

Technology that Extends the Service Life of Concrete Structures

MCI[®]

Migrating Corrosion Inhibitors™
for Concrete Durability



CORTEC
CORPORATION

Environmentally Safe VpCI[®]/MCI[®] Technologies



A Revolutionary Way to Extend the Service Life of Concrete Structures. Simple...Sure...Safe.

Cortec's patented MCI® technology protects reinforcing metal in concrete from corrosion. MCIs, Migrating Corrosion Inhibitors™, rehabilitate existing concrete structures and extend the life span of new structures. Often, corroding rebar in deteriorating concrete is the cause of costly repairs, financial losses, injuries and deaths, but Cortec® has the corrosion solution. Cortec® MCI® products for concrete maintain structural integrity, rehabilitate vulnerable structures and alleviate environmental concerns. A unique feature of MCI® is that the inhibitor will migrate a considerable distance through concrete to protect embedded ferrous metals.

Causes of Corrosion

High Chloride Levels

Chlorides from the aggregates or water used in the making of concrete or from chemicals used in concrete curing compounds can quickly cause corrosion of the reinforcing steel. As corrosion progresses, oxides build-up and cause expansion resulting in disbondment from the concrete. Eventually, the concrete cracks and the structure fails.

Deicing Salts

In many areas, the source of damaging chlorides can be deicing salts which are applied to highways and bridges to melt ice and snow or prevent the formation of ice.

Airborne Salts

Marine structures or structures located near the ocean are often affected by chlorides carried in airborne salts.

Acid Rain/Industrial Pollution

Corrosives in the atmosphere are becoming an increasingly damaging factor in the deterioration of concrete structures.

Carbonation

New concrete has a high alkalinity or pH. This allows a protective oxide layer to form on embedded metal reinforcement that helps to prevent corrosion. Over time, carbon dioxide in the air can react with hydroxides in the concrete, such as calcium hydroxide, to form carbonates. This process significantly lowers the alkalinity (pH), leading to the loss of the protective oxide layer on the steel which allows corrosion to begin.

Once a concrete structure is built, it's impossible to coat the reinforcing steel with fusion-bonded epoxy to protect it from corrosion. Cathodic protection is ineffective unless the steel reinforcement is electrically continuous.

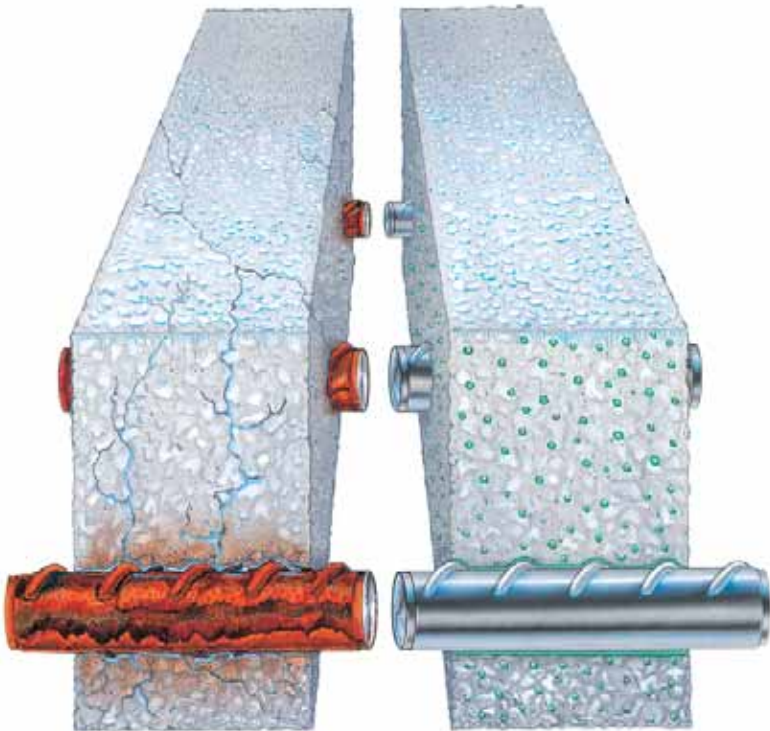
Cortec® MCI®, however, can be easily added to concrete for rehabilitation and will not delay construction or increase construction costs other than the small cost of the material. Unlike standard inorganic inhibitors, Cortec® MCIs do not have to come in contact with the reinforcing steel upon application in order to seek out the steel and protect it.

When specified in new construction, Cortec's MCI® line of concrete admixtures offers reinforcing steel superior corrosion protection against carbonation and chloride attack.



