

# 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 MCIs 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 to touch, 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.

As a standard procedure, fresh concrete should be allowed to cure for 28 days before application. In addition, any repair work should be performed at least three days before application. Protect all windows, doorways, lights, etc.

## 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**

## 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.

If a coating will be used over MCI-2021, a 14 day period is recommended before coating. A compatibility test should also be performed.

## PRECAUTIONS

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.

\* 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, 55 gallon (208 liter) drums, liquid totes, and bulk.

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

## LIMITED WARRANTY

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