



Cortec VpCI® Additives

Corrosion Inhibiting Additives for Coatings, Fluids, Adhesives and Plastics



CORTEC
CORPORATION

Environmentally Safe VpCI®/MCI® Technologies

Cortec VpCI® Additives

Have a corrosion issue from your fluid, coating, polymer, or elastomer?

NO PROBLEM!

Cortec's full line of corrosion inhibiting additives can help.

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 in to 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 in below. All the different additives listed have been intentionally 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.

Top Right: A VpCI® emitter source is introduced in to an enclosure containing metal. The VpCI® molecules begin to sublimate or vaporize and diffuse through the enclosure.

Bottom Right: The VpCI® molecules saturate the enclosure and adsorb on the metal surface, forming a thin monomolecular layer that provides corrosion protection.



Enclosure



VpCI® Source



VpCI® Molecule

Water Based Additives



This full line of additives offers the most versatile inhibitor packages that can be used in almost any water based system. Some are specifically formulated for cleaners, coolants, or water based metalworking fluids. The water based nature of the additives can be an advantage for worker handling, reducing environmental impact, and allowing for easier disposal.

Oil Additives



A common misconception is that oil based products are naturally strong rust preventatives. While oil itself can help displace moisture, a good corrosion inhibiting additive can increase protection by 10 times or more. Many of the additives incorporate inhibitors for the vapor space above the oil and are formulated for a variety of lubricating or rust preventative oils.

Paint and Coating Additives



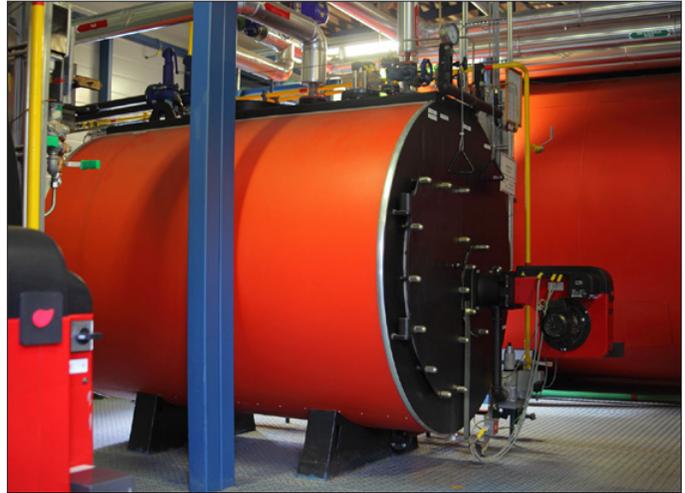
Cortec® also offers a full line of additives for paints and coatings. There are many different formulations of additives for solvent based and waterborne coatings that cover systems such as acrylics, urethanes, epoxies, alkyds, and more. This full line of additives incorporates products to eliminate flash rust and also for long term corrosion prevention from humidity and salt fog.

Fuel Additives



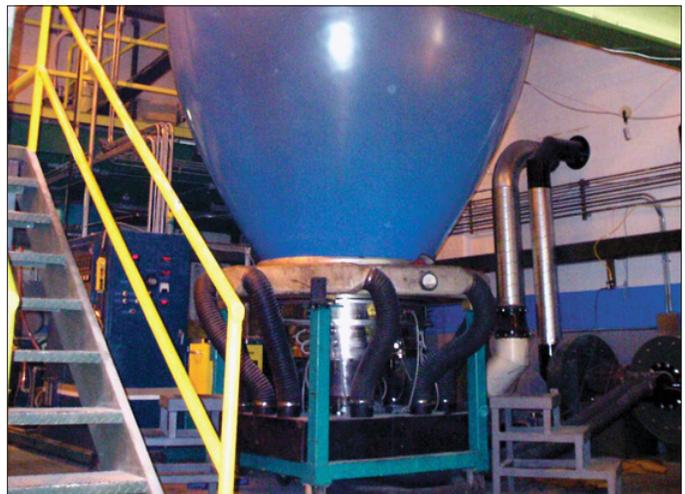
In industry there is often a requirement for large fuel storage tanks and systems. This can cause problems such as fuel separation and potentially freezing in cold climates. Cortec's fuel additives can help alleviate this problem with a variety of products to reduce fuel freezing point, provide stability, and also to reduce the buildup of static charges that cause explosions.

