



MIGRATING CORROSION INHIBITORS
FROM GREY TO GREEN

03 30 00	Cast in Place Concrete
03 35 10	Concrete Floor Finishes
03 36 60	Concrete Densifier/Sealer/Hardener

MCI®-2021/MCI®-2021 V/O

DESCRIPTION

MCI®-2021 is a concrete sealer that combines a blend of reactive silicates and Cortec's time-proven Migrating Corrosion Inhibitors (MCI®). By operating similar to a densifier, MCI®-2021 preserves and protects concrete by working with the chemistry of concrete. MCI®-2021 reduces permeability and strengthens concrete surfaces while retaining breathability. Concurrent to this strengthening, MCIs migrate through the concrete to form a protective layer on embedded steel reinforcement.

MCI®-2021 V/O is a high viscosity version of MCI®-2021 that is specifically designed for vertical and overhead applications.

PACKAGING & STORAGE

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

To ensure best product performance, store in original packaging, indoors, and out of direct sunlight at 40-100 °F (4-38 °C). Do not freeze.

Shelf life: 1 year



HOW IT WORKS

The silicates react with calcium hydroxide. The reaction products build additional insoluble silicate structures within the concrete, sealing surface pores and creating a water repellent surface which minimizes carbonation and intrusion of chlorides. The penetrating MCIs will migrate to embedded reinforcement, delaying the onset of corrosion as well as reducing existing corrosion rates.

WHERE TO USE

- All reinforced, precast, prestressed, post-tensioned concrete structures exposed to corrosive environments (carbonation, deicing salts, or atmospheric attack)
- Bridges, piers, highways, parking decks, ramps, garages, buildings, and streets
- High traffic areas prone to dusting, abrasion, wear, and staining

ADVANTAGES

- Protects against corrosion and reduces existing corrosion rates
- Enhances the durability of reinforced concrete and increases surface abrasion resistance
- Contains no nitrites, phosphates, or solvents
- Water-based and non-flammable for easy handling
- Reduces carbonation and chloride ion intrusion
- MCI®-2021 is certified under EN 1504-2 (2+ system) for surface protection systems for concrete

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PHYSICAL PROPERTIES

MCI®-2021	
Appearance	Clear to hazy liquid
pH	11.0-12.0 (neat)
Density	9.0-9.1 lb/gal (1.08-1.09 kg/L)
NVC	10-15%
MCI®-2021 V/O	
Appearance	Cloudy-white gel
pH	11.5-12.5 (neat)
Density	9.0-9.3 lb/gal (1.08-1.10 kg/L)
Sag Resistance	No sag at 12 mils (305 µm)

COVERAGE

Application rates will vary, depending upon surface porosity and number of applications. The total overall coverage rate (i.e., all coats combined) should be within 150-250 ft²/gal (3.7-6.1 m²/L). Example: if two coats are utilized, then the coverage rate per coat should be between 300-500 ft²/gal (7.4-12.2 m²/L).

Do not overapply.

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. MCI®-2061 can be used for removal of oil/grease. New 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.

STANDARD TEST RESULTS*

Resistance of Concrete to Chloride Ion Penetration	AASHTO T-259	0.06-0.50" depth	>47% reduction
		0.50-1.00" depth	63% reduction
		1.00-2.00" depth	50% reduction
Drying Test for Hydrophobic Impregnation	UNE-EN 13579	56.1% DRC (Class 1 >30%)	
Water Absorption and Resistance to Alkali for Hydrophobic Impregnation	UNE-EN 13580	6.6% absorption ratio	7.9% absorption after alkali
Depth of Penetration	UNE-EN 13579 UNE-EN 14630	2.9 mm	
Scaling Resistance of Concrete Surfaces Exposed to Deicer Chemicals	ASTM C672	Concrete sealed with MCI®-2021 had very slight scaling after 50 freeze/thaw cycles compared to moderate to severe scaling of the control.	

*Data specific to MCI®-2021. Does not include MCI®-2021 V/O.

APPLICATION

Apply MCI®-2021 by spraying (conventional airless or hand pressure spray equipment), brushing, or rolling onto any concrete surface; apply MCI®-2021 V/O by brushing or rolling. Continue applying until surface becomes 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, wait 10-30 minutes and wet the entire treated area with a light water spray to assist in penetration and/or removal of any residual MCI®-2021 and purged chlorides.

Do not allow to pond at any time.

If a coating will be used over MCI®-2021, a 14-day period is recommended before application. An adhesion test is recommended to verify compatibility.

CONSIDERATIONS

- 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. Do not apply if rain is expected within 8 hours of application. Protect all windows, doorways, lights, etc. from overspray.
- Overdosing MCI®-2021 can cause the appearance of white silicate crystal formations on the surface of the substrate which are only removed by shotblast, grinding, etc.

Contact Cortec® Technical Service for further guidance if necessary.

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