Comparison of Cortec® MCI® to other Inhibitors

| Feature | Cortec® MCI® Inhibitor | Other Inhibitors |
|---|------------------------|------------------|
| Environmentally friendly. Spills are easily flushed away. | True | False |
| Used in small quantities. No concrete mixing problems. | True | False |
| Air entrainment is not affected. | True | False |
| Set time is not affected. | True | False |
| Slump is not affected. | True | False |
| Required dosage of inhibitor is unaffected by chloride concentration. | True | False |
| Migrates through concrete to steel for corrosion protection. | True | False |
| Under no circumstances will it accelerate the corrosion rate. | True | False |
| Does not require chemical or water adjustment of the concrete mix design. | True | False |



Summary of Data Involving Cortec® MCI® 2000 in Concrete

| | Control | MCI® 2000 |
|--|--------------|--------------|
| Entrained Air Voids | 3-6% | 6.2% 4.8% |
| Freeze-Thaw, ASTM C666 Durability Factor @ 320 cycles | | |
| Mean | 94.5 | 94.3 |
| Std. Dev. | 1.8 | 2.4 |
| Compressive Strength (psi) 6 x 12 inch cylinders @7 days | 4780 4830 | 4475 4490 |
| @ 28 days | 5700 5910 | 5750 5840 |
| Setting Time, ASTM C403 | | |
| Setting Time, Hour: Minutes | | |
| Initial | 3:57 | 3:57 |
| Final | 5:33 | 5:22 |
| Slump, ASTM C143 | 2 3/8" | 2 3/4" |
| Bond transfer tests on prestress strand | No effect | No effect |

Cost Effective Advantages

- Added in small quantities by concrete mixer either at the plant or on the job site.
- Rehabilitation is less costly than major repair/replacement work.
- No extra clean-up costs. Environmentally friendly.
- No costly delays. Does not affect air entrainment, set time or slump.
- MCI® lowers the free chloride content in concrete.
- Surface applied products are available for existing structures.
- Emitter treatment available for existing structures.
- MCI® fumed silica combinations are available.

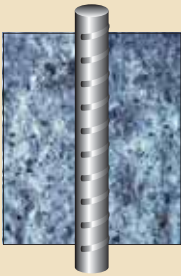
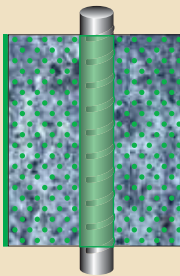
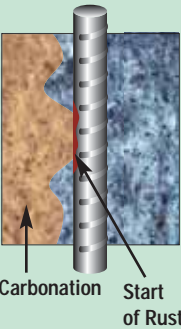
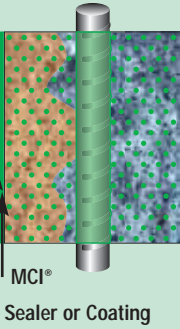
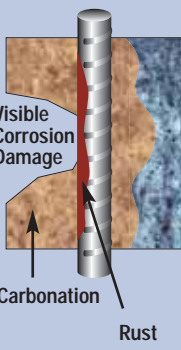
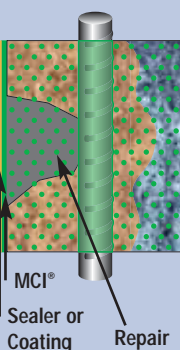
Safety

At low concentrations, this product can be degraded in a biological waste treatment system. Spills may be flushed with large quantities of water.

Many of Cortec's MCI® products are certified by Underwriters Laboratories® Inc. to meet ANSI/NSF Std. 61 for contact with potable drinking water.



