



# MICRO-CORROSION INHIBITING COATINGS™ POWERED BY NANO VpCI®

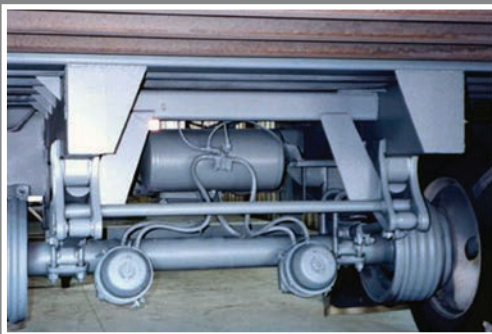




Products:  
VpCI®-395 & VpCI®-384

## Cortec® VpCI® Coatings Solve A Wide Variety Of Corrosion Problems

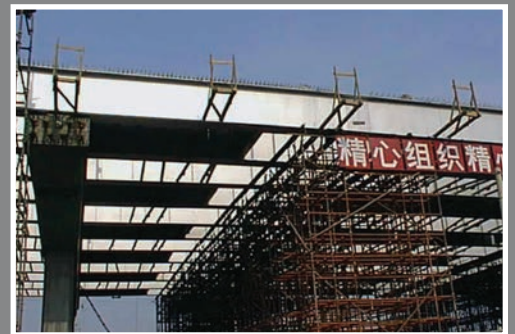
VpCI® Coatings protect a multitude of metal products. Applying VpCI® Coatings provides fast and economical protection for exterior and interior surfaces. Our technical staff can help you decide which product you need for long lasting and complete protection of your corrosion sensitive products.



Products: VpCI®-398



Products: VpCI®-391



Products: VpCI®-396

## Productivity, Investment Protection, And Cost Reduction

The total economic loss from corrosion can approach a staggering 5% of total profit. This huge loss comes from products that must be sold as a lower grade or must be repainted, reprocessed, or scrapped due to corrosive attack while in the plant or in the field. This leads to lost productivity. The high cost of corrosion also includes rust claims and freight costs for returned goods.



# The Industrial-Strength Edge In Safe VpCI® Corrosion Protection

Whether it's sea or land, Cortec® industrial-strength coatings withstand some of the harshest environments and climates. Cortec® offers a broad range of high-quality, innovative, environmentally safe coatings. Our goal is to provide you with the highest technical and intelligent solutions to protect your assets. Our performance is reliable globally, and our products provide excellent adhesion to substrates and exceptional resistance for reduced environmental impact.



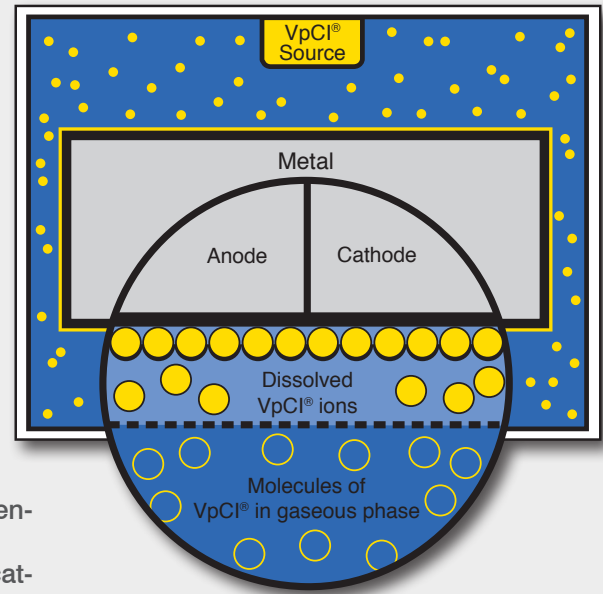
Products: VpCI®-391

## Vapor phase Corrosion Inhibitors (VpCI®)

VpCI® technology is an innovative, environmentally safe, cost-effective option for corrosion protection. Cortec® products protect with a thin, mono-molecular protective barrier. The barrier re-heals, self-replenishes, and can be combined with other functional properties for added protective capabilities. VpCI® forms a physical bond on the metal surface creating a barrier layer against aggressive ions.

