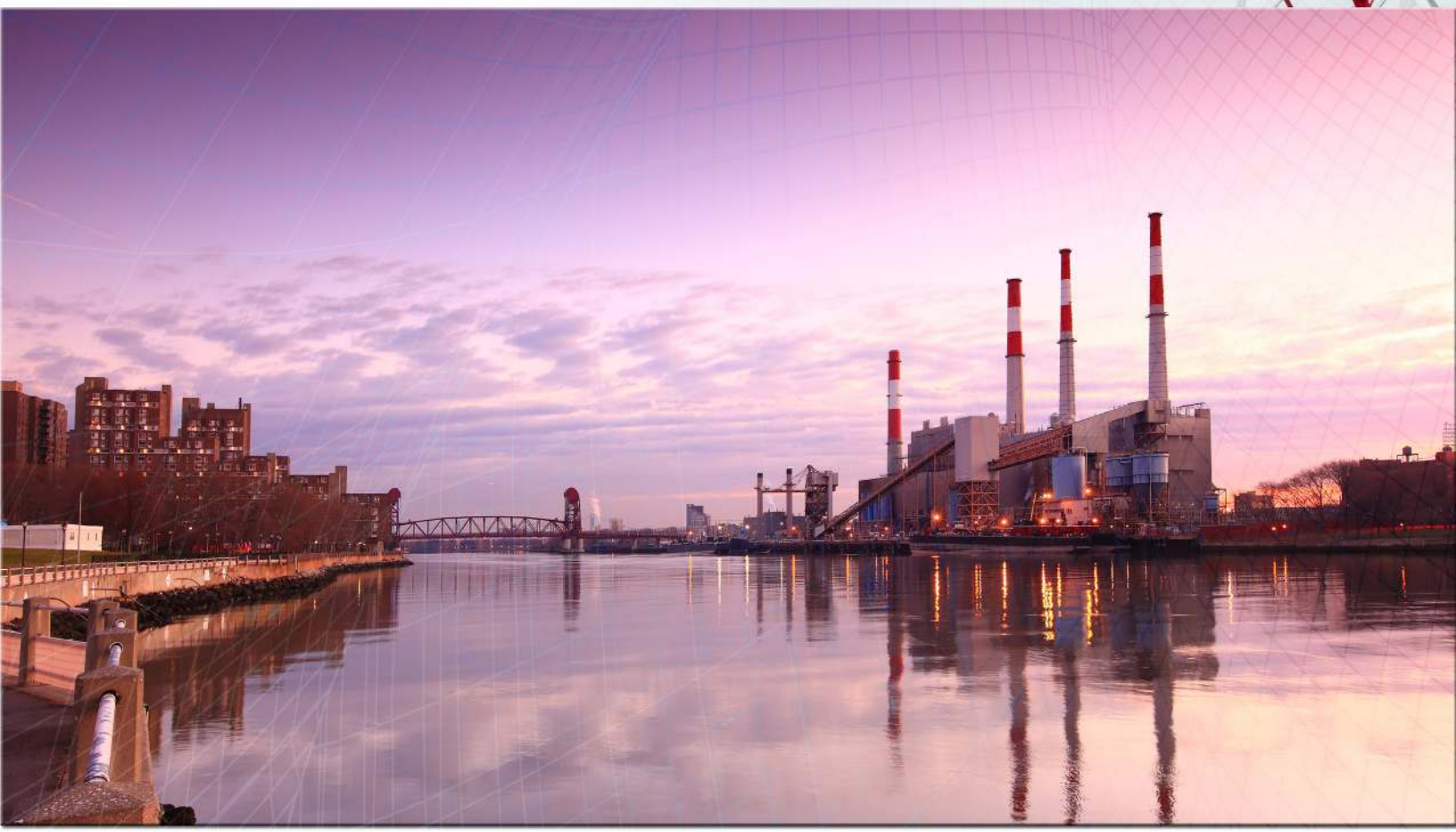
VpCI® Technology for Electric Power Industry