Water Treatment/ Process Fluid Additives



This class of products focuses on the prevention of both corrosion and scale buildup in process water. Additives for boilers and condensate lines can be instrumental for lengthening the life of a boiler system and reducing maintenance. Additionally, Cortec's general corrosion inhibitor additives make great building blocks to full water treatment formulations.

Additives to Plastics, Elastomers, and Adhesives



One of the most widely used VpCI® technologies is the implementation of inhibitor in plastics, elastomers, and adhesives. Specifically, the implementation of contact and vapor phase inhibitors in polyethylene and polypropylene. Cortec® offers a variety of different solutions and masterbatches for this application. Please contact Cortec® directly regarding masterbatch.

Additives to Specific Fluids



Often times it is necessary to use corrosive fluids and chemicals for industrial applications, but this can create a major problem for any metals in the system. Cortec® offers additives to combat the most corrosive fluids; those containing acids or salts. Other corrosive systems that can be treated are those containing water and glycol mixtures, or brake fluid.

Other Additives



Cortec's last set of additives are a variety that can prove useful for a variety of applications. Whether the additive is a surface wetting agent or defoamer, it can be a critical component in a formulation to provide the customer an ideal fluid solution. Also, this group of additives includes niche applications such as a product for float coating of ballast tanks.

Additive Buyers Guide

WATER BASED ADDITIVES

Product	Description	Features	Dosage Range
M-95	Versatile water soluble additive for various multimetal systems requiring vapor phase and contact protection.	Causes little to no foam	0.25% - 2.5%
M-150	Water based additive to ink for multimetal protection.		5% - 50%
M-235	Additive to prevent corrosion of yellow metals. Can be incorporated in to a wide variety of applications.	Water at 25 °C solubility of 2%	0.1% - 2%
M-241	Additive to prevent in-can corrosion to aluminum and alloys.	FDA approved	0.5% - 2%
M-251	Additive to synthetic cutting fluids and is compatible with most water based lubricating systems.	Exceptional corrosion protection provided by a clear, thin film that is virtually undetectable when dry.	2% - 7%
M-370	Contact corrosion inhibitor additive for cleaners, coolants, or water based metalworking fluids.		2% - 7%
M-370 A	A version of the product specifically for aluminum protection.		2% - 7%
M-370 C	Ideal to use this version with porous surfaces.		2% - 7%
M-370 HS	Version of the product with high surfactant for cleaning.		2% - 7%
M-370 NS	A version with no surfactant for low foaming formulas.		2% - 7%
M-415	Solvent based additive with FDA and USDA approved ingredients for incidental food contact.	Strong vapor phase protection	0.5% - 4%

Water Based Additives continued on page 4...

WATER BASED ADDITIVES

M-435	Versatile flash rust inhibitor for water based coating systems that can be used in solvent based systems as well.	No VOC	2% - 5%
S-8	FDA approved product intended as an additive to wash water to protect cans containing food from exterior corrosion.	Contains only FDA approved ingredients	150 - 200 ppm
S-111	Flash rust inhibitor to be formulated in to alkaline cleaners.	Multimetal protection	0.3% - 1%

