

# The **LEADING** Edge

*Featuring New Environmentally Friendly Products*



April 2010

 **CORTEC**  
Laboratories

## Corrosion 2010

Recently, Cortec® attended the annual NACE conference which was held in San Antonio, Texas. NACE International was originally known as “The National Association of Corrosion Engineers”. With more that 60 years of experience in developing corrosion prevention and control standards, NACE International has become the largest organization in the world committed to the study of corrosion. The exhibition and technical conference was attended by more than 5,800 people all interested in new advances in the corrosion field. As the largest and most prestigious corrosion society in the world, it was a great place to network, meet people that are involved with corrosion, and present the latest research undertaken at Cortec®.

This year three papers were presented by members of the Cortec® team. Angel Green presented the findings of her paper entitled, “New Aircraft Pretreatment & Wash Primer System”, which presents research done at Cortec® in conjunction with NASA testing at the Kennedy Space Center. This paper discusses an environmental way of replacing chromates in the pretreatment of aircraft alloys before painting. Jim Holden presented the paper he co-authored with Dr. Rita Kharshan, Dr. Alla Furman, Andrea Hansen, and Elizabeth Austin. The paper, “Vapor Corrosion Inhibitors in Hydrotesting and Long Term Storage Applications” discusses several treatment options for these applications. Cliff Cracauer presented the paper written by Dr. Kharshan entitled, “The New Generation of Rust Preventative Products Based on Renewable Materials and Incorporating Vapor phase Corrosion Inhibitors”. This presented the results of testing newly developed canola and soy-based rust preventatives that are perfect for replacing petroleum-based rust preventatives.

Overall, it was an exciting and productive week in San Antonio. Thank you to all of our friends that joined us at NACE! We can’t wait to see you next year in Houston.



Cortec® Vice President of Sales, Cliff Cracauer explaining products with customers during NACE.

## Cortec® at USCC 2010

The 18th annual United States Composting Council conference and exhibition was held January 24-27 in Orlando, Florida. Mike Morin and Kristy Gillette represented Cortec Corporation at the exhibit and showcased our line of compostable films and biobased products. Kristy presented in the Compostable Plastics Technical Symposium. (Her paper entitled “Expanding the Use of Compostable Plastics: A Novel Approach to Corrosion Inhibiting Films”.) This paper describes the development and benefits of Eco-Corr®, a compostable VpCI® film, over traditional polyolefin based VCI films. The 19th annual USCC conference will be held in Santa Clara, CA January 23-26th, 2011.



From Left to Right: Mike Morin (Cortec® Technical Sales Representative), Kristy Gillette (Cortec® Product Development Technologist), Boris Miksic (Cortec® CEO/President), and Ines Miksic at USCC.

# New Products

*In this edition of the Leading Edge we are presenting 7 new and modified products for different industrial applications.*

## Surface Preparation

### FlashCorr VpCl®

This unique product has been developed to clean and protect metal surfaces containing salt deposits such as sodium, calcium, or magnesium chlorides, deicing salts, and other naturally occurring chlorides. FlashCorr VpCl® is a blend of surfactants, chelating agents, and corrosion inhibitors. Applied by power washers or sprayers, FlashCorr VpCl® not only removes all salts from the surfaces, it provides corrosion protection to the cleaned metals. After cleaning with FlashCorr VpCl®, surfaces can be painted without any adhesion problems. FlashCorr VpCl® is safe on glass and most plastics. This product is available in convenient water soluble bags, just put one bag per 100 liters of water to remove salt and protect metals.



## High Performance Coatings

### EcoPrimer

This biobased coating is a new addition to our coating line of products. This product demonstrates excellent adhesion to metals, compatibility with different top-coats, and good salt and humidity resistance. This primer has a fast drying time: it is dry to touch in 20-30 minutes. Its water-based formulation makes it easier to comply with environmental regulations governing solvents and VOC limits.



## New Products

### MCI® Wall Defense

A newly developed anti-graffiti coating which is recommended to be applied to exterior concrete, masonry, and metal surfaces. MCI® Wall Defense is a silicone elastomer-based permanent coating, that does not need to be recoated after graffiti removal. This coating can be recoated at any time. MCI® Wall Defense coating has excellent UV resistance and gloss retention. This product contains more than 75% of active ingredients and it is VOC compliant.