CORTEC CORPORATION

Environmentally Safe VpCI®/MCI® Technologies

ISO/IEC-17025 LABORATORY TESTING ACCREDITED

ISO 9001 CERTIFIED QUALITY SYSTEM REGISTERED

ISO 14001 CERTIFIED ENVIRONMENTAL SYSTEM REGISTERED

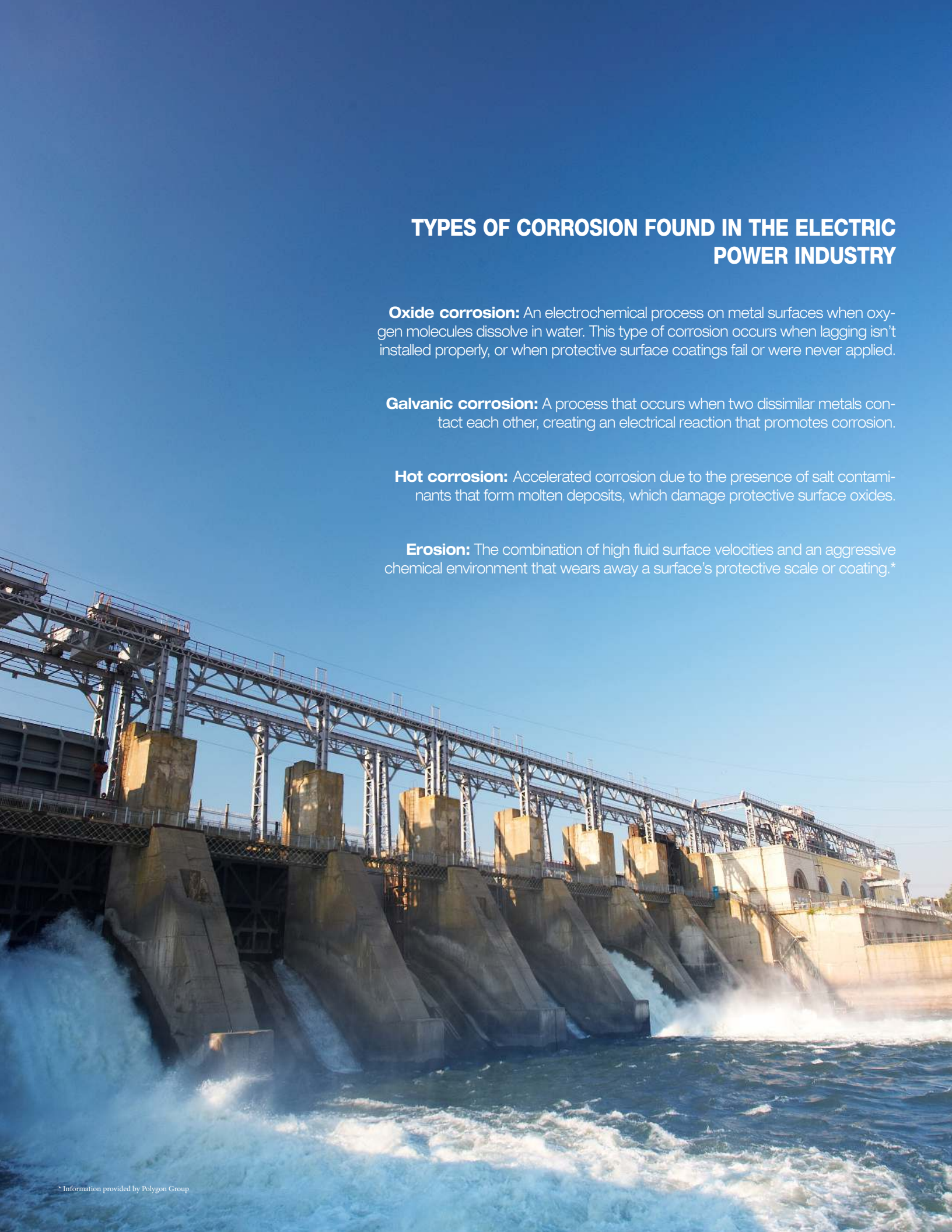
TYPES OF CORROSION FOUND IN THE ELECTRIC POWER INDUSTRY

Oxide corrosion: An electrochemical process on metal surfaces when oxygen molecules dissolve in water. This type of corrosion occurs when lagging isn't installed properly, or when protective surface coatings fail or were never applied.

Galvanic corrosion: A process that occurs when two dissimilar metals contact each other, creating an electrical reaction that promotes corrosion.

Hot corrosion: Accelerated corrosion due to the presence of salt contaminants that form molten deposits, which damage protective surface oxides.

Erosion: The combination of high fluid surface velocities and an aggressive chemical environment that wears away a surface's protective scale or coating.*



* Information provided by Polygon Group

Cortec® VpCI® Technology

PROTECT THE ELECTRIC POWER INDUSTRIES

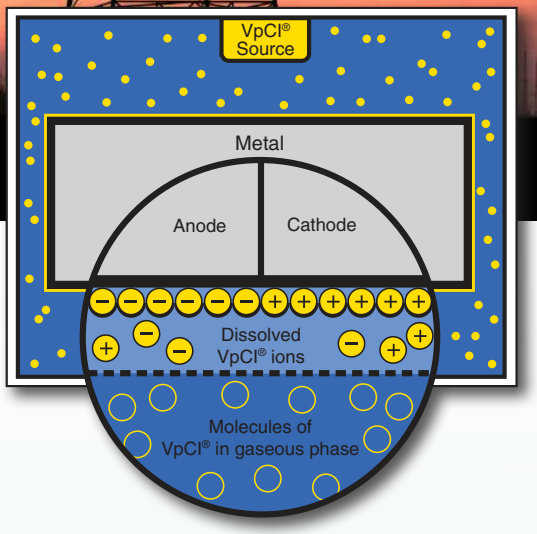
Corrosion creates significant losses to the electric power industry in generation, transmission, and distribution. Billions of dollars are lost each year due to corrosion-related issues. Maintenance costs rise and profits fall when equipment must be repaired or when spare parts are not ready for immediate use during an outage. A significant percentage of these costs is avoidable with proper prevention measures. Cortec's capability offers environmentally friendly, highly efficient, and easy-to-use Vapor phase Corrosion Protection for Electric Power Industries applications.

PROTECT THE ENVIRONMENT

Vapor phase Corrosion Inhibitors (VpCIs) offer an environmentally safe method of treatment with low toxicity and low polluting effects. Unlike corrosion inhibiting systems of the past, many of Cortec's VpCIs do not contain chromates or other heavy metals, nitrites, or chlorinated hydrocarbons. With Cortec® VpCIs you can turn the tables on corrosion. With the support of our corrosion scientists, engineers, and testing facility, Cortec® can provide simple, environmentally friendly, cost-effective solutions to corrosion problems.