MCI® Product Application Guide

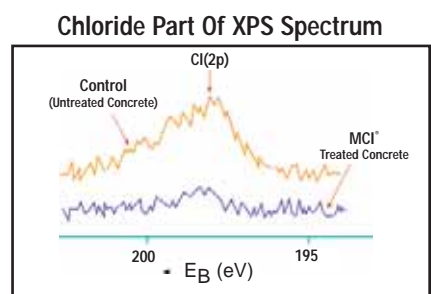
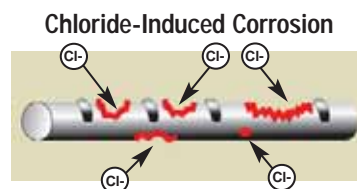
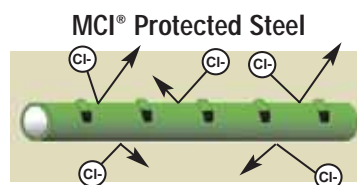
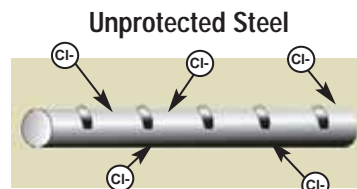
| | Condition of Structure | Objectives & Requirements | MCI® Protection | Features and Benefits |
|--|---|--|--|--|
| STAGE I New Concrete |  <ul style="list-style-type: none"> Aggressive Environment Insufficient Concrete Cover | <ul style="list-style-type: none"> Extend useful service life Protect 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. | <ul style="list-style-type: none"> 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 |
| STAGE II Existing Structures, No Visible Corrosion Damage |  <ul style="list-style-type: none"> Concrete structures without protective coatings Aggressive environment Initiation of corrosion No visible corrosion damage <p>Carbonation Start of Rust</p> | <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 a MCI® 2020 Series surface applied product by spray, brush or roller. Followed by an application of an anticarbonation coating such as MCI® Architectural Coating OR application of a sealer such as MCI® 2019, 2021, or 2022. <p>MCI® Sealer or Coating</p> | <ul style="list-style-type: none"> 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 |
| STAGE III Existing Structures, Visible Corrosion Damage |  <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 <p>Visible Corrosion Damage</p> <p>Carbonation Rust</p> | <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) affect |  <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® MCI® 2038 Finish repair mortar Application of Cortec's MCI® 2020 to entire surface area Application of Cortec® MCI® 2020 to entire surface area Application of Cortec® MCI® 2020 to entire surface area Application of Cortec® MCI® 2020 to entire surface area <p>MCI® Sealer or Coating Repair Mortar</p> | <ul style="list-style-type: none"> 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 |

How does MCI® Technology Work?

The corrosive effects of carbonation and chlorides cause a breakdown of the natural passivating protection of steel. When MCI® comes in contact with steel it forms a protective layer. This layer has been measured (using X-ray Photoelectron Spectroscopy — XPS) to be between 20 and 100Å thick at the molecular level.

MCI® 2000 Actually Displaces Chloride Ions at the Steel Surface

XPS Surface analysis testing has also proven MCI's ability to displace chloride ions from the surface of steel in chloride environments.



Note the almost complete elimination of chloride at the surface with MCI® treatment.



Relevant Case Histories

Construction of Wells Fargo Parking Garage, MCI® 2005 NS (214)



An 1,800 vehicle, six-level parking garage needed all of its 22,000 cubic yards of concrete to meet or exceed 3,000 psi strength within 18 to 24 hours.

A calcium nitrite based corrosion inhibitor didn't meet the required 24 hour minimum strengths, and also had shrinkage cracking. MCI® 2005 NS met the required specifications, reduced shrinkage by 30%, and eliminated shrinkage cracking even in sub-zero temperatures.

See also:

- ♦ China Railroad Bridge, MCI® 2000, 2020, 2021 (092)
- ♦ Concrete Bridge Foundation, MCI® 2000, 2020 (119)
- ♦ Concrete Railway Bridge, MCI® 2005, 2020, 2023 (139)
- ♦ City Street Bridge Deck, MCI® 2000 (211)
- ♦ Construction of Parkway Technology Campus, MCI® 2007 Super Corr™, 2022 Sealer (238)

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) on the walls lowered the pH of the concrete causing the corrosion.

The requirements included: a 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 of surface hand patch repair and over 1,000,000 ft² 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:

- ♦ China Railroad Bridge, MCI® 2000, 2020, 2021 (092)
- ♦ Parking Ramp, MCI® 2020 (121)
- ♦ Concrete Railway Bridge, MCI® 2005, 2020, 2023 (139)
- ♦ Construction of the World's Largest Mosque, MCI® 2021, MCI® Architectural Coating White. (236)
- ♦ Inland Steel Building, MCI® 2020

DePere Waste Water Treatment Tanks

MCI® 2020, 2023, 2038 (219)



The outdoor waste water tanks were originally constructed in 1939, and no repairs had been made in almost 20 years. Corroding and spalled areas, as well as exposed rebar had to be repaired.

Concrete was sandblasted and pressure washed. Exposed rebar was coated with MCI® 2023 and spalled areas were repaired with MCI® 2038. This was followed by an application of MCI® 2020 to the entire surface area of the tanks.

Customer was very satisfied with the application and products used. They purchased more products to repair other tanks after the success of this project.