OIL BASED ADDITIVES

M-236	For oil based systems to provide corrosion protection to yellow metals, such as transformer oil.	Maintains electrical properties of oil	250 - 500 ppm
M-238	Effective inhibitor for variety of oil and solvent based systems for vapor and contact protection.	Stable in almost all hydrocarbon solutions	1% - 4%
M-250	Soluble oil additive, especially helpful for cutting or machining fluids where parts must remain rust free.	Should not affect stability of emulsion	10% - 20% to oil or 0.75% to final solution
M-320	Provides vapor and contact protection to oil systems such as gearboxes, recommended during layup.	High concentration of inhibitor	1% - 5%
M-369	Additive for greases, waxes, or heavy oils that provides a superior level of corrosion protection.	Can protect outdoors or in salt spray	1% - 5%
M-528	Additive to PAG based hydraulic fluids for corrosion protection.	Also compatible with water based systems	2.5% - 10%
M-528 L	Version with lubricant included in the fluid.	Also compatible with water based systems	2.5% - 10%
M-529 Patented	Inhibitor for organic acids	Strong contact protection with minimal effect on oil life	2% - 5%
M-529 L Patented	Version that includes a lubricant additive		3% - 6%
M-529 SC Patented	Super concentrate version that has more inhibitor per gallon.		1.5% - 3.5%
M-530	Mineral oil based inhibitor for intermittent operating systems. Small particle size that passes through 1 micron filter.	Free of calcium containing compounds	2% - 5%
M-531	PAO based oil additive that has a minimal effect on properties like water separability, thermal stability, and filters to 1 micron.	Includes both contact and vapor protection	2% - 5%
M-531 T	It is an ash free oil additive designed for turbine applications.	It features strong demulsibility.	0.05% - 2%.
M-533 FG	Oil additive which is NSF certified for incidental food contact. Typically for use in NSF approved base oils.	Officially approved to NSF HX-1	0.05% - 10%

FUEL ADDITIVES

S-49	Fuel oil dispersent/ stabilizer	Effective treatment for a range of fuel oils	1000 ppm
VpCI®-705	Corrosion preventive additive for gasoline, diesel, gasohol mixtures and alcohol fuels.	Soluble in both methanol blends as well as neat methanol fuel	100 - 200 ppm

PAINT AND COATING ADDITIVES

M-109	Additive to solvent based and some water based coatings. Effective for many alkyds and epoxies.	VOC free	1% - 3%
M-110	Solvent based additive that can be used in some water based systems. Suitable for post addition to many coatings.	Limited affect on colorant system	1% - 3%
M-119	Water based coating system additive to protect both from humidity and salt spray.	Works synergistically with M-380	0.5% - 2%
M-119 LV	Low viscosity version of M-119.	Works synergistically with M-380	0.5% - 2%
M-168	Solvent based coating additive especially effective to prevent salt corrosion attacks. May cause softening if high loading is used.	May also be used for some lubricants	2% - 10%
M-240	Water based non-toxic flash rust corrosion inhibitor	Can improve wetting	0.5% - 2%
M-380	Provides both flash rust and long term protection. Use at three parts M-380 to one part M-119 or M-119 LV to get synergistic affect.	Mix separatedly from M-119 or M-119 LV	1% - 5%
M-381	Water based acrylic additive for flash rust and long term protection. Intended to combine performance of M-119 and M-380.	Ammonia Free	2.5% - 4%
M-5365	Solvent based additive for corrosion protection and water resistance.	Can assist in defoaming	1% - 3%

WATER TREATMENT / PROCESS FLUID ADDITIVES

M-615	Inhibitor and antiscalent combination for use in low to medium pressure boilers	Inhibitor for formulated boiler products	75 - 250 ppm
S-7	Oxygen scavenger for boilers	Sodium sulfite based oxygen scavenger	50 - 100 ppm
S-7 Liquid	Oxygen scavenger for boilers	All ingredients are listed on CFR 173.310	100 - 200 ppm
S-10	Corrosion inhibitor for boiler condensate lines	USDA biopreferred 84%	100 - 400 ppm
S-10 F	Corrosion inhibitor for boiler condensate lines	Stable in systems with alcohol or glycol	10 ppm
S-10 FA	Corrosion inhibitor for boiler condensate lines	Efficient against oxygen and low pH	10 ppm
S-14	Anti-scalant for water treatment applications	Effective scale inhibitor	10 ppm
S-14 Bio	Anti-scalant and corrosion inhibitor	USDA certified biobased product	100 - 200 ppm
S-14 Bio Powder	Anti-scalant and corrosion inhibitor	USDA certified biobased product	100 - 200 ppm
S-14 F	Anti-scalant for water treatment applications made with FDA approved raw materials	Compliant with 21 CFR 173.310	100 - 200 ppm