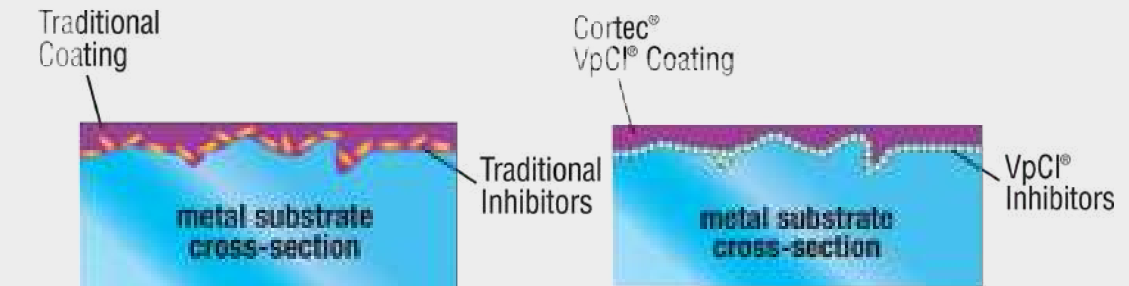
## How VpCI® Works

- Vaporizes
- Conditions enclosed atmosphere with a protective vapor.
- Vapor condenses on all metal surfaces.
- Ions dissolve in moisture layer (water electrolyte).
- Protective ions are attracted to metal surfaces.
- Ions form a thin molecular protective layer at the metal surface.
- Protective layer re-heals and self-replenishes through further condensation of the vapor.
- VpCI® combines with other functional properties. Antistatic, Lubricating, Cleaning, Paint Removing, Desiccant, Polymeric, Coatings, Rust Removing, Fire Retarding.

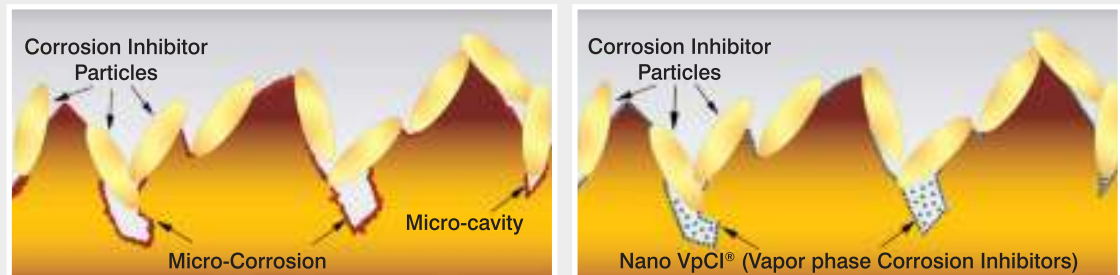


## Traditional Coatings vs. Cortec® Micro-Corrosion Inhibiting Coatings™ With Nano VpCI®

Traditional coatings rely on sacrificial metals (zinc, chromates, aluminum) for inhibition. Due to the large particle size of these inhibitors, gaps exist which allow corrosion to start and eventually expand, causing coating failure.



Cortec® Nano VpCI® coatings use the patented VpCI® technology to protect the metal substrate with a tight bonding molecular structure. This system eliminates the gaps which occur with traditional inhibitors and prevent corrosion from starting.



# Choosing The Correct Coating

- Type of protection needed (short term, long term)
- Type of metal to protect
- Type of exposure (indoor, outdoor)
- How it will be applied (spray, dip, brush)
- What are the application parameters
- Cost parameters

