

The LEADING Edge

NACE International

March 11-15, 2012 in Salt Lake City, UT

NACE International, established in 1943, is the most recognized professional organization for the corrosion control industry. As of January 2012, there are over 28,300 NACE members in over 100 countries. NACE International is involved in every industry and area of corrosion prevention and control; from chemical processing and water systems to transportation, construction, and infrastructure protection.

Cortec® Corporation takes a leading position at NACE international, by publishing and presenting new products, applications, and ideas every year. More than 130 presentations have been done by Cortec® Corporation representatives during the last thirty-seven years, many of them have been published by NACE in the journal "Materials Performance".

This year was the 69th annual NACE International Conference. Cortec® was one of the top contributors to technical symposia and committees, with four presentations highlighting methods that not only protect materials and machinery, but also the earth.

Professor Bavarian, of California State University presented "SCC and Crevice Corrosion Inhibition of Steam Turbine ASTM A470 Steel" documenting the revolutionary results of Cortec's VpCI®-337 and EcoLine® 3690's ability to prevent catastrophic failures of power generating equipment by protecting against stress corrosion cracking and crevice corrosion.

Matt Drew, Cortec MCI® Technical Service Representative, presented a paper co-authored by himself, Jessi Jackson Meyer, and Josh Hicks titled: "Evaluation of Migrating Corrosion Inhibitors Used in the Restoration and Repair of Reinforced Concrete Structures". This paper outlined the twenty-six years of field data from the rehabilitation of the St. Paul, Minnesota Randolph Avenue Bridge. The project used an overlay incorporating a Migrating Corrosion Inhibitor (MCI®) in the westbound lanes as part of a Federal Highway Administration project and a Virginia Tech study, proving the effectiveness in preventing corrosion of reinforced concrete deck in real world conditions where consumption of de-icing salts is among the highest in the world.

Josh Hicks, Cortec® Laboratory Technical Services Engineer, presented two studies, "Novel Corrosion Inhibitors Derived From Agricultural By-Products Potential Applications In Water Treatment" and "Novel Vapor Corrosion Inhibitors Derived From Agri-Products" co-authored by Margarita Kharshan, Alla Furman, Robert Kean, Kristy Gillette, Ming Shen, and Liz Austin. These papers focused on producing vapor inhibitors for various industries derived from agricultural by-products and covered the evaluation and screening of inhibitive properties of corn-based by-products from ethanol production in many potential applications, including water treatment, additives to deicers, electronics, packaging, etc. The use of these products will combine superior anticorrosion performance, environmental concern, and cost effective application.



THE CORROSION SOCIETY



Technical Sales Representative Matt Drew presenting at NACE 2012.



Cortec's trade show booth at NACE 2012.

New Products

MCI® CorteCure®

MCI CorteCure™ is a water-based, membrane-forming, curing compound that contains MCI® (Migrating Corrosion Inhibitor). It is made of biobased renewable materials.

It is designed to:

- Retain the hydration water in freshly worked concrete to aid in proper curing and a stronger concrete
- Be easily removed after UV weathering and traffic after four to eight weeks (depending on exposure)
- Comply to European and California VOC regulations
- Provide corrosion protection to embedded Reinforcement

MCI CorteCure™ is recommended to provide a convenient and excellent initial cure for:

- All reinforced, precast, prestressed, post tensioned, or marine concrete structures
- Steel-reinforced concrete bridges, highways, and streets exposed to corrosive environments (carbonation, deicing salts, and atmospheric attack)
- Parking decks, ramps, and garages
- Concrete piers, piles, pillars, pipes, and utility poles
- Restoration and repair of all reinforced concrete commercial and civil engineered structures
- Buildings and foundations of all types
- Cooling towers and water tanks

Properties:

- Enhances durability of reinforced concrete
- Ensures proper curing of fresh set concrete
- Removable after initial curing of the concrete, initial cure is in four to eight weeks depending on weathering and traffic exposure
- Cured concrete surfaces are able to received subsequent treatment such as tiling, paint and sealer
- Water-based and non-flammable for easy handling
- Safe and environmentally friendly
- Easily applied by spray, roller, squeegee, or paint brush to concrete surfaces
- Contains a fugitive dye to be visible during the application
- USDA certified biobased product



Cortec® is now waiting for customer feedback and we invite additional involvement for testing and feedback from other potential clients.

Please contact : Info@cortecvci.com to participate.

Hygiea 8500C:

Hygiea 8500C is a product mutually developed by Bionetix International and Cortec® Corporation using Bionetix with Cortec's patented Vapor phase Corrosion Inhibitor (VpCI®).

Hygiea 8500C is a product mutually developed by Bionetix International and Cortec® Corporation combining Bionetix's Hygiea 8500 and Cortec's Vapor phase Corrosion Inhibitor (VpCI®). This product, specifically designed for parts washers, is a phosphate free combination of the excellent cleaning properties of Hygiea 8500, a very effective hydrocarbon cleaner and an effective multi-metal corrosion inhibitor from Cortec®. The bacteria and enzymes in this cleaner break down hydrocarbons in a very safe and effective manner while providing corrosion protection to parts. Residual bacteria will continue to work by degrading oils and greases in "inaccessible areas" after initial cleaning. The use of this multi-purpose cleaner/corrosion inhibitor reduces pollution liability and significantly lowers disposal cost. This low temperature cleaner (to be used at below 80°F) saves enormous amounts of heat energy and water (due to evaporation). The extensive laboratory work at Bionetix has shown that Cortec's corrosion inhibiting additives do not negatively affect the biological activity of Hygiea 8500.