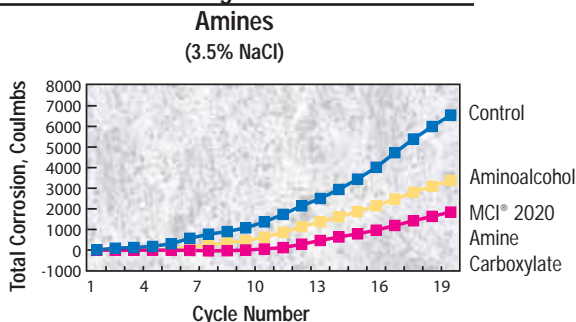
See also:

- ♦ HPRS™: High Performance Repair Systems, MCI® 2020, 2023, 2038, 2039, VpCl®-386 (150)
- ♦ Concrete Spalling Due to Hydrochloric Acid Fumes, MCI® 2020, 2038, CorrVerter® (217)
- ♦ Leaking Parking Garage, MCI® 2020, 2022, 2023, 2038 (218)

Competitor Comparisons

Time and time again, MCI® products are shown to out-perform the competition. Whether using surface applied MCI® 2020 on existing structures to extend the life of a repair, or using MCI® 2005 series admixtures to greatly increase the expected service life of a new structure, you can be sure that Cortec® MCI® will provide you with superior corrosion protection.

Cracked Beam Testing of Surface Treatments

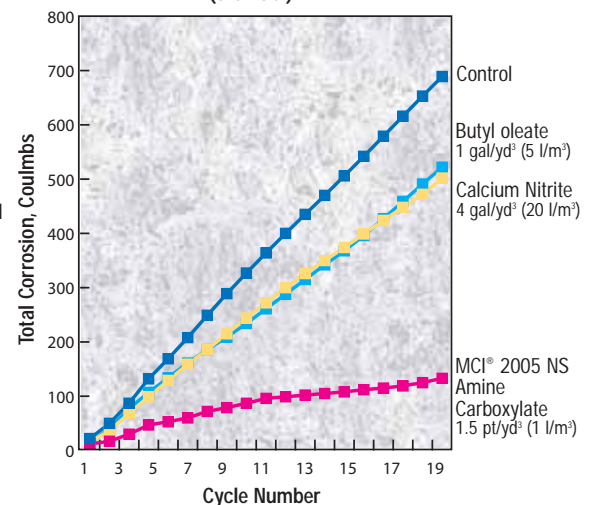


Above: Wiss, Janney, Elstner Associates, Inc. January 1995, WJE No: 922041

Right: American Engineering and Testing August 2003, AET Job No:05-01171

Cracked Beam Testing of Admixtures

MCI® 2005 NS vs. Competition (6% NaCl)

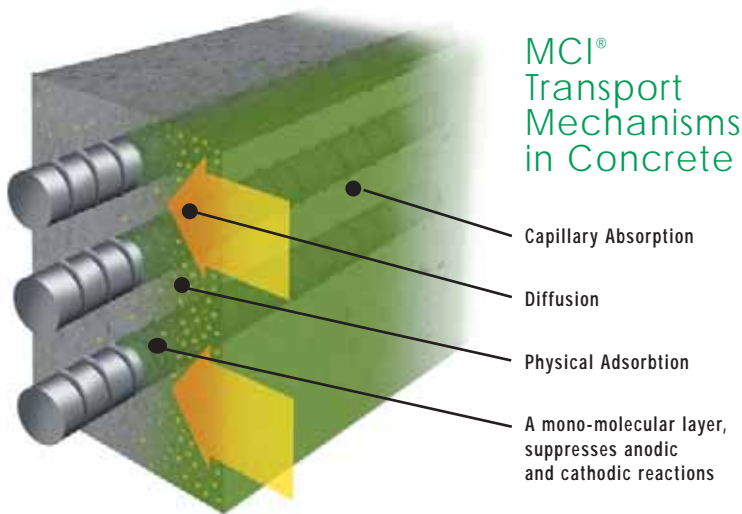


Diffusion Through Concrete

Migrating Corrosion Inhibitors™ for Reinforced Concrete

B. A. Miksic, FNACE®, D. Bjegovic, L. S. Sipos
(printed in ConChem-Journal, 2/93)

The diffusion rate of MCI® for two different types of concrete was determined using the mix designs seen in Table 1. Two concrete specimens were placed into a specially designed diffusion cell where they acted as a membrane between two solutions for a 21-day test period (Figure 1). For optimal results, the concentration of the migratory inhibitors was taken at three-day intervals. Every three days, a 15mL aliquot was taken for concentration determination, and after each measurement, the fluid was returned to the cell. An ORION 95-12 Ag/AgCl electrode containing 0.1 M NH₄Cl solution was used for determination of migratory inhibitor concentration. Concentration of the inhibitor in the concrete over time was found using electrode potential readouts and a calibration diagram (Figure 2).