PROTECT CONTINUOUSLY

Unlike conventional methods, such as filming amine corrosion inhibitors, you can inject Cortec® VpCIs into multiple parts of many systems. Cortec® VpCIs go to work immediately and are self-replenishing. Continuous, uninterrupted protection in the liquid phase, interphase, and vapor phase can be added at multiple points. For example, the automatic injection of Cortec® VpCIs into a system — with no attendance operator — provides protection immediately, even on pre-rusted or scaled surfaces.



VAPOR PHASE CORROSION INHIBITORS

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 and 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.

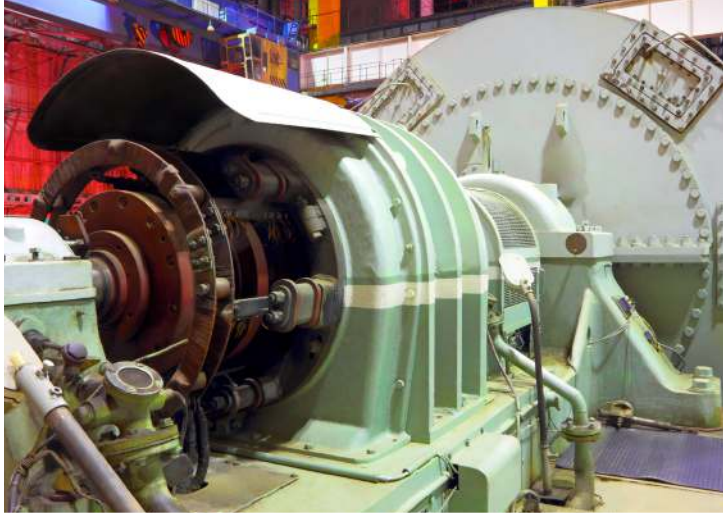
HOW VpCI® WORKS

- 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.

Industry Solutions

Maintaining maximum operational uptime is a key concern in the electric power industry. To keep power generation at peak efficiency requires ongoing maintenance to correct and prevent the natural corrosion wear on power generation equipment. Challenges are diverse and ongoing—from protecting waterwheels and turbines from corrosion at hydroelectric plants, to addressing slurry pipework corrosion on fossil fuel FGDs, to maintaining inventory ready for use at any time. These problems can raise operating and labor costs or incur equipment replacement expenses.

Cortec® offers innovative, environmentally friendly, and cost-effective solutions to address the repair, protection, and maintenance challenges of electric power generation. Cortec's products provide simple, reliable ways to enhance the efficiency, safety, and durability of your equipment.



POWER GENERATION

Electric power generation includes coal, natural gas, nuclear, hydroelectric, geothermal, solar, and wind power plants. Plants typically depend on turbines, generators, piping, valves, pumps, and speed changers to produce electricity. All equipment is vulnerable to corrosion in areas such as exterior metal surfaces, valve stems, electric controls, and lubricating or cooling systems. Corrosion threatens millions of dollars worth of spare equipment and increases the chance of downtime in the event of an outage.

Cortec® is here to help with effective and easy-to-use Vapor phase Corrosion Protection that minimizes maintenance and downtime. Cortec® can ensure your preservation goals are attained at the lowest possible environmental impact and cost.

POWER DISTRIBUTION

Each phase of electricity production faces corrosion challenges. Outside the plant, important distribution equipment needs protection in order to efficiently transmit electricity to consumers. Crucial transformers contain switchgears, bolts, and other sensitive equipment subject to rust and corrosion. Not controlling these natural processes could require expensive equipment replacement or even create safety hazards if rusted breakers cannot trip properly.

Cortec® provides practical solutions for your power distribution needs. Its many forms of VpCI® Technology effectively coat and protect diverse surfaces or enclosed electrical spaces to keep maintenance and repair costs at a minimum.

INFRASTRUCTURE

Replacing power plant infrastructure can cost millions. Cortec's line of VpCI® products offers critical protection on key plant components such as structural steel, tanks, cooling towers, and smokestacks. Most Cortec® coatings are environmentally safe while efficiently protecting core power plant structures from the rust blossom and bloom associated with conventional coatings.

Turnkey Solutions

In today's environment, the need for corrosion protection intensifies along with the increasing demand for reliable electricity and the tightening of environmental regulations.

Cortec's field services simplify the maintenance and preservation of plant assets, maximizing operational uptime and minimizing downtime with environmentally friendly VpCIs that require less maintenance than traditional anti-corrosion products.

EQUIPMENT OPERATIONS

Cortec® offers comprehensive turnkey solutions to mitigate corrosion on plant equipment and infrastructure. Service includes evaluation and treatment of trouble spots to keep plant operations at highest possible performance.

- Corrosion protection is provided to all surfaces, both internal and external through the multiple delivery systems available with Cortec® VpCI® Technologies.
- VpCI® preservation applications include a variety of cleaning products, surface coatings, powders and liquids for fogging of large spaces, additives for lubricants and process liquids, and films for total encapsulation.
- With CEFS (Corrosion Engineering & Field Services), real-time corrosion rate monitoring systems for critical assets are available.
- Assistance with removal of preservation products is also available during future equipment recommissioning.

