



MIGRATING CORROSION INHIBITORS
FROM GREY TO GREEN

NEWSLETTER

Project: Miami Dade County Court- house - Testing of MCI®-2020 V/O by Wiss, Janney, Elsner Associates and Cortec Corporation

Purpose: To validate migration of MCI®-2020 V/O into the structure and show corrosion rate reduction of embedded reinforcing steel.

Procedure: The test area was mapped using Ground Penetrating Radar (GPR) to determine where rebar was located. Initial corrosion rate readings using a GalvaPulse linear polarization device were taken. Surface preparation was completed and test areas were treated with MCI®-2020 V/O.

After application, the MCI® was given about 6 weeks to migrate into the concrete. Core samples were then taken and laboratory testing using UV Spectroscopy was performed to determine the depth of penetration. Results were positive, confirming migration of MCI® to the depth of the rebar. The next step will be to conduct follow up GalvaPulse testing to gather information on the corrosion rates over time .

The goal of this testing is to prove that MCI®-2020 V/O penetrated to the reinforcing steel and was able to reduce the corrosion rates. We expect these results will add to our many previous tests and case histories to show the effectiveness of MCI® with owners and consultants around the world.



Featured Product

MCI®-2005

MCI®-2005 is a water-based organic corrosion inhibiting admixture for the protection of metallic reinforcement in concrete structures. When incorporated into concrete, MCI®-2005 migrates towards reinforcement and forms a monomolecular layer that inhibits the corrosion reaction on both anodic and cathodic components of the corrosion cell. This effect can be quantified by the increased critical chloride threshold and subsequent reduction in corrosion rate.

MCI®-2005 is an organic corrosion inhibitor. It is considered ambiotic (mixed) meaning it protects both anodic and cathodic areas within a corrosion cell. MCI®-2005 contains a synergistic blend of aminoalcohols and salts of carboxylic acids, which form a protective layer on embedded reinforcement delaying the onset of corrosion as well as reducing existing corrosion rates.

MCI®-2005 is effective at enhancing the durability and extending the service life of concrete structures exposed to corrosive environments (carbonation, chlorides and atmospheric attack).

MCI®-2005 is recommended for:

- All reinforced concrete to include precast, pre-stressed and post-tensioned structures
- Corrosive environments to include exposure to deicing salts, saline groundwater, airborne chlorides and carbonation
- Marine and coastal structures, highways and bridges, parking decks, pilings, substructures, piers, pillars, pipes and utility poles

ADVANTAGES

- Bio-based, safe and environmentally friendly earning LEED credits to user
- Migrates through concrete towards reinforcement by capillary action, vapor diffusion and ionic attraction
- Low dosage with minimal effect on concrete properties (i.e. workability, strength development)
- NSF Standard 61 Certification for use in potable water tanks (certified by Underwriters Laboratories)
- Field and lab tested worldwide
- Effective in the presence of cracks as per "Cracked Beam" modified ASTM G109
- Effective for the prevention of macro-cell corrosion where cathodic and anodic sites exist in different environments.
- Meets requirements for ASTM C494



Burj Khalifa, Dubai - United Arab Emirates



Al Jalila Children's Specialty Hospital, Dubai - United Arab Emirates



Bridge construction in picture above was built to have a 100 year service life





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Case Histories

Multi-Story Parking Structure (Abu Dhabi DOT Car Park)

The project consists of three underground floors with roof parking. The high amounts of chlorides present in the soil pose a high risk of corrosion to the reinforcing steel bars. MCI®-2005 was specified to achieve the required service life, and was used in more than 12,000 cubic meters of concrete that is in contact with soil in these structures.



Residential Development at Al Raha Beach

The project is located very close to the sea, where the salinity level in the ground water table is high. This prestigious project consisted of four commercial and residential buildings comprising of 2 basements, ground floor, a podium and 10 floors. MCI®-2005 was proposed as an alternative to the originally specified calcium nitrites by the readymix supplier due to its low dose and practicality.

MCI®-2005 was used in the substructure of the project and its technical and practical advantages have convinced the consultant to approve it as alternative to the originally specified calcium nitrites.



Upcoming Events



Don't miss the opportunity to visit the Cortec® booth #S11854, February 3-6, 2015 in Las Vegas, NV for World of Concrete!



Don't miss the opportunity to visit the Cortec® booth, March 25-27, 2015, New York City, NY for "High-Rise Repairs" ICRI 2015 Spring Convention!



American Concrete Institute
Always advancing

April 12-16, 2015 in Kansas City, MO

REMINDER

MCI® Rep/Distributor Meeting at World of Concrete 2015:

Cortec® Corporation will again be hosting a Rep and Distributor lunch meeting at World of Concrete on Wednesday, February 4, 2015, location to be determined. Please let us know if you will be attending by RSVP to Jessi at jmeyer@cortecvi.com

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