As can be seen in Figure 2, MCI® concentration increases with time, showing that the MCI® diffuses through the concrete. Using experimentally obtained data, the coefficient of diffusion was calculated (Fig. 3, Tab. 2) and compared to the coefficient of diffusion of chloride ions per J.S. Tinnea (Tab. 3). As can be seen from the comparison, the values for both coefficients are similar. This data demonstrates the migratory nature of MCIs and proves that they can be used for protection against chloride induced corrosion and carbonation.

| General Composition | | T-1 | T-2 |
|-------------------------|-------------------|------|------|
| Components | Units | | |
| Concrete | kg/m ³ | 380 | 380 |
| Water | l/m ³ | 209 | 171 |
| Aggregate | kg/m ³ | 1720 | 1823 |
| W/C | % | 0.55 | 0.45 |
| Consistency of Settling | cm | 14.5 | 4.5 |

TAB. 1 Composition of Concrete

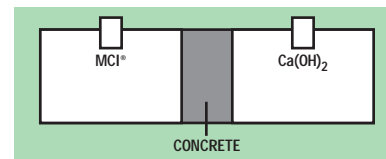


FIG. 1 Diffusion Cell

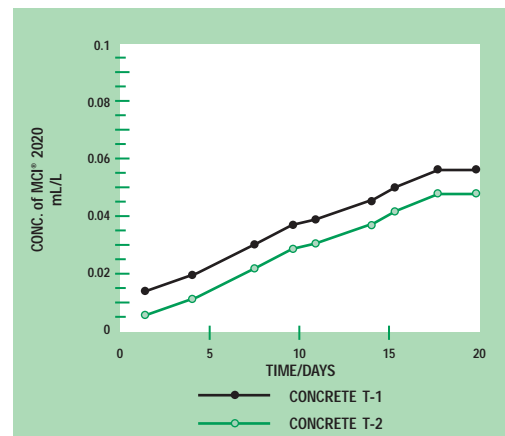


FIG. 2 Calibration Diagram

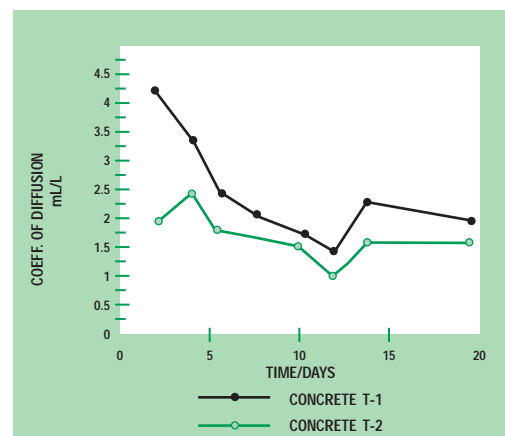


FIG. 3 Calibration Diagram

| Coefficient of Diffusion cm ² /s ⁻¹ | | | |
|---|----------|------------------------|------------------------|
| Concrete Sample | Data No. | Middle Value | Standard Deviation |
| T-1 | 5 | 1.78x10 ⁻¹² | 0.30x10 ⁻¹² |
| T-2 | 5 | 1.45x10 ⁻¹² | 0.23x10 ⁻¹² |

TAB. 2 MCI® Coefficient of Diffusion

| Core No. | Diff. Coeff. (cm ² /sec) |
|----------|-------------------------------------|
| T-1 | 5.3x10 ⁻¹⁰ |
| T-2 | 7.7x10 ⁻¹⁰ |

