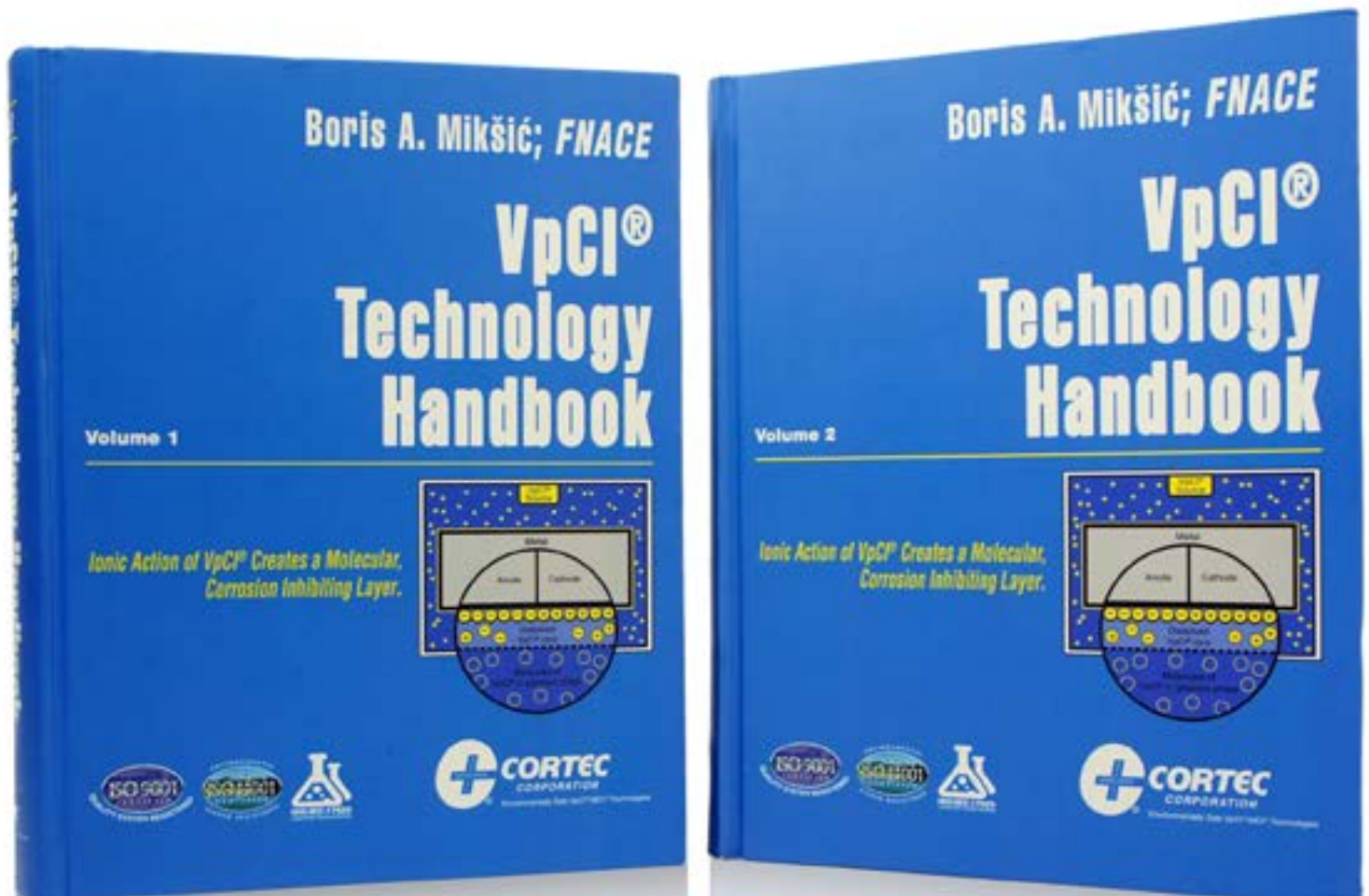


February 2015

# CORTEC Vision



**VpCI® Technology In The Palm Of Your Hands**



## Cortec's 1st Edition: "VpCI® Technology Handbook" Organized information and Onsite Reference Needed by Professionals

Publisher, Cortec® Corporation and author, Boris Mikšić FNACE, have the pleasure of announcing the 1st Edition of "VpCI® Technology Handbook". This manual compiles years of research and testing that provide valuable information on Vapor phase Corrosion Inhibitor technology and solutions to fight corrosion. "I never realized how much good research has been generated since our modest beginnings 37 years ago", says book author and Cortec's President/CEO Boris Mikšić.

