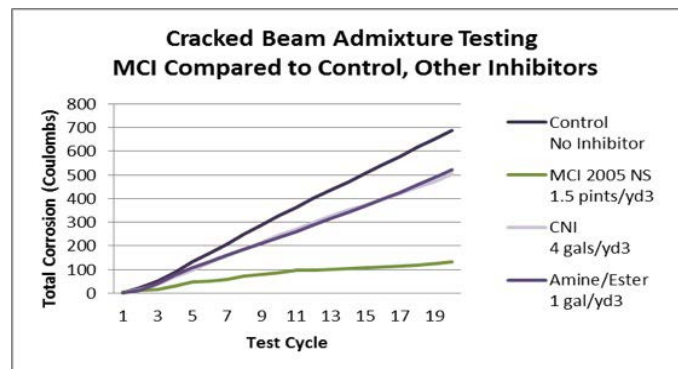
Independent Testing

MCI® admixtures have been tested according to many ASTM standards. MCI®-2005 NS and MCI®-2005 AL have been shown to meet ASTM C1582. These materials met corrosion requirements according to extended G109 testing included in ASTM C1582, and treated samples did not even begin to show corrosion until approximately 20 cycles after the control began to corrode. In addition, MCI®-2005 NS admixture has shown superior corrosion protection compared to both CNI and Amine/Ester admixtures when undergoing intense cycles of saltwater ponding on cracked concrete beams in modified ASTM G109 testing (cracked beam testing).

Independent Testing Results

MCI®-2005 NS					
	Control	MCI®-2005 NS	Relative Control	ASTM C1582 Requirements	Results
Average Integrated Current, C	155	29	n/a	≤5 C when Control is 150 C	Meets requirements
Average Area Corroded, in ²	8.93	2.36	0.29%	≤ 1/3 of Control	Meets requirements
Critical Chloride Content*, ppm	2861	2898	1.01%	≥ Critical Control	Meets requirements

*Critical chloride content (based on control average at 50 Coulombs plus one standard deviation)



Comparison of Cortec® MCI® Admixtures to Other Inhibitors:

Feature	Cortec® MCI® Inhibitor	Calcium Nitrite
Environmentally friendly, derived from renewable resources	TRUE	FALSE
Used in small quantities—less than 1.5 pints/yd ³ (1 liter/m ³)	TRUE	FALSE
Required dosage rate is not affected by expected chloride exposure	TRUE	FALSE
Ability to migrate through concrete in vapor phase at ambient temperatures	TRUE	FALSE
Does not increase shrinkage compared to a control	TRUE	FALSE
Does not require adjustments to concrete mix design (chemical or water)	TRUE	FALSE
Does not affect concrete resistivity	TRUE	FALSE
Does not accelerate concrete set time	TRUE	FALSE
Has UL approval to meet NSF Standard 61 (contact w/potable water)	TRUE	FALSE
Spills can be flushed with large quantities of water down drain	TRUE	FALSE



Repair

MCI® is important for ensuring the longest possible lifespan of concrete restoration projects. MCI® not only slows the rate of corrosion begun in deteriorating structures, but also protects against the troublesome ring anode/insipient anode effect that often follows concrete repairs. MCI® is ideal and convenient to add to concrete repair mixtures and migrates through adjacent areas after application to protect embedded reinforcement. MCI® is also available as a passivating grout for use on exposed rebar, or as a topical treatment to existing surfaces.

Surface Treatment: Pure Inhibitors

MCI® can be applied to existing structures as a surface treatment that reduces corrosion rates. This surface treatment is designed to penetrate into and migrate through cementitious materials to reach and protect embedded reinforcing metal. MCI® surface treatments can be applied on vertical and overhead surfaces, as well as horizontal surfaces. MCI® pure inhibitors do not contain water repellants but provide extra-strength corrosion protection to embedded rebar through a powerful dose of MCI® inhibitors. These straight inhibitors work at rebar level to effectively protect reinforcing metal from corrosive elements with or without the use of sealers.