TAB. 3 Chloride Diffusion Coefficient

BUYER'S GUIDE

| | Product | Description | Protection | Packaging | Applications |
|----------------------------|--|--|---|---|---|
| Admixtures | MCI® 1999 | Liquid concrete admixture that protects steel reinforcing, carbon steel, galvanized steel and other metals embedded in concrete from corrosion. | 1 gal/yd ³ (5 l/m ³) | 5 gal (19 l) pails 55 gal (208 l) liquid totes and bulk | Reinforced concrete , bridges, decks, ramps, highways, marine structures. |
| | MCI® 2000 | Concrete admixture. Added to concrete at the rate of 1 pt/y ³ (0.6 l/m ³). Patented. | 1 pt/yd ³ (0.62 l/m ³) Long term | 5 gal (19 l) pails 55 gal (208 l) drums | A Migratory Corrosion Inhibitor™ admixture to protect rebar in concrete. |
| | MCI® 2001 | Fumed silica/MCI® 2000 combination. Allows handling of MCI® 2000 as a powder. Patented. | 3 lb/yd ³ (1.78 kg/m ³) Long term | 5 lb (2.3 kg) box — 50 and 100 lb (22.7 and 45.4 kg) drums | A fumed silica / MCI® 2000 corrosion inhibition admixture to protect rebar in concrete. |
| | MCI® 2002 | Microsilica/MCI® 2000 slurry combination. Patented. | 3-5 pt/yd ³ (1.5-2.5 l/m ³) Long term | 5 gal (19 l) pails 55 gal (208 l) drums | A microsilica / MCI® 2000 corrosion inhibition admixture to protect rebar in concrete. |
| | MCI® Grenades | MCI® 2006 NS powder in a pre-measured water soluble package. | 1 grenade/yd ³ 1 metric grenade/m ³ | 20 bags/carton | Add to concrete or mortar at the ready-mix plant, directly to the ready-mix truck drum or to portable mixers. Protects reinforcing steel, carbon steel, galvanized steel and other metals from corrosion. |
| | MCI® 2005 | Water-based concrete admixture. Added to concrete at the rate of 1 pt/y ³ (0.6 l/m ³). Patented. | 1 lb/yd ³ (0.6 kg/m ³) Long term | 5 gal (19 l) pails 55 gal (208 l) drums | A migratory corrosion inhibitor admixture to protect rebar in concrete. |
| | MCI® 2005 NS | Version of MCI®-2005 that does not affect set time. Protects reinforcing steel and other metals embedded in concrete from corrosion. | 1.5 pt/yd ³ (1 l/m ³) Long term | 5 gal (19 l) pails 55 gal (208 l) drums, liquid totes & bulk. | Can be added to concrete powder at the ready-mix plant, directly in a ready-mix truck drum or in portable mixers. |
| | MCI® 2006 | Powdered admixture based on MCI®-2005 technology. Patented. | 1 lb/yd ³ (0.5 kg/m ³) Long term | 5 lb (2 kg) 50 lb (22.7 kg) drums 100 lb (45.3 kg) drums | Add to concrete or mortar at the ready-mix plant, directly to the ready-mix truck drum or to portable mixers. Protects reinforcing steel, carbon steel, galvanized steel and other metals from corrosion. |
| | MCI® 2006 NS | Concrete admixture in powder form that does not affect set time. | 1 lb/yd ³ (0.5 kg/m ³) Long term | 5 lb (2 kg) 50 lb (22.7 kg) drums 100 lb (45.3 kg) drums | See MCI® 2006. |
| | MCI® 2007 | Corrosion inhibiting superplasticizer to increase flowability of concrete. Meets ASTM C-494, Type G. | 3-4 pts/yd ³ (1.5-2 l/m ³) | 5 gal. (19 liter) pails 55 gal. (208 liter) drums, liquid totes & bulk. | Reinforced, precast, prestressed and post-tensioned concrete structures. Bridges, highways, roads, buildings, parking decks, ramps, garages, concrete piers, piles, pillars, pipes and utility poles. |
| | MCI® 2008 | Corrosion inhibiting superplasticizer for self-compacting/self-leveling concrete. | 0.4-0.6% by total weight of mix. Long term | 5 gal. (19 liter) pails 55 gal. (208 liter) drums, liquid totes & bulk. | Reinforced, precast, prestressed and post-tensioned concrete structures. Bridges, highways, roads, buildings, parking decks, ramps, garages, concrete piers, piles, pillars, pipes and utility poles. |
| Surface Treatments | MCI® 2019 | 40% silane sealer and MCI® inhibitor. | 125 ft ² /gal(3 m ² /l). Medium term | 5 gal (19 l) pails 55 gal (208 l) drums | 40% Silane solvent based sealer with MCI® for concrete structures |
