

Cortec® VpCI® Additives



ISO 9001 • ISO 14001
ISO/IEC 17025

Cortec® High Technology VpCI® Additives

Cortec's high technology additives integrate many technologies along with our proprietary VpCI® chemistry in order to eliminate corrosion caused by corrosive fluids, chlorides, or humid environments. When implemented, these additives ultimately cut costs such as those associated with expensive alloys, corrosion claims, and labor.

Many of Cortec's additives provide excellent contact protection with additional vapor phase protection for metals in void spaces. When introduced to a void space, VpCI® molecules in these additives vaporize and diffuse throughout the enclosure and adsorb on metal surfaces. This thin molecular, hydrophobic layer protects the metal against corrosive elements such as oxygen, moisture, and chlorides.

Each class of additives is categorized in this brochure. These additives have been formulated for specific purposes, often for use in a fluid carrier for specific systems. Evaluation of the best additive for your application is always recommended to ensure compatibility and best possible performance before wide scale implementation.

Cortec's line of additives includes many environmentally-friendly options, such as water-based or biodegradable components and products that reduce the overall use of hazardous materials by streamlining corrosion inhibiting processes. Cortec® offers environmentally friendly methods of treatment with low toxicity and low polluting effects. Unlike corrosion inhibiting systems of the past, many Cortec® additives do not contain chromates or other heavy metals, nitrites, or chlorinated hydrocarbons.



VpCI® Additives for Cleaners and Degreasers

Cleaning is a critical aspect of corrosion protection that unfortunately leaves metals susceptible to flash corrosion. Cortec® solves this problem by providing corrosion inhibiting additives that can be used directly in cleaning fluids. These additives protect metals against flash corrosion with varying ranges of extended corrosion protection.

- **M-95:** Versatile water soluble additive for various multi-metal systems requiring vapor phase and contact protection. Causes little to no foam. 5 gallon (19 liter) pails, 55 gallon (208 liter) drums, liquid totes, and bulk.
- **M-235:** Prevents corrosion of yellow metals. Can be added to cleaners such as soaps, detergents, and strong alkali or acid cleaners. Package: 5 pound (2.3 kg) pails, 50 pound (23 kg) and 100 pound (45 kg) fiber drums.
- **M-238:** Effective vapor and contact corrosion inhibitor for a variety of oil- and solvent-based systems. Package: 5 gallon (19 liter) pails, 55 gallon (208 liter) drums, liquid totes, and bulk.
- **M-370:** Multi-metal corrosion preventive additive for alkaline cleaners/degreasers. Prevents flash corrosion on metal surfaces and forms a hydrophobic film that is virtually undetectable when dry. Also available in A (aluminum), NS (non-surfactant), HS (high surfactant), and C (additional protection for cast parts and rough surfaces) versions. Package: 5 gallon (19 liter) pails, 55 gallon (208 liter) drums, liquid totes, and bulk.
- **M-415:** Strong vapor phase corrosion inhibitor additive for cleaners. Contains FDA and USDA approved ingredients. Package: 5 gallon (19 liter) pails, 55 gallon (208 liter) drums, liquid totes, and bulk.
- **M-435:** Versatile, no-VOC flash rust corrosion inhibitor for water-based fluids. Can also be used in solvent-based systems. Package: 5 gallon (19 liter) pails, 55 gallon (208 liter) drums, liquid totes, and bulk.
- **S-8:** Wash water additive for protecting food cans from corrosion during washing or sterilization. Contains only FDA approved ingredients. Package: 5 gallon (19 liter) pails, 55 gallon (208 liter) drums, liquid totes, and bulk.
- **S-111:** Multi-metal flash corrosion inhibitor to be formulated into alkaline cleaners. Package: 5 pound (2.3 kg) pails, 50 pound (23 kg) and 100 pound (45 kg) fiber drums.