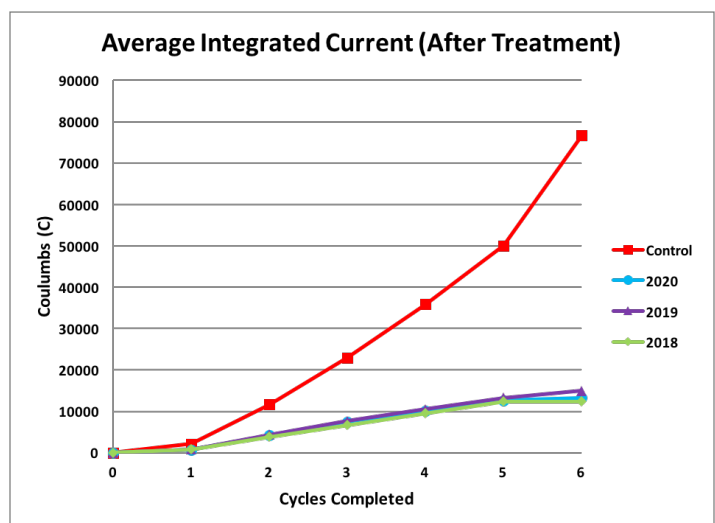




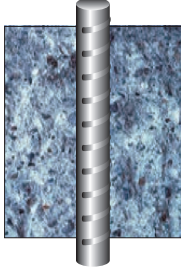
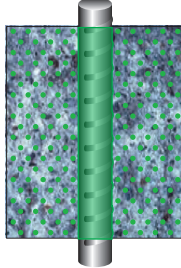
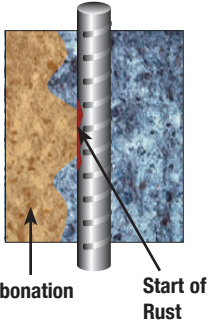
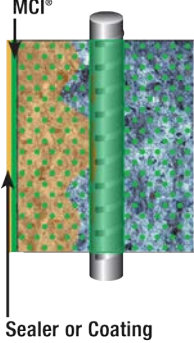
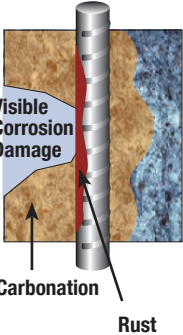
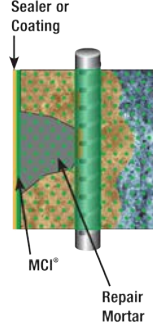
Surface Treatment: Water Repellant MCI®

MCI® sealers combine water repellency with the added protection of Migrating Corrosion Inhibitors. These MCI® surface treatments seal surface pores to block carbonation and protect against the ingress of water, chlorides, and other aggressive contaminants. Below the surface, MCI® penetrates to the depth of embedded metallic reinforcement to form a protective monomolecular layer on the surface of the rebar. This protective layer delays the onset of corrosion and reduces corrosion rates after initiation, greatly extending the service life of structures.

Several MCI® materials have been tested according to U.S. Bureau of Reclamation M-82 Protocol. The MCI® materials were applied after 10,000 Coulombs of corrosion was reached in test slabs. This is the criteria used if the performance of the surface applied repair does not depend upon the amount of chloride present at the reinforcing bars, or if protection at a higher initial chloride content level is to be demonstrated. All materials tested were found to significantly reduce corrosion and cracking at a high level of chloride exposure.