## One Component Primers

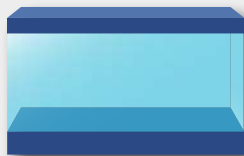
	1K System VpCI®-373	VpCI®-375	VpCI®-386	VpCI®-396	CorrVerter®	EcoShield® 386	EcoPrimer™	CorrBarrier
System Type	Water	Water	Water	Solvent	Water	Water	Water	Water
Resin	Acrylic	Acrylic	Acrylic	Urethane	PVC	Acrylic	Acrylic/Alkyd	PVC
Exterior Durability	Poor	Very Good	Very Good	Very Good	Poor	Very Good	Poor	Very Good
Chemical Resistance	Poor	Fair	Fair	Good	Very Good	Fair	Good	Very Good
Direct To Metal (DTM)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Salt Spray	72 hrs	750 hrs+	168 hrs	750 hrs+	500 hrs	1000 hrs	200 hrs	500 hrs
Gloss	15-25	30-50	80+	30-50	15-25	80+	15-25	15-25
VOC	0.6 lbs/gal (72 g/l)	0.7 lbs/gal (84 g/l)	0.6 lbs/gal (72 g/l)	3.1 lbs/gal (371 g/l)	0.1 lbs/gal (12 g/l)	0.61lbs/gal (68 g/l)	0.1 lbs/gal (12 g/l)	0.2 lbs/gal (24 g/l)
Solids	30.90%	39%	31%	56.20%	34.50%	31%	41.70%	44.30%
Recommended DFT	0.5-1.0 mils (12.5-25 um)	1.5-3.0 mils (37.5-75um)	1.5-3.0 mils (37.5-75um)	2.0-3.0 mils (50-75um)	3.0-5.0 mils (75-125um)	1.5-3.0 mils (37.5-75um)	1.5-4.0 mils (37.5-100um)	2.0-3.0 mils (50-75um)
Dry To Touch	20 min	20 min	30 min	2-3 hrs	2-3 hrs	30 min	20-30 min	20-30 min

\* VpCI®-386 Clear - colors will have less hrs SS

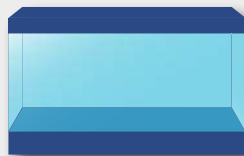
## One Component Topcoats

	EcoShield® 386	VpCI®-280	VpCI®-371	VpCI®-375	VpCI®-380	VpCI®-381	VpCI®-383	VpCI®-386	VpCI®-387	VpCI®-390	VpCI®-392	VpCI®-398
System Type	Water	Solvent	Solvent	Water	Water	Water	Water	Water	Water	Water	Water	Solvent
Resin	Acrylic	Alkyd	Silicone	Acrylic	Fluoropolymer	Urethane/Acrylic	Acrylic	Acrylic	Acrylic	Alkyd	Urethane	Sulphonate
Exterior Durability	Very Good	Very Good	Very Good	Very Good	Very Good	Very Good	Good	Very Good	Very Good	Very Good	Very Good	Very Good
Chemical Resistance	Fair	Poor	Good	Fair	Good	Very Good	Fair	Fair	Fair	Fair	Good	Very Good
Direct To Metal (DTM)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Salt Spray	1000 hrs	336 hrs	600 hrs	750 hrs +	1000 hrs +	1000 hrs +	168 hrs	168 hrs	500 hrs	500 hrs	200 hrs +	2000 hrs +
Gloss	80+	80+	80+	30-50	80+	80+	80+	80+	80+	80+	80+	15-25
VOC	0.61lbs/gal (68 g/l)	2.8 lbs/gal (336 g/l)	3.3 lbs/gal (395 g/l)	0.7 lbs/gal (84 g/l)	1.6 lbs/gal (192 g/l)	0.29 lbs/gal (35 g/l)	0.6 lbs/gal (72 g/l)	0.6 lbs/gal (72 g/l)	0.8 lbs/gal (95 g/l)	1.12 lbs/gal (134 g/l)	1.1 lbs/gal(132 g/l)	2.6 lbs/gal (312 g/l)
Solids	31%	54-57%	37.10%	39%	33.90%	33.70%	12%	31%	30.90%	26.20%	34.10%	64.90%
Recommended DFT	1.5-3.0 mils (37.5-75um)	1.0-3.0 mils (25-75um)	1.0-2.0 mils (25-50um)	1.5-3.0 mils (37.5-75um)	3.0-5.0 mils (75-125um)	1.5-3.0 mils (37.5-75um)	4-1.2 mils (10-30um)	1.5-3.0 mils (37.5-75um)	3.0-5.0 mils (75-125um)	1.5-2.0 mils (37.5-50um)	1.0-2.0 mils (25-50um)	4.0-5.0 mils (100-125um)
Dry To Touch	30 min	30 min	20 min	20 min	30 min	20- 30 min	30 min	30 min	1 hr	1-2 hrs	30-40 min	4-6 hrs

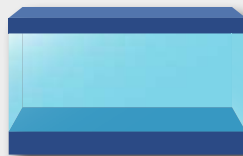
## Cortec® Pre-Treatment Typical 5 Stage System



