

## MCI®-309, Patented, US Patent #9,435,037

### DESCRIPTION

MCI®-309 is a powder-based Migrating Corrosion Inhibitor™ for protection of ferrous and aluminum metals located in recessed areas, interior cavities, and structural voids.

MCI®-309 provides an extremely efficient dry method of protecting metals within an enclosed space. Upon application, it vaporizes and forms a molecular layer of corrosion inhibitors on the metal surface. If this layer is ever compromised (for example, by moisture or by opening the enclosed space), it will be automatically replenished by new vapor being continuously released from the powder carrier.

UFI: 8SF0-W0CG-Y00U-EK3A

### PACKAGING & STORAGE

Available in 5 lb (2.3 kg) pails and 50 lb (23 kg) and 100 lb (45 kg) lined drums.

To ensure best product performance, store in original packaging, indoors, and out of direct sunlight at 40-100 °F (4-38 °C).

Shelf life: 2 years



### HOW IT WORKS

MCI®-309 is a powder-based, organic corrosion inhibitor. The corrosion inhibiting molecules in MCI®-309 vaporize into the air, travel through it, and adsorb onto metal surfaces to form a protective layer for corrosion protection. MCI®-309 is considered ambidoc (mixed), meaning it protects both anodic and cathodic corrosion sites of the metal. MCI®-309 vapor is capable of reaching all exposed metal surfaces, including recessed sections, interior cavities, and voids, thus providing autonomous corrosion protection of metals in any hard-to-reach space within a structure.

### WHERE TO USE

- Prestressed tendons
- Segmental concrete bridge tendons
- Post-tensioned box-girder bridges
- Tubular structures, pipes, and vessels
- Parts, components, and completed assemblies during shipping and storage

### ADVANTAGES

- Does not affect physical properties of concrete and grout (set time, strengths, etc.)
- Does not contain phosphates, nitrites, or heavy metals
- Provides up to 24 months of continuous protection
- Protects inaccessible and recessed surfaces by the deposition of vapor-phase inhibitors onto metals
- Requires little or no surface preparation
- Protected surfaces do not have to be cleaned prior to concrete or grout placement
- Prevents further corrosion of pre-coated and painted metal surfaces
- Easy to apply by dusting, fogging, or sprinkling
- Easy to remove by air gun or water

# MCI®-309, Patented, US Patent #9,435,037

## PHYSICAL PROPERTIES

Appearance	White to off-white powder
pH	6.5 – 8.0 (1% in water)
NVC	96.0-100.0

## DOSAGE

0.5 oz/ft<sup>3</sup> (500 g/m<sup>3</sup>)

## APPLICATION

Apply powder by dusting, fogging, or sprinkling. After application simply cover, close, or seal the interior cavity or void.

Fogging is easily achieved with a low-pressure air hose and sandblast cup. Large, conventional sandblasting systems can also be used.

MCI®-309 can be removed by using a low-pressure air gun or water rinse. **Note:** Review product SDS and consult with a safety professional prior to using this product to ensure safe handling of powder.

## LONG-TERM CORROSION TESTING

Independent testing confirmed that MCI®-309 does not affect strand pull-out strength compared to a control.

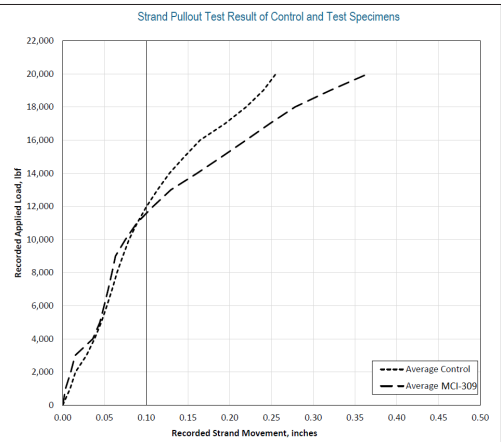


Figure 1: Load-Displacement Curves, AET Project No: 29-20452

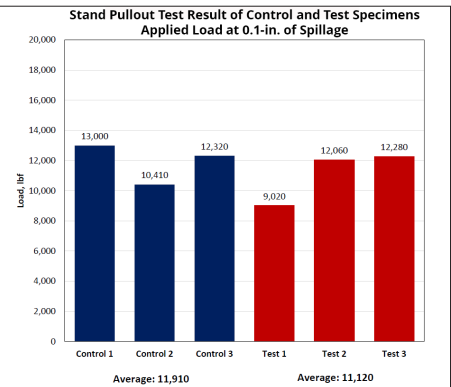


Figure 2: Applied Load, AET Project No: P-0018210

Sections of prestressing strand were inserted into 1" (2.54 cm) PVC pipes with caps on both ends. Mass of strands was determined after cleaning with acetone and before placement into the PVC pipe. A solution of saltwater was placed in the bottom half of the PVC pipe and kept in laboratory conditions. Treated specimens had the MCI®-309 added directly to the saltwater solution at 2% by weight. A 1/16" (1.6 mm) hole was drilled into each of the PVC pipes to simulate a small air leak in the duct. Strands were left for approximately one year, and then removed and their conditions documented. They were cleaned and weighed for mass loss.

The addition of MCI®-309 to the saltwater significantly reduced the amount of corrosion that occurred on strands. See Figure 4 for percent mass loss on samples exposed to saltwater. Figure 5 shows the middle section of the control sample after cleaning at test conclusion, and Figure 6 shows the MCI®-309 treated sample after cleaning at test conclusion.



Figure 3: Corrosion Test Setup, Pennsylvania State University Grouting Laboratory Report

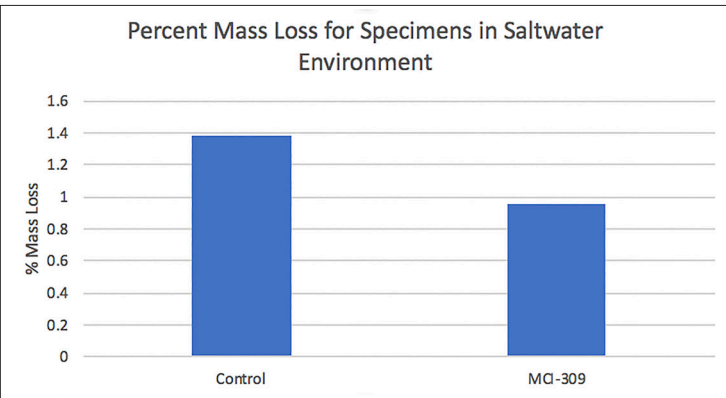


Figure 4: Percent Mass Loss for Specimens in Saltwater Environment

# **MCI®-309, Patented, US Patent #9,435,037**

---



**Figure 5: Control from Saltwater After Cleaning (Middle)**



**Figure 6: MCI®-309 Treated Specimen from Saltwater After Cleaning (Middle)**

---

4119 White Bear Parkway, St. Paul, MN 55110  
Phone (651) 429-1100  
Toll Free (800) 4-CORTEC  
productinfo@cortecvci.com  
<https://www.cortecvci.com>  
<https://www.cortecmci.com>



## **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.**