MIGRATING CORROSION INHIBITORS
FROM GREY TO GREEN

MCI® SURFACE APPLIED

CORROSION PROTECTION SYSTEMS FOR REINFORCED CONCRETE

CORTEC CORPORATION
Environmentally Safe VpCI®/MCI® Technologies

ISO/IEC 17025 ISO 14001 ISO 9001

The Efficacy of Using Migrating Corrosion Inhibitors (MCI®-2020 & MCI®-2020 M) for Reinforced Concrete

B. Bavarian, PhD., L. Reiner

March 2004

MCI®-2020 and MCI®-2020M were analyzed to show their ability to migrate to embedded reinforcement, form a protective film, and mitigate corrosion. Testing showed that MCI® protected samples had an average current density of 0.4 μA/cm² compared to 1.4 μA/cm² for untreated samples, increasing the service life expectancy by more than 15-20 years.

Scanning electron microscopy (SEM) and energy dispersive X-ray microanalysis (EDX) was performed on rebar samples. Figure 1 shows an image for the untreated concrete sample, its spectrum and weight concentration percentage for elements typically found in concrete, corrosive species and rebar. Nitrogen, the active component in MCI® corrosion inhibitors, is not detected. Nitrogen was detected in the MCI® treated samples, as shown in Figures 2 and 3. The presence of nitrogen on the surface is significant because it confirms the inhibitors are able to migrate through the concrete to reach the surface of the rebar.

Untreated	N	O	Mg	Al	Si	S	Cl	Ca	Fe
Weight Conc%	0.00	16.29	1.24	0.83	9.08	1.54	0.97	67.03	3.03

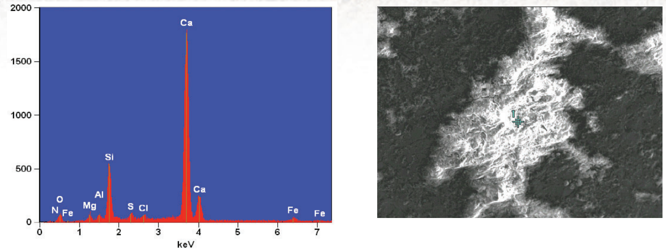


FIG. 1

Weight Concentration %											
Untreated	N	O	Na	Mg	Al	Si	S	Cl	K	Ca	Fe
L2020_pt1	0.53	4.09	3.51	2.12	1.52	4.27	4.31	5.31	1.42	19.37	53.56
L2020_pt2	0.66	12.01		0.41	1.28	4.56	1.10	0.94		71.02	8.02

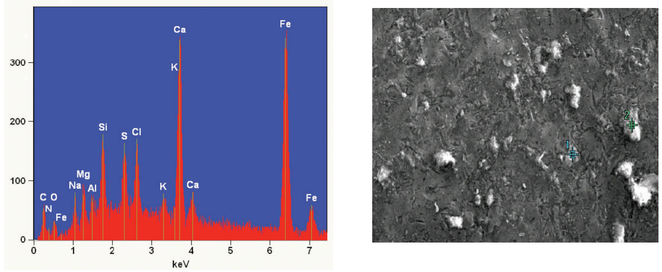


FIG. 2

2020 M	N	O	Al	Si	S	Cl	Ca	Mn	Fe
Weight Conc %	0.46	3.81	1.52	5.13	0.74	1.82	22.71	0.78	63.02
Atom Conc %	0.61	10.46	2.48	8.06	1.02	2.26	24.89	0.62	49.61

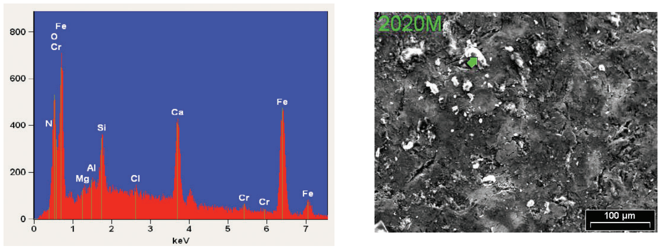
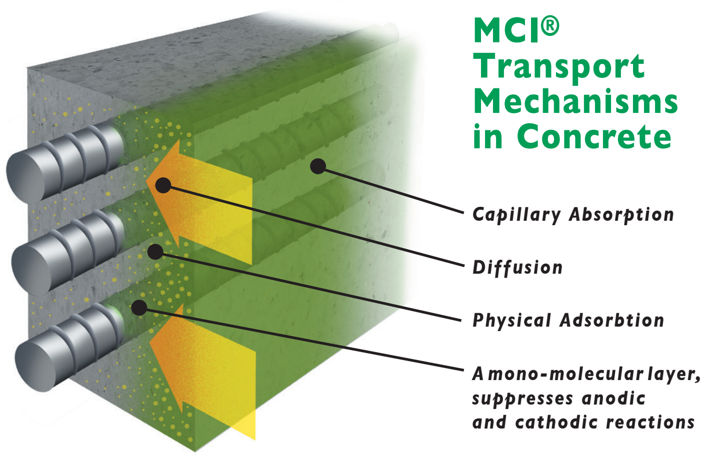


FIG. 3

MCI® Transport Mechanisms in Concrete



XPS depth profiling detected chloride at depths of 60 nm on the rebar while the presence of inhibitor on treated samples showed nitrogen detection levels at 85 nm below the unetched surface for the MCI®-2020 M sample and as far down as 75 nm for the MCI®-2020 sample. The XPS results showed similar diffusion rates for MCI® and the corrosive species (chloride). The MCI® inhibitors were able to adsorb to a deeper depth than the chloride ions on the rebar, providing a protective film, whereas untreated samples were subjected to localized corrosion attack.