The new "VpCI® Technology Handbook" is assembled into two volumes, with over 1200 pages of case studies, testing, publications, case histories, products, and more supporting evidence of the efficacy of the VpCI® technology.

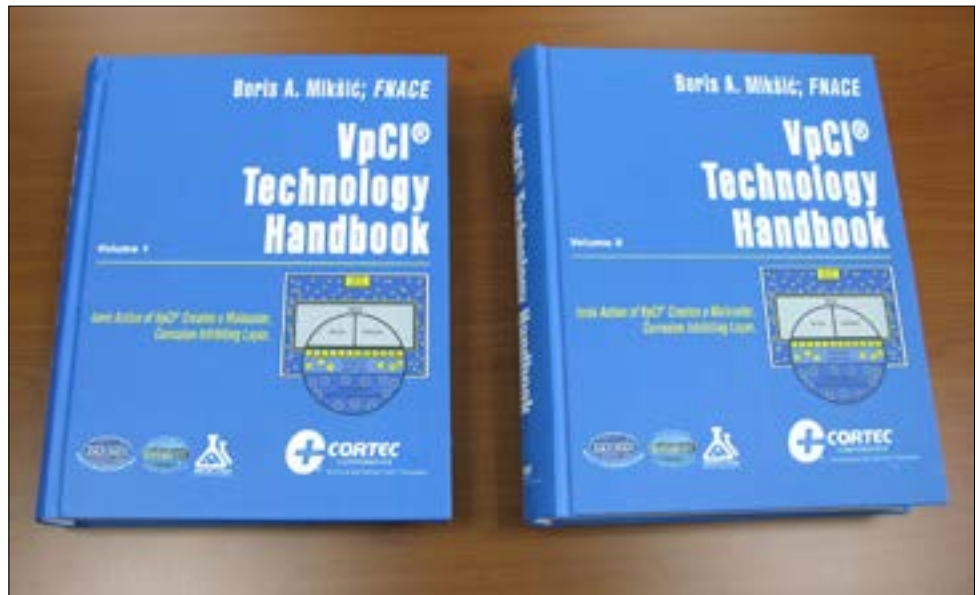
For over 150 years, corrosion and the degradation of metals and non-metallic materials has been the subject of heavy scientific studies. Corrosion has a great impact on the safety and reliability of an extremely wide range of industries, such as energy production, trans-

portation, biomedical engineering, water distribution and sewerage, electronics, and nanotechnology. In economic terms, the corrosion phenomenon, can greatly affect a nation's Gross Domestic Product. According to a study by CC Technologies Laboratories, from 1999 to 2001 the total annual estimated cost of corrosion in the United States was estimated at \$276 billion, equal to approximately 3.1% of the nation's GDP. Corrosion also affects military and national infrastructures.

Cortec® Corporation has been one of the largest and most respected suppliers of VpCI®/MCI® technology in the world. Many global companies have relied on information, services, and products from Cortec® for preservation, repair, and restoration of their materials. Cortec® VpCI®/MCI® technology provides unique solutions to difficult corrosion problems. The water-based inhibitors replace oily coatings and coolants to provide corrosion protection. The water-soluble additives in hydro test solutions protect during and after draining. VpCI®/MCI® emitters protect during the various stages of fabrication, assembly, shipping, and field operation.

The VpCI® Technology Handbook is the first of its kind in the world and provides organized information and onsite reference needed by professionals of several different industries. Easily find the exact best practice method to preserve or restore equipment at any stage of its useful life. We have experts stationed worldwide, ready to offer full-scale recommendations, application assistance, and technical support. As always, Cortec® is committed to quality, integrity and excellence.

Cortec's 1st Edition of the "VpCI® Technology Handbook" is available for FREE through the company's website located at: [www.cortecvpcitechnology.com](http://www.cortecvpcitechnology.com). Simply create a login and password to create an account for access to this valuable resource; or contact [samples@cortecvci.com](mailto:samples@cortecvci.com) for a CD version.



# New Product

## MilCorr® FR VpCI® Shrink Film Undefeatable by All Forces of Nature

MilCorr® FR VpCI® Shrink Film is a brand new heavy duty film with superior mechanical properties featuring Cortec's multimetal Vapor phase Corrosion Inhibitors (VpCI®), flame retardant additives, and ultra violet (UV) inhibitors. MilCorr® FR VpCI® Shrink Film provides a top notch universal protection system to maintain the integrity of the film itself as well as the parts packaged within. It reduces costs of protection and extends asset life.

