

# CORTEC *Vision*

January, 2010



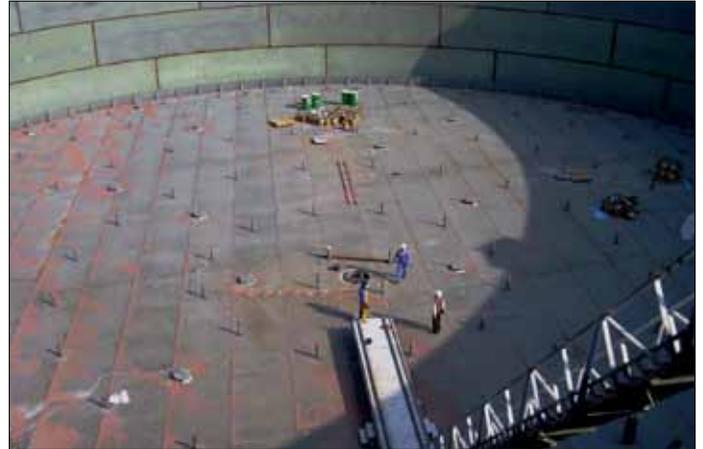


**Cortec® Corporation now provides engineering and field services in addition to its worldclass corrosion control products.**

Cortec has expanded its business and launched a Corrosion Engineering and Field Services (CEFS) group to serve Cortec's customers worldwide. The CEFS team is comprised of internal Cortec resources, plus a substantial group of resources available through Cortec's well developed worldwide licensed distributors. The primary focus of CEFS includes:

- 1.** Delivery of exceptional design & engineering services for development of effective corrosion control solutions and comprehensive corrosion management programs.
- 2.** Delivery of advanced applications and installations of corrosion control systems worldwide. Our corrosion control solutions include, but are not limited to, a wide array of vapor phase corrosion inhibitor delivery systems, high performance coatings and linings, as well as cathodic protection alternatives.

The CEFS team is committed to providing a cost effective service designed to ensure its customers receive the correct products, technologies and applications the first time, every time. We welcome all opportunities to assist our customers with controlling corrosion of their equipment, plants, concrete structures, pipelines, tanks, etc. in order to extend the useful life of these assets to their practical limits - and beyond.



## **Cortec Welcomes:** Ken Motsinger, Robert Kean, and Tim Whited

Cortec® Corporation welcomes Ken Motsinger, who is returning to Cortec® as Technical Sales Director for specialty coated products produced at Cortec® Coated Products (CCP). Cortec® also welcomes Robert Kean, who is joining the Cortec® staff as Bio Tech and Patents Manager. In this position, Kean will be responsible for handing intellectual property and patents work; research, development, and technical support for biodegradable products; and grant proposals. New to Cortec® is Tim Whited, Director of Cortec's new Corrosion Engineering and Field Services Group. (see above)



Ken Motsinger



Robert Kean



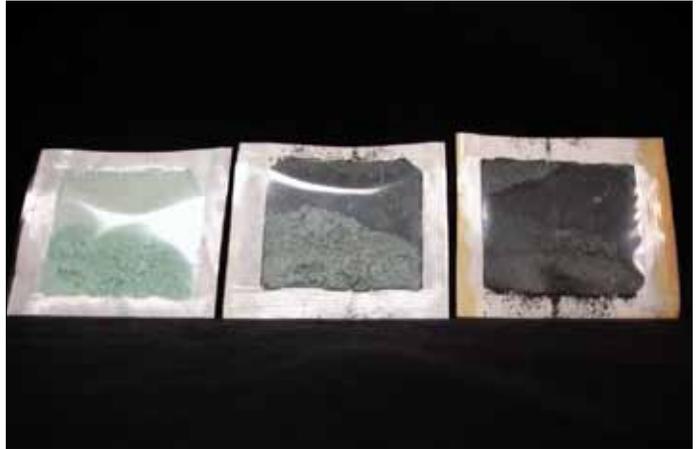
Tim Whited

## Corrosorber® Pouch

Corrosorber® Pouch is a uniquely designed pouch containing an indicating powder which absorbs corrosive sulfurous gases such as hydrogen sulfide and volatile mercaptans. As the Corrosorber® Pouch absorbs these corrosive gases the powder will undergo a color change from green to black, notifying the user when it's time to replace the pouch. Corrosorber® Pouch will not release the corrosive gases back into the atmosphere, the reaction is irreversible, eliminating any concern about post contamination.