Mass Concentration %

Sample	Etch Time (seconds)	Fe 2p	O 1s	C 1s	N 1s	Cl 2p	Ca 2p	Si 2p
Untreated	0	6.27	42.71	30.67	0.19	1.07	14.19	4.97
Untreated	120	13.60	39.43	23.08	0.14	1.06	17.59	5.19
Untreated	240	14.65	38.77	22.35	0.11	1.01	18.18	5.03
L2020	0	2.30	42.22	29.90	1.16	0.95	17.28	6.26
L2020	120	2.53	43.01	25.17	1.12	0.93	20.14	7.18
L2020	240	2.56	43.85	21.95	1.05	1.40	22.19	7.09
L2020M	0	2.02	40.20	38.55	1.32	0.87	11.54	5.53
L2020M	120	2.22	41.74	32.13	1.29	0.86	15.41	6.42
L2020M	240	2.82	43.61	28.99	1.15	0.83	15.92	6.68

Table 1 - *XPS analysis on concrete samples after 500 days, showing the changes in chemistry with etch time.*

Long-Term Corrosion Testing of MCI®-2020
(November 1994 - April 1999)

General Building Research Corporation of Japan,
Dr. Masaru Nagayama

CONCLUSION:

MCI®-2020 decreased the amount of corrosion in treated specimens versus control specimens. When MCI®-2020 is initially applied, corrosion is reduced by one-sixth that of untreated specimens. Throughout the investigation, corrosion in the MCI®-2020 treated specimen was reduced one-third to one-fifth that of the untreated specimen. Applying MCI®-2020 when cracks appeared worked very well in reducing corrosion in specimens with rebar at a 2 cm depth, but testing was too short to determine its effects on rebar at other depths.

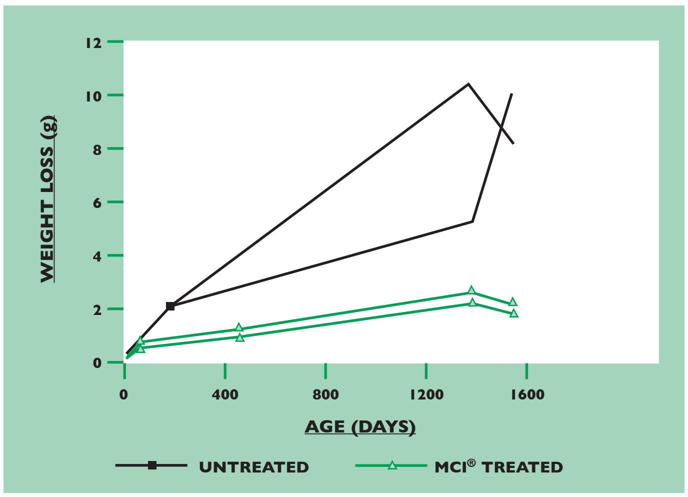
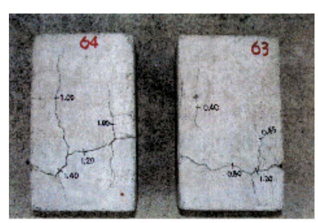


FIG. 4 *MCI®-2020 long term test 1994-95 by General Building Research Corporation of Japan*

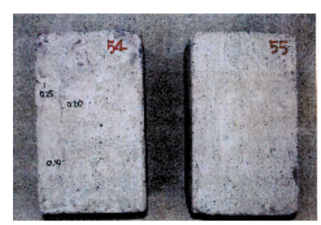
METHOD:

Concrete specimens were prepared and cured for 60 days. The mix design of the concrete was: w/c ratio of 65%, 3 kg/m^3 of C1$_2$, slump of 19.5 cm, air content of 3.8%, and compressive strength of 29.3N/nm^2 at 28 days. One percent by weight of sodium chloride was added to mix design to assure acceleration of corrosive rates in this experiment. After 60 days, the specimens were observed to have corrosion and MCI®-2020 was applied to one specimen for comparison with the control. For the duration of the test, the specimens were exposed to the high temperature chamber and repetition of dry and high humidity cycles. The test specimens were prepared using 13 mm polished steel rebar and 13 mm cold finished carbon and alloy steel bars; supplement rebars were 10mm deformed steel bars and 10 mm steel bars for concrete reinforcement. They were placed with 2 cm and 3 cm cover thickness.