Selection Guide for Cleaners and Degreasers

Product	METALS PROTECTED							ATTRIBUTES					
	Carbon Steel	Stainless	Galvanized	Aluminum	Brass	Copper	Bronze	Physical State	Transport Mechanism	Solubility	Degree of Protection	Typical Applications	Typical Dosages
M-95	x	x	x	x	x	x	x	Liquid	Vapor Phase & Contact	Water & Glycols	Flash & Long Term	Cleaners	0.25-2.5% by weight
M-235					x	x	x	Powder	Vapor Phase	Water & Glycols	Flash & Long Term	Cleaners	0.5 - 1.5% by weight
M-238	x	x	x	x	x	x	x	Liquid	Vapor Phase & Contact	Oil / Solvent	Flash & Long Term	Cleaners	1-4% by weight
M-370	x	x	x	x	x	x	x	Liquid	Contact	Water & Glycols	Flash & Long Term	Cleaners	0.1-.5% by volume
M-415	x	x	x					Liquid	Vapor Phase & Contact	Oil / Solvent	Flash & Long Term	Cleaners	0.5-4% by weight
M-435	x	x	x	x	x	x	x	Liquid	Vapor Phase & Contact	Water & Oils, and few Solvents	Flash	Cleaners	1 - 5% by weight
S-8	x	x	x	x	x	x	x	Liquid	Contact	Water	Flash	In Can Rinse	150-250 ppm
S-111	x	x	x	x	x	x	x	Powder	Contact	Water	Flash	Cleaners	0.3-1% by weight



VpCI® Additives for Coatings and Paints

Cortec® 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 provide long term corrosion protection against humidity and salt fog.

- **M-95:** Versatile water soluble additive for various multi-metal systems requiring vapor phase and contact protection. Causes little to no foam. Package: 5 gallon (19 liter) pails, 55 gallon (208 liter) drums, liquid totes, and bulk.
- **M-109:** VOC-free multi-metal solvent-based organic vapor and contact corrosion inhibitor for solvent and some waterborne coatings. Can be post-added to most coating systems. Package: 5 gallon (19 liter) pails, 55 gallon (208 liter) drums, liquid totes, and bulk.
- **M-110:** Solvent-based additive that can be used in some water-based systems. Suitable for post addition to many coatings. Limited effect on colorant system. Package: 5 gallon (19 liter) pails and 55 gallon (208 liter) drums.
- **M-118:** Waterborne corrosion inhibitor for coatings, adhesives, and related materials. Package: 5 gallon (19 liter) pails, 55 gallon (208 liter) drums, liquid totes, and bulk.
- **M-119/M-119LV:** Water-based coating system additive that improves salt spray and humidity resistance. Works synergistically with M-380. Available in LV (low viscosity) version. Package: 5 gallon (19 liter) pails, 55 gallon (208 liter) drums, liquid totes, and bulk.
- **M-150:** Multi-metal corrosion inhibiting additive for water-based inks and ink-like materials. Package: 5 gallon (19 liter) pails, 55 gallon (208 liter) drums, liquid totes, and bulk.
- **M-151:** A solvent-based ink additive that will produce a multi-metal vapor phase corrosion inhibitor coating on paper or film backing material. Package: 5 gallon (19 liter) pails, 55 gallon (208 liter) drums, liquid totes, and bulk.
- **M-168:** Solvent-based coating additive especially effective for preventing salt corrosion attacks. May cause softening if high loading is used. Package: 5 gallon (19 liter) pails, 55 gallon (208 liter) drums, liquid totes, and bulk.
- **M-235:** Prevents corrosion of yellow metals. Can be added to protective coatings such as lacquers and waxes. Package: 5 pound (2.3 kg) pails, 50 pound (23 kg) and 100 pound (45 kg) fiber drums.
- **M-240:** A multi-metal, flash rust, corrosion inhibitor additive for water-based paints, sealers, adhesives, fluids, and more. Package: 5 gallon (19 liter) pails, 55 gallon (208 liter) drums, liquid totes, and bulk.
- **M-241:** Corrosion inhibitor for aluminum. Add to water-based coatings. Package: 5 gallon (19 liter) pails, 55 gallon (208 liter) drums, liquid totes, and bulk.
- **M-380:** Water-based, multi-metal corrosion inhibitor designed to be used with carboxylated acrylic or styrene-acrylic latices. Works synergistically with M-119/LV. Package: 5 gallon (19 liter) pails, 55 gallon (208 liter) drums, liquid totes, and bulk.
- **M-381:** Water-based acrylic additive for flash rust and long term protection. Intended to combine performance of M-119 and M-380. Package: 5 gallon (19 liter) pails, 55 gallon (208 liter) drums, liquid totes, and bulk.
- **M-435:** Versatile, no-VOC flash rust inhibitor for water-based coating systems. Can also be used in solvent-based systems. Package: 5 gallon (19 liter) pails, 55 gallon (208 liter) drums, liquid totes, and bulk.
- **M-5365:** Corrosion inhibiting and water resistant additive for solvent-based, epoxy, and some waterborne systems. Package: 5 gallon (19 liter) pails, 55 gallon (208 liter) drums, liquid totes, and bulk.