This safe, economical, multifunctional film can replace conventional rust preventatives such as oils and desiccants while extending equipment life. Parts protected with MilCorr® FR VpCI® Shrink Film are ready to use with no additional cleaning and/or degreasing necessary, saving customer's time and money by eliminating extra processing steps.

Metal parts packaged in MilCorr® FR VpCI® Shrink Film receive continuous multimetal, contact, barrier and vapor-phase protection against salt air and humid environments, moisture, aggressive industrial atmospheres, and dissimilar metal corrosion. The VpCIs vaporize and condense on all metal surfaces within the enclosed space, and diffuse to every area of your part; protecting its exterior as well as void spaces and recessed areas. Complete product storage protection as well as during domestic and overseas shipments is provided, eliminating any rust claims and allowing immediate use of protected object upon removal.

MilCorr® FR VpCI® Shrink Film conforms to military specification MIL-B-22019D, NACE Standards RP0487-2000, and TMO-2008. It passes NFPA 701-2010 "Fire Test for Flame Propagation of Textiles and Films", Test #2-Flat Sheet Specimens.

### Typical Applications:

- Military vehicles and equipment preservation
- Mothball preservation of industrial equipment
- Export packaging of expensive larger equipment
- Heavy equipment covers
- Recreational vehicle (boats, snowmobiles, etc.) preservation
- Pallet shrouds

Typical shrink temperature: 340-440°F (171-227°C)

Typical sealing temperature: 240-320°F (116-160°C)

### UV Weathering Testing (ASTM G 53-93):

No corrosion or degradation of the film was observed after 3+ years of exposure.

Flame Retardancy Testing (NFPA 701-2010. Test #2): Pass.



WVTR g/(100in <sup>2</sup> •day)		WVTR g/(m <sup>2</sup> •day)	
Sample 1	Sample 2	Sample 1	Sample 2
0.0833	0.0829	1.29	1.28

Water Vapor Transmission Rate Testing (ASTM F-1249, 100% RH, 1000F (37.80C))

Property		Test Method	Units	MilCorr
Coliper		ASTM D6988	mil	10.00
Breaking Factor	MD	ASTM D882-02	lbs/in	25.1
	TD			25.5
Tensile Strength at Break	MD	ASTM D882-02	psi	2607.7
	TD			2553.4
Elongation at Break	MD	ASTM D882-02	%	725
	TD			789
Yield Strength	MD	ASTM D882-02	psi	896.6
	CD			1547.1
Tear Strength	MD	ASTM D1922-06a	mN	19463.0
	CD			29571.3
Dart Drop Impact Resistance		ASTM D1709-04, Test Method A	grams	1166

Mechanical Property Testing

## New Product

### Cortec® Introduces S-10 FA You Won't "Boil" Over With VpCl® Corrosion Protection!

One of the main causes of reduced reliability in boiler systems is corrosion. This phenomenon is described as the active destruction of sound boiler metal by the unforgiving action of dissolved oxygen in the boiler water. It usually results in deep holes, scabs, or blisters that allow the chemical reaction to continue.

Even though large metal surfaces can be quite sound, an oxygen pitting site can develop deep corrosion and cause ultimate boiler failure. Untreated feed water containing oxygen is going to continue to be highly corrosive to steam boilers so it is essential to keep adequate chemical reserves of an effective oxygen scavenger to avoid costly boiler metal corrosion and down time. It is estimated that problems due to boiler system corrosion cost the industry billions of dollars per year.

The latest innovation from Cortec® Laboratories, Inc, enables us to offer a new inhibitor addition to our boiler treatment products.

S-10FA is a filming amine formula for corrosion control in boiler condensate systems. The molecules of S-10FA anchor their hydrophilic heads to wetted metal surfaces while their hydrophobic tails will shield metal surfaces from contact with acidic corrosive condensates and prevent corrosion products, dirt, and other impurities in condensate return system from attachment to the metal. A thin protective field is formed on the metal when S-10FA is volatilized in the steam stream.

S10-FA is thermo-stable and compatible with a majority of boiler treatment chemicals. S-10FA should be added separately from other boiler treatment chemicals and preferably be injected into the steam header. S-10FA is very economical. A typical dose is 10 ppm to boiler feed water. The dosage may need to be adjusted depending on pH and oxygen content in condensate. The injection quantity should be based on both the internal surface area and volume of the system.

#### KEY FEATURES

- Economical
- Compatible with most other treatment products
- High efficiency against oxygen and low pH
- Thermo stable

Cortec's S-10 FA is available in 5- gallon (19 liter) plastic pails, 55- gallon (208 liter) metal drums, liquid totes, and bulk. The shelf life for S- 10FA is 2 years in closed original container.