Metals are readily attacked by gases such as hydrogen sulfide, mercaptans, and other sulfur compounds that can cause severe damage or failures to occur. Corrosorber® Pouch is a great complement to Vapor phase Corrosion Inhibitors (VpCI®) as it absorbs these gases, eliminating a source of corrosion, and allowing VpCIs to function more efficiently.

Corrosorber® Pouches are constructed from breathable Tyvek® (registered Trademark of DuPont) on one side and clear PET film on the other which allows for easy visualization and indication for when the product should be replaced.



## M-250

The development of Cortec® M-250 as an anticorrosion additive to soluble oils was specifically designed for use with a wide variety of oils, especially naphthenic oilbased formulations. The unique combination of corrosion inhibitors and emulsifiers allows its use with most soluble oil coolants.

When M-250 is added at the recommended concentration, it will prevent flash corrosion during metal processing and provide in plant protection after processing. In addition, it will not cause foaming during operation, extends the life of the base product, and will not affect sump life.

M-250 is compatible with many types of lubricants such as chlorinated paraffin, esters, and sulfurized fats. It is compatible with a wide range of biocides and defoamers, which can be added to the soluble oil concentrate or working emulsion as needed.



## Cortec® Websites: *Bursting With Innovative Renovations*

Cortec® Advanced Films, Coated Products, and Spray Technologies websites have just been enhanced to provide you with outstanding new content bursting with useful information! Our website renovations will get you connected in many ways, assisting you to find corrosion solutions for even the toughest requirements!

Cortec's goal is to have better site performance and social networking links that allow you to receive information from any device, anywhere you may be – worldwide.

These three innovative websites hold true to Cortec's philosophy of excellence and ongoing commitment in providing our customers with the latest and up to the minute solutions and information.



[www.CortecAdvancedFilms.com](http://www.CortecAdvancedFilms.com)



[www.CortecCoatedProducts.com](http://www.CortecCoatedProducts.com)



[www.CortecSprayTechnologies.com](http://www.CortecSprayTechnologies.com)

