

The LEADING Edge

BEHIND THE SCENES: TEDIOUS TASKS OR VITAL MAINTENANCE?

What does it take to run a lab? At Cortec® Laboratories, we have plenty of everyday maintenance tasks that may seem tedious, time-consuming, and insignificant in the scope of a day's work but play a significant role in allowing us to provide the all-important R&D and testing services that keep rust prevention going.

Take the Q-Fog chamber, for example. This laboratory appliance, which looks like a giant chest freezer, is actually filled with warm, damp air that creates the necessary conditions for testing according to the ASTM D1735 standard. This setup helps us evaluate the performance of a variety of rust preventatives, protective coatings, and sometimes even packaging material.

In order to make sure the Q-Fog chamber is working right, we have to regularly make sure it is meeting specifications for temperature, pH, and the amount of fog produced. Temperature is easy enough, as this constantly shows on a digital display outside the chamber. Fog collection is a little more involved. This requires checking one of the graduated cylinders inside the chamber to see how much condensation from the fog has collected. ASTM D1735 standards require fog collection at 1-3 mL per hour, so if, for example, our Lab Tech Brian Benduha checks the cylinder after 24 hours and finds 40 mL of water, he divides it by the number of hours since the last check to get the average fog collection rate of 1.7 mL per hour. He takes the same water and mixes it with



The Q-Fog chamber houses two graduated cylinders that collect water droplets in the humidity chamber. This allows our Lab Tech to measure how much fog is accumulating per hour and make sure it stays within the range of ASTM 1735 specs.



Our Lab Tech combines the water collected in the two cylinders to test pH on a regular basis.

Testing

the water from another collection cylinder in the chamber to test pH and make sure it is also in range.

Jobs like these can seem like an unnecessary interruption to more “important” R&D tasks, but when viewed in the long run, they are vital part of what keeps Cortec® Laboratories operating so we can continue to develop and select the corrosion solutions you are looking for. Need our lab to run a test for you? [Check out our range of ISO/IEC-17025 accredited testing services and submit your request today.](#)

At right: Testing pH in the QC lab.



New Equipment + Ideas for Better R&D

Often, the right tools—even basic ones—can make all the difference. That’s what Product Development Chemist Colin Gardner expects to be true of the photography equipment he recently ordered for Cortec® Laboratories.



Colin points out rust spots on a steel plug used for VIA testing. The NACE VIA test uses a grading method based on the relative number of corrosion spots to evaluate whether a corrosion inhibitor passes or fails the test. Colin believes that he will be able to measure the amount of corrosion more precisely with computer software.

The new DSLR camera and light box are mainly intended to help Colin and other lab technicians analyze VIA test results more precisely. Currently, the NACE VIA test grades the vapor inhibiting ability of corrosion inhibitor chemistry visually based on the relative amount of rust spots that form on a steel plug inside the test jar. Grades 0 and 1 show many rust spots and are failing grades. Grades 2 and 3 are passing but, in the case of Grade 2, may allow minor rust spotting.

While such a broad grading method works alright for quality control testing, it’s not very helpful when it comes to comparing various corrosion inhibiting formulas for R&D, where there may be much slighter variations from one chemistry to another.

That’s where the camera comes in.

In order to precisely calculate the amount of corrosion on a steel plug, Colin plans to use computer software that will be able analyze images and calculate the amount of rust appearing on the steel plug.

Unfortunately, sometimes the wrong lighting causes a rust-free area to look dark, causing the software to read it as a rust spot. The new camera and lightroom setup will minimize this problem by taking high quality, high-contrast images at a consistent angle with good lighting control.

Testing

As Colin gets more and more familiar with his new method of evaluating VIA plugs and narrows it down to a science, he hopes to share his findings with the broader world of corrosion engineers to make VIA results more precise for everyone. Keep watch for more developments in the future!



The new DSLR camera mounted at a specific angle with uniform lighting will improve the quality of pictures, making it easier for the computer software to detect areas of rust vs. non-rust.



The lightroom can be closed for better lighting control and the camera operated from outside the box.

New Product

MCI®-2019 X Adds Greater Flexibility to MCI® Portfolio

The newest addition to our line of concrete surface treatments is MCI®-2019 X, a 40% silane penetrating water repellent minus the typical Migrating Corrosion Inhibitors of MCI®-2019. Why leave out the MCI®? Some contractors need more options to adapt to specific project budgets and parameters. MCI®-2019 X gives contractors greater flexibility to tailor a surface protection system to their concrete repair or maintenance project. [Read our press release for more ideas on how, where, and why to use MCI®-2019 X.](#)





MCI®-2019 X

03 03 20	Maintenance of Concrete Reinforcing
07 19 16	Water Repellents

DESCRIPTION

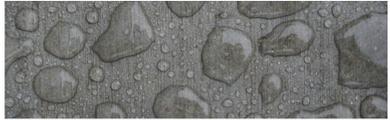
MCI®-2019 X is a 40% silane penetrating water repellent. It provides great protection for concrete against water ingress and other contaminants. MCI®-2019 X lines the pores of the concrete matrix with a hydrophobic layer and boosts the durability and service life of concrete structures. MCI®-2019 X can be conveniently applied on top of a penetrating surface applied corrosion inhibitor (SACI) for a full system of protection against moisture and corrosion.