## Metalworking Additives

### M-251

M-251 is an environmentally friendly, low foaming water soluble corrosion inhibiting additive for synthetic cutting fluids. It provides corrosion protection to carbon steel, copper, galvanized steel, and other ferrous and nonferrous metals and their alloys. M-251 provides both contact and vapor phase corrosion protection during and after operation. M-251 is compatible with most water-based lubricants and with a range of biocides. It is compatible with sea water, which allows the use of this additive in off-shore conditions. M-251 is soluble in water, glycols, and alcohols. It is biodegradable and environmentally friendly. In addition to the application as an additive to cutting fluids, M-251 can be used as an anticorrosion additive to water (water/glycol) based lubricants, alkaline cleaners, water-based drilling muds, and water-based hydraulic fluids.



## Water Treatment Additives

### Cortec® HC products for drinking water pipeline applications

*Cortec® HC products are high performance liquid blended phosphate products designed to sequester iron and manganese as well as hardness salts while also providing corrosion control. They meet NSF/ANSI Standard 60 for drinking water.*

**HC-2030:** Excellent corrosion control product that has sequestering capabilities for iron and manganese.

**HC-2050:** Excellent all purpose product with sequestering capabilities for iron and manganese while also providing excellent corrosion control.

**HC-2060:** Excellent all purpose product that provides excellent sequestering control of iron and manganese while also providing excellent corrosion control.

**HC-2075:** All purpose product that provides excellent sequestering control of iron and manganese while also providing very good corrosion control.

**HC-2090:** Sequestering product designed to expertly handle calcium and magnesium hardness as well as iron and manganese.

These products increase the working time for existing piping and associated equipment attributed to excessive deposition or under deposit corrosion. They also assist municipalities in meeting the Lead and Copper Rule by reducing lead and copper leaching or pipe corrosion.

## Winterized Products

*Our water-based products: VpCI®-337, VpCI®-377 and VpCI®-649 are well known by our customers and successfully used in many applications. The need for these products is all year long, so that's why it was very important to develop winterized versions of these products to enable them to be shipped, stored, and used in cold weather conditions.*

VpCI®-377 Winterized, VpCI®-377 Winterized and VpCI®-649 Winterized were developed by using a mixture of water/glycol as a carrier; the major ingredients in these products are kept the same.

The Freezing Points for these modified products are:

**VpCI®-337 Winterized** – (-26°F; -32°C)

**VpCI®-377 Winterized** – (-18°F; -28°C)

**VpCI®-649 Winterized** – (-41°F; -41°C)

## New and Improved: VpCI®-391



Removability of VpCI®-391 (tack free temporary coating) has been improved without affecting the current protection properties of the product. The VpCI®-391 was removed with hot (160 F°) high pressure washer at 700 psi, as seen in the panels above.

## ISO/IEC 17025 Accreditation Project

For many years, Cortec® laboratory has provided quality technical support and developed unique formulations which have been successfully used by our customers. Our laboratory has been built on the knowledge and experience; while organizing equipment which made us capable of solving a majority of technical problems and helped Cortec® to become what it is now – a leader in the industry. Our laboratory is ISO 9001 and 14001 certified.

Now Cortec® laboratory is working with Laboratory Accreditation Bureau (L-A-B) to be certified ISO/IEC 17025. ISO/IEC 17025 is a quality standard for testing and calibration laboratories. There are two main sections in ISO/IEC 17025 - Management Requirements and Technical Requirements. Management requirements are related to the operation and effectiveness of the quality management system within the laboratory and have similar requirements to ISO 9001. Technical requirements address the competence of staff, testing methodology, equipment, quality, and reporting of test results. The standard is the basis for accreditation from an accreditation body.



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## Implementing ISO/IEC 17025 gives many benefits.