WATER TREATMENT / PROCESS FLUID ADDITIVES

S-14 RO	Anti-scalant for RO systems	Effective scale inhibitor for reverse osmosis	0.5% - 4%
S-15	Corrosion inhibitor treatment for high pressure boilers	Hydrazine replacement	10 - 50 ppm
S-69	Corrosion inhibitor additive for water treatment	Inhibitor additive for formulated water treatment products	2000 - 3000 ppm
S-69 B	Corrosion inhibitor additive for water treatment designed specifically for aluminum	Inhibitor additive for formulated water treatment products	1500 - 2000 ppm
S-69 N	Corrosion inhibitor additive for water treatment with a nitrate tracer		2000 - 3000 ppm
S-69 P	Corrosion inhibitor additive for water treatment in powder form		1500 - 2000 ppm
S-69 PMF	Corrosion inhibitor additive for water treatment without a tracer		2000 - 3000 ppm

ADDITIVES FOR SPECIFIC FLUIDS

M-408	Provides protection to brake fluid in vehicles such as DOT 3 or 4 and is especially effective in silicon based fluids like DOT 5.	Provides antiwear properties	1.0% - 1.5 %
M-605	Additive to brine solutions to prevent corrosion due to chlorides. Specifically designed for systems with sodium chloride.	Provides protection to deicing salt solutions USDA Biopreferred 84%	0.3% - 5%
M-605 L	Liquid version of the product for magnesium chlorides.	Provides protection to deicing salt solutions USDA Biopreferred 84%	0.3% - 5%
M-605 PS	Another powder version suited for calcium chlorides.		
M-640	Additive to water and glycol fluids, specifically designed for heat exchange fluids.	Contains vapor phase inhibitors for void space protection	0.5%- 0.8%
M-640 L	Version of the product in liquid form for easier application.		2% - 2.5%
S-11	Corrosion inhibitor for use in inorganic acids	Good for applications in acidic environments with pH of less than 5	0.5% - 1%
S-11 Org	Inhibitor for organic acids		1% - 4%
S-11 P	Powder version of S-11 Org		0.5% - 4%

ADDITIVES TO PLASTICS, ELASTOMERS, AND ADHESIVES

M-138	Additive to rubbers or sealants for corrosion protection. May also be effective in various polymers.	Has minimal affect on physical properties of rubber	1% - 6%
M-138 C	Version of M-138 specifically when providing protection to cast iron or aluminum		
M-5120	Additive to water base skin film primer		0.5% - 4%
Other	Various masterbatch additives to polyethylene, polypropylene, or molded plastics.	Contact Cortec® for more information regarding Masterbatch	

Cortec VpCI® Additives

OTHER ADDITIVES

S-5	Wetting agent for aqueous and non aqueous systems	Environmentally safe surface tension reducer	2000 - 5000 ppm
S-16	Anti-foaming agent for metalworking fluids and alkaline or acid based cleaners	Environmentally safe surface tension reducer	0.3% - 0.5%
M-645	Float coat to protect large tanks such as oil storage tanks and ballast tanks	Economical treatment for large volumes	



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)

Ensures quality testing services, and to continually improve the effectiveness of the Quality Management System. It is Cortec® Corporation's goal to encourage active participation of all employees in quality planning and continual improvement efforts to meet all quality and service objectives. Cortec® Laboratories is the only lab in our industry that received ISO/IEC 17025 Certification providing for lab testing, calibration, and interpretation of test data.

Visit our websites for more information on Cortec® Corporation.

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