Selection Guide for Coatings Additives

	METALS PROTECTED							ATTRIBUTES						SOLVENT BASED					WATER BASED						
Product	Carbon Steel	Stainless	Galvanized	Aluminum	Brass	Copper	Bronze	Physical State	Transport Mechanism	Solubility	Degree of Protection	Typical Applications	Typical Dosages	Epoxy	2K Urethane	Acrylic	Alkyd	Polyester	Epoxy	2K Urethane	PUD	Water Reducible Alkyd	Styrenated Acrylic Emulsion	Thermosetting Acrylics	Water Reducible Polyester
M-95	X	X	X	X	X	X	X	Liquid	Vapor Phase & Contact	Water	Long Term	Coatings	0.25-2.5%						Yes	Yes	Yes	Yes	Yes	Yes	Yes
M-109	X	X	X	X	X	X	X	Liquid	Vapor Phase & Contact	Solvent & Limited Water	Long Term	Coatings	1 - 3%	Yes								Yes			
M-110	X			X				Liquid	Contact	Solvent & Limited Water	Long Term	Coatings	1 - 3%	Yes	Yes		Yes								
M-118	X			X				Liquid	Vapor Phase & Contact	Water	Long Term	Coatings	1 - 4%									Yes	Yes		
M-119/ M-119LV	X			X				Water Emulsion	Vapor Phase & Contact	Water	Long Term	Coatings	1 - 3%						Yes	Yes		Yes	Yes		
M-168	X	X	X	X	X	X	X	Liquid	Vapor Phase & Contact	Solvent	Flash & Long Term	Coatings	2 - 10%	Yes			Yes								
M-235					X	X	X	Powder	Vapor Phase	Water & Glycols	Flash & Long Term	Coatings	0.5 - 1.5%			Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes
M-240	X	X	X	X	X	X	X	Liquid	Vapor Phase & Contact	Water	Flash	Coatings	0.5 - 2%						Yes	Yes	Yes	Yes	Yes	Yes	Yes
M-241	X			X				Powder	Contact	Water	Flash	Coatings	0.5 - 1.5%						Yes	Yes	Yes	Yes	Yes	Yes	Yes
M-380	X	X	X	X	X	X	X	Liquid	Vapor Phase & Contact	Water	Long Term	Coatings	2 - 5%						Yes	Yes	Yes	Yes	Yes	Yes	Yes
M-381	X	X	X	X	X	X	X	Liquid	Vapor Phase & Contact	Water	Long Term	Coatings	2 - 5%						Yes	Yes		Yes	Yes	Yes	Yes
M-435	X	X	X	X	X	X	X	Liquid	Vapor Phase & Contact	Water & Oils, and few Solvents	Flash	Coatings	1 - 5%						Yes			Yes	Yes	Yes	Yes
M-5365	X	X	X	X				Liquid	Contact	Oil, Solvent	Long Term	Coatings	0.5 - 4%	Yes	Yes	Yes	Yes	Yes				Yes	Yes		

Selection Guide for Inks Additives

METALS PROTECTED								ATTRIBUTES						
Product	Carbon Steel	Stainless	Galvanized	Aluminum	Brass	Copper	Bronze	Physical State	Transport Mechanism	Solubility	Degree of Protection	Typical Applications	Typical Dosages	Typical Dosages
M-95	X	X	X	X	X	X	X	Liquid	Vapor Phase & Contact	Water	Long Term	Inks	0.25-2.5%	0.25-2.5%
M-150	X	X	X	X	X	X	X	Liquid	Vapor Phase & Contact	Water	Long Term	Inks	2 - 3%	2 - 3%
M-151	X	X	X	X	X	X	X	Liquid	Vapor Phase & Contact	Solvent	Long Term	Inks	2 - 3%	2 - 3%

VpCI® Additives for Deicing Salts and Fluids

Often it is necessary to use corrosive seawater, brine solutions, or deicing chemicals for industrial applications, but these can create a major problem for any metals in the system. Cortec® offers additives to combat these highly corrosive fluids containing salts.