LAYUP, MOTHBALLING, AND PRESERVATION

When asset preservation is required, VpCI® cleaning and packaging products provide low-cost, easy-to-apply solutions for long term results. Whether maintaining ready-to-use spares or mothballing a power plant, Cortec® will work to provide a comprehensive layup package that could include:

- A corrosion audit for identification of all corrosion control requirements.
- A comprehensive plan to mitigate internal and external corrosion on all plant assets – both above ground and underground.
- Turnkey application of all corrosion control systems.
- Monitoring and maintenance of corrosion control systems during the layup period.
- Future assistance with the transition from the layup phase to plant commissioning.

GLOBAL SERVICES TOTAL SOLUTION PROVIDER

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 turnkey solutions for manufacturers, engineering firms, and project owners across the automotive, telecommunications, construction, aerospace, military, power generation, oil and gas, and mining industries.

By transferring knowledge of best practices between sectors, Cortec® ensures the best solution and lowest possible cost for your preservation needs.

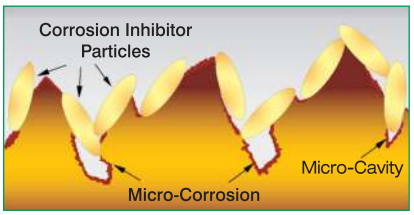
HIGH PERFORMANCE COATINGS, ADDITIVES, AND EMITTERS FOR THE ELECTRIC POWER INDUSTRY

Cortec® can match your corrosion protection needs with its versatile product lines of high performance coatings for metal structures, additives for oil and water, and emitters and sprays for electronics.

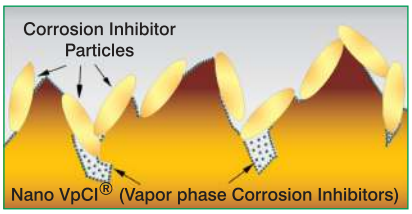
With our environmentally safe VpCI® Technology, your equipment and infrastructure will be effectively protected against humidity, saltwater, and oxidizing atmospheres as well as corrosive industrial, marine, and tropical environments. Traditional treatments rely on sacrificial metals (zinc, chromates, 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 prevents corrosion from starting.

TRADITIONAL COATINGS VS. CORTEC® MICRO-CORROSION INHIBITING COATINGS™ WITH NANO VPCI®



Traditional coatings can not protect the micro-cavities due to the relative large size of corrosion inhibitor particles such as nitrate, aluminum, zinc, and so on. That's where micro-corrosion starts when using traditional coatings.



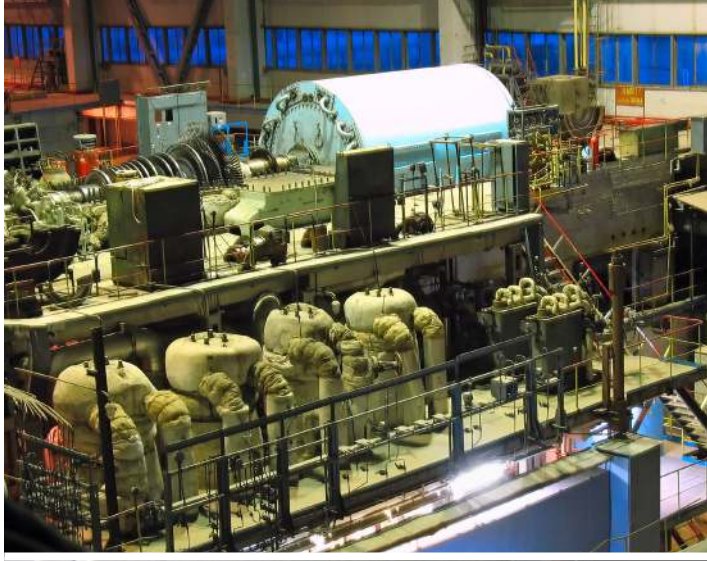
Cortec® Coatings are unique because the Nano VpCI® (Vapor phase Corrosion Inhibitors) penetrates and protects the micro-cavities against micro-corrosion.

