

The

# LEADING

Edge



Environmentally Safe VpCI™/MCI® Technology

September 2006

## From the Anticorrosion World Champions to the Soccer World Champions 2006!



Thanks to Germany's impeccable organization, excellent team work and heartfelt hospitality, billions of people across the world enjoyed a month-long opportunity to celebrate, not only sport achievements, but more importantly, friendship between countries. Here at Cortec's laboratory, we take pride in the same values that inspired the best moments of the World Cup. Like the soccer fans from rival teams who applauded each other's achievements, we bring our talents together from across the world to come up with the best solutions for our customers. Like all thirty-two teams who gave their best on the field, we approach everyday as a challenge to bring our customers a better, more versatile, and more resilient corrosion protection solution. And like the winning team, Italy, we pull together as a team to keep focused on what's next, until we reach our ultimate goal - having the best defense and offence strategy to win the "World Cup", be it soccer or corrosion. As many Italian players said, it was not always pretty - nor is rust in a laboratory tube! - willpower, coordination, and especially the unrelenting drive for each to contribute to the team, brings victory.

It is that time again!

*Cortec's European Sales and Strategy Meeting will be held October 2<sup>nd</sup> and 3<sup>rd</sup>, 2006 in Dubrovnik, Croatia!*

Please join us for the celebration of our mutual success, sharing of information, and education on the best corrosion protection solutions.

This edition of "The Leading Edge" features new products covering a wide range of applications, the latest on Cortec®, equipment installation, and answers to common questions in the water-treatment applications.



### New Products

VpCI™-371

VpCI™-375

Desicorr™

Desicorr VpCI™

Rawn America™  
Hi-Pro Engine Cleaner

# New Products

## VpCI™-371

VpCI™-371 is specially developed for those who are involved in the automotive industry, power generators, aviation, off shore drilling, and other offshore operations. This coating can withstand temperatures greater than 600 C°. VpCI™-371 has a heat stability of 1200 F° (648.89 °C) and provides over 1000 hours of salt spray resistance. It has a brilliant aluminum appearance, but no hard settling of aluminum. Another benefit is its 9H pencil hardness and 200 double rub MEK resistance with no effect.

VpCI™-371 is a fast drying, high solids, low viscosity coating. It passes ASTM D-2485-91 “Standard Test Methods For Evaluating Coatings For High Temperature Services” (Method A and B).



VpCI™-371 is an excellent product for power generators because of its high heat resistance.

## VpCI™-375

This is another exciting addition to the coating line. VpCI™-375 is a unique, water-based permanent coating that will replace a two-coat system (a primer and a topcoat) into a one coat system. The coating successfully provides protection in harsh, outdoor, and unsheltered applications. It passes 2500 plus hours in humidity (ASTM D-1748) and salt spray (ASTM B-117) chambers. In some cases, VpCI™-375 can also be used as a topcoat with Cortec® VpCI™-374 primer, for even longer protection.

VpCI™-375 provides a fast-drying thixotropic coating that is resistant to sagging or running, forming a tough, protective barrier. This dry-to-touch film offers extended protection for outdoor or indoor conditions. It has excellent water resistance, hardness, and flexibility.

VpCI™-375 can be used on a variety of metals: carbon steel, aluminum, stainless steel, and galvanized steel. The standard color of VpCI™-375 is white, but this product can be made in any color requested by the customer.



VpCI™-375 offers extended protection, there is no sagging or running when applied.

## Desicorr™

Desicorr™ is a new addition to the Cortec® product line. They are specially designed to protect products from moisture damage. Whether in storage or in transit, products in almost every industry require moisture protection. Mildew, mold, rust, and an overall decrease in product efficiency are common effects of moisture, costing millions in returned or unusable products each year. Desicorr™ pouches prevent damage by absorbing the moisture in the air.

Desicorr™ pouches are constructed from breathable Dupont Tyvek on one side and clear film on the other side. A quick visual inspection shows that the desiccant has achieved its moisture vapor capacity. Desicorr™ contains blue indicating gel, that turns to pink when the Desicorr™ pouch has to be replaced. Desicorr™ has many uses such as electronic components, machine parts, military instruments, optical devices, museum storage, communication devices, circuit boards, semi-conductors, and more.

Desicorr™ pouches can be inserted manually or automatically. Each Desicorr™ pouch provides moisture protection for 0.1 ft<sup>3</sup> (2.8 L). The number of pouches used may vary depending on shipping conditions and the nature of the protected products.