MCI® Product Application Guide

	Condition of Structure	Objective & Requirements	MCI® Protection
<p style="writing-mode: vertical-rl; transform: rotate(180deg);">STAGE 1 New Concrete</p>	 <ul style="list-style-type: none"> • Aggressive Environment • Insufficient Concrete Cover 	<ul style="list-style-type: none"> • Extend useful service life • Protect from premature corrosion • Preserve the natural appearance of the concrete 	 <ul style="list-style-type: none"> • MCI®-2005 series admixtures can double to triple the time to corrosion initiation, and once corrosion starts, they can cut rates by more than 5 times compared to a control
<p style="writing-mode: vertical-rl; transform: rotate(180deg);">STAGE 2 Existing Structures, No Visible Corrosion Damage</p>	 <ul style="list-style-type: none"> • Concrete structures without protective coatings • Aggressive environment • Initiation of corrosion • No spalling or cracking 	<ul style="list-style-type: none"> • Slow the rate of corrosion • Protect against possible concrete damage • Protect against further corrosion due to carbonation and/or chloride penetration 	 <ul style="list-style-type: none"> • Application of MCI®-2020 Series surface applied product by spray, brush, or roller • Followed by application of an anticarbonation coating such as MCI® Architectural Coating OR application of a sealer such as MCI®-2018, 2019, 2021, or 2022
<p style="writing-mode: vertical-rl; transform: rotate(180deg);">STAGE 3 Existing Structures, Visible Corrosion Damage</p>	 <ul style="list-style-type: none"> • Concrete surface with visible corrosion damage (i.e. spalling and cracking), repairs are necessary • High level of chlorides at depth of reinforcement 	<ul style="list-style-type: none"> • Repair of damaged surfaces • Long term protection against future exposure of contaminants • Enhanced protection against the continuing damage of latent corrosion • Reduced risk of ring-anode (insipient anode) effect 	 <ul style="list-style-type: none"> • Cleaning of exposed reinforcement with Cortec's VpCI®-423, or use of Cortec's VpCI® CorrVerter® • Application of Cortec's MCI®-2023 grout to exposed reinforcement and repair area • Application of Cortec® MCI®-2039 repair mortar • Application of Cortec's MCI®-2020 to entire surface area • Application of Cortec® Coating or Sealer

Features & Benefits	Relevant Case Histories
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- Low Dosage Rate
- UL Certified to meet NSF Standard 61 Requirements
- No affect on concrete mix design
- No affect on concrete properties
- Can double the service life of many new structures

Construction of New Drinking Water Reservoir
Guayaquil City, Ecuador
MCI®-2005 NS (371)


The construction of a new 4,500 m³ (5,886 yd³) drinking water reservoir had been proposed and the best protection was needed to extend the service life as long as possible.

Over 850 m³ (30,017.5 ft³) of reinforced concrete was poured using MCI®-2005 NS at a dosage rate of 1 L/m³ (1.5 pints/yd³).

The UL NSF Standard 61 approval of MCI®-2005 NS solidified this project and will continue to be a selling point for future reservoirs.

See also:

- Burj Khalifa Tower, MCI®-2005 (310)
- Wells Fargo Parking Garage, MCI®-2005 NS (214)
- Monteverde Gas Terminal Pipeway Protection, MCI®-2005 NS (427)
- Punalu'u Stream Bridge, MCI®-309 Powder, 2005 NS (388)
- Al Jalila Children's Specialty Hospital, MCI®-2005 (473)



- High coverage rate
- Minimal or no concrete removal
- Non-destructive
- Extends the time to next repair of the structure
- Fewer coats means lower labor costs than competitor products
- Can be 10 times less costly than a Stage III repair!
- MCI®-2020 Series meets NSF Standard 61 requirements

Pentagon: Restoration of All Exterior Walls
MCI®-2020 V/O (046)


Corrosion of embedded reinforcing steel was causing spalling on the walls. Carbonation (up to 3.5 in./9 cm) on the walls lowered the pH of the concrete causing the corrosion.

The requirements included: obtain minimum 20-year design life, stop water absorption, reduce or stop corrosion, and maintain the appearance of the walls. The repair program consisted of 200,000 ft² (18,580.6 m²) of surface hand patch repair and over 1,000,000 ft² (92,903 m²) treated with MCI®-2020 V/O, and a silicate based coating.

MCI®-2020 V/O was chosen to protect and repair the walls based on its warranty and its fulfillment of the other specified repair design requirements.