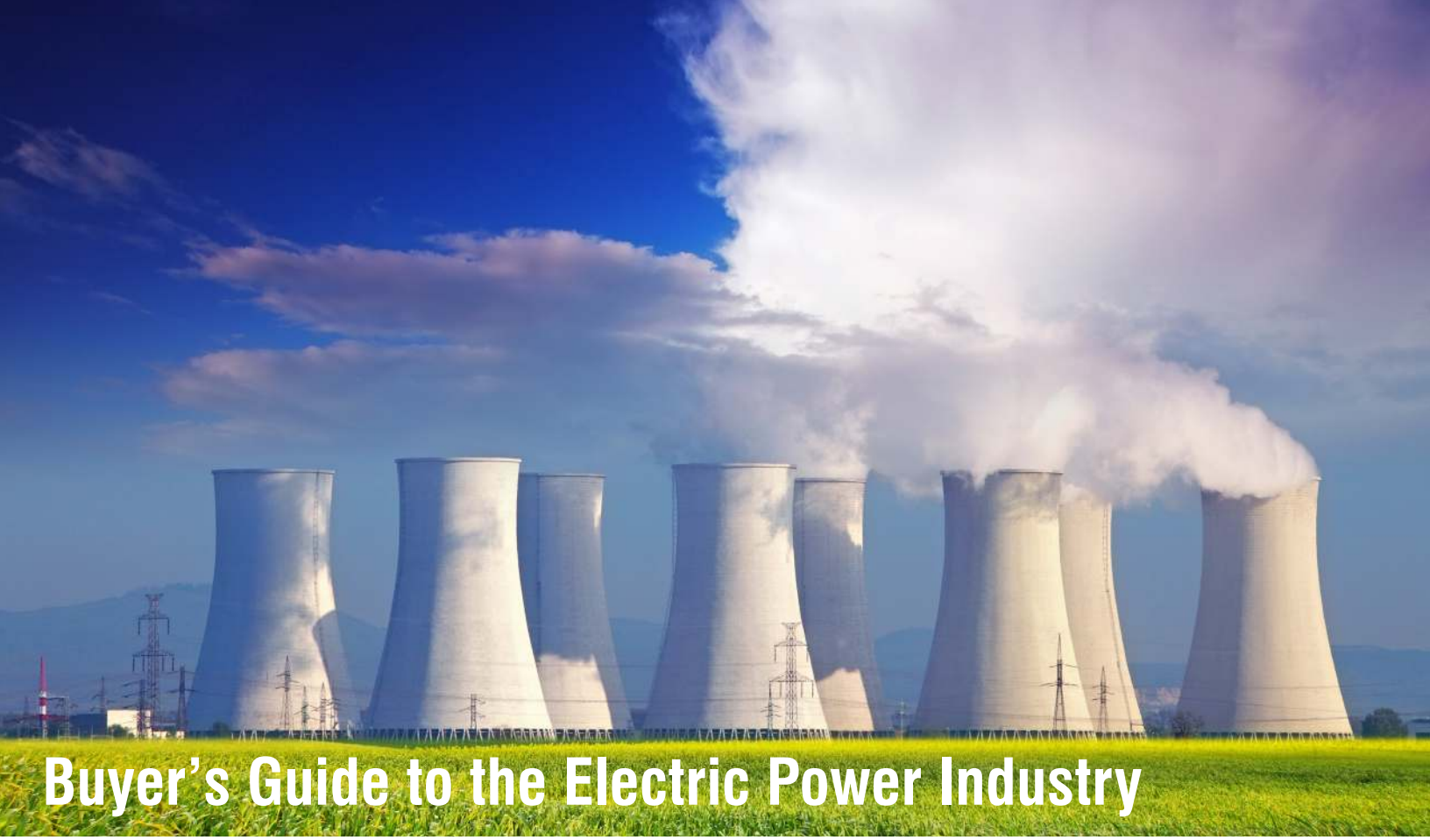
WASTE WATER TREATMENT

Cortec® VpCI® Water Treatments provide continuous protection from corrosion in process systems. Boilers, heat exchangers, cooling towers, and steam condensate lines need Cortec® VpCI® Water Treatments to prevent the harmful effects caused by fresh and salt water, brine, and various dissolved halogens. Cortec's full range of corrosion inhibiting additives will protect ferrous, non-ferrous, and dissimilar metals in water process and piping systems.

Cortec's ability to automatically inject VpCI's at any time into multiple parts of your process system makes it versatile and easy to use. Even pre-rusted or scaled surfaces are guarded as self-replenishing VpCIs go to work in the liquid phase, interphase, or vapor phase for continuous, immediate protection.

Bionetix® International, a subsidiary of Cortec®, also offers products that treat chemicals in wastewater and reduce the accumulation of petroleum products in sumps and drains. Benefits from these treatments have included improved water quality, better odor control, and reduced cost of cleaning and maintenance. For more information, visit www.bionetix-international.com.





Buyer's Guide to the Electric Power Industry

Product	Description	Application	Dosage
BioCorr®	BioCorr® Rust Preventative is a water-based, biobased, and biodegradable rust preventative that is intended for preservation of metals in storage and during transportation.	BioCorr® can be applied by dip or spray, using hand held sprayers or a variety of pressurized spray systems (conventional, airless, etc.).	Apply to surface undiluted. This product has a low viscosity, so the coverage rate is very large.
BioEmitter™	BioEmitter™ is an environmentally and user safe corrosion preventative made with a high bio-based content.	The BioEmitter™ provides a clean and dry corrosion prevention method for a variety of metals: carbon steel, galvanized steel, copper, brass, silver, aluminum, and others.	One BioEmitter™ stops rust and corrosion in an enclosed space up to 50 cu ft (1.4 m^3).
BioPad®	BioPad® is a unique flexible corrosion inhibiting device constructed from 100% biobased non-woven material, resulting in a finished good containing 66% biobased content.	Multi-metal protection including steel, galvanized steel, brass, solder, cast iron, silver, aluminum alloys, magnesium alloys, copper, zinc alloys, and carbon steel.	BioPad® 2"x6" 1.5 ft^3 (0.042m^3) per unit BioPad® 8"x8" 8 ft^3 (0.23m^3) per unit BioPad® Roll 15 ft^3/ft^2 (4.5m^3/m^2)
CorPak® 1-MUL Pouch	Multifunctional inhibitor pouch with VpCI® 2.5" L x 2.5" W x 125" H (6.4 cm x 6.4 cm x 0.3 cm).	1-MUL Pouches are used within small electrical boxes or other containers up to 1 ft^3 (0.028 m^3).	1.0 ft^3/pouch (0.028 m^3)
CorShield® VpCI®-369 Aerosol	VpCI®-369 leaves a soft, oily film that provides corrosion protection for indoor and outdoor conditions.	Spray onto exposed bare metal surfaces, hydraulic/gear shafts, and other areas that need short-term indoor or long-term outdoor corrosion protection.	Apply at least 2-3 mils (50-75 micron) wet film.
Desicorr® VpCI®	Desicorr® VpCI® is a specially designed pouch which contains a combination of desiccant and VpCI®.	Desicorr® VpCI® is designed to protect products, components or assemblies when packaged in corrugated boxes, plastic wrap or bags, and wood or metal containers.	Each Desicorr® is able to absorb 1.65 grams of water, while also providing VpCI® protection.