Bionetix
INTERNATIONAL
A Subsidiary of Cortec® Corporation

CorrBlock™

These anticorrosive blocks for water-treatment applications are another mutual project of Bionetix International and Cortec's laboratories. CorrBlock™ is formulated using renewable soybean-based wax and proven Vapor phase Corrosion Inhibitor (VpCI®) technology. When immersed in water, CorrBlock™ slowly dissolves and releases a calculated amount of inhibitor required for corrosion protection of a system. The inhibitor in CorrBlock™ provides multimetal protection including ferrous metals, galvanized steel, aluminum, and yellow metals. It replaces chromates, nitrites, and other types of restricted corrosion inhibitors. The VpCIs form a strong monomolecular layer on metal surfaces that protect in all three phases -- liquid, vapor, and the vapor-liquid interface.

CorrBlock™ provides water treatment companies with the ability to conveniently incorporate Cortec® VpCI® technology into their specific applications. It is suitable for open loop re-circulating cooling systems and waste water systems. The product can be placed in make-up water, cooling tower basin, returned water circuits or waste water systems. In typical use, CorrBlock™ should be replaced every one to two months. CorrBlock™ is also suitable for use in water-cooled metalworking machines, helping protect the tool and parts being machined. CorrBlock™ is generally compatible with coolant, however testing is recommended. Each CorrBlock™ weighs approximately 400 grams and is made to treat 4000 liters of running water.

CorrBlock™ Features:

- Safe to handle
- Eliminates the need for dosing pumps and tanks for conventional liquid inhibitors
- Protects tools, workpiece, and metalworking machines during downtime
- Protects carbon steel, zinc, stainless steel, galvanized steel, copper, and yellow metals
- Prevents corrosion and pitting
- Contains contact and vapor phase corrosion inhibitors
- Can be used as a corrosion inhibitor additive in majority of water treatment programs
- Compatible with majority of commercially available biocides and antiscalants
- Nitrite, chromate, and heavy metal free
- Easy application
- Environmentally friendly formulation
- Easily traceable utilizing a Molybdenum test kit
- Does not cause foaming
- Does not promote bacteria growth

During the development of this product, suggestions for improvement were taken into consideration to provide customers with a product they will love. CorrBlock™ will provide efficient protection, the advantage of low maintenance, and will not affect the functional characteristics of cooling towers.

Coming Soon

A new self-crosslinking waterborne dispersion aliphatic urethane coating designed for industrial applications requiring excellent gloss, flexibility, and adhesion to a variety of substrates. Designed with VpCI® technology it can be used as a DTM (direct to metal) coating or over a primer such as VpCI®-375, 395, or 396. This coating will crosslink at ambient temperatures and offers a unique balance of UV and chemical resistance. Being a single component package this product doesn't have the complications associated with pot life of a two component mixture.

Advantages:

- Excellent exterior durability, when used over a primer.
- Water based
- Excellent adhesion
- Excellent UV resistance
- Excellent gloss and clarity
- Single component package
- Could be used in construction applications

Samples of this new high performance coating will be available mid – April

CorrBlock™



Cortec® Corporation - Cortec® Rus: Visiting Kazakhstan

Cortec® Rus (Russia), Cortech Ltd (Kazakhstan) and Cortec® Corporation (USA) recently presented to several Engineer Procure Construction (EPC) and oil/gas sector firms in Uralsk, Aksay, and Atyrau, Kazakhstan. The focus of these sessions was the technical, engineering, specification, and logistics needs of the companies serving the Republic of Kazakhstan's major oil/gas fields including Tengiz, Karachaganak, and Kashagan. These fields represent some of the largest recoverable oil/gas fields in the world today.

Cortec's several decades of experience in this sector has resulted in global specifications for preservation and corrosion management before, during, and after commissioning. Additionally the Cortec® delegation was able to establish application, turnkey, and technical support available locally through certified applicators. The Cortec® delegation was represented by Bob Boyle, Global Account Director (Cortec® USA), Andrey Shargin, Manager (Cortec® Rus, Russia), and Darkhan Seisenbayev, Operation Manager. (Cortech Ltd, Kazakhstan)

Cortech Ltd, located in Atyrau, Kazakhstan has a full support staff offering local support and product availability meeting the demand for localization of product and services, up to and including full turnkey applications. Cortec's laboratory is working closely with our representatives in Russia to provide requested technical support.

For more information on Cortec's work, specification, or use within Kazakhstan, CIS countries or Russia, please contact Ivana Borsic: ivana@cortecvci.com or Dario Dell'Orto: Dario_dellorto@cortecvci.com.



Cortec's Global Account Director, Bob Boyle presenting in Kazakhstan, March 2012.

Russian Corrosion Institute has tested VpCI®-639 HFB

VpCI®-639 HFB is a high flash point version of VpCI®-639, specifically designed per the request of GasProm in Russia. The Russian Corrosion Institute received a request from GasProm for the testing of seven different corrosion inhibitors suitable for protection of processing equipment in gas plants (APG).

This equipment is subjected to intense corrosion because natural petroleum gas contains corrosive sulfur-based compounds, carbon dioxide, water with high content of chloride ions, organic acids (formic, acetic), and other acids.

The requirements for inhibitors used for the corrosion protection of APG are as follows:


- protection effect at least 90%
- must be soluble in hydrocarbons and soluble or dispersible in water
- should not cause foaming of processing media
- should protect in the volatile and vapor phase
- should not form insoluble deposits or polymerize
- should be temperature stable at temperatures up to 200°C
- should be environmentally safe
- should have a pour point below -20°C

VpCI®-639 HFB showed the best results in all types of testing. Considering the test results, VpCI®-639 HFB was recommended to GasProm as the best candidate to prevent the failures caused by corrosion in APG operations.

Note: The full report is translated in English and available per request.



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Printed on 100% post compostable  recycled paper



Created: 03/12

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