See also:

- Randolph Avenue Bridge Restoration, MCI®-2000 (211)
- Francis Scott Key Bridge Repair, MCI®-2018 (347)
- Repair of Condo Balconies, MCI®-2019 (253)
- Parking Facilities Preservation, MCI®-2019 W FD (425)
- Pacific Tower Preservation, MCI®-2020 (245)



- Aesthetically pleasing restoration of structure to a safe condition
- Complete repair and protection against latent corrosion damage
- Can more than double the life of the repair (based on G109 testing)
- MCI®-2020 Series is UL certified to meet NSF Standard 61 requirements


Runib Switchyard Foundation Repair
Runib, Oman
MCI®-2020, CorrVerter®, Mini Grenades (368)

Ingress of chlorides from the corrosive soil caused visible cracking, spalling, and delamination on the concrete foundations at the Petroleum Development of Oman (PDO) Runib Switchyard. The structures were over 20 years old, and recent repairs were already starting to fail.

Foundations were excavated and the spalled and delaminated concrete removed. MCI®-2020 was applied to all exposed concrete surfaces. CorrVerter® was applied to exposed and rusted rebar instead of using abrasive blasting. MCI® Mini Grenades were added to micro-concrete for shuttering and repair. The repair was cured and waterproofing applied. MCI® repairs have already lasted longer than previous repairs.

See also:

- Emergency Stabilization of Alcatraz, MCI®-2020, CorrVerter® (376)
- Cooling Tower Repair, MCI®-2020, 2038, 2039 (102)
- China Railroad Bridge, MCI®-2000, 2020, 2021 (092)
- South Africa Brune Bridge Repair, MCI®-2006 NS, 2020 (360)
- Leaking Iceland Parking Garage Repair, MCI®-2023, 2038, 2020, 2022 (218)
- Trinmar Offshore Platform Repair, VpCI®-611, MCI®-2023, 2020, 2039, 2021 (242)
- DePere Waste Water Treatment Tanks, MCI®-2020, 2023, 2038 (219)




Post-Tensioning

Post-Tensioning (PT) presents unique corrosion problems for concrete structures such as bridges and overpasses. Cortec® provides excellent corrosion solutions for these applications. MCI®-309 Powder can be applied in void spaces in the precast concrete to protect pre-stressed cables before grouting. MCI®-309 does not have to be removed prior to grouting, therefore eliminating extra steps. MCI® admixtures can be added to grouts to protect sensitive PT tendons, and PTC Emitters can be used to protect bridge suspension cables.



PTC Emitters were developed to help arrest corrosion on the suspension cables of the Severn Bridge between England and Wales.



MCI® Mini Grenades were added to grout cover for extra corrosion protection of exposed cable strands on the Cochrane Bridge in Mobile, Alabama.



Specialty Products

Cortec® offers the flexibility of specialty products for multiple aspects of the construction industry. Many of these products are a result of customer suggestions that meet specific end user needs. In addition to Migrating Corrosion Inhibitors, Cortec® offers products for concrete cleaning, rebar storage, and rust conversion.

Cleaning Oil Stains from Concrete

MCI®-2061 is a powerful natural cleaner that safely and effectively cleans oil stains on concrete. Microorganisms in the cleaner remain inactive until the product is applied to pre-wetted concrete and rinsed. Microorganism spores that remain after rinsing continue to work to degrade residual stains from the concrete.

Protection of Exposed Reinforcement

MCI® CorShield® is a water-based coating for protection of exposed reinforcement. It forms a soft non-tacky film that eventually hardens. MCI® CorShield® provides up to 5 years of indoor protection and 6-24 months of unsheltered, outdoor protection.

Rust Converting Primer

CorrVerter® is a water-based primer recommended for application on rusty or poorly prepared steel surfaces where corrosion protection is required and good surface preparation is difficult to achieve. CorrVerter® penetrates rust, eliminates rust, and stops further rusting.