As shown at right, the visual observation of test slabs shows significant reduction of cracking in MCI®-2020 tested slabs as compared to control slabs. MCI®-2020 reduced the corrosion rate by 80% compared to the control over the four and a half year test period.



UNTREATED



TREATED *with MCI®*

Testing the Effectiveness of Migrating Corrosion Inhibitor MCI®-2020 on the Corrosion of Reinforcing Steel

Prof. Dr. Dubravka Bjegovic, Zagreb University, Croatia

ASTM: G109 testing was performed on control and MCI®-2020 treated concrete specimens. After one year of testing, MCI®-2020 treated samples had four times less total corrosion than the control specimens.

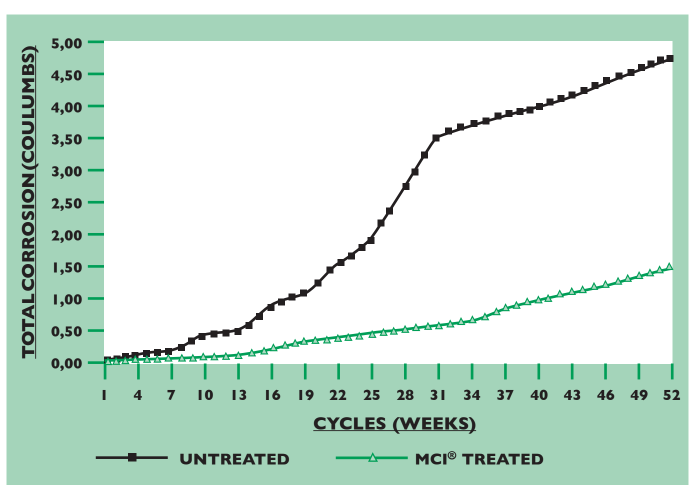


FIG. 5 *Zagreb University, Croatia*

MCI® Surface Applied Products

Migrating, Corrosion-Inhibiting Coating Technology that Extends the Service Life of Concrete

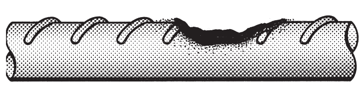
Corrosion in Concrete

It is estimated that corrosion costs the United States of America over $250 billion annually. That's about 4.2% of our Gross Domestic Product (GDP). A significant part of the cost is the result of corrosion-damaged concrete. As reinforcing steel in concrete corrodes, expansive forces cause the concrete to crack, then spall. This effect is seen every day on our nation's buildings, bridges, highways and other concrete structures.

How Rebar Corrosion Occurs:

THROUGH CHLORIDE ATTACK: Exposure to chlorides – most often in the form of de-icing salts or in salt water environments – can cause rapid and severe corrosion of rebar in concrete. Chloride ions destroy the natural protective effects of concrete on reinforcing steel, leading to rust formation.

THROUGH CARBONATION: Carbon dioxide in the air reacts with free lime present in the concrete and over a period of time reduces the pH of the concrete. Though generally a slower process than chloride attack, it nevertheless reduces the natural protection of the rebar and again results in corrosion.



Cathode Process:

$O_2 + 2H_2O + 4 e^{-} \rightarrow 4OH^{-}$

Anode Process:

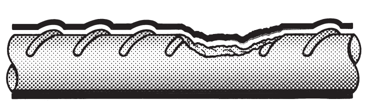
$Fe \rightarrow Fe^{++} + 2e^{-}$

The Electrochemical Corrosion Process

Once corrosion is initiated by chloride attack and/or carbonation, an electrochemical corrosion cell is created. Rust formation occurs at the anode as the steel reinforcing bar is ultimately converted to iron oxides. Since the volume of this rust is several times greater than the steel it replaces, expansive forces build up within the concrete, resulting in cracking and spalling.

How MCI® Surface Applied Products Work

Migration through hardened concrete occurs by liquid and vapor diffusion.



When MCI® reaches reinforcing steel, it forms a molecular, protective layer in both the anodic and cathodic areas. This effectively reduces the corrosion activity.

An Innovation For Fighting Corrosion In Hardened Concrete

MCI®-2020 is a revolutionary new impregnation coating designed to reduce corrosion in all types of concrete structures. When sprayed, brushed or rolled on concrete, this water-based, organic compound migrates through the hardened pore structure via diffusion. Upon contact with reinforcing steel, MCI®-2020 forms a monomolecular protective layer which reduces corrosion dramatically.

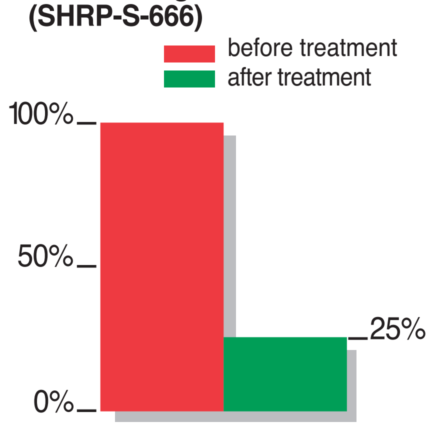
For Concrete Protection

After isolated repairs have been made, apply MCI® 2020 over the entire area. As the MCI®-2020 migrates, it protects the reinforcing steel and helps prevent additional cracking and spalling in the future.