Product	Description	Application	Dosage
Electricorr® VpCI®-239	ElectriCorr® VpCI®-239 provides corrosion protection on electrical components indoors or in covered outdoor conditions.	Circuit boards, bus bars, electrical connections.	Apply a light spray evenly over the metal surface. Do not spray until product is dripping.
M-529	M-529 is an oil-based package of corrosion inhibitors for lubricating, hydraulic oils, or engine oils.	Corrosion protection for ferrous and non-ferrous metals.	M-529 can be dosed at 2-5% for operational protection or preservation.
M-531	M-531 is an oil-based package of corrosion inhibitors for petroleum and synthetic lubricants.	M-531 can be used in a wide variety of industrial lubricant applications where excellent rust protection, filterability, and water resistance are required.	M-531 can be dosed at 2-5% for operational protection or preservation.
M-640 L	Corrosion inhibiting additive for water and ethylene glycol-based engine heat exchange fluids.	Protects ferrous and nonferrous metals.	2.0-2.5 wt%
MCI® 2020	Clear MCI® surface treatment for existing concrete. Designed to penetrate and migrate throughout the concrete structure. Patented.	Provides MCI® corrosion protection for rebar in existing structures such as bridges, buildings, garages, decks, and lanais.	Coverage: One coat at 150 ft^2/gal. Or two coats at 150 ft^2/half gallon.
MCI®-2018	MCI®-2018 is a silane based concrete sealer, containing time-proven Migrating Corrosion Inhibitors (MCI®).	MCI®-2018 offers a time proven corrosion inhibiting technology that will extend the life of all reinforced concrete structures such as commercial buildings, parking decks, garages, and bridge structures.	Coverage: 125-175 ft^2/gal (3-4.3 m^2/L)
MilCorr®	MilCorr® VpCI® Shrink Film is a heavy duty film featuring Cortec® multi-metal Vapor phase Corrosion Inhibitors (VpCI®).	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.	Please contact Cortec® for an application guide.
S-10/S-10F	Corrosion inhibitor for steam condensate lines in boiler systems.	Injection into steam condensate lines where dissolved carbon dioxide in water forms corrosive carbonic acid.	Less than 100 ppm
S-11/S-11 Org/S-11P	Additive for acid systems such as industrial oil field acid cleaning solutions and hot pickling baths.	Added to low pH systems to prevent localized corrosion, especially pitting and hydrogen embrittlement.	0.5% to 1% by v/v
S-14/S-14 Bio*	General purpose water treatment antiscalant. Non-flammable and non-toxic.	Very effective against scale formation on surfaces in contact with water. S-14 Bio is biodegradable version.	Less than 10 ppm
S-16	Defoamer. Specially selected for use in combination with Cortec® water-based and oil-based inhibiting systems. Stable under both acidic and basic conditions. Silicone free.	Defoamer for aqueous and non-aqueous systems.	A starting concentration of 0.3%-0.5% by v/v based on weight.
S-20	Thinner made of water/solvent blend. Used to quickly reduce viscosity of water-based coatings.	Recommended for adjusting the viscosity of VpCI®-374 and VpCI®-386 for spray and dip applications. It can be used for other water-based coatings.	For normal application 5-10% is recommended. Do not exceed 20%.
S-25	Thinner made of a solvent blend. Used to thin solvent-based coating systems.	It is recommended for VpCI®-368 and VpCI®-365 to reduce viscosity for spray and dip applications.	The recommended dosage is 5-10% by v/v.
S-39	Pour point depressant and flow improver.	Fuel additive is intended for use in distillate fuels.	0.01% to 0.05% by v/v
S-42	Additive to activate or accelerate a rust removing solution. Formulated to extend the life of a VpCI®-422 solution.	Designed for used or new solutions of VpCI®-422 to reactivate and accelerate their performance. For used solutions of VpCI®-422, S-42 is added when the pH of the VpCI®-422 solution has reached 5.0. It will bring the pH down to reactivate the rust remover.	2% for new solutions and 10% by v/v for used solutions.
S-49	Blend of solvents, dispersants, surfactants, and emulsifiers for treatment of fuel oil grades #2, #4, #5, and #6.	Fuel oil dispersant/emulsifier that keeps insoluble particles dispersed thus reducing: carbon deposits, soot formations, smoke, and particle emission.	1 qtZ - 1 gal/1000 gal 0.95 - 3,785 liters/3785 liters 1% to 10% by v/v

* Biobased Certification refers to S-14 Bio only.

