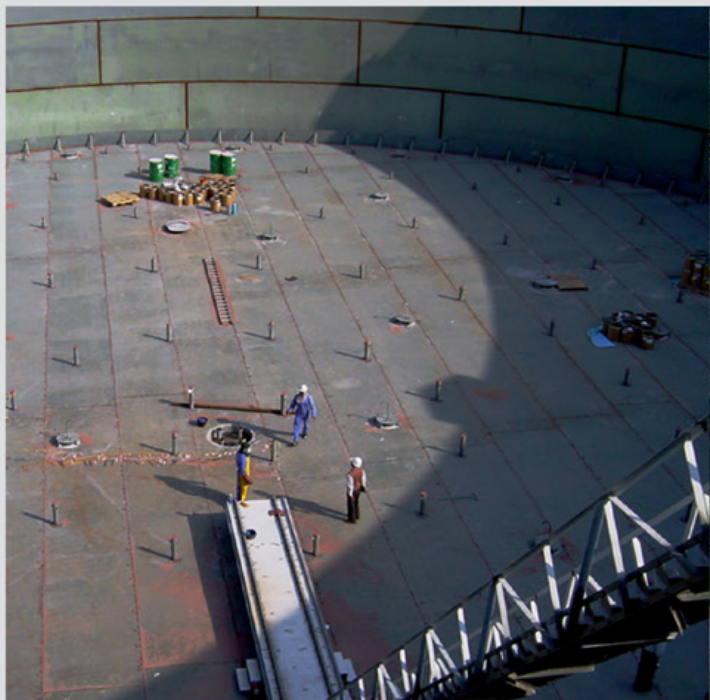


# GLOBAL SERVICES

## PRESERVATION. SIMPLIFIED.



**CORTEC**  
CORPORATION

Environmentally Safe VpCI®/MCI® Technologies



# Preservation. Simplified.

Cortec® Global Services provides customers and clients with best-in-class technology, project management, engineering, design, application, and training services to ensure zero defect, low-cost preservation. For over 35 years, Cortec has delivered high performance turn-key solutions for manufacturers, engineering firms and project owners from industries ranging from automotive, telecommunications, construction, aerospace, military, power generation, oil and gas, and mining.

By transferring knowledge of best practices between industries, Cortec can ensure your preservation goals are attained at the lowest possible impact and cost.

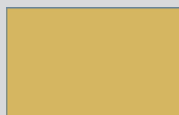


## VpCI® Technology

Corrosion is a constant, indiscriminate, and costly enemy of metal, especially when packaged for storage and transportation. Traditional anti-corrosion methods are messy, expensive, and can be hazardous to personnel and the environment. Too often they are ineffective.

Cortec's Vapor phase Corrosion Inhibitor (VpCI®) technology represents a breakthrough solution in corrosion prevention. Our VpCI® products protect metals with a chemically adsorbed molecular layer that provides multi-metal corrosion protection. The coverage is complete – all surfaces, crevices, cavities, and other inaccessible void areas receive total protection. The VpCI® barrier is self-replenishing, even for packaging that's repeatedly opened; and typically protects for up to 24 months.

The industry proven result is exceptional product protection without the labor-intensive clean-up required with conventional oil coatings or other inhibiting products; even for previously corroded, painted, or coated surfaces.