For Concrete Overlays and Deep Repairs

After damaged concrete is removed, apply MCI®-2020 over the entire substrate prior to placing the overlay. Use MCI® corrosion-inhibiting admixture in the new overlay for added protection.

Actual Bridge Deck Evaluations (SHRP-S-666)

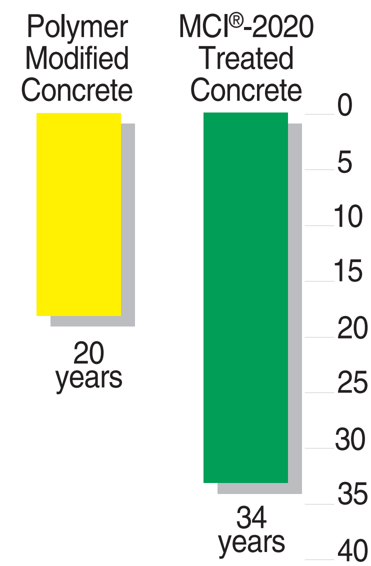


MCI®-2020 reduced corrosion currents 75%

Proven Effective by SHRP

MCI®-2020 was proven effective in both lab and field analysis as part of the Strategic Highway Research Program (SHRP). SHRP, a unit of the U.S. National Research Council, found MCI®-2020 to be one of the most promising new technologies available for concrete rehabilitation.

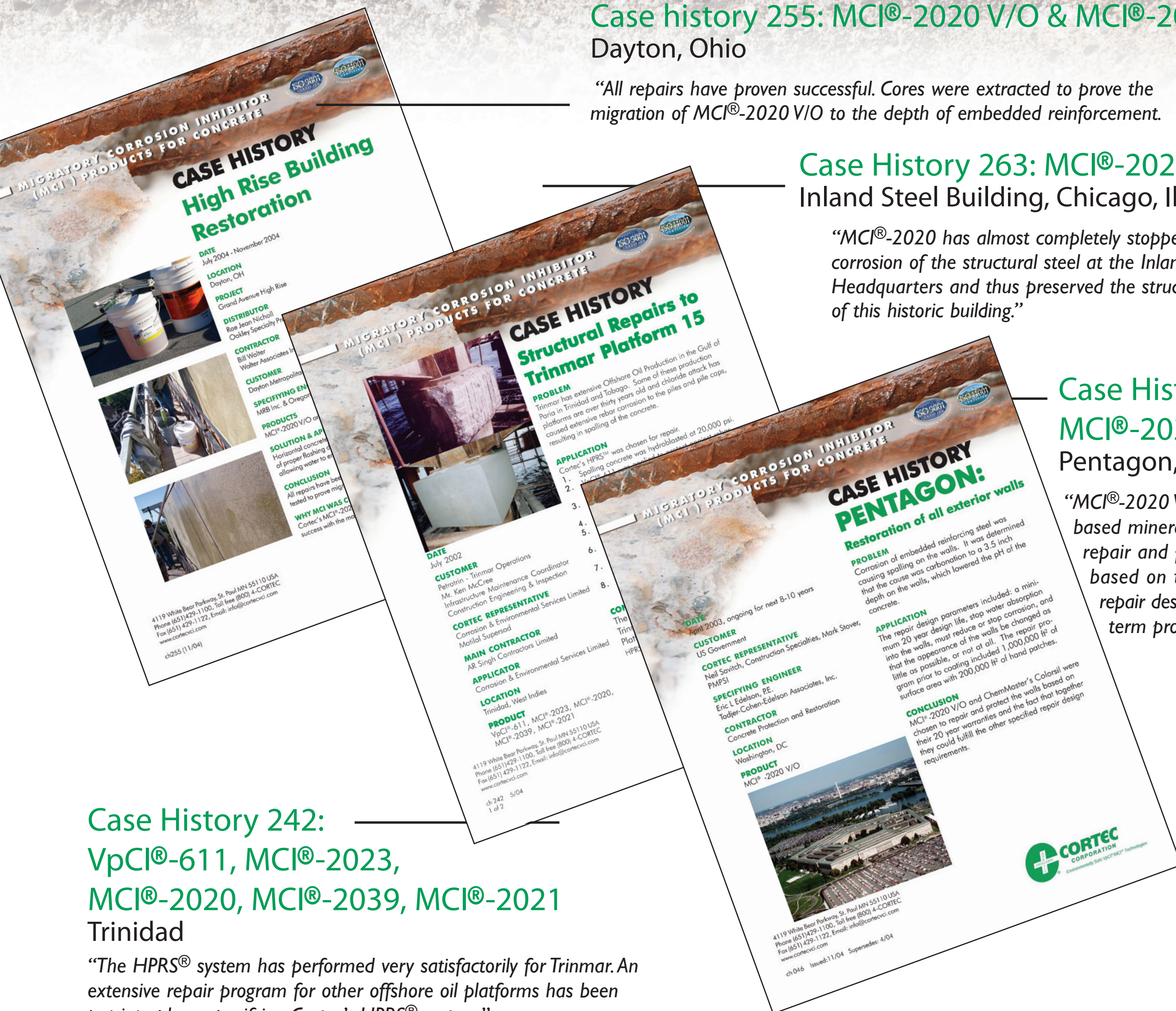
Predicted Service Life of Bridge Deck Overlays