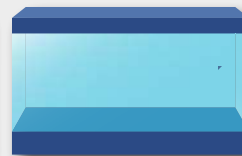
Alkaline Wash  
VpCI®-405-419 Series  
Acid Wash  
VpCI®-422-427 Series



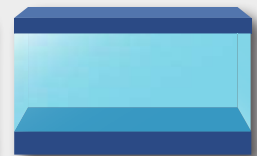
Rinse



Alkaline Wash  
VpCI®-405-419 Series  
Acid Wash  
VpCI®-422-427 Series



Rinse



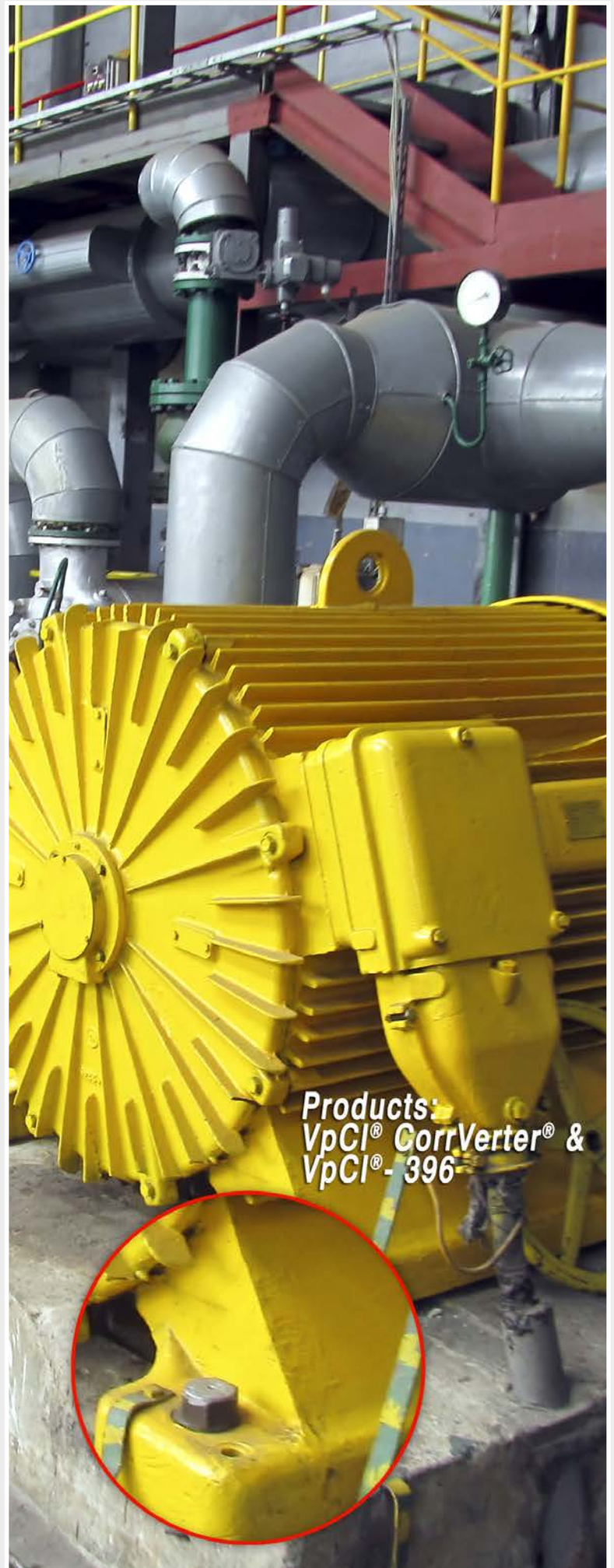
Adhesion Promoter  
VpCI®-440

## Two Component Primer

	VpCI®-395
System Type	Water
Resin	Epoxy
Exterior Durability	Poor
Chemical Resistance	Excellent
Direct To Metal (DTM)	Yes
Salt Spray	1000 hrs +
Gloss	15-25
VOC	0.2 lbs/gal (24 g/l)
Solids	48.60%
Recommended DFT	1.5-3.0 mils (37.5-75um)
Pot Life	2-3 hours
Dry To Touch	20-30 min