Enclosure



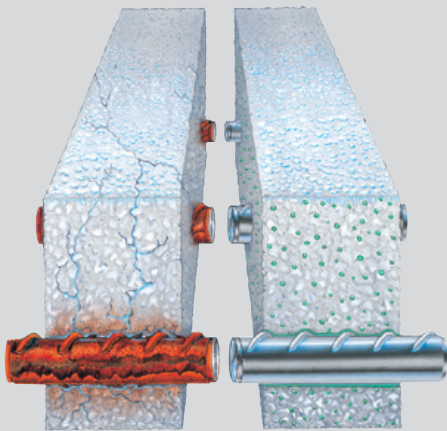
VpCI® Source



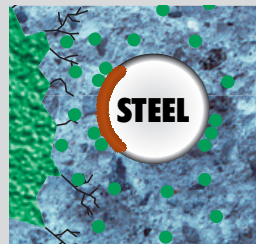
VpCI® Molecule

# MCI® Technology

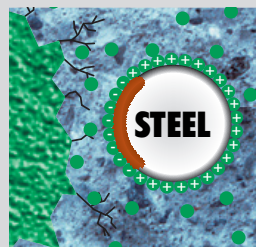
The migration process of MCI® molecules is based on their ability to diffuse in both vapor or liquid form. Attracted to both anodic and cathodic areas of embedded metallic reinforcement, they penetrate into even the smallest pores and cavities. This physical adsorption onto metal surfaces provides a protective monomolecular layer that significantly reduces corrosion rates even on rusted surfaces, greatly extending the useful service life of the structure.



**Remove Spalled Concrete.** The first step in the rehabilitation process is the removal of spalled concrete from the deteriorating structure.



**Cortec® MCI® migrates through concrete to protect steel.** The inhibitor will migrate a considerable distance through the concrete to deposit itself on the internal bars.



**Cortec® MCI® protects the steel from further corrosion.** The inhibitor attaches to the steel reinforcement forming a thin, protective coating of MCI® molecules. This prevents a chemical reaction between the steel and oxygen, chlorides, or other contaminants in the structure, mitigating further corrosion.

## How Cortec® VpCI®/MCI® Reduces Cost

Corrosion costs the U.S. economy over \$1 trillion every year. This estimate accounts for only the reportable loss across several industries. The loss estimate does not account for any indirect costs associated with the failures and increased expenses associated with corrosion.

As industries focus on reducing costs and increasing asset life cycle, it is critical to identify the appropriate corrosion prevention strategies and corrosion management systems. When properly applied, Cortec's VpCI®/MCI® technology substantially cuts time and cost throughout the entire product life cycle: manufacturing, storage, shipping, and field service.

Cortec's VpCI®/MCI® products eliminate the extra processing steps such as cleaning, degreasing, rust removal, pickling, sandblasting, and re-protecting. The results are less re-work, fewer rejects, improved quality, reduced rust claims, and extended equipment life.

- Multifunctional products
- More effective protection
- Efficient delivery systems that make it economical to treat hard-to-protect items
- Easy application
- Improved health, safety, and pollution control
- Elimination of extra processing steps: in most cases there is no need to remove the VpCI®/MCI® product
- Maximized asset life

# Technology Platforms

## Packaging

Cortec offers a full range of VpCI® Packaging Solutions, many of which conform to international, government, military, and corporate specifications. VpCI® Packaging Solutions offer cost effective, high performance protection of parts, equipment, and structures for short or long-term, in environments from in-plant preservation to aggressive marine environments. VpCI® Packaging Solutions range from coated papers, impregnated foams, extruded films, cushions, emitter devices, inserts, and custom designed solutions, ensuring ease of integration, simplicity of use, and uncompromised performance.

- Outdoor Long-term Corrosion Inhibiting Shrink Film
- Corrosion Inhibiting Stretch Film
- Corrosion Inhibiting Film, and Bags
- Corrosion Inhibiting Paper
- Corrosion Inhibiting Foam
- Corrosion Inhibiting Powder Bag



## High Performance Coatings

All Cortec® coatings deliver exceptional protection, even in extreme outdoor industrial, marine, or tropical environments. Cortec can recreate 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. They also have excellent gloss retention, which is important when aesthetics are a consideration.

With environmentally safe VpCI® technology, your equipment and products will be effectively protected against humidity, salt water, and oxidizing atmospheres. 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® 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.