Additional Tests Have Concluded

- **MCI®-2020 can migrate and reach reinforcing steel.**
- **Migration readily takes place, even in dense, high-strength concrete.**
- **Performance of MCI®-2020 is not dependent on chloride levels in the concrete.**
- **MCI®-2020 is effective even in concrete with high chloride content and active corrosion.**

DETECTING MCI® IN HARDENED CONCRETE



Case history 255: MCI®-2020 V/O & MCI®-2005 Gel
Dayton, Ohio

"All repairs have proven successful. Cores were extracted to prove the migration of MCI®-2020 V/O to the depth of embedded reinforcement.

Case History 263: MCI®-2020
Inland Steel Building, Chicago, Illinois

"MCI®-2020 has almost completely stopped further corrosion of the structural steel at the Inland Steel Headquarters and thus preserved the structural integrity of this historic building."

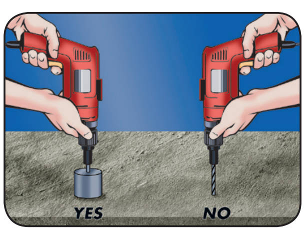
Case History 46: MCI®-2020 V/O
Pentagon, Washington, DC

"MCI®-2020 V/O together with a silicate based mineral coating were chosen to repair and protect the exterior walls based on their abilities to meet the repair design requirements and long term product warranties."

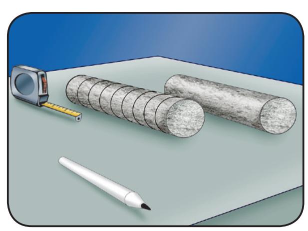
Case History 242: VpCI®-611, MCI®-2023, MCI®-2020, MCI®-2039, MCI®-2021
Trinidad

"The HPRS® system has performed very satisfactorily for Trinmar. An extensive repair program for other offshore oil platforms has been put into place, specifying Cortec's HPRS® system."

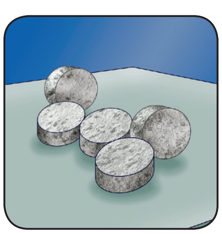
DETECTING MCI®-2020 IN HARDENED CONCRETE



1 Sometime after the MCI®-2020 material has been applied (3 months, 6 months, 1 year, etc) and believed to have reached the desired depth of penetration, take core samples of the treated concrete. A control sample taken from untreated concrete can also be taken for comparison purposes. Core samples are preferred over drilling because there is a very high probability of contamination when drilling.



2 Measure the cores into 1 inch (~25 mm) sections. Cut the cores along these measurements and label the individual core pieces accordingly.



3 Grind or pound the individual core sections into small rubble (removing by hand any large chunks of aggregate or non-cementitious material). It is of the utmost importance that no cross contamination be allowed between samples.

4 Pulverize the samples into powder with a ceramic mortar and pestle. It is recommended that the powder is then passed through a coarse mesh funnel to remove any larger bodies which can hinder extraction.

5 Place each powdered sample into a separate, clean, dry beaker or jar (preferably of 50 mL size). Record the mass of the powder sample and add the same amount of deionized (or distilled) water to the sample. This will yield a 1:1 slurry dilution (by weight).