Product	Description	Application	Dosage
S-69	All organic water treatment building block (liquid or powder form available).	Designed for low level concentrations which contain a unique combination of contact and vapor phase inhibitors.	1000 - 2000 ppm for closed loop systems.
S-7	Oxygen scavenger designed to protect boiler systems against oxygen corrosion (hydrazine-free).	Applied into boiler systems to stop the corrosive effects of oxygen present in feedwaters.	10 ppm for every 1ppm O2
VpCI®-111 Emitter	VpCI®-111 emitters are unique devices designed to provide corrosion protection for metal components and parts enclosed in non-ventilated control boxes, cabinets, or tool boxes up to 11 cubic feet (312 liters).	Operating, packaged, and stored electrical equipment; marine navigation and communication equipment; aerospace electrical controls; electric motors; switching equipment; fuse boxes; medical equipment; electrical wireways, terminal boxes; scientific and measuring instruments; telecommunications equipment; control panels for manufacturing and processing equipment.	1 emitter/ 11ft^3
VpCI®-126 / HPUV / Shrink	Transparent plastic films with VpCI® for multi-metal protection. Heat sealable. Also available in Zip-Lock bags and Shrink Film varieties with Ultraviolet Protection.	Varies	Please contact Cortec® for an application guide.
VpCI®-126 EMUV Heat Sealable Bag	Cortec® VpCI®-126 EM UV Film combines high strength resins with ultraviolet light stabilizers (UV) and Vapor phase Corrosion Inhibitor (VpCI®) Technology	This state-of-the-art film construction provides multi-metal protection for parts, equipment, and vehicles for up to three years, even in aggressive outdoor conditions.	Please contact Cortec® for an application guide.
VpCI®-126 EMUV Sheeting	Cortec® VpCI®-126 EM UV Film combines high strength resins with ultraviolet light stabilizers (UV) and Vapor phase Corrosion Inhibitor (VpCI®) Technology	This state-of-the-art film construction provides multi-metal protection for parts, equipment, and vehicles for up to three years, even in aggressive outdoor conditions.	Please contact Cortec® for an application guide.
VpCI®-308 Powder	VpCI®-308 is a Vapor phase Corrosion Inhibitor in powder form for corrosion protection of ferrous and non-ferrous metals in recessed areas, interior cavities, and voids.	Bottom plate protection of petroleum storage tanks, tubular structures, pipes, and vessels.	Dosage is 0.3-0.5 oz/ft^3 (300-500g/m^3). For fogging applications, please contact Cortec® for an application guide.
VpCI®-309 Powder	VpCI®-309 is a Vapor phase Corrosion Inhibitor powder for corrosion protection of ferrous metals in recessed areas, interior cavities, and voids.	Tubular structures, pipes, vessels, and turbines; Internal surfaces of compressors, turbines, engines, tanks, boilers, and heat exchangers; Dry lay up of closed circuit cooling systems; Equipment protection after hydrostatic testing; Parts, components, and completed assemblies during shipping and storage.	Dosage is 0.3-0.5 oz/ft^3 (300-500g/m^3). For fogging applications, please contact Cortec® for an application guide.
VpCI®-322	Provides corrosion protection to lubricating or hydraulic oils in indoor or open air conditions.	Corrosion protection to ferrous and non-ferrous metals.	Fog: 1 oz/ ft^3 (0.9 L/m^3). Mix: 1 part VpCI®-322 to 9 parts oil.
VpCI®-325	Safe, convenient, ready-to-use vegetable oil/solvent-based liquid for general-purpose corrosion protection.	Some applications include protection of sheet metals, wire, pipes, flanges, other fabricated and/or machined parts, guns, and a host of other products.	Apply to surface undiluted. This product has a low viscosity, so the coverage rate is very large.
VpCI®-326	Vapor phase Corrosion inhibitor oil additive for hydraulic oil and gearbox assemblies.	VpCI®-326 is a broad range corrosion inhibitor not only effective on ferrous metals, but also effective on zinc, aluminum, galvanized steel, copper, cadmium, silver, brass, and many other alloys.	Fog: 1 oz/ft^3 (0.9 L/m^3)
VpCI®-337	A ready-to-use waterborne vapor corrosion inhibitor used primarily for robust preservation of internal void spaces. A complete replacement for nitrogen blanketing and dry air systems.	Use for void spaces, complex internal cavities, double wall spaces, edge spring for coils, pipes, post-weld touch-up, and deep storage of key assets.	Fog or mist undiluted at rate of 1 oz/ft3 (1 L/m3) of enclosed space.
VpCI®-368	VpCI®-368 is a time-proven coating that provides excellent protection to metal substrates exposed to harsh outdoor conditions.	Pipe coating, parts storage, underbody coating, wire rope, steel plate, machined parts.	300-330 ft^2/gal at 3 mil 7-8 m^2/L at 75 micron