- Rust Converting Inhibitor Coating
- High Temperature Resistance Coating
- High Performance Coatings (Epoxies and Urethanes)
- Protection for Steel Plate and Iron Bar (Water-based)
- Safe Rust Remover

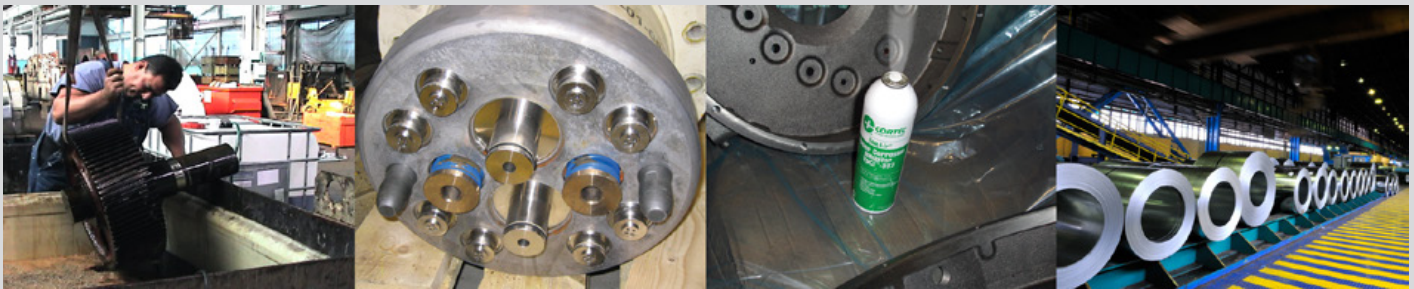




# Metal Treatment

VpCI® protects a multitude of metal products. Spraying or dipping pipe and other tubulars with VpCI® provides fast and economical protection for exterior and interior surfaces. In addition, water-based concentrates provide corrosion protection and lubricant action for hot rolled, cold rolled, galvanized and aluminized steels, copper, aluminum, brass, and other products, eliminating the need for oil and oil-water emulsion rust preventives.

- Wax Type Long-Term Corrosion Inhibitor
- Oily Long-Term Corrosion Inhibitor
- Mid to Long-Term Corrosion Inhibitor
- Corrosion Inhibiting Additives
- Indoor Long-Term Protection
- Outdoor Long-Term Protection
- All Purpose Coatings



## Hydrotesting and Process VpCI®

Cortec's VpCI® additives offer highly efficient, environmentally conscious, and economical corrosion protection for process industries. While conventional corrosion inhibiting treatments provide protection at the liquid phase only, Cortec® VpCI® technology provides corrosion protection in interface, liquid phase, and vapor phase.

Unlike conventional corrosion inhibition methods, Cortec® VpCI® products are self-replenishing. Add Cortec® VpCI® into any part of your system at single or multiple points. For example, inject VpCI® products automatically into a system without any operator attendance and immediately start protecting hundreds of feet of piping in steam lines and liquid distribution systems.

As the environmentally conscious corrosion treatment of the 21st century, Cortec® VpCI® products are free of chromates, heavy metals, phosphates, or chlorinated hydrocarbons. Our organic formulations give an environmentally acceptable way to protect equipment. From aggressive brine solutions in deep and hot wells to protecting miles of remote pipeline, Cortec's VpCI® products extend the life of your systems.

- Multi-metal VpCI® Powder
- Hydrotesting Corrosion Inhibitor
- Ferrous, SS, Aluminum VpCI® Powder
- Ferrous Metal VpCI® Powder
- Concentrated Liquid VpCI®
- Sea Water Hydro-Test Corrosion Inhibitor



# Technology Platforms

## Emitters and Foams

Emitter devices provide exceptional adsorption and protection for recessed areas. Devices are applicable to virtually any packaging system. They come in pouches, tablets, foams, or emitters.

Cortec® impregnated foams protect precision machined parts and highly sensitive electronic components. They protect against breakage, surface damage, or scratches.

