

MIGRATORY CORROSION INHIBITOR (MCI®) PRODUCTS FOR CONCRETE



MCI®-2019 Sealer, Patented MCI®-2019 AG Sealer, Patented

PRODUCT DESCRIPTION

MCI-2019 is a 40% silane solvent-based concrete sealer containing time-proven Migrating Corrosion Inhibitors (MCI®). MCI-2019 is a small molecule product, which allows deep penetration into concrete and provides water repellency by chemically reacting with the cementitious substrate under proper application. Treated substrates are hydrophobic and retain their original appearance. MCI-2019 seals surface pores, which prevents intrusion of chloride and carbonation and protects from the ingress of wind-driven rain. Treated concrete surfaces are fully breathable and their natural moisture-vapor transmission is not affected.

MCI-2019's unique feature is its Migratory Corrosion Inhibitor action that allows this product to migrate through even the densest concrete structures. It seeks out embedded reinforcement to form a protective monomolecular corrosion inhibiting layer on the steel. MCI-2019 will extend the service life of structures.

An alkaline environment, such as new concrete, will catalyze the reaction and speed the formation of MCI-2019's hydrophobic surface. 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.

MCI-2019 AG is a special version of MCI-2019 containing a green fugitive dye, which fades with time, to confirm application.

APPLICATION

Application can be performed using airless sprayer, roller, or brush. When a brush or roller is used, repeated applications should be made until the surface remains moist for a few minutes. If an airless is used, application should continue until the substrate is thoroughly saturated. Sprayers should be fitted with solvent resistant hoses and gaskets.

Surfaces should be free of standing water, surface dirt, dust, oils, grease, curing compounds, efflorescence, laitance, and other contaminants. MCI-2019 may be applied to damp surfaces, although dry surfaces are preferred to achieve maximum penetration into the substrate.

If a coating will be used over MCI-2019, a 7 day period is recommended before coating. A compatibility test should also be performed.

For best results, two applications are recommended, with the second application applied using a wet on wet technique, i.e., the surface is wet from the first application, but not glossy. During application, precautions should be taken to protect the surrounding area from overspray and run-off.

ADVANTAGES

- MCI-2019 offers engineers, owners, contractors, DOTs, and government agencies a time proven corrosion inhibiting technology that will extend the life of all reinforced concrete structures such as commercial buildings, parking decks, garages, and highways and bridge structures
- Protects against the harmful effects of corrosion by migrating into even the densest concrete
- Migratory inhibitor reduces further corrosion
- Easily applied to concrete by spray, roller, or squeegee reducing the high cost of labor and equipment
- Non-toxic, contains no nitrites, phosphates, or chromates
- MCI-2019 silane sealer molecules are very small, allowing penetration into the smallest concrete pores
- Enhances the durability of reinforced concrete and increases surface abrasion resistance
- Blocks carbonation and chloride ion intrusion a vapor barrier
- Helps protect against acid and chemical attack
- No blushing, peeling or yellowing
- Resistant to alkali attack

COVERAGE RATE

Application rates will vary depending on surface porosity and number of applications. Approximate coverage rate is 125-175 ft²/gal. (3-4.3 m²/l). Before applying, it is recommended that preliminary tests be carried out to determine dosing.

LIMITATIONS

MCI-2019 should not be used on structures under hydrostatic pressure. Do not apply when temperature is at or below 5°C (40°F) or on extremely windy days when evaporation of the solvent would be too rapid. MCI-2019 will not penetrate film-forming sealers, coatings, paints, membranes, or asphalt.



TYPICAL PROPERTIES

| | |
|------------------------|---------------------------------|
| MCI-2019 Appearance | Clear yellow liquid |
| MCI-2019 AG Appearance | Green liquid |
| pH | 9.0-10.0 (neat) |
| Density | 6.9-7.1 lb/gal (0.83-0.85 kg/l) |
| Solvent | Isopropanol |

TECHNICAL DATA FROM LABORATORY TESTS

Modified NCHRP 244 Series II testing on concrete (2-inch cubes, 21 day immersion in 15% NaCl, 5,000 psi concrete) showed a 74% reduction in weight gain with an average penetration of $\frac{1}{4}$ inches.

NCHRP - Series II

Weight Gain During Saltwater Soak

Low weight gains with the lowest absorption exhibited after 5 days of air curing (>80 percent water exclusion).

Water Vapor Transmission

Water vapor transmission of coated samples is excellent. MCI-2019 did not significantly alter water vapor transmission characteristics when coated samples were compared to uncoated samples.

Chloride Ion Intrusion Characteristics

The coated samples showed a significant decrease in chloride ion penetration (>90 percent chloride exclusion). Chloride exclusion results correlate with water exclusion results.

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

NCHRP - Series IV

Accelerated Weathering Tests

24 weeks of accelerated weathering testing included salt water exposure, ultraviolet light exposure, and wetting and drying cycles. The test results show that a single coat at 125 ft²/gal (10 m²/l) reduced the average chloride ion intrusion into the concrete by 99% when compared to uncoated control specimens. The performance exceeds the 90% limit suggested in the NCHRP report No. 244.

ASTM: C672

Standard Test Method for Scaling Resistance of Concrete Surfaces Exposed to Deicing Chemicals

Test results indicate little or no change after 100 cycles of deicer freezing and thawing using air entrained concrete specimens.

Oklahoma DOT Test Procedure OHDL-34 and OHDL-35

Depth of Sealer Penetration

Average depth of sealer penetration was 0.344 inches.

Moisture Vapor Permeability

Moisture vapor permeability of concrete specimens is not affected by the application of MCI-2019.

ASTM: E303

Measuring Surface Frictional Properties Using the British Pendulum Tester

There was no significant friction change when tested before and after sealing with MCI-2019.

PACKAGING AND STORAGE

MCI-2019 should be kept away from heat and open flame. When stored in original, airtight containers at or below 25°C (77°F), MCI-2019 has a shelf life of 12 months from the date of shipment. Stir thoroughly before use.

MCI-2019 is available in 5 gallon (19 liter) pails and 55 gallon (208 liter) drums.

LIMITED WARRANTY

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