## Two Component Topcoats

	VpCI®-382	VpCI®-384	VpCI®-2026
System Type	Water	Solvent	100% Solids
Resin	Urethane	Urethane	Novolac Epoxy
Exterior Durability	Very Good	Very Good	Very Good
Chemical Resistance	Very Good	Very Good	Excellent
Direct To Metal (DTM)	No	No	Yes
Salt Spray	1000 hrs +	500 hrs +	500 hrs +
Gloss	80+	80+	80+
VOC	0.02 lbs/gal (2.4 g/l)	3.5 lbs/gal (419 g/l)	0.1 lbs/gal (12 g/l)
Solids	67.90%	50-55%	100%
Recommended DFT	1.5-3.0 mils (37.5-75um)	1.5-3.0 mils (37.5-75um)	11.0-13.0 mils (275-325um)
Pot Life	2-3 hours	2-3 hours	20-25 minutes
Dry To Touch	2.5-3 hrs	.5-2 hrs	30 min



## Removable Coatings

Cortec's removable coatings deliver exceptional multimetal protection for outside applications and salt-spray resistance. These removable coatings are an advanced, safe replacement for hazardous oil-based products. They are an excellent choice for long-term indoor protection that lasts up to 5 years and short to medium-term (6-24 months) unsheltered outdoor protection.

These completely safe and easy to use coatings cure to a soft film and eventually harden. They are very efficient in SO<sub>2</sub> and H<sub>2</sub>S environments. The products leave a translucent, waxy coating that are easily removable, and are low in VOC's. Cortec's removable coatings can be easily removed with alkaline cleaners, such as Cortec® VpCI®-414. Metals protected are: aluminum, steel, cast iron, copper alloy and tin plated steel.

Cortec's removable coatings are the best solution on the market for applications such as equipment lay-up, parts processing protection, overseas shipping, maintenance repairs, and parts storage. Traditional coatings rely on sacrificial metals (zinc, chromates, and aluminum) for inhibition. Due to the large particle size of these inhibitors, gaps exist which allow corrosion to start and eventually expand, causing coating failure.

Cortec's removable coatings use the patented VpCI® technology to protect the metal substrate with a tight bonding molecular structure. This system eliminates the gaps which occur with traditional inhibitors and prevents corrosion from starting. With environmentally safe VpCI® technology, the equipment and products will get superior corrosion protection.



## Typical Applications

- Equipment lay-up
- Parts processing protection
- Overseas shipping
- Maintenance repairs
- Parts storage



	VpCI®-368	VpCI®-369	VpCI®-372	VpCI®-388	VpCI®-389	VpCI®-391	CorShield®
System Type	Solvent	Oil	Water	Water	Water	Water	Water
Exterior Durability	Very Good	Good	Good	Good	Very Good	Very Good	Good
Salt Spray	1500 hrs	3500+ hrs	168 hrs	100 hrs	600 hrs	250+ hrs	100 hrs
VOC	2.9 lbs/gal (347 g/l)	0.0 lbs/gal (0 g/l)	0.2 lbs/gal (24 g/l)	0.2 lbs/gal (24 g/l)	0.1 lbs/gal (12 g/l)	0.4 lbs/gal (48 g/l)	0.0 lbs/gal (0 g/l)
Solids	52.30%	99%	33%	26.70%	37.10%	34.40%	10-20%
Recommended DFT	2.0-3.0 mils (50-75 um)	1.0-3.0 mils (25-75um)	2.0-10.0 mils (50-250 um)	2.0-3.0 mils (50-75um)	1.0-2.0 mils (25-50 um)	1.0-3.0 mils (25-75 um)	0.5-1.0 mils (12.5-25 um)
Dry To Touch	30 min	na	1-2 hrs	20-30 min	10-60 min	30-60 min	30 min
Removal	VpCI®-414	VpCI®-414	VpCI®-414	VpCI®-414	VpCI®-414	VpCI®-414	VpCI®-414

VpCI®-368M is:  
Qualified to MIL-PRF-16173E (Grades 1)  
• NSN 8030-01-430-4898  
• QPL 4620-1535(1)

VpCI®-369M is:  
Qualified to MIL-PRF-16173E (Grade 2)  
• Listed QPL 4260-1535 (Grade 2)  
• NSN 8030-00-244-1298  
• NSN 8030-01-149-1731

# Cortec® Coatings Provide Permanent Protection For Field Service, Anti-Corrosive Maintenance, And OEM Applications

Cortec® can match your current colors with a customized formula or simply match it from our extensive list of standard colors. Most Cortec® coatings have outstanding UV resistance. Cortec® products also have excellent gloss retention, which is important when aesthetics are a consideration.