- **Emitters/Small size**
- **Emitters/Medium, large size**
- **Spray**
- **PCB Coating**
- **Cleaner and Corrosion Preventive**
- **Corrosion Inhibitor Desiccant Pouch**



## VpCI® Additives

Cortec® additives integrate many technologies along with our VpCI® chemistry in order to eliminate corrosion caused by corrosive fluids, chlorides, or humid environments. These additives, when implemented into a final product, will ultimately cut costs such as expensive alloys, corrosion claims, and labor associated with regular corrosion maintenance.

Each group of additive classes is highlighted here. All the different additives listed have been formulated for specific purposes, often in a fluid carrier to be compatible with specific systems. It is always recommended to evaluate the best additive for your application and ensure compatibility of the additive before wide scale implementation.

- **Water-based Additive**
- **Water-based Additive for Coating**
- **Oil-Based Additive for Lubricants**
- **Solvent-Based Additive**
- **EG Corrosion Inhibitor Additive**



# Total Solution Provider

Global Services is focused on providing our customers with optimum corrosion control solutions to meet their everyday needs. The scope of services for Cortec's Global Services include a variety of corrosion control design, engineering, and field applications serving Cortec customers worldwide. Our group is committed to providing a cost effective service designed to ensure our customers receive the correct products, technologies, and applications the first time, every time.

Training and Supervision	Advisory and Consultancy	Engineering and Design (CEFS)	Turnkey Application Services	Laboratory Testing and Product Design
Cortec® Certified Applicator Training	Subject Matter Expert Liaison with Client Engineering	Full Service System Design	Single Purchase Order Full Service Preservation Execution	Certified Independent Laboratory ISO/IEC 17025
On-the-job-training (OJT) Modular Programs	Application Method and Specification	Corrosion Monitoring and Inspection	Value-Added, Turn-Key Solutions	Technical Specification
Supervision of Client Crews Including Short and Prolonged Deployment	Onsite Liaison: Including Short and Prolonged Deployment	Onsite or Offsite	Assistance Through Entire Project Life-Cycle	Product Design

## Services Buyers Guide

### Certified Applicator Training

Applicator Training - Crew	Cortec® supplied training to provide short-duration training on key asset/task
Applicator Training Individual Certification	Cortec® supplies training services and individually certifies attendees on demonstrated competencies
Applicator Training – OJT Modular	Cortec® provides supervisory training services onsite using OJT modules pertinent to job scope

### Advisory Services

Specification Review	Cortec® supplies SME (subject-matter-expert) remotely or onsite to review and assist in writing or reviewing preservation specifications
Onsite Liaison	Cortec® supplies SME onsite or in back-to-back rotator format or similar in office setting to advise and consult on preservation issues and plan preservation resources
Project Manager	Cortec® supplies PMs for duration of project to plan and execute preservation resources
Scoping Visit	Cortec® supplies Preservation Advisor for initial scoping visits

### Engineering, Design and Monitoring Services

Corrosion Monitoring	Cortec® supplies SME onsite for comprehensive monitoring of all critical components of industrial objects, assets, facilities and plants for signs of corrosion based on project specifications
Corrosion Inspection	Cortec® supplies SME to onsite for inspection of asset integrity and suitability of service. Can also evaluate, design, and implement robust corrosion inspection program
Engineering Design Services	Cortec® supplies a corrosion engineer to build a product and/or process with a specified performance goal
Maintenance Services	Cortec® supplies SME for maintenance of preservation application and projects

### Full Service Preservation Services

Supervisory	Cortec® supplies a Preservation Supervisor to oversee preservation application and/or training of Company crews
Full Crew	Cortec® supplies trained crews to complete preservation projects
Skilled Labor	Cortec® supplies labor to preservation projects to work with Company team

### Laboratory and Corrosion Testing Services

Technical Liaison	Cortec® supplies primary technical expert in the use and application of Cortec® products and preservation methods
Technical Service	Cortec® supplies technical service contact to assist with product and application clarification



# 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 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.

## Contacts

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Visit our websites for more information on Cortec Corporation.

**CortecVCI.com and CortecMCI.com**

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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.

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