Product Selection Guide

		Product	Description	Approximate Dosage Rate	Packaging
Admixtures	Amino-Alcohol Based	MCI®-2000	Liquid, amino-alcohol based concrete admixture. Patented.	1 pt/yd ³ (0.62 L/m ³)	5 gal (19 L) pails 55 gal (208 L) drums
		MCI®-2001	Powder, fumed silica/MCI®-2000 combination. Patented.	3 lb/yd ³ (1.78 kg/m ³)	5 lb (2.3 kg) boxes 50 lb (22.7 kg) and 100 lb (45.4 kg) drums
	Amine Carboxylate Based	MCI®-2005	Liquid, amine carboxylate based concrete admixture. Can retard concrete setting time 3-4 hours at 70°F (21°C). Patented.	1 pt/yd ³ (0.6 L/m ³)	5 gal (19 L) pails 55 gal (208 L) drums 275 gal (1040 L) totes
		MCI®-2005 NS	Liquid, normal set version of MCI®-2005. Can not be frozen. Patented.	1.5 pts/yd ³ (1 L/m ³)	5 gal (19 L) pails, 55 gal (208 L) drums 275 gal (1040 L) totes
		MCI®-2005 AL	Liquid, normal set version of MCI®-2005 with less ammonia odor. Patented.	1.5 pts/yd ³ (1 L/m ³)	5 gal (19 L) pails, 55 gal (208 L) drums 275 gal (1040 L) totes
		MCI®-2006	Powder, amine carboxylate based concrete admixture. Can retard concrete setting time 3-4 hours at 70°F (21°C). Patented.	1 lb/yd ³ (0.6 kg/m ³)	5 lb (2.3 kg) boxes 50 lb (22.7 kg) and 100 lb (45.4 kg) drums
		MCI®-2006 NS	Powder, normal set version of MCI®-2006. Patented.	1 lb/yd ³ (0.6 kg/m ³)	5 lb (2.3 kg) boxes, 50 lb (22.7 kg) and 100 lb (45.4 kg) drums
	Specialty	MCI® Grenades®	MCI®-2006 NS powder pre-measured into water soluble bags for admixing into concrete.	1 grenade/ yd ³	20 grenades/ carton
		MCI® Grenades® Metric	MCI®-2006 NS powder pre-measured into water soluble bags for admixing into concrete.	1 grenade/ m ³	20 grenades/ carton
		MCI® Mini Grenades®	MCI®-2006 NS powder pre-measured into water soluble bags for admixing into concrete.	1 per 0.5-0.6 ft ³ (1 per 0.015 m ³)	100 grenades/ carton
		MCI® Fiber Grenades®	MCI®-2006 NS powder and MCI® Fibers pre-measured into water soluble bags for admixing into concrete.	2 grenades/ yd ³	20 grenades/ carton
		MCI® Metric Fiber Grenades	MCI®-2006 NS powder and MCI® Fibers pre-measured into water soluble bags for admixing into concrete.	2 grenades/ m ³	20 grenades/ carton
		MCI® Fibers	MCI®-2006 NS powder and MCI® Fibers pre-measured into water soluble bags for admixing into concrete.	1.5 lbs/yd ³ (910 g/m ³)	5 lb (2.3 kg) boxes 50 lb (22.7 kg) and 100 lb (45.4 kg) drums
	Superplasticizers with Amine Carboxylate Based MCI®	MCI®-2007 SuperCorr™	Liquid, melamine based superplasticizer with MCI®. Patented.	3-4 pts/yd ³ (1.5-2 l/m ³)	5 gal (19 L) pails 55 gal (208 L) drums
		MCI®-2007 P	Powder, polycarboxylate based superplasticizer with MCI®, which reduces mixing water by 20-30% depending on cement type.	16-27 oz/yd ³ (0.6 - 1.0 kg/m ³)	5 lb (2.3 kg) boxes 50 lbs (22.7 kg) and 100 lbs (45.4 kg) drums
		"MCI®-2008 ViaCorr™"	Powder, polycarboxylate based superplasticizer for self compacting, self leveling concrete with MCI®.	0.4-0.6% by weight of concrete mix	50 lbs (22.7 kg) and 100 lbs (45.4 kg) drums"
MCI®-2008 L		Liquid, polycarboxylate based superplasticizer for self compacting, self leveling concrete with MCI®.	0.4-0.6% by weight of concrete mix	5 gal (19 L) pails 55 gal (208 L) drums	