From Materials Performance, September, 2009  
By: K.R. Larsen

## Government News

### *Defense Under Secretary Limits Use of Hexavalent Chromium*

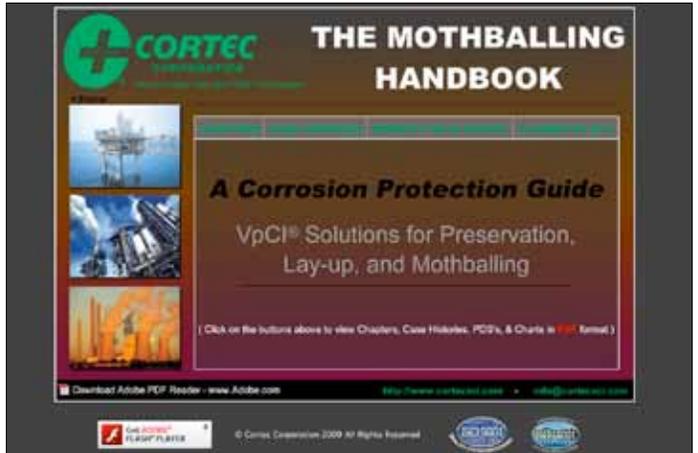
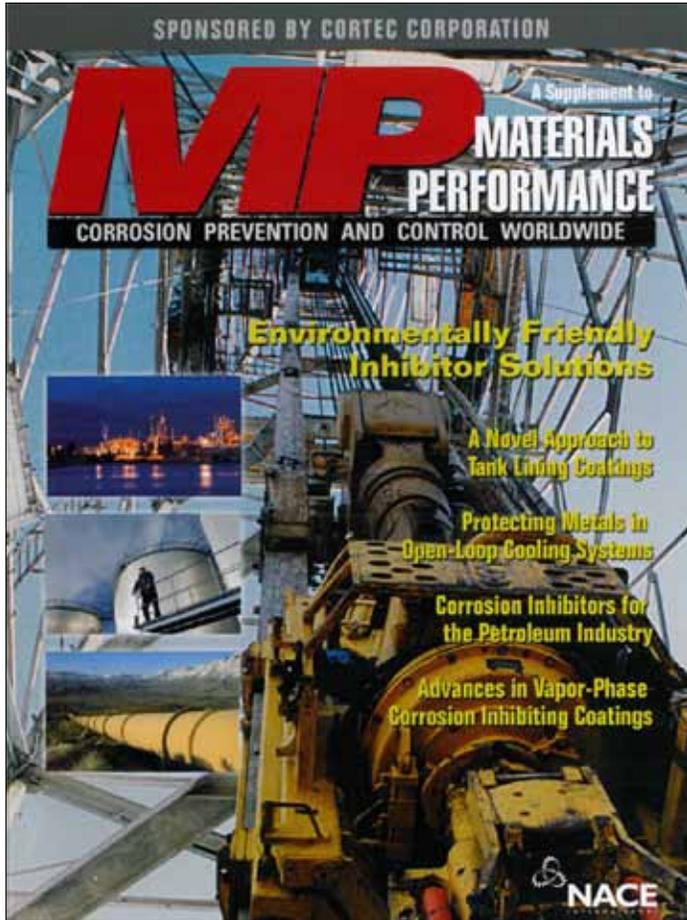
In an April 2009 memorandum for secretaries of the U.S. military departments, former Under Secretary of Defense for Acquisition, Technology and Logistics John J. Young, Jr. directed the U.S. military to minimize its use of hexavalent chromium ( $\text{Cr}^{6+}$ ), a heavy metal compound known for its corrosion protection properties, because of serious human health and environmental risks related to its use. Among other things, his memo directs the military to invest in appropriate research and development for substitutes, ensure that testing and qualification procedures for suitable substitute materials are funded, and approve the use of alternatives where they can perform adequately for the intended application in an operating environment. To learn more, visit [www.corrdefense.org](http://www.corrdefense.org).

### *DoD Releases New Cost of Corrosion Study*

The U.S. Department of Defense (DoD) Office of Corrosion Policy and Oversight released the latest segment of a landmark study on the cost of corrosion for all military equipment and infrastructure. "The Annual Cost of Corrosion of Air Force Aircraft and Missile Equipment," estimates the annual cost of corrosion for Air Force aircraft and ballistic missile equipment is \$5.4 billion and accounts for ~ 31% of all aircraft and missiles maintenance. This report is now available to the public. For more information, visit [www.corrdefense.org](http://www.corrdefense.org).

## Cortec's Materials Performance Supplement

With The Mothballing Hand book CD Published, Summer of 2009



9/9/09

Boris,

*"I just wanted to say that you did a great job with the recent supplemental mailing with M.P. It was well done."*

Congratulations,

Hartley

Contact us at [info@cortecvci.com](mailto:info@cortecvci.com) if you did not receive a copy.

## With StonCor in South Africa:



Shanon Greef of StonCor with Ines Miksic.



Boris Miksic President/CEO of Cortec® Corporation with Grant Boonzaier and Dave Thompson of StonCor.

## Keeping Cooling Water Clean

*Proper monitoring and control of water chemistry is essential*

Cooling water systems that rely on cooling towers are a critical component at chemical process industries (CPI) facilities. However during operation, these open recirculating systems concentrate the contaminants in the makeup water and as a result, scale formation and biological fouling can occur. To manage this problem all cooling water systems require proper chemistry control and monitoring. Unless prevented corrosion and the build up of scale and microbial fouling can impact cooling efficiency and in extreme cases even lead to unit shut down.

Although fresh water has relatively low levels of the minerals calcium and magnesium scale may form during summer months, even in once-through condensers and auxiliary heat exchangers, because of the higher seasonal water temperatures. If the water used in an open recirculating system has not been properly treated to remove unwanted constituents, the dissolved species in the water will become progressively concentrated. As solubility limits become exceeded for calcium carbonate, calcium sulfate, magnesium silicate, and other compounds, scale will form.

By their very nature, water-based cooling systems provide an ideal environment – warm and wet – for microbes to flourish. Biocide use is absolutely essential to maintain system performance and integrity. Even though the bacteria at the surface may be aerobic, the secretion layer allows anaerobic bacteria to flourish underneath. These microbes in turn can generate acids and other harmful compounds that directly attack the metal. At the heart of any microbiological treatment program is the use of an oxidizing biocide to kill organisms.