PACKAGING & STORAGE

MCI®-2019 X is available in 5 gallon (19 L) pails and 55 gallon (208 L) 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®-2019 X provides water repellency by chemically reacting with the cementitious substrate under proper application, decreasing the ingress of aggressive materials. If applied after a penetrating SACI, MCI®-2019 X prolongs the protection period of the corrosion inhibitor.

WHERE TO USE

- Commercial buildings
- Parking garages
- Bridge decks or bridge structures
- Tunnels
- Jetties/piers and other marine structures
- Offshore oil platforms (non-submerged applications)
- Any other reinforced concrete structure

ADVANTAGES

- Lines the substrate pores with a hydrophobic layer while maintaining the original appearance
- Allows surfaces to remain fully breathable and maintain their natural moisture-vapor transmission
- Blocks carbonation and chloride ion intrusion
- Extends the service life of structures
- Easy application by spray, roller, or squeegee
- VOC compliant
- Contains no nitrites, phosphates, or chromates
- No blushing, peeling, or yellowing

PHYSICAL PROPERTIES

Appearance	Clear, colorless liquid
Density	6.9-7.1 lb/gal (0.83-0.85 kg/L)
VOC	<1.2 lb/gal (<140 g/L)

News

Aleksandra Muhar: Onsite Chemist at CorteCros®

Overseas at Cortec's sister company, CorteCros®, in Split Croatia, Aleksandra Muhar has been running CorteCros® laboratory testing since March 2024. Over the last year, Aleksandra has been busy taking the invaluable skills she learned as a technology engineer in the food industry and applying them to the field of rust prevention. While she spends most of her time testing the performance and quality of CorteCros® chemistries for corrosion mitigation, she feels especially fulfilled when she has the opportunity to do research and development.



Sam Pfremer at Your (Technical) Service

Cortec's newest Technical Service Engineer, Sam Pfremer, joined the team on August 12th. Sam's job will be to answer customer questions, improve and maintain documentation in our technical database, and run lab tests for customers and internal needs. Sam has a B.Sc. degree in Chemical Engineering from the University of Minnesota and spent several summers interning in 3M's water treatment department during his years of study. Last summer, he interned with Apollo Water Services just before joining Cortec® Technical Service.

Cortec® Hosts Coatings Association Meeting

We were honored to once again host the meeting of the Northwestern Society for Coatings Technology at Cortec® World Headquarters on November 19th. Cortec® has done this every year since our valued colleague, the late Rick Shannon, played a role in this organization as Cortec's Coatings Chemist. Our current Coatings Chemist, Jake Hemberger, has carried on the tradition but was unable to attend this meeting due to travel, so Pavlo Solntsev (R&D Laboratory Manager) represented Jake and Cortec® this time around.

Approximately twenty people attended the meeting, which focused on the topic of specialty additives for coatings. Many of the attendees were in the field of additives, creating a very complementary rather than competitive mix among the professionals.

We are proud to be part of this technical association and look forward to continuing to contribute to the coatings conversation while learning from each other in the coming years!

[Click here and scroll down to view pictures of the meeting at Cortec®.](#)

Cortec® Laboratories a Secret Star in *Quality Magazine*



This year, Cortec® was asked to write an article on corrosion testing for the October issue of *Quality Magazine*. The article focused on four corrosion tests that fall within the scope of our Cortec® Laboratories' ISO/IEC 17025 accreditation and can be used by manufacturers to screen the quality of the corrosion inhibitors they use. Although Cortec® Laboratories could not be directly mentioned in the article except in the references, we are referred to several times as an ISO 17025 accredited laboratory who performed several test cases highlighted in the article. [Click here to see pictures from our lab and learn how these tests can help you and your clients make quality improvements.](#)

Cortec® Peelable Coating Highlighted in *Metal Architecture*



In July, our peelable coating technology formed the basis of a generic article commissioned by *Metal Architecture* magazine. The article looks generally at reasons for using a peelable coating, what to look for in a peelable coating, and special features that can be added to a peelable coating. Images show a Cortec® peelable coating (hint: it may have something to do with the numbers 372) used for demonstration and applied by our Coatings Chemist, Jake Hemberger. [Check out the article here!](#)

At left: VpCI®-372 coated on one of Cortec's warehouse windows as a demo for the article.