When the indicator in the Desicorr™ pouch turns pink, it means it has completed its cycle and is ready to be replaced.

## Desicorr VpCI™

Desicorr VpCI™ is a unique combination of desiccant and VpCI™ (Vapor phase Corrosion Inhibitors) specifically designed into one product. Desicorr VpCI™ pouches are ideal for protecting packaged ferrous and non-ferrous metals from corrosion and moisture damage.

The dual function of Desicorr VpCI™ pouches allows decreased moisture in the air (desiccant) and provides dependable multi-metal protection (VpCI™) within the package. Desicorr VpCI™ provides long-term protection of up to 24 months. Desicorr's Vapor phase Corrosion Inhibiting action protects recessed and inaccessible surfaces.

Desicorr™ is easy to use; it requires no cleaning or degreasing. Desicorr VpCI™ is easy to insert manually or automatically in the package.

Desicorr VpCI™ is designed to protect metal products, components, or assemblies when packaged in corrugated boxes, plastic wraps, bags, and wood or metal containers. There are many uses for Desicorr VpCI™: tools, motors, marine and commercial electronic equipment, precision machined or stamped parts. It changes color when the desiccant portion has been exhausted.



Desicorr VpCI™ provides moisture and corrosion protection for up to 24 months.

## Raw'n America™ Hi-Pro Engine Cleaner

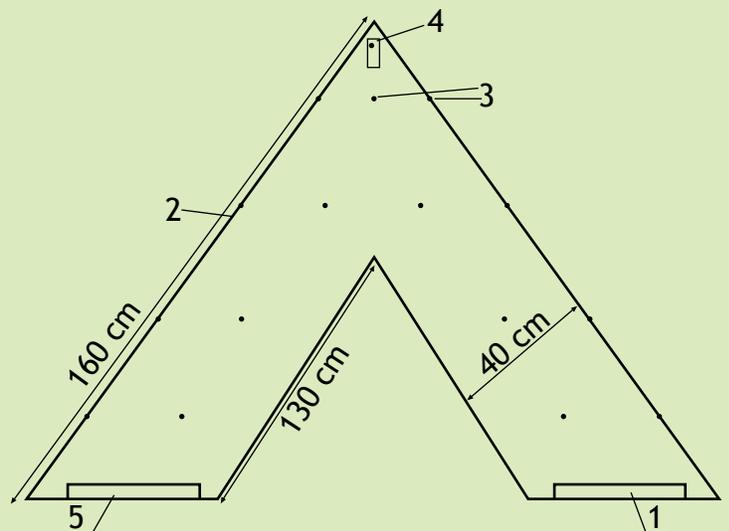
Raw'n America™ is proud to present a new bio-based engine cleaner. Hi-Pro Engine Cleaner is a fast and powerful engine cleaner/degreaser that will remove the toughest carbon and additional build-up on your vehicle; be it engine, grime, or brake dust. In addition, Engine Cleaner is based on Soybean oil Methyl Esters, and is biodegradable, making it one of the “greenest and earth friendly” engine cleaners on the market. Hi-Pro Engine Cleaner is easy to use - simply apply to the surface to be cleaned, allow to sit for approximately 10 minutes, and then rinse with water.



## Cortec's VpCI™ powders can travel against gravity.

VpCI™-608 was formulated to provide corrosion protection for storage tanks bottoms, single or double wall. It also can be used in the presence of cathodic protection. There were some concerns if VpCI™-608 can provide corrosion protection of AST's (above ground storage tanks) with cone-shaped bottoms. Cortec® Labs conducted special tests that confirmed the ability of VpCI™-608 to provide corrosion protection of cone-shape tanks.