| | MCI® 2020 | Clear MCI® surface treatment for existing concrete. Designed to penetrate and migrate throughout the concrete structure. Patented. | 150 ft ² /gal (3.68 m ² /l) Medium term | 5 gal (19 l) pails 55 gal (208 l) drums | Water-based surface treatment. Provides MCI® corrosion protection for rebar in existing structures. Underwriter's Lab. NSF Standard 61 Certification for indirect contact with drinking water. Applications - bridges, buildings, garages, decks, and lanais. |
| | MCI® 2020 V/O | MCI® 2020 for vertical and over-head applications. | 150 ft ² /gal (3.68 m ² /l) Medium term | 5 gal (19 l) pails 55 gal (208 l) drums | Water-based surface treatment. Provides MCI® corrosion protection for rebar in existing structures. Underwriter's Lab. NSF Standard 61 Certification for indirect contact with drinking water. Applications - bridges, buildings, garages, decks, and lanais. |
| | MCI® 2020 Powder | Powder version of MCI® 2020. | 150 ft ² /gal (3.68 m ² /l) Medium term | 100 lb (45.5 kg) drums | Water-based surface treatment. Provides MCI® corrosion protection for rebar in existing structures. Underwriter's Lab. NSF Standard 61 Certification for indirect contact with drinking water. Applications - bridges, buildings, garages, decks, and lanais. |
| | MCI® 2020 V/O Powder | Powder version of MCI® 2020 V/O. | 150 ft ² /gal (3.68 m ² /l) Medium term | 100 lb (45.5 kg) drums | Water-based surface treatment. Provides MCI® corrosion protection for rebar in existing structures. Underwriter's Lab. NSF Standard 61 Certification for indirect contact with drinking water. Applications - bridges, buildings, garages, decks, and lanais. |
| | MCI® 2021 | Concrete silicate sealer with Migrating Corrosion Inhibitors™ for the protection of concrete and rebar in concrete. | Normal dosage is 150-250 ft ² /gal (3.7-6.1 m ² /l) | 5 gal (19 l) and 55 gal (208 l) drums | Apply by spray, roller, squeegee or paint brush to any concrete surface. Preserves and protects concrete. Applications - bridges, buildings, garages, decks, and lanais. |
| | MCI® 2022 | Penetrating waterborne, vapor-permeable, water-repelling sealer for concrete, brick, masonry units, etc. | 125-175 ft ² /gal (3.0-4.2 m ² /l) | 5 gal (19 l) and 55 gal (208 l) | Reinforced structures, concrete reinforced bridges. Applications - bridges, buildings, garages, decks, and lanais. |
| | MCI® 2022 V/O | Penetrating waterborne, vapor-permeable, water-repelling sealer for concrete, brick, masonry units, etc. For vertical and overhead applications. | 125-175 ft ² /gal (3.0-4.2 m ² /l) | 5 gal (19 l) and 55 gal (208 l) | Reinforced structures, concrete reinforced bridges. Applications - bridges, buildings, garages, decks, and lanais. |
| | MCI® 2023 | MCI® passivating repair grout for protecting reinforcing steel in concrete. Patent Pending. | Medium term | 11 lb (5 kg) pails - resin 26.5 lb (12 kg) bag - powder | Concrete repair. |
| | MCI® 2026 Primer | Two component kit, water-based primer for concrete. | 250-350 ft ² /gal (3.0-4.2 m ² /l) Medium term | 0.75 gal (2.3 l), 3 gal (11.4 l), 6 gal (22.7 l), 15 gal (56.8 l) 165 gal (624.6 l) yield kits. | Recommended primer for the MCI® 2026 HPCS system, designed for use on concrete surfaces. Meets USDA guidelines for use in meat and poultry plants, moderate chemical resistance, good abrasion resistance and VOC compliant. Can be colored using MCI® 2026 HPCS colorants. |
| | MCI® 2026 Floor Coating | Two component, 100% solids, novolac epoxy coating for concrete. | 125-150 ft ² /gal (3.0-3.7 m ² /l) Medium term | 0.6 gal (522.4 l), 2.5 gal (9.5 l), 5 gal (19 l), 12.5 gal (47.3 l), 138 gal (522.4 l) | Recommended topcoat for MCI® 2026 HPCS system. Excellent chemical and abrasion resistance, odorless and meets USDA guidelines for use in meat and poultry plants. Can be colored using MCI® 2026 HPCS colorants. |
| MCI® Architectural Coating | Water-based primer/topcoat designed to protect concrete. | 535-641 ft ² /gal (13-16 m ² /l) Medium term | 5 gal (19 l) and 55 gal (208 l) | Aesthetically pleasing coating for concrete that provides resistance to water ingress and carbonation, UV resistant when cured. | |