# Re-engineered Product

## VpCI®-433

VpCI®-433 is a heavy-duty paint stripper designed to remove polymers, inks, resins, and coatings from surfaces of metals, concrete, and wood. The formulation has always been designed for maximum consumer safety and therefore does not contain methylene chloride, chlorinated solvents, methanol, toluene, acetone, etc. In its re-engineered 3rd generation version, VpCI®-433 now passes EPS Method 8280.

Unlike methylene chloride-based products that evaporate quickly, VpCI®-433 remains on the surface to soften and penetrate the coatings. The flowing gel component enables VpCI®-433 to reach and cling to vertical surfaces to provide complete coverage. The stripping time varies from 3 to 30 minutes, depending on the type and number of layers to be removed.

VpCI®-433 contains a unique combination of vapor and contact inhibiting compounds to prevent corrosion, flash rusting, and discoloration of ferrous metals, aluminum, copper, and brass after paint removal. VpCI®-433 paint stripper is effective on a wide range of paints, lacquers, enamels, waxes, alkyds, acrylics, urethanes, and epoxies.



# Coming Soon

## VpCI®-643

VpCI®-643 is a unique combination of biodegradable corrosion inhibitor and oxygen scavengers. VpCI®-643 is designed to protect ferrous and non-ferrous metals from chloride attack in fresh water, salt water, brine, and other highly corrosive solutions containing dissolved halogens. VpCI®-643 is effective at low dosages. VpCI®-643 is a “green” replacement for nitrite- or chromate- or hydrazine-based formulations. Target launch date: Mar to Apr 2015

## M-142

M-142 is a corrosion inhibitor additive for water-based acrylic and polyurethane dispersion (PUD) systems. The inhibitors protect both cathodic and anodic sites. Great protection over 400hrs in salt spray. Target introduction date: Apr to May 2015.

## VpCI®-146 Bio

VpCI®-146 Bio is an accelerated compostable version of the proven VpCI®-146. It will provide a convenient and economical means to protect multi-metal parts in storage or during transportation. With VpCI®-146 Bio, one has the choice to compost the used corrosion preventative conveniently. Because of the beneficial microbial and bio-stimulants in VpCI®-146 Bio, addition of used product to a compost pile may even help you to kick start the composting process. Target launch date: Apr to May 2015

## Cortec® On The Cutting Edge of Inkjet Printing Innovation On VpCI®-137 And BioPad® Products

Cortec® Corporation leads the way with another groundbreaking development in the corrosion inhibiting industry. Cortec® is on the cutting edge of inkjet printing innovation on our VpCI®-137 and BioPad® (Patent Pending) products by utilizing the latest techniques and technologies. This high-tech operation enhances the appearance of our products and prevents counterfeiting.

In order to test the efficiency of the inkjet printer, Cortec® Laboratories, Inc, has recently completed an evaluation of New Foam Ink to determine if the ink printed on the foam transfers to metal in high temperatures and high humidity and the results were very satisfactory. Using ASTM D1748, and humidity testing at 120°, 100% relative humidity on carbon steel panels, the test proves that the new ink on the foam does not transfer onto the metal material at high temperature and high humidity conditions. The ink looks exactly the same as it did before testing.



Cortec's Inkjet Printer Features:

- Requires no additional labor or processing time to print in the same line as the current foam is impregnated in
- Allows foam to run unprinted with the ability to be shut down
- Permits for a porous foam structure through sharp print, while also being small enough in size to run two strips of print down the length of the roll

## Cortec® Recertified for ISO 14001:2004 Continuing Dedication to Excellence

Cortec® Corporation announced today that the National Quality Assurance, USA Inc. (NQA), the largest and most respected ISO registrars in the world, has recertified Cortec's ISO 14001:2004 Standard that applies to environmental management systems. This recertification demonstrates Cortec's dedication to continual improvement of a mature environmental management system backed by a strong and committed environmental policy.

According to NQA, The ISO 14001 standard offers a number of important benefits for companies whose business operations impact the environment, either directly or indirectly, or who simply are concerned about maintaining an environmentally conscious image in the eyes of their customers or the general public. When developed and implemented effectively, ISO 14001 can even enhance an organization's bottom line through increased efficiency of operations and by attracting environmentally conscious customers by taking a more eco-friendly business approach.



ISO 14001:2004 provides Cortec® with the structure for effective EMS methods. Our Environmental Management System Committee, and employee teamwork enables us to formulate and follow ISO 14001-compliant processes. It ensures that the EMS maintains control of all Cortec's activities that may have an impact on the environment, also allowing us to identify and modify or eliminate potentially environmentally harmful processes before they cause damage or injury.