Chamber Diagram with VpCI™- 608



- 1 - Plastic containers with wet sand and VpCI™-608
- 2 - Plastic pipe
- 3 - Coupon positions
- 4 - RH monitor
- 5 - Plastic containers with wet sand

The test results are:

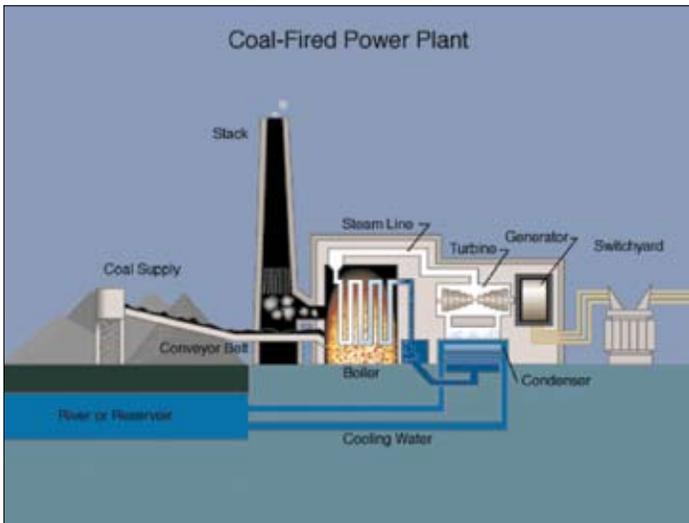
- All coupons in the 'Control' chamber failed before they did in the camera with VpCI™-608.
- VpCI™-608 is capable of traveling at least 200 cm from the source and still protect carbon steel at a relative humidity level of 80%.
- It has been confirmed that VpCI™-608 will keep its vapor phase inhibiting ability when it is mixed with sand saturated with water and also that it will travel against gravity.
- The application of Cortec® VpCI's can be extended to the cone shaped bottoms of tanks.

# Breaking News

## Preventing Bio-growth

Biodispersants help prevent bio-growth

When dealing with water treatment or metalworking, we all know that keeping bio-growth out of the system is an important component in keeping corrosion out. Lately, there has been a call for products that contain both excellent corrosion inhibitors and bio-growth preventatives. Cortec® is proud to step up and answer this call. Two of our well known corrosion inhibitors, VpCI™-649 and VpCI™-377, now come in a version that includes preservatives against bio-growth. These products are VpCI™-649 BD and VpCI™-377 BD. Now you can easily dose excellent corrosion inhibitors and bio-growth preventatives in one step!



The use of biodispersants prevent bio-growth and makes sure every section of a plant operates correctly. Cortec® products are easy to apply, environmentally friendly, and worker safe.

## Lab Technicians in the News

**Andrea Hansen: Tech. Service Engineer**



Andrea Hansen will be presenting the Cortec® Corporation Environmental Management Plan during a breakout session at the North American Hazardous Materials Management Association annual conference. The presentation will be part of the Green Business tour and highlights Cortec's continual improvement of our ISO 14001 program and the use of sustainable technologies.

**Eric Uutala: Tech. Service Engineer**



Eric Uutala will be presenting at the 4th Annual Barrier Coatings Symposium at Western Michigan University on October 10, 2006. This symposium consists of more than 100 experts in the field of packaging coatings. Eric will be the first speaker at this symposium to present information on Vapor phase Corrosion Inhibitors. This will be an excellent opportunity for Eric to introduce our company and capabilities to the industry of barrier coatings for packaging.

**Angel Green: Coatings Chemist**



Angel Green has attended a four day seminar/training for X Rite Formulation Master III to learn more about the use of different colorants in coating formulations. Her passing scores were the highest at the seminar/training!

# Breaking News

## New Accelerated Corrosion Testing Abilities for Cortec® Laboratories

Cortec® Labs would like to announce the procurement of an exciting new piece of testing equipment, a CCX Advanced Cyclic Corrosion Cabinet, CCT-NC-40. This test chamber will allow Cortec® labs to perform advanced corrosion testing. One specific test that Cortec® Labs can now perform is GM 9540P, considered by many to be the first accelerated corrosion test with quantitative results that directly translate to real world corrosion protection.

An additional capability that Cortec® Labs will have during testing with the CCT-NC-40 is adjustable and controllable relative humidity, SO<sub>2</sub> injection to simulate industrial pollution, digital readout capabilities, and remote trouble shooting. In addition to GM 9540P, other industry standard tests that Cortec® will be able to perform include: ASTM-G-85 A1, A2, and A3, Prohesion, ASTM D 1735, ASTM B368, and ASTM D 2247.



CCX Advanced Cyclic Corrosion Cabinet

## Guide Series Utility Boxes

New “Guide Series Utility Boxes” from Gander Mountain™ are now manufactured with Cortec’s M-121 corrosion inhibitor additive. Utility Boxes are normally sold for storage of all types of fishing tackle which is very susceptible to corrosion (especially when used in salt water). Gander Mountain™, impressed with the vapor phase emitting technology available from Cortec® for plastics, is sure it will set Gander tackle boxes apart from their competition. The boxes are available from stores nationwide and can be identified by the label which contains “VpCI™ Engineered by Cortec®”.