With environmentally safe VpCl® technology, your equipment and products will be effectively protected against humidity, saltwater, and oxidizing atmospheres as well as corrosive industrial, marine, and tropical environments.



**Before**



**After**

Right: The customer required long term protection of metal pillars used in electrical transmission lines. Sand blasting and water blasting were prohibited from being done on this project. Additionally, the customer required an easy to apply, cost effective, and environmentally friendly solution.

Courtesy Cortecros Ltd.  
Products: CorrVerter® and VpCl®-386 Aluminum  
Location: Croatia



Products:  
VpCl® CorrVerter® & VpCl® - 396

# Cortec® Corporation



## Quality Management System (ISO 9001 Certified)

### World Class Product Offerings

An innovative producer of leading edge products.

### World Class Customer Service

A positive, long-lasting impression through every link of our company.

### World Class Environmental Commitment

Cortec® commits to continued development of processes and products that are useful, non-hazardous to the environment, and recyclable whenever possible.

### An Ethical and Respectful Company Culture

Respect and treat our colleagues, customers, and vendors as we would our own family members.



## Environmental Management System (ISO 14001 Certified)

Cortec's strong environmental concern is demonstrated in the design and manufacturing of products that protect materials of all kinds from environmental degradation. A strong commitment to produce recyclable products made from sustainable resources has been and will be our future policy. This brochure can be recycled.



## Laboratory Accreditation (ISO/IEC 17025)

Cortec® Laboratories, Inc. is the only lab in our industry that has received ISO/IEC 17025 Certification, which ensures quality in recording and reporting data, as well as calibrating equipment within the laboratory.



## LIMITED WARRANTY

All statements, technical information and recommendations contained herein are based on tests Cortec® Corporation believes to be reliable, but the accuracy or completeness thereof is not guaranteed.

Cortec® Corporation warrants Cortec® products will be free from defects when shipped to customer. Cortec® Corporation's obligation under this warranty shall be limited to replacement of product that proves to be defective. To obtain replacement product under this warranty, the customer must notify Cortec® Corporation of the claimed defect within six months after shipment of product to customer. All freight charges for replacement product shall be paid by customer.

Cortec® Corporation shall have no liability for any injury, loss or damage arising out of the use of or the inability to use the products.

BEFORE USING, USER SHALL DETERMINE THE SUITABILITY OF THE PRODUCT FOR ITS INTENDED USE, AND USER ASSUMES ALL RISK AND LIABILITY WHATSOEVER IN CONNECTION THERE WITH. No representation or recommendation not contained herein shall have any force or effect unless in a written document signed by an officer of Cortec® Corporation.

THE FOREGOING WARRANTY IS EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES, EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION ANY IMPLIED WARRANTY OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE. IN NO CASE SHALL CORTEC® CORPORATION BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES.



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

Printed on recycled paper ♻️ 100% post consumer

Distributed by:

Revised: 11/16 - Supersedes: 07/16  
Cortec®, BioCorr®, BioCortec®, BioCushion™, Boiler Lizard®, Closed Loop Toad®, Cooling Tower Frog®, VpCI®, VpCI® Film Color of Blue®, VpCI-126®, VpCI-609®, VpCI-137®, VmCI-307®, EcoWorks®, EcoAir®, Eco-Corr®, EcoLine®, EcoClean®, EcoShield®, EcoWeaver®, EcoSpray®, EcoCoat®, Eco Emitter®, EcoSol®, Eco-Tie®, Eco-Card®, Eco-Shrink®, EcoWrap®, Eco Film®, Cor-Mitt®, Cor-Pak®, CorShield®, CorSol®, Corrosorb®, CorWipe®, CorrVerte®, Cor Seal®, CorLam®, Corr-Fill®, Corriube®, CRI®, DesCorr®, ElectriCorr®, GalvaCorr®, Super Cor®, HPRS®, CRI®, MCI®, MCI Grenade®, Milicorr®, Nano VpCI®, and Rust Hunter® are trademarks of Cortec® Corporation.  
©Cortec Corporation 2010. All rights reserved