Product	Description	Application	Dosage
VpCI®-391	VpCI®-391 is a water-born, temporary coating that is intended for medium to long-term indoor and short-term outdoor protection.	VpCI®-391 is recommended for metal surfaces as a protective coating when a non-tacky surface is required and when optimal removability is beneficial.	Apply at a rate of 218-545 ft^2/gal (5.4-13.6 m^2/L) for a 1-3 mil spread.
VpCI®-416	Heavy-duty foaming, water-based cleaner/degreaser formulation combined with unique corrosion protection action. Can be metered into power washers, steam cleaners, sprayers, and dipping tanks. USDA approved.	VpCI®-416 can be applied with any conventional equipment including sprayers, dipping tanks, steam cleaners, and power washers.	Heavy-duty cleaning: 1 part VpCI®-416 to 5-10 parts water. Normal cleaning (i.e. parts washing): 1 part VpCI®-416 to 10-40 parts water. Light cleaning (i.e. rinsing): 1 part VpCI®-416 to 40 parts water.
VpCI®-418 L	VpCI®-418 is a heavy-duty alkaline cleaner/degreaser for cleaning industrial, oil field, commercial, and marine equipment.	VpCI®-418 is designed for use in power washing machinery, high agitation parts washers, and high-pressure spray washers.	Light cleaning: Use 2% (by weight) VpCI®-418 in water. Normal cleaning: For machinery, rail cars, offshore equipment, and tanks contaminated with medium deposits, use 3% (by weight) VpCI®-418 in water. Heavy-duty cleaning: For drilling mud, grease, crude, bilges, concrete surfaces, and structures, use 5-8% (by weight) VpCI®-418 in water. Steam cleaning: Use 2% by weight VpCI®-418 in water. Temperature range: VpCI®-418 is recommended for use in temperatures ranging from 95º-160ºF (35º-71ºC).
VpCI®-422	VpCI®-422 is a biobased alternative to traditional harmful rust remover chemicals for cleaning steel, iron, and some non ferrous metals.	Immerse metal parts in VpCI®-422 to remove corrosion and other oxides.	Use undiluted. Corrosion removal time varies depending on temperature and severity of corrosion. After cleaning, surface should be neutralized with alkaline cleaner, such as VpCI®-416.
VpCI®-423	Gel version of VpCI®-423, for use on vertical metal surfaces or other areas that cannot be fully immersed.	Brush on VpCI®-423 and allow to sit for at least 20-30 minutes prior to removal. In cases of high temperature or outdoor exposure, cover the area with plastic to ensure VpCI®-423 stays wet, and in contact with the metal surface.	Use undiluted. Corrosion removal time varies depending on temperature and severity of corrosion. After cleaning, surface should be neutralized with alkaline cleaner, such as VpCI®-416.
VpCI®-609 Powder	VpCI®-609 is a water-soluble Vapor phase Corrosion Inhibiting (VpCI®) powder for wet or dry corrosion protection of ferrous metals and aluminum.	Tubular structures, pipes, and vessels; Internal surfaces of compressors, turbines, engines, tanks, boilers, heat exchangers; Steam condensate lines, closed circuit heating and cooling systems; Equipment during and after hydrostatic testing; Parts, components, and completed assemblies during shipping and storage; Additive to shot-blasting media, wet blasting; Additive to standing water; Voids, cavities, and tanks	Dosage is 0.3-0.5 oz/ ft^3 (300-500g/m^3). Fogging applications, please contact Cortec® for an application guide.
VpCI®-617	Water-based boiler water treatment prevents corrosive attack and harmful insulating deposits.	Boiler systems.	500 ppm
VpCI®-619	A high temperature protective coating for metal surfaces for use under thermal installation. Product may be applied directly over a tight oxide film or scale.	VpCI®-619 is sprayed or brushed directly to the steel surface. Allow the material to dry up to 60 minutes.	Spread rate - 145-188 ft^2/gal @ 2 mils (4-5 m^2/L @ 50 microns).
VpCI®-629	Concentrated additive which forms a persistent barrier for continuous protection in crude oil and other liquid hydrocarbons.	Petroleum process streams (crude oil, products, fuel oils)	5-100 ppm
VpCI®-637 TOL	Formulated for internal corrosion control in gas flow and gas transmission lines including the difficult Top-of-Line (TOL) corrosion problems.	Designed for use in natural gas pipelines and petroleum recovery processes, most effective in situations prone to TOL corrosion attacks.	300 ml/1,000,000 ft^3. 17 liters/million cubic meters.

Product	Description	Application	Dosage
VpCI®-639	High temperature version of VpCI®-629. Rated at 200˚C and used up to 600 bar.	Protection for refinery overheads, high temperature oil and gas wells, and other environments requiring long term water displacing film formation.	300 ml/1,000,000 ft^3. 17 liters/million cubic meters.
VpCI®-646	Ambiodic water treatment system effective against corrosion and scale.	Large industrial cooling systems (open and closed), power plants, refineries, process plants.	250 ppm
VpCI®-649/649P	Concentrated additive protects multi-metals from corrosive cooling systems.	Deep and hot wells, closed-loop cooling systems, and casings.	0.25% for functional systems. 0.5% for seasonal layup. 1-2% for extended (1-2 years) protection.
VpCI®-658	Additive for injection into thermal insulation. Formulated for rapid transport of VpCI® throughout the insulating jacket to provide metal pipe protection.	VpCI®-658 is applied by injection into the insulating jacket through either a gravity fed system or a portable injection pump.	Injected at 3-6 month intervals at distances between injection points of 2-20 feet (0.6 to 6m).
VpCI®-705	Fuel additive to provide corrosion protection for all common engineering metals used in automotive and industrial fuel systems. Approved by General Motors Corporation. #1065180 GMEMD Division.	Recommended for use in gasoline, diesel, gasohol mixtures, and alcohol fuels as a corrosion inhibitor, fuel stabilizer, and water emulsifier.	0.5 - 1.5% by v/v

GLOBAL SERVICES BUYER'S GUIDE

Global Services is focused on providing our customers with optimum corrosion control solutions to meet their everyday needs. The scope for Cortec® Global Services includes 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.

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, 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.

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