Cortec® was one of the first ISO certified companies in Minnesota. We received our first ISO 14001:2004 certification in 1998. Now, in a time when stringent regulations are being developed and implemented to protect the environment on a daily basis, Cortec® has continued to develop products and procedures that benefit this world we live in, providing a clean and safe environment for future generations.

## Cortec® 2014 Asian Sales & Strategy Meeting Hawaiian Paradise!

Cortec's 2014 Asian Sales & Strategy Meeting was held at the Hilton Hawaiian Village Waikiki Beach Resort. The two and a half day event kicked off with a cocktail reception Wednesday evening, November 19th. The next day the sales and strategy sessions began with a State of the Company address by President/CEO, Boris Mikšić. There were 30 attendees representing the United States, Canada, United Arab Emirates, Japan, China, Singapore, Vietnam, Korea, India, Australia, Taiwan, and Indonesia.

Sales awards for the Top 8 Asian distributors were presented, congratulations to them. All attendees were able share their Cortec® experiences from their respective countries and discuss Cortec® product applications covering multiple markets and industrial sectors. The meeting was very beneficial as everyone elaborated on ideas and strategies aimed at strengthening communication and synergy among our sales partners.

It wasn't all business – there was time to attend a traditional Hawaiian Luau where Cortec's Cliff "Miguel" Cracauer demonstrated his hula dance skills for the audience. The productive week wrapped up with an afternoon of snorkeling and sailing off of Waikiki Beach and dinner at Benihanna's Restaurant. The time our sales partners took to spend with us is appreciated. Looking forward to seeing all of you at the Cortec® World Sales Meeting in 2015!!

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## Cortec® Latin America Sales & Strategy Meeting Medellin, Colombia (October 25-27, 2014)

The 2014 Latin America Sales & Strategy Meeting was a fundamental step toward the growth of this region's business as well as building stronger relationships among Cortec's distributors. The meeting was hosted at the Intercontinental Hotel in Medellin, Columbia - attendees included sales partners from Brazil, Chile, Colombia, Ecuador, Panama, Peru, and Venezuela.

The two-day meeting offered a unique opportunity for the attendees to share experiences from their different countries. In this regard, the group especially appreciated the presentation given by Eng. William Bolivar, President and CEO of Energia Integral Andina Colombia, who illustrated key projects in Colombia and Panama. The meeting was very productive and beneficial to discuss the Cortec® product applications covering multiple markets and industrial sectors. In this current and crucial period of Latin American development and economic growth, the meeting allowed for sharing and elaboration of ideas and strategies aimed at strengthening communication, and synergy, among our Sales Partners.

Finally, the group was able to enjoy the truly colorful and fine Colombian "taste of life" while sightseeing in Medellin. "La Ciudad de La Eterna Primavera" (The City of The Eternal Spring) was seen aboard a traditional "chiva rumbera," a bus originally used by farmers to bring their produce and animals to town; which is now used for groups to have a good time dancing to the contagious sound of merengue, ballenato, rumba.... The 2014 Latin America Sales & Strategy Meeting was an unanimously acknowledged success! It has provided all attendees with new ideas, fresh energy, and tirelessly growing commitment and enthusiasm!

Muchas Gracias a todos por vuestra valiosa y cariñosa participacion ! See you again at the Cortec® World Sales Meeting in 2015!



*Upcoming Trade Shows*



**World Sales Meeting**  
*St. Paul, Minnesota*  
*September 16-19, 2015 at*  
*St. Paul Hotel*

*More information will follow in the coming weeks, please contact Vanessa Thompson (Vanessa@cortecvci.com) with any questions.*

**NACE 2015**  
MARCH 15-19, 2015  
BOOTH #10039  
SAN ANTONIO, TX  
[www.nace.org](http://www.nace.org)

**ICRI - SPRING 2015**  
MARCH 25-27, 2015  
NEW YORK CITY, NY  
[www.icri.org](http://www.icri.org)

**OTC 2015**  
MAY 4-7, 2015  
BOOTH # 8645  
HOUSTON, TX  
[www.otcnet.org](http://www.otcnet.org)

**EXPONOR 2015**  
MAY 11-15, 2015  
BOOTH # 321  
ANTOFAGASTA, CHILE  
[www.awt.org](http://www.awt.org)

**AWT 2015**  
SEPTEMBER 9-12  
NASHVILLE, TN  
BOOTH #201  
[www.awt.org](http://www.awt.org)

**EUROCORR**  
SEPTEMBER 6-10  
GRAZ, AUSTRIA  
[www.eurocorr2015.org](http://www.eurocorr2015.org)



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