Surface Treatment	Amine Carboxylate Based	Product	Description	Approximate Dosage Rate	Packaging
		MCI®-2020 MCI®-2020 V/O	Clear, penetrating surface treatment for existing structures. Contains Migrating Corrosion Inhibitors that form a protective film on embedded metals. UL approval to meet NSF Standard 61 Certification for use on structures holding potable water. V/O Version for vertical and overhead applications.	150 ft ² /gal (3.68 m ² /L)	5 gal (19 L) pails 55 gal (208 L) drums
		MCI®-2020 M MCI®-2020 M V/O	New, ready to use version of MCI®-2020 that provides even better corrosion protection. V/O Version for vertical and overhead applications.	150 ft ² /gal (3.68 m ² /L)	5 gal (19 L) pails 55 gal (208 L) drums
		MCI®-2020 M SC	New, concentrated version of MCI®-2020 that provides even better corrosion protection. Dilute 1:1 with water to make ready to use product.	150 ft ² /gal (3.68 m ² /L)	5 gal (19 L) pails 55 gal (208 L) drums
	MCI®-2020 Powder MCI®-2020 V/O Powder	Powder version of MCI®-2020. One 100 lb (45.35 kg) drum makes 55 gallons (208 liters) of MCI®-2020 liquid. V/O Version for vertical and overhead applications.	150 ft ² /gal (3.68 m ² /L)	100 lb (45.4 kg) drums	
	Water Repellants with MCI®	MCI®-2018 MCI®2018 V/O	100% solids, organosilane sealer containing MCI®. Spray, brush, or roller applied.	125-175 ft ² /gal (3-4.2 m ² /L)	“5 gal (19 L) pails 55 gal (208 L) drums”
		MCI®-2019	Low VOC, solvent based 40% silane sealer containing MCI®. Spray, brush, or roller applied.	125-175 ft ² /gal (3-4.2 m ² /L)	“5 gal (19 L) pails 55 gal (208 L) drums”
		MCI®-2019 W	Water based, 40% silane sealer containing MCI®. Spray, brush, or roller applied.	125-175 ft ² /gal (3 - 4.2 m ² /L)	5 gal (19 L) pails 55 gal (208 L) drums
		MCI®-2021	Water based, silicate sealer containing MCI®. Spray, brush, or roller applied. Patented.	150-250 ft ² /gal (3.7-6.1 m ² /L)	5 gal (19 L) pails 55 gal (208 L) drums
		MCI®-2022 MCI®-2022 V/O	Water based, silane/siloxane blend sealer containing MCI®. Spray, brush, or roller applied. V/O Version for vertical and overhead applications. Patented.	125-175 ft ² /gal (3-4.2 m ² /L)	5 gal (19 L) pails 55 gal (208 L) drums
MCI®-POWR		Silane based, penetrating, oil and water repellent containing MCI®. Spray, brush, or roller applied.	125-175 ft ² /gal (3-4.2 m ² /L)	5 gal (19 L) pails 55 gal (208 L) drums	
Coatings	MCI®-2026 Primer HS	Two-component, chemically resistant, water based, epoxy primer for concrete.	250-350 ft ² /gal (6.1-8.5 m ² /L)	0.75 gal (2.3 L), 6 gal (22.7 L), 15 gal (56.8 L), 165 gal (624.6 L) yield kits	
	MCI®-2026 Floor Coating	Two-component, chemically resistant, 100% solids Novolac epoxy for concrete with excellent chemical and abrasion resistance.	125-150 ft ² /gal (3.0-3.7 m ² /L)	0.6 gal (2.27 L), 5 gal (19 L), 12.5 gal (47.3 L), 138 gal (522.4 L) yield kits	
	MCI®-2027 Polyurea	Single-component polyurea that is fast drying, UV stable, and has a high gloss finish. Available in clear, grey, tan, and white.	2-3 coats of 10 mils DFT = 112-125 ft ² /gal (2.7-3 m ² /L)	5 gal (19 L) pails 55 gal (208 L) drums	
	MCI®-2241/2242	Flexible and breathable waterproofing membranes based on a unique combination of acrylic emulsion, Portland cement and fine fibers. MCI®-2241 is a grey color, MCI®-2242 is white.	Each kit covers 88-100 ft ² when applied at 1/16 inch thick (8 m ² per 15.2 L at 1.6 mm)	Each kit yields 4 gallons (15 L). Component A is 2.3 gal (8.9 L) packaged in 5 gal (19 L) pail. Component B is 25 lb (11 kg) bags	
	MCI® EcoRainbow Architectural Coating	Clear, water based, acrylic primer/top coat containing MCI®. Also available in white, grey, and custom colors.	535-641 ft ² /gal (13-16 m ² /L)	5 gal (19 L) pails 55 gal (208 L) drums	
	MCI® Anti-Graffiti Coating	Two-component, solvent based aliphatic urethane for concrete to provide easy removal of graffiti.	516 ft ² /gal at 2 mils DFT (13 m ² /L at 50 microns DFT)	Two 5 gal (19 L) pails (Part A and Part B) per kit	
	MCI® Wall Defense	Clear, silicone elastomer based, anti-graffiti coating for concrete, masonry, and other metal surfaces. MCI® Wall Defense does not need to be reapplied after graffiti removal.	80-100 ft ² at 12-15 mils DFT (2.0-2.5 m ² /L at 300-375 microns DFT)	5 gal (19 L) pails 55 gal (208 L) drums	