# Q&A with Andrea Hansen

“While providing technical service for Cortec’s Water Treatment Line, I have answered a lot of questions about using Cortec® products for hydrotesting.”

**Q: Many customers would like to know if they can use a larger dosage during hydrotesting in order to provide long term protection without re-dosing the system afterwards?**

**A: While the amount of product needed certainly depends on the condition of the vessel, how well the vessel is closed, and how it is stored; the following table has been created to give a general idea of the approximate amount of product that may be needed to provide protection.**

## Approximate Dosing for Cortec Hydrotesting Additives

### Approximate Fresh Water Hydrotesting Additives Dosing

Product	Metals Protected	During Testing	1-3 months	6-12 months*	12-24 months*
<b>VpCI-641</b>	Multimetal	300-750 ppm	1000ppm	-----	-----
<b>VpCI-611</b>	Ferrous, aluminum, galvanized steel, NO YELLOW	2.5-10 wt%	10-12.5 wt%	20 wt%	20 wt%
<b>VpCI-609</b>	Ferrous, aluminum, galvanized steel, NO YELLOW	0.5 wt%	1-1.5 wt%	3-5 wt%	5 wt%
<b>Versions of S-69 and VpCI-649</b>	Multimetal	0.15-0.2 wt%	0.25wt%	0.35-0.5 wt%	0.5-1.0 wt%
<b>VpCI-377</b>	Multimetal	0.5-0.75wt%	0.5-1 wt%	2-3 wt%	3-5 wt%

### Approximate Cast Iron Hydrotesting Additives Dosing in Fresh Water

Product	Metals Protected	During Testing	1-3 months	6-12 months*	12-24 months*
<b>VpCI-609</b>	Cast Iron	1.5-2.5 wt%	-----	-----	-----
<b>VpCI-611</b>	Cast Iron	10-12.5 wt%	15 wt%	20 wt%	20 wt%
<b>VpCI-417 P</b>	Cast Iron	0.2 wt%	0.2-0.5 wt%	0.5-1 wt%	1-2 wt%
<b>S-69 P</b>	Cast Iron	0.5 wt%	0.7-1 wt%	1-3 wt%	3-5 wt%

### Approximate Sea Water Hydrotesting Additives Dosing

Product	Metals Protected	During Testing	1-3 months	6-12 months*	12-24 months*
<b>VpCI-644</b>	Multimetal	0.3-0.5 wt%	0.75 wt%	-----	-----
<b>VpCI-645</b>	Multimetal	0.75 wt%	0.75-1.0 wt%	-----	-----
<b>M-645</b>	Multimetal	dosage based on area to be protected: 1250 ft <sup>2</sup> /gal (30.7 m <sup>2</sup> /L)			

Note: Solutions can be reused, provided the concentration level of each is checked before reuse.

\*For long term protection after hydrotesting, it is best to drain system well and use additional fogging of VpCI material. Additionally, an inspection should be performed after 1 year and product should be reapplied if needed. Long term protection may vary due to condition of metal and sealing of vessel. 7-2006

# Cortec® Laboratories

## Visit us at these Trade Shows:

Pack Expo	Oct. 29-Nov. 2	Chicago, Il	Booth# N-5138
ICE	Nov. 1-3	New Orleans, LA	Booth# 734
ICRI	Nov. 1-3	Denver, CO	
Metal Expo	Nov. 14-17	Moscow, Russia	All Russian State Fair
Power Gen Industrial	Nov. 28-30	Orlando, FL	Booth#400
WOC 2007	Jan. 23-26	Las Vegas, NV	Booth# S-20225

What would you like to see in the next Leading Edge?

We invite you to write us.

We value your input, and we are always interested in your suggestions on how we can better service you.

[LeadingEdge@CortecVCI.com](mailto:LeadingEdge@CortecVCI.com)



4119 White Bear Parkway, St. Paul, MN 55110 USA  
Phone (651) 429-1100, Fax (651) 429-1122  
Toll Free (800) 4-CORTEC, E-mail [info@cortecvci.com](mailto:info@cortecvci.com)  
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