MCI® Projects

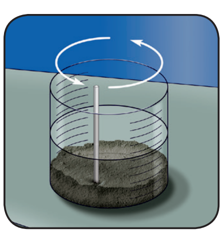
PROJECTS	LOCATION	PRODUCTS
Pilings for new condominium development	Venezuela	MCI®-2002
Wastewater Passway Renovations	Inchon, Korea	MCI®-2000
Bullet Train New Concrete Construction	Korea	MCI®-2000
Charleswood Bridge - New Construction	Winnipeg, Canada	MCI®-2000, MCI®-2020
MN-DOT Randolph & I-35 Bridge Deck Overlay	St. Paul, MN.	MCI®-2000
ND-DOT Bridge	ND	MCI®-2000
WA-DOT Hood Canal Bridge	WA	MCI®-2000, MCI®-2020
MN-DOT Pier Caps	Duluth, MN	MC®-2000
Turcot Irrigation Water Treatment Plant	CA	MC®-2000
MN-DOT Earl St. & I-94 Bridge Deck	St. Paul, MN.	MCI®-2000
Jamb Architects-Private Bldg.	St. Paul, MN.	MCI®-2000
IN-DOT Bridge	Indianapolis, IN	MCI®-2000
Chemical Mfg. Plant Foundation Floors & Foundation	St. Paul, MN.	MCI®-2000
Wastewater Treatment Plant	Irrigation District, CA	MCI®-2000
Parking Garage Renovation	Houston, TX.	MCI®-2000
IN-DOT Vanderburgh County Bridge	Vanderburgh, IN	MCI®-2000
Manitoba HWY. Dept. HWY. 1 & Portage Ave. Bridge	Manitoba, Canada	MCI®-2000
Alberta Hwy. Dept. Lloydminister Bridge	Alberta, Canada	MCI®-2000
Parking Garage - New Construction	St. Louis, MO	MCI®-2000
Hospital Parking Garage Renovations	St. Louis, MO	MCI®-2000
Hotel Balcony Deck Repair	Honolulu, HI	MCI®-2000
Paper Mill Renovations	Thunder Bay, Canada	MCI®-2000, MCI®-2020
Manitoba HWY. Dept. - Bridge New Curbs & Sidewalks	Thunder Bay, Canada	MCI®-2000
Alexandria Government Renovations	United Arab Emirates	MCI®-2000, MCI®-2020
El-Moassa Society Renovations	United Arab Emirates	MCI®-2000, MC®-2020, MCI®-2003
3M Garage Repair	St. Paul, MN.	MCI®-2000
City of St. Paul - Grand Ave. & AYD Mill Rd. Bridge	St. Paul, MN.	MCI®-2000, MCI®-2020
Water Canal Renovations	Jamaica	MCI®-2000
Ponte Po Bridge & Viaduct Renovations	Ponte Po, Italy	MCI®-2000, MCI®-2020, MCI®-2023, MCI®-2038, MCI®-2039
Melide Viaduct Renovations	Melide, Switzerland	MCI®-2000
General Motors Parking Garage Renovations	Detroit, MI	MCI®-2000
MN-DOT Bridge Deck	Golden Valley, MN.	MCI®-2000
Marina Renovations	Blaine, WA	MCI®-2000
Xuzhou Railroad Bridge	China	MCI®-2000 & MCI®-2020, MCI®-2021

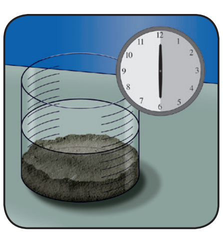
PROJECTS	LOCATION	PRODUCTS
Petroleum Tan Foundations	Canton, OH	MCI®-2000
MN-DOT Bridge Deck	Golden Valley, MN.	MCI®-2000
Shenyang Railroad Bridge	China	MCI®-2020, MCI®-2021
Beijing Railroad Bridge	China	MCI®-2020, MCI®-2021
Inland Steel Building	Chicago, Il	MCI®-2020
MN-DOT I-694 & US HWY. 61 Bridge	Maplewood, MN.	MCI®-2020
ME-DOT Rockport Bridge	Rockport, ME.	MCI®-2020
MN-DOT I-94 Bridge	Moorhead, MN.	MCI®-2020
Plaza Deck Over Parking Garage	St. Paul, MN.	MCI®-2020
MN-DOT I-535 & I-35 Bridge	Duluth, MN	MCI®-2020
Telephone Structure	St. Paul, MN	MCI®-2020
Alberta HWY. Dept. Bridges	Alberta, Canada	MCI®-2020
Parking Structure	Houston, TX.	MCI®-2020
Water Intake Structures	Saudi Arabia	MCI®-2020
Precast Manholes	Saudi Arabia	MCI®-2020
Hotel Balcony Repair	Honolulu, HI	MCI®-2020, MCI®-2023
Municipal Utilities Light Standards	Ontario, Canada	MCI®-2020
Lighting Standards Renovation	Ontario, Canada	MCI®-2020
Alexandria University	United Arab Emirates	MCI®-2020, MCI®-2003
Bulk Material Shipping Train Shed Renovation	Thunder Bay, Canada	MCI®-2020
Concrete Wall Renovation	Sezana, Slovenja	MCI®-2023, MCI®-2038, MCI®-2039
Cooling Tower Renovations	Beruhazasi Foosztaly, Hungary	MCI®-2020, MCI®-2023, MCI®-2038, MCI®-2039
Via Motta Building Renovations	Lugano, Switzerland	MCI®-2020, MCI®-2038
MN-DOT Bridge-Preventive Maintenance	MN	MCI®-2020
Chemical Plant's Precast Walls - Preventative Maintenance	St. Paul, MN.	MCI®-2020
Condo Balconies Preventative Maintenance	Naples, FL	MCI®-2020
Macomb County Courthouse	Macomb County, MI	MCI®-2020
Federal Mogul Building Façade	Detroit, MI	MCI®-2020
Carlyle Tower Parking Deck	Detroit, MI	MCI®-2020
Monica Federal Building Façade	Lugano, Switzerland	MCI®-2020, MCI®-2023
Pusan Subway Structures & Walls	Pusan, Korea	MCI®-2020
Bulk Material Shipping Train Shed Renovation	Thunder Bay, Canada	MCI®-2020

Visit our website for more information on case histories and test reports.