Long term protection= 25+ years Medium term protection= 5-10 years

BUYER'S GUIDE CONTINUED

| | Product | Description | Protection | Packaging | Applications |
|------------------|---|--|--|---|--|
| Repair/Specialty | MCI® 2003 | MCI® gel combination of MCI® 2000 and MCI® 2020. | 2 pt/yd ³ (1.21 l/m ³) | Contact Cortec® for packaging info. | Gel for concrete injection applications. |
| | MCI® 2005 Gel | MCI® 2005 in gel format. | 1.5 pt/yd ³ | 24 oz caulking tubes 11 lb (5 kg) pails 55.1 lb (25 kg) bag | Can be dosed into predrilled holes in existing structures. |
| | MCI® 2010/2011 | MCI® emitters. MCI® compound packed in plastic emitter device for maintenance applications. Patented. | Medium term with multiple applications | 20 units per carton | Inserted into pre-drilled holes to provide easy and renewable MCI® corrosion protection for existing structures. |
| | MCI® 2038 | Two component, fiber reinforced MCI® finish repair mortar. | Medium term | 11 lb (5 kg) pails - liquid 55.1 lb (25 kg) bag - powder | Concrete finish mortar for repair. |
| | MCI® 2039 | Two component, fiber reinforced MCI® repair mortar. | Medium term | 8.3 lb (3.75 kg) pails - resin 55.1 lb (25 kg) bag - powder | Concrete full depth mortar for repair. |
| | MCI® 2050 | Water-based, ready-to-use product to prevent the build-up of common construction or industrial "sticky" substances. | Application rates vary depending upon the surface type. | 5 gal (19 l) pails 55 gal (208 l) drums | Forms a thin protective film to which concrete, asphalt, dirt or other debris will not stick. Apply to various equipment, concrete forms, concrete pumping or ready-mix trucks, buses, trains, etc. |
| | MCI® 2050 Release Agent | Corrosion inhibitor liquid combined with Migratory Corrosion Inhibitors™ that prevents "build-up" of concrete, asphalt, dirt and other debris on concrete or other construction equipment. | Application rates vary depending upon the surface type. | 5 gallon (19 liter) plastic containers 55 gallon (208 liter) drums | Apply onto equipment with a clean sprayer, roller, or brush. |
| | MCI® 2060 | Cleaner/degreaser combined with Migratory Corrosion Inhibitors™ to protect, clean and degrease concrete structures. | 1% up to concentrate Short term (1 week) | 5 gallon (19 liter) plastic containers 55 gallon (208 liter) drums | Brush, roll or spray onto concrete surface. |
| | MCI® 2070 | A water-based, concentrated Migrating Corrosion Inhibitor™ admixture for asphalt primer coatings. | 2-4% by weight for sufficient protection | 5 gallon (19 liter) plastic containers 55 gallon (208 liter) drums, liquid totes | Use in asphalt emulsions for corrosion protection of metal. |
| | MCI® 2311 | Single component, full depth repair mortar with MCI® 2006 NS technology. | Medium term when used as a system | 50 lb (23 kg) bags | For structurally repairing or overlaying deteriorated, horizontal concrete surfaces. |
| | MCI® 2701 | Single component, trowel grade repair mortar with MCI® 2006 NS technology. | Medium term | 50 lb (23 kg) bags | For structurally repairing or overlaying deteriorated, horizontal concrete surfaces. |
| | MCI® 2702 | Single component, overhead repair mortar with MCI® 2006 NS technology. | Medium term | 50 lb (23 kg) bags | For structurally repairing or overlaying deteriorated, horizontal concrete surfaces. For vertical and overhead concrete surfaces. |
| | MCI® Anti-Graffiti Coating | Two component, solvent based aliphatic urethane for concrete to provide easy removal of graffiti. | 3-10 yrs protection depending on severity of conditions. | 5 gal (19 l) pails | Designed for use on concrete surfaces as well as steel or on top of other solvent based coatings to allow for easy removal of graffiti using most solvents or Cortec® graffiti removers: VpCI®-432 or VpCI®-433. |
| | MCI® Coating for Rebar | Water-based, barrier coating that provides extended outdoor protection. Available in standard colors and as a clear coat. | 300 ft ² /gal — (7.3 m ² /l) | 5 gal (19 l) pails 55 gal (208 l) drums | Rust inhibiting coating applied to rebar and other steel and concrete. Water-based, safe, non-toxic and biodegradable. Water-based polymeric coating works as a barrier. |
| | VpCI®-389 | Clear water-based coating for protection of exposed or new rebar. | 655 ft ² /gal — (16 m ² /l) | 5 gal (19 l) pails 55 gal (208 l) drums | Water-based coating applied to rebar and other steel. Protects steel when placed in concrete, does not affect bonding between steel and concrete. |
| | MCI® Film | A polyethylene film designed for use in the construction industry containing Cortec® VpCI® technology to inhibit corrosion on both ferrous and non-ferrous metals. | N/A | Available in rolls and sheets in standard and custom sizes. | Provides VpCI® protection for carbon, stainless, and galvanized steel; aluminum, copper and alloys; and zinc. Also provides UV protection, is highly puncture and tear resistant, a good moisture barrier, and is recyclable and environmentally friendly. |
| | VpCI®-365 | VpCI®/Epoxy combination. | 360 ft ² /gal — (8.9 m ² /l) | Part A (5 gal), Part B (2.5 gal) | Coating for clean or rusty steel and rebar protection. Coating for concrete surfaces. Performance comparable to fusion-bonded epoxy. |
| | VpCI®-422 | Water-based rust remover. Removes rust stains without affecting concrete. Also available in gel form. | Apply at 200-600 ft ² /gal — (5-15 m ² /l) | 5 gal (19 l) pails 55 gal (208 l) drums, totes & bulk | Apply to concrete surfaces to remove rust stains. Organic, non-polluting, safe to handle. |
| 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 — (5-20 m ² /l) | 5 gal (19 l) pails 55 gal (208 l) drums, totes & bulk | Non-toxic paint stripper, graffiti remover for use on steel and concrete. Does not contain methylene chloride. Softens most paints and allows easy removal. | |

Visit our website for more information on Migratory Corrosion Inhibitors™

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