### The main benefits are:

- *Having ISO/IEC 17025 accreditation status will get direct access to more contracts for testing. Some public and private organizations only give contracts to accredited laboratories.*
- *Having ISO/IEC 17025 accreditation status will support the reputation and image of the laboratory. This will also help to get more contracts from organizations that don't mandate accreditation but give preference to accredited laboratories in competitive situations.*
- *When correctly implemented, the quality system can help to continually improve the quality of data and effectiveness of the laboratory.*
- *ISO/IEC 17025 is the basis for most other quality systems related to laboratories, for example, Good Manufacturing Practices and Good Laboratory Practices.*

Cortec® laboratory, while seeking ISO 17025, will be impacted in a couple of areas. The main difference between formal accreditation and 'just' good practices is the amount of documentation to be developed. There is no doubt that any good laboratory uses qualified people for performing tests, checks the performance of equipment, and validates test methods. However, many times the outcome of the tests are not fully documented. ISO 17025 accreditation requires formal documentation for just about everything. To be in compliance with ISO/IEC 17025 requirements existing documents were revised and some were newly created; including Manuals, Legal Documents, SOPs (Standard Operating Procedures), WIs (Work Instructions), Policies, etc.

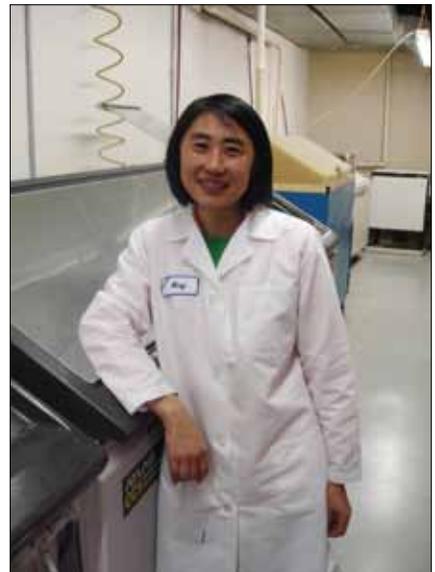
The pre-assessment performed on February 3rd by the L-A-B representative showed that Cortec® Laboratory is in a good position to achieve ISO/IEC 17025 accreditation. The next visit from L-A-B is scheduled on June 14-17th to evaluate all areas listed in ISO/IEC 17025. The laboratory team, with the help of management is working to be ready for this evaluation. We hope that very soon our reports will be sent from an "ISO/IEC 17025 certified laboratory"!

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## New Employee

### Ming Shen; Lab Technician

We are happy to announce that Ming Shen joined the Cortec® lab in December 2009. In addition to holding an advanced degree in Chemical Engineering from the University of Virginia, Ming has R&D experience in the chemical industry. She was raised in Shanghai, China. Ming also reads Japanese.





## Corrosion Testing For Ford Motor Company

Ford Motor Company has been developing a new, fuel efficient V-8 engine for the next generation of Ford Mustang. As part of this project Ford needs to store \$63 million worth of completed engine blocks for future assembly. In search of corrosion inhibiting packaging materials, Ford brought the following challenge to Cortec's laboratory; set up a test facility equipped to test 24 engine blocks in high humidity conditions. As this test was too large to run in any of the existing test chambers, Cortec's lab had to fabricate an entirely new environmental chamber. This task meant converting an empty semi trailer into a test cabinet capable of running modified ASTM D-1748 accelerated corrosion conditions.

The semi trailer was framed and insulated and a series of heaters and humidifiers were installed such that conditions inside the trailer were ~120°F and 90% relative humidity, while outside conditions were those of the deepest cold of Minnesota winter. Two rounds of testing were performed to confirm the effectiveness of VpCI®-126 Blue Film and VpCI®-132 foam pads in protecting Ford's \$63 million investment.

Ford's preservation project is currently under way using a combination of VpCI®-126 Blue Film and VpCI®-132 foam. Ford was impressed with Cortec® and chose VpCI® products for multiple reasons. First, Cortec® was the only laboratory to fabricate an entirely new accelerated corrosion testing chamber for this project. No other VCI company was willing to go to this length. Second, Cortec's test results showed that long term protection can be accomplished with minimal packaging cost; individual bagging will not be necessary for this project. Third, Cortec has years of experience with similar automotive build ahead programs for other major manufacturers, being specified for fifteen years of protection in similar applications. Finally, Cortec® provided and continues to provide support both on site and in the laboratory for any and all questions raised by Ford.

## Announcements

- Five scientific papers from Cortec® Corporation are accepted by EuroCorr – European Corrosion Congress 2010, which will take place at the Congress Centre of the World Trade Centre, Moscow, Russia, September 13-17th, 2010.
- We are still expanding our EcoLine® products with bio-based materials. Read in the next edition of Leading Edge about our new and exciting product: Eco Emitters® – first in the new line of EcoEarth™.



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