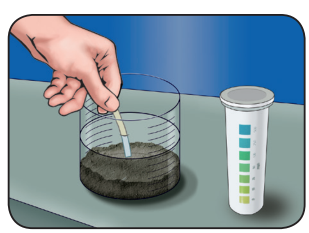
www.CortecMCI.com

- **MCI®-2020 can be detected in concrete using a QAC (Quaternary Ammonium Compounds) test kit, in conjunction with alkalinity testing.**
- **Cortec uses EM Quant QAC test sticks, catalog number: 17920-1.**





6 Cover the containers and allow the slurry dilution to soak, stirring continuously, for at least 30 minutes. Note: Longer extraction with stirring will increase the chances of positive results. A magnetic stir plate and stir bar is recommended. Heat may aid the extraction but must not exceed 80 degrees F (~26 degrees C).



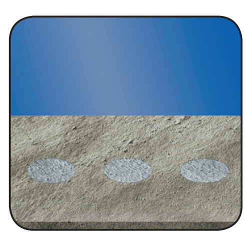
7 Use the manufacturer's instructions for the EM Quant QAC test sticks to analyze each slurry solution/extraction.

8 When testing the slurry for QAC, maintain stirring and immerse the test stick for 2 seconds.

9 Allow the test stick to develop for 60 seconds, and compare the reaction zone on the test stick with the color range on the EM Quant QAC test stick container.

10 Record the data, including: depth of core section, QAC presence (Y/N), concentration and/or concentration range (according to color comparison chart). This information can then be used to show how far the MCI® inhibitors have migrated and how long the migration took.

11 NOTE: If there is no separation between the control (no MCI®) and the experimental core sections (with MCI®), then there is likely QAC interference. If this is the case, the 1:1 slurry extract mixture should be diluted serially until a proper separation is found, indicating MCI® presence. Consult a Cortec® representative for further details if necessary.



