

# MIGRATORY CORROSION INHIBITOR (MCI®) PRODUCTS FOR CONCRETE



## MCI®-2021 Patented



### PRODUCT DESCRIPTION

MCI® -2021 is a concrete sealer that combines a blend of reactive silicates, surface-active agents and Cortec's time-proven Migratory Corrosion Inhibitors (MCI®). MCI® -2021 preserves and protects concrete by working with the chemistry of concrete. The reactive silicates penetrate the concrete up to 1½ inches (3.75 cm) and react with calcium. The reaction products build additional insoluble silicate structures within the concrete. The newly built structure increases the density of the concrete, seals surface pores and creates a water repellent surface. The protection barrier that MCI® -2021 forms prevents the intrusion of chloride and carbonation.

The concrete's ability to breathe is not affected. MCI®-2021's unique feature is its Migratory Corrosion Inhibitors. The MCI®s migrate through concrete structures to form a thin molecular protective layer on embedded steel reinforcements. MCI® -2021 also protects a multitude of other metals, including carbon steel, galvanized steel and aluminum. MCI® -2021 will inhibit the further corrosion of reinforcing metals and extend the service life of the structure.

### WHERE TO USE

MCI®-2021 is recommended for:

- All reinforced, precast, prestressed, post-tensioned or marine concrete structures
- Steel-reinforced concrete bridges, highways and streets exposed to corrosive environments (carbonation, deicing salts and atmospheric attack)
- Parking decks, ramps and garages
- Preventive maintenance of all reinforced concrete commercial and civil engineered structures

- All reinforced marine concrete structures
- Concrete piers, piles, pillars, pipes and utility poles
- Restoration and repair of all reinforced concrete commercial and civil engineered structures
- Plant floors subject to chemical and/or acid attack

### ADVANTAGES

MCI® -2021 offers engineers, owners, contractors, DOTs and government agencies a time proven corrosion inhibiting technology that will extend the life of all reinforced concrete structures.

- Protects against the harmful effects of corrosion by migrating into even the densest concrete
- Migratory inhibitor reduces further corrosion of the most rusted metals
- Easily applied by spray, roller, squeegee or paint brush to any concrete surface, reducing the high cost of labor and equipment
- Non-toxic, contains no nitrites, phosphates or solvents
- Water-based and non-flammable for easy handling
- Penetrates deep into concrete for anode and cathode protection
- Organic, safe and environmentally friendly
- Enhances the durability of reinforced concrete and increases surface abrasion resistance
- Blocks carbonation and chloride ion intrusion
- Allows concrete to breathe and vapor to diffuse, is not a vapor barrier
- Helps protect against acid and chemical attack
- Not a vapor barrier
- Proven to migrate to adjacent areas to protect surrounding metals

### COVERAGE

Application rates will vary, depending upon surface porosity and number of applications. The total overall dosage rate, i.e. all coats combined, should be within 150-250 ft<sup>2</sup>/gal (3.7-6.1 m<sup>2</sup>/l)\*. Example: if two coats are utilized, then the dosage rate per coat should be between 300-500 ft<sup>2</sup>/gal (7.4-12.2 m<sup>2</sup>/l).



## PHYSICAL PROPERTIES

Appearance	Slightly hazy off-white liquid
pH	11-12 (Neat)
Density	9.0-9.1 lb/gal (1.08-1.09 kg/l)
Total Alkalinity	65000-68000 mg/L (Neat)

## TECHNICAL DATA FROM LABORATORY TEST

Test Results (AASHTO T-259, "Resistance of Concrete to Chloride Ion Penetration")

Amount of penetrated Chloride ions at the depth 0.5-1.0"	Untreated concrete	Criteria level	MCI-2021
Lb/cu yd concrete (kg/m <sup>3</sup> )	1.75 (2.94)	1.2 (2.02)	0.08 (0.13)
% by weight	0.0437	0.03	0.002
Parts/million	437	300	20

## SURFACE PREPARATION

Surface should be dry, sound, clean and free of all dirt, oil, grease efflorescence, sealers, coatings, membranes and asphalt. Cleaning may be done by steam cleaning, water-blasting or sandblasting.

## APPLICATION

Apply MCI®-2021 by spray (conventional airless or hand-pressure spray equipment) to any concrete surface. Apply MCI®-2021 until surface starts to get saturated. A minimum of two coats is required. Apply the second coat and

any additional coats immediately after the previous coat is dry to the touch (normal drying time is 10-30 minutes, depending on temperature). Apply only as much sealer as the surface will readily absorb\*. After the final coat is applied, wet the entire treated areas with a light water spray to assist in penetration and/or removal of any residual MCI®-2021 and purged chlorides.

## LIMITATIONS

The substrate and ambient temperature should be above freezing and below 100°F (38°C). Do not apply if the temperature is expected to fall below freezing within 12 hours. MCI®-2021 will not penetrate film-forming sealers, coatings, paints, membranes or asphalt. For new concrete, apply MCI®-2021 after the concrete has cured to a minimum of 14 days. For optimum results, allow concrete to cure 28 days or longer. Protect all windows, doorways, lights, etc.

\* Overdosing MCI-2021 can cause the appearance of whitish silicate crystal formation on the surface of the substrate.

## PACKAGING AND STORAGE

MCI®-2021 is available in 5 gallon (19 liter) pails and 55 gallon (208 liter) drums, liquid totes and bulk.

The shelf life of the product is 24 months in a sealed container.

## FOR INDUSTRIAL USE ONLY

**KEEP OUT OF REACH OF CHILDREN**

**KEEP CONTAINER TIGHTLY CLOSED**

**NOT FOR INTERNAL CONSUMPTION**

**CONSULT MATERIAL SAFETY DATA SHEET FOR MORE INFORMATION**

## LIMITED WARRANTY

All statements, technical information and recommendations contained herein are based on tests Cortec Corporation believes to be reliable, but the accuracy or completeness thereof is not guaranteed.

Cortec Corporation warrants Cortec® products will be free from defects when shipped to customer. Cortec Corporation's obligation under this warranty shall be limited to replacement of product that proves to be defective. To obtain replacement product under this warranty, the customer must notify Cortec Corporation of the claimed defect within six months after shipment of product to customer. All freight charges for replacement products shall be paid by customer.

Cortec Corporation shall have no liability for any injury, loss or damage arising out of the use of or the inability to use the products.

**BEFORE USING, USER SHALL DETERMINE THE SUITABILITY OF THE PRODUCT FOR ITS INTENDED USE, AND USER ASSUMES ALL RISK AND LIABILITY WHATSOEVER IN CONNECTION THEREWITH.** No representation or recommendation not contained herein shall have any force or effect unless in a written document signed by an officer of Cortec Corporation.

**THE FOREGOING WARRANTY IS EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES, EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION ANY IMPLIED WARRANTY OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE. IN NO CASE SHALL CORTEC CORPORATION BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES.**



4119 White Bear Parkway, St. Paul, MN 55110 USA  
Phone (651) 429-1100, Fax (651) 429-1122  
Toll Free (800) 4-CORTEC, E-mail info@cortecvci.com  
Internet <http://www.CortecVpCI.com>

printed on recycled paper  10% post consumer

Revised 1/10/06. Cortec Corporation 1999-2006. All rights reserved. Supersedes: 7/27/04.  
MCI® is a trademark of Cortec Corporation.

© 1999-2006, Cortec Corporation. All Rights Reserved. Copying of these materials in any form without the written authorization of Cortec Corporation is strictly prohibited.

Distributed by:

Certified ISO 9001 / ISO 14001 by