Chlorine has been the workhorse biocide for many years. The killing efficiency of chlorine dramatically declines as pH goes above 7.5. Thus, for the common alkaline scale and corrosion treatment programs – which intentionally maintain pH above 7 – chlorine chemistry may not be efficient. A popular alternative is bromine chemistry, where a chlorine oxidizer and a bromide salt, typically sodium bromide (NaBr), are blended in a makeup water stream and injected into the cooling water. Chlorine dioxide (ClO<sub>2</sub>) found some application as an oxidant. Other oxidants that have been tested for cooling water include hydrogen peroxide (H<sub>2</sub>O<sub>2</sub>) and ozone (O<sub>3</sub>). Another method to help control microbes is a supplemental feed of a non-oxidizing biocide. Careful evaluation of the microbial species in the cooling water is necessary to determine the most effective biocides.

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## Well Deserved Praise For Cortec® Spray Technologies

*“Just a quick word of thanks for the excellent work done by Ed and Dawn in completing our most recent LOCK SAVER run. The stuff looks good coming out of the straw... and all the other details were handled extremely well. Sincere thanks from all of us here to everyone there.”*

Kind Regards,

**Charles R. Furlong**  
Senior Vice President, Sales & Marketing  
MIL-COMM PRODUCTS COMPANY



# Cortec® Products for Hydrotesting / Lay-Up of Pipes, Tanks, and Other Equipment.

Cortec® Corporation manufactures many different products that are successfully used for the hydrotesting of pipes, tanks, and other equipment. The common questions are: What product is the best to use for which application? What kind of protection can be expected after hydrotesting?

To help you get some ideas about these applications Cortec® has created tables which show concentrations of inhibitors required for testing and lay-up.

## Fresh Water

Product	Test	Lay-up		
VpCl®-641	500 ppm-800 ppm	0.1% wt	Multi-metal	Three months
VpCl®-611	1-2%	20% wt	Ferrous, Aluminum, Galvanized steel	Two Years
VpCl®-609	0.5%	5% wt	Ferrous, Aluminum, Galvanized steel	Two Years
S-69/S-69P VpCl®-649	0.3%	0.6-1% wt	Multi-metal	Two Years
VpCl®-377	3-5%	3-5% wt	Multi-metal	Two Years
EcoLine® 3220	Dosage based on area to be protected 1250 ft <sup>2</sup> /gal (30.7m <sup>2</sup> /1)			

## Cast Iron/Fresh Water

Product	Test	Lay-up		
		1-3 months	6-12 months	12-24 months
VpCl®-609	1.5-2.5% wt	–	–	–
VpCl®-611	5-7.5% wt	5-7.5% wt	5-7.5% wt	10% wt
VpCl®-417P	0.2% wt	0.2-5% wt	5-1.0% wt	1-2% wt
S-69P	0.75% wt	5% wt	5-7% wt	7% wt
M-370	3-5%	3-5% wt	Multi-metal	Two Years
M-640L	2.5%	5%	5%	ND
M-59	2.5%	5%	5%	ND
EcoLine® 3220	Dosage based on area to be protected 1250 ft <sup>2</sup> /gal (30.7m <sup>2</sup> /1)			

## Sea (Salt) Water

Product	Test	Lay-up	
		1-3 months	6-12 months
VpCl®-644	0.3-5% wt	0.75% wt	For longer protection use VpCl®-611 rinse in tap water
VpCl®-645	0.75%	0.75%-1.0% wt	
S-69P	5%	5% wt	5%
VpCl®-611	5%	5% wt	5%
M-645	Dosage based on area to be protected 1250 ft <sup>2</sup> /gal (30.7m <sup>2</sup> /1)		
EcoLine® 3220			

# Nano-Particle Corrosion Inhibiting Film Patent Granted to Cortec®

Cortec® Corporation (Saint Paul, MN) announces it has been granted U.S. Patent 7,588,820 "Nano-particle corrosion inhibiting films" on September 15, 2009 by the United States Patent and Trademark Office. This patent protects Cortec® multilayer corrosion inhibiting films containing VpCl® and nano-clay particles created through a single-step fabrication process. The inclusion of nano-clay gives the films improved physical and barrier properties compared with other film products. With the granting of this patent Cortec® holds 43 active patents. Congratulations to Cortec® inventors Art Ahlbrecht, Rita Kharshan, and Boris Miksic.