12 Dispose of materials and fill in core holes.

	Product	Description	Protection	Packaging	Applications
Surface Applied Inhibitors	MCI®-2020	Clear MCI® surface treatment for existing structures. Designed to penetrate and migrate throughout substrate seeking out embedded metals.	150 ft^2/gal (3.68 m^2/l) Medium term protection.	5 gallon (19 liter) pails, 55 gallon (208 liter) drums	Spray, brush or roller apply. Provides MCI® protection to embedded metals. Has UL approval to meet NSF Standard 61 Certification for indirect contact with potable water. Applications include bridges, buildings, parking garages, decks and lanais.
	MCI®-2020 V/O	MCI®-2020 for veritcal and overhead applications.	150 ft^2/gal (3.68 m^2/l) Medium term protection.	5 gallon (19 liter) pails, 55 gallon (208 liter) drums	Spray, brush or roller apply. Provides MCI® protection to embedded metals. Has UL approval to meet NSF Standard 61 Certification for indirect contact with potable water. Applications include bridges, buildings, parking garages, decks and lanais.
	MCI®-2020 Powder	Powder version of MCI®-2020, one 100 lb (45.35 kg) drum makes 55 gallons (208 liters) of MCI®-2020 ready to use liquid.	150 ft^2/gal (3.68 m^2/l) Medium term protection.	100 lb (45.35 kg) drums.	Powdered MCI®-2020 to be diluted with water to make ready to use product. Spray, brush or roller apply. Has UL approval to meet NSF Standard 61 Certification for indirect contact with potable water. Applications include bridges, buildings, parking garages, decks and lanais.
	MCI®-2020 V/O Powder	Powder version of MCI®-2020 V/O, one 100 lb (45.35 kg) drum makes 55 gallons (208 liters) of MCI®-2020 V/O ready to use liquid.	150 ft^2/gal (3.68 m^2/l) Medium term protection.	100 lb (45.35 kg) drums.	Powdered MCI®-2020 V/O to be diluted with water to make ready to use product. Spray, brush or roller apply. Has UL approval to meet NSF Standard 61 Certification for indirect contact with potable water. Applications include bridges, buildings, parking garages, decks and lanais.
	MCI®-2020 M	Concentrated version of MCI®-2020 that provides even better corrosion protection. One 55 gallon drum of MCI®-2020 M makes two 55 gallon drums of ready to use product.	150 ft^2/gal (3.68 m^2/l) Medium term protection.	55 gallon (208 liter) drums.	After 1:1 dilution with water, spray, brush or roller apply. Has UL approval to meet NSF Standard 61 Certification for indirect contact with potable water. Applications include bridges, buildings, parking garages, decks and lanais.
	MCI®-2020 M Ready to Use	New version of MCI®-2020 that provides even better corrosion protection.	150 ft^2/gal (3.68 m^2/l) Medium term protection.	5 gallon (19 liter) pails, 55 gallon (208 liter) drums	Ready to Use product. Spray, brush or roller apply. Has UL approval to meet NSF Standard 61 Certification for indirect contact with potable water. Applications include bridges, buildings, parking garages, decks and lanais.
	MCI®-2020 M V/O	Newer version of MCI®-2020 V/O with even better corrosion protection. Ready to use formulation.	150 ft^2/gal (3.68 m^2/l) Medium term protection.	5 gallon (19 liter) pails, 55 gallon (208 liter) drums	Ready to use formulation. Spray, brush or roller apply. Has UL approval to meet NSF Standard 61 Certification for indirect contact with potable water. Applications include bridges, buildings, parking garages, decks and lanais.
Sealers with MCI Inhibitors	MCI®-2019	40% Silane sealer containing MCI® inhibitor.	125 ft^2/gal (3 m2/liter) Medium term protection.	5 gallon (19 liter) pails, 55 gallon (208 liter) drums	Low VOC, solvent based silane sealer. Spray, brush or roller apply. Applications include bridges, buildings, parking garages, decks and lanais.
	MCI®-2021	Silicate sealer containing MCI® inhibitor. Patented.	150-250 ft^2/gal (3.7-6.1 m^2/l) Medium term protection.	5 gallon (19 liter) pails, 55 gallon (208 liter) drums	Spray, brush or roller apply. Preserves and protects concrete. Applications include bridges, buildings, parking garages, decks and lanais.
	MCI®-2022	Silane/siloxane blend sealer containing MCI® inhibitor. Patented.	125-175 ft^2/gal (3-4.2 m^2/liter) Medium term protection.	5 gallon (19 liter) pails, 55 gallon (208 liter) drums	Spray, brush or roller apply. Applications include bridges, buildings, parking garages, decks and lanais.
	MCI®-2022 V/O	Vertical and Overhead version of MCI®-2022. Patented	125-175 ft^2/gal (3-4.2 m^2/liter) Medium term protection.	5 gallon (19 liter) pails, 55 gallon (208 liter) drums	Spray, brush or roller apply. Applications include bridges, buildings, parking garages, decks and lanais.
Coatings/Specialty Products	MCI®-2005 Gel	MCI®-2005 in gel format fo injection into existing structures.	1.0 pt/yd^3 Medium term protection.	24 oz (680 g) caulking tubes, 5 gal (19 l) pails, 55 gal (208 l) drums.	Inject into pre-drilled holes to provide easy and renewable MCI® corrosion protection on existing structures.
	MCI®-2026 Primer	Two-component, chemically resistant, water-based primer for concrete.	250-350 ft^2/gal (6.1-8.5 m^2/l) Medium term protection.	0.75 gal (2.3 l), 6 gal (22.7 l), 15 gal (56.8 l), 165 gal (624.6 l) yield kits.	Recommended primer for the MCI®-2026 Floor Coating. Designed for use on concrete surfaces. Meets USDA guidelines for use in meat and poultry plants. Can be colored using MCI® HPCS Colorants.
	MCI®-2026 Floor Coating	Two-component, chemically resistant, 100% solids Novolac epoxy for concrete.	125-150 ft^2/gal (3.0-3.7 m^2/l) Medium term protection.	0.6 gal (2.27 l), 5 gal (19 l), 12.5 gal (47.3 l), 138 gal (522.4 l) yield kits.	Recommended topcoat for MCI®-2026 primer. Excellent chemical and abraison resistance, odorless and meets USDA guidelines for use in meat and poultry plants. Can be colored using MCI®-2026 HPCS Colorants.
	MCI® Anti Graffiti Coating	Two-component, solvent based aliphatic urethane for concrete to provide easy removal of graffiti.	516 ft^2/gal (13 m^2/l) at 2 mils (50 microns) DFT. 3-10 years depending on severity of conditions.	10 gallon yield kits.	Designed for use on concrete surfaces as well as steel or on top of other solvent based coatings. Remove graffiti from coating using most solvents or Cortec® VpCI®-432 or VpCI®-433.
	MCI® Architectural Coating	Water based, acrylic primer/top coat.	535-641 ft^2/gal (13-16 m^2/l) Medium term protection.	5 gallon (19 liter) pails, 55 gallon (208 liter) drums	Aesthetically pleasing coating for concrete that provides resistance to water ingress and carbonation. UV resistant when cured.
	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) 6-24 month protection in outdoor, exposed environments	5 gallon (19 liter) pails, 55 gallon (208 liter) drums	Remove oils and grease residue from surfaces. Will not damage painted or sealed surfaces.
	MCI® Coating for Rebar NT	Non-tacky version of MCI® Coating for Rebar.	300 ft^2/gal (7.3 m^2/l) 6-24 month protection in outdoor, exposed environments	5 gallon (19 liter) pails, 55 gallon (208 liter) drums	Remove oils and grease residue from surfaces. Will not damage painted or sealed surfaces.

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