Product	Description	Approximate Dosage Rate	Packaging
VpCI®-422 VpCI®-423 VpCI®-426	Water-based rust removers. Removes rust stains from concrete. Also available in gel form. Rinse concrete with MCI®-2060 after application to neutralize.	200-600 ft ² /gal (5-15 m ² /L)	5 gal (19 L) pails 55 gal (208 L) drums liquid totes and bulk
VpCI®-432/433	Paint stripper and graffiti remover. Removes paint from concrete without damage. Non-caustic, non-toxic, water cleanable. Also available in gel form.	200-800 ft ² /gal (5-20m ² /L)	5 gal (19 L) pails 55 gal (208 L) drums liquid totes and bulk
MCI®-2060	Cleaner and degreaser that contains MCI®. It effectively cleans caked on grease, dirt, oil and mud off of concrete.	May be used as is or diluted up to 1%	5 gal (19 L) pails 55 gal (208 L) drums
MCI®-2061	Cleaner and degreaser containing MCI®. Contains microorganisms that break down oils, and other petroleum based materials.	Use as concentrate on oil stains, 24-48 oz/gal water for cleaning (188-375 ml/L)	5 gal (19 L) pails, 55 gal (208 L) drums
VpCI® CorrVerter®	Water based primer for rusted or poorly prepared surfaces. Does NOT contain tannic or phosphoric acid.	167-278 ft ² /gal (4.2-5.6 m ² /L)	5 gal (19 L) pails
MCI® Coating for Rebar™	Water based, barrier coating that provides extended outdoor protection for exposed steel and aluminum.	300 ft ² /gal (7.3 m ² /L)	5 gal (19 L) pails 55 gal (208 L) drums
MCI® Coating for Rebar NT	Non-tacky version of MCI® Coating for Rebar.	300 ft ² /gal (7.3 m ² /L)™	5 gal (19 L) pails 55 gal (208 L) drums
MCI® CorShield®	Non-tacky version of MCI® Coating for Rebar.	300 ft ² /gal (7.3 m ² /L)™	5 gal (19 L) pails 55 gal (208 L) drums
MCI® Peel Off Coating	Temporary, removable coating containing MCI® for protection against knicks, abrasion, scratches, etc.	140-160 ft ² /gal @ 4 mils (13-15 m ² /L @ 100 microns)	5 gal (19 L) pails 55 gal (208 L) drums
MCI®-2050	Form/mold release agent containing MCI® technology. Forms a thin protective film to which concrete, asphalt, dirt or other debris will not stick.	Rates vary de- pendent upon substrate & desired results. ~125-150 ft ² /gal (3.0-3.7 m ² /L)	5 gal (19 L) pails 55 gal (208 L) drums liquid totes, and bulk
MCI® Creteskin™	An industrial strength release agent containing MCI®. This clear protective coating inhibits the adhesion of concrete and other materials on painted and unpainted metal surfaces.	320-640 ft ² /gal @ 0.5-1 mil DFT, (8-16 m ² /L @ 12.5-25 microns)	5 gal (19 L) pails, 55 gal (208 L) drums, liquid totes and bulk
MCI®-309	A corrosion inhibiting powder for protection of ferrous metals in recessed areas, interior cavities and voids.	0.3-0.5 oz/ft ² (300-500 g/m ³)	5 lb (2.3 kg) boxes, 50 lb (22.7 kg) and 100 lb (45.4 kg) drums
PTC Emitters	Tyvek®* pouches filled with MCI® powder for corrosion protection of post tensioned cables and other metallic components in recessed areas, interior cavities, and voids.	1 pouch protects 35 ft ³ (1m ³)	Carton of 50 pouches
MCI®-2005 Gel	MCI®-2005 in gel format for injection into existing structures.	Based on hole size and number of holes	13 oz (384ml) tubes 5 gal (19 L) pails 55 gal (208 L) drums
MCI®-2020 Gel	MCI®-2020 in gel format for injection into existing structures.	Based on hole size and number of holes	13 oz (384ml) tubes, 5 gal (19 L) pails, 55 gal (208 L) drums
MCI®-Construction Film	A polyethylene film designed for use in the construction industry which inhibits corrosion on both ferrous and nonferrous metals.	n/a	20' x 100' sheeting, 4 mil (6.1 m x 30.48 m, 100 microns)