 US07588820B2	
<b>(41) United States Patent</b> Berg et al.	
(110) Patent No.: <b>US 7,588,820 B2</b> (45) Date of Patent: <b>Sep. 15, 2009</b>	
(51) <b>NANO-PARTICLE CORROSION INHIBITING FILMS</b>	
(73) Inventor: Robert Berg, Corn Rapids, MN, (US); Arthur E. Ahlbrecht, Stillwater, MN (US); Margarita Kharshan, Little Canada, MN, (US); Boris A. Miksic, North Oaks, MN, (US)	(52) <b>References Cited</b> U.S. PATENT DOCUMENTS 4,189,557 A * 10/1983 Iwashima et al. .... 49,719 4,964,175 A * 4/1996 Maruyama ..... 42,9 4,983,359 A * 7/1996 Frates 5,297,809 A * 4/1993 Mitsu et al. 6,224,097 B1 * 5/2001 Cook et al. .... 426,36 (9) 6,902,909 B1 * 9/2005 Struelens et al. .... 426,40 (7) 2007/040496 A1 * 10/2007 ICOMPAG et al. .... 524,445
(73) Assignee: Cortec Corporation, St. Paul, MN, (US)	* cited by examiner Primary Examiner: Manojee R. Reddy (74) Attorney, Agent or Firm: Thompson &amp;amp;amp;amp;amp;amp; LLP
(54) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 656 days.	(57) <b>ABSTRACT</b> A packaging film for use in inhibiting corrosion in packaged goods includes a polymeric substrate resin, between about 1 and 2% by weight of one or more corrosion-inhibiting particles, and between about 2 and 10% by weight of nano-clay particles. The packaging film may be formed as a multiple layer coextruded film, wherein a first polymeric layer is disposed between a second polymeric layer including anionic particles, and a third polymeric layer including one or more cationic inhibitor materials.
(21) Appl. No.: 11/859,927 (22) Filed: Feb. 17, 2006 (65) Prior Publication Data US 2006/0422985 A1 Aug. 17, 2006	(51) Int. Cl. B23D 27/00 (2006.01) B23D 27/02 (2006.01) (52) U.S. Cl. .... 428/323; 428/325; 428/516 (56) Field of Classification Search ..... None See application file for complete search history.
7 Claims, No Drawings	

## The Vandenberg Sinking

The Vandenberg was sunk to become the largest artificial reef in the Florida Keys National Marine Sanctuary and the second largest in the world. The ship settled upright on her keel in 1 minute 44 seconds, exactly as predicted by the many model tests performed to design the sink plan. Marine life began colonizing immediately and the ship is now home to pelagic and reef fish, and many other species of marine plants and animals.



Cortec's President/CEO Boris Miksic standing by the Vandenberg in the Florida Keys before the ship's demise to the sea.



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Created: 1/10  
 Cortec®, BioCorr®, BioCortec®, BioCushion®, Boiler Lizard®, Closed Loop Toad®, Cooling Tower Frog®, VpCl®, VpCl® Film Color of Blue®, VpCl-126®, VpCl-609®, VpCl-137®, VmCl-307®, EcoWorks®, EcoAir®, Eco-Corr®, EcoLine®, EcoClean®, EcoShield®, EcoWeave®, EcoSpray®, EcoCoat®, Eco Emitter®, Eco-Tie®, Eco-Tie®, Eco-Card®, Eco-Shrink®, EcoWrap®, EcoFilm®, Cor-Mitt®, Cor-Pak®, CorShield®, CorSol®, Corrosorb®, CorWipe®, CorVerter®, Corr Seal®, CorrLam®, Corr-Fill®, Corlube®, CRI®, Desicorr®, ElectriCorr®, GalvaCorr®, Super Corr®, HPRS®, CRI®, MCI®, MCI Grenade®, Milcorr®, and Rust Hunter® are trademarks of Cortec® Corporation. ©Cortec Corporation 2010. All rights reserved.