*Tyvek is a registered trademark of DuPont USA.

Repair Products	Product	Description	Approximate Dosage Rate	Packaging
	MCI®-2023	MCI® passivating repair grout for protecting reinforcing steel in concrete. Patent Pending.	60 ft ² at a thickness of 1/16 inch (5.6 m ² at a 1.6 mm thickness)	Part A 11 lb (5 kg) resin, Part B 26.5 lb (12 kg) bag powder. Yields 2.5 gal (9.4 L)
	MCI®-2246	MCI® bonding agent is a unique combination of Portland cement, microsilica, epoxy, and acrylic resin.	70-80 ft ² /gal at 20 mils WFT (1.6-1.8 m ² /L at 0.5 mm)	2 part kit includes 1 gal jug (3.8 l) and 28 lb (13 kg) bag
	MCI® Mini Grenades	MCI®-2006 NS powder pre-measured into water soluble, PVA bags. Allows you to add corrosion inhibitor to any bagged mortar or grout mix.	1 per 0.5-0.6 ft ³ (1 per 0.015 m ³)	100 grenades/ carton
	MCI®-2039 SC	Single component, fiber reinforced MCI® repair mortar containing MCI® Mini Grenades, fibers and polymers.	12 ft ² per bag at a ½ inch thick (1.12 m ² at 12.7 mm thick)	55 lb (25 kg) bag of powder
	MCI®-2701	Single component, trowel grade repair mortar with MCI®-2006 NS technology. It is a polymer-modified cement-based mortar for structurally repairing or overlaying deteriorated concrete.	20-25 ft ² per bag at ¼ inch thick (2 m ² at 6 mm thick)	55 lb (25kg) bag of powder 50 lb (23 kg) bags
	MCI®-2702	Single component, overhead repair mortar with MCI®-2006 NS technology.	20-25 ft ² per bag at ¼ inch thick (2 m ² at 6 mm thick)	50 lb bag yields 0.45 ft ³ (23 kg bag yields 0.013 m ³)



MIGRATING CORROSION INHIBITORS
FROM GREY TO GREEN

Cortec® Corporation



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4119 White Bear Parkway, St. Paul, MN 55110 USA
Phone (651) 429-1100, Fax (651) 429-1122
Toll Free (800) 4-CORTEC
E-mail productinfo@cortecvci.com
www.CortecVCI.com
www.cortecmci.com

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