Cortec's corrosion-inhibiting additives come in powder and liquid options that can be added directly to the deicing or brine solution to protect metals exposed to the corrosive elements. Additives for deicing salts conform to Pacific Northwest States DOT requirements for deicing additives and are non-toxic, environmentally friendly, and free of chromate, nitrite, or phosphate inhibitors.

Possible applications:

- Deicing fluids
- Ballast tanks
- Distillation towers
- Cooling towers
- Hydrostatic testing with seawater

VpCI® additives form a thin molecular corrosion inhibiting layer that adsorbs on the surface of the metal, displacing existing water, chlorides, or other corrosive contaminants on the surface. Additive options include those with corrosion protection for the contact phase, vapor phase, and water/air interphase.

- **FlashCorr® VpCI®:** A highly effective, non-toxic, environmentally safe cleaner that removes and neutralizes even the harshest of salt build-up from any metal surface. It has a unique ability to neutralize and remove salt deposits such as sodium chloride and other deicing salts, as well as protect from flash rust. Package: 5 pound (2.3 kg) pails, 50 pound (23 kg) and 100 pound (45 kg) fiber drums.
- **M-605:** Corrosion inhibitor additive for deicing salt and brine solutions. Protects ferrous and aluminum-based alloys. Liquid (L) and USDA certified biobased Powder (PS) versions available. Package: M-605 L available in 5 gallon (19 liter) pails, 55 gallon (208 liter) drums, liquid totes, and bulk. M-605 and M-605 PS available in 5 pound (2.3 kg) pails, 50 pound (23 kg) and 100 pound (45 kg) fiber drums.

Selection Guide for Deicing Salts and Fluids Additives

Product	METALS PROTECTED							ATTRIBUTES					
	Carbon Steel	Stainless	Galvanized	Aluminum	Brass	Copper	Bronze	Physical State	Transport Mechanism	Solubility	Degree of Protection	Typical Applications	Typical Dosages
M-605	x	x		x				Powder	Contact	Water	Flash	Deicing Fluid / NaCl	0.3-5% by weight
M-605L	x	x		x				Liquid	Contact	Water	Flash	Deicing Fluid / MgCl2	0.3-5% by weight
M-605PS	x	x		x				Powder	Contact	Water	Flash	Deicing Fluid / CaCl2	0.3-5% by weight
FlashCorr®	x	x		x				Liquid	Vapor Phase & Contact	Water	Flash	Rinse/Wash	0.05-2% by weight

VpCI® Additives for Fuels, Crude Oil, and Natural Gas

Industries often require the use of large and small fuel storage tanks and systems. However, this raises concerns about fuel separation and corrosion of new equipment fuel tanks during shipping and storage. Cortec's fuel additives can help alleviate these problems with a variety of products to provide corrosion protection, stabilize fuel, and reduce the buildup of static charges that cause explosions.

- **S-49:** Fuel oil dispersant/emulsifier keeps insoluble particles dispersed, reducing carbon deposits and particulate emissions. Package: 5 gallon (19 liter) pails, 55 gallon (208 liter) drums, liquid totes, and bulk.
- **VpCI®-629:** A fast-acting long-term inhibitor that forms a persistent barrier against severe corrosive attacks encountered in refinery and petrochemical operations. Protects ferrous and non-ferrous metals in the presence of water, halogens, and corrosive gases. Package: 5 gallon (19 liter) pails, 55 gallon (208 liter) drums, liquid totes, and bulk.
- **VpCI®-637:** A combination of vapor phase, neutralizing, and film-forming corrosion inhibitors that provide effective internal corrosion control in natural gas and crude oil gatherings and transmission lines. Package: 5 gallon (19 liter) pails, 55 gallon (208 liter) drums, liquid totes, and bulk.
- **VpCI®-639:** A fast acting long-term contact corrosion inhibitor designed to provide corrosion protection against the severe conditions encountered in petroleum production and refining. Package: 5 gallon (19 liter) pails, 55 gallon (208 liter) drums, liquid totes, and bulk.
- **VpCI®-705:** Corrosion inhibitor, fuel stabilizer, and water emulsifier for gasoline, diesel, and gasohol mixtures. Also available in biodiesel version. Package: 5 gallon (19 liter) pails, 55 gallon (208 liter) drums, liquid totes, and bulk.
- **VpCI®-706:** Diesel and biodiesel fuel additive protects heavy equipment fuel tanks and systems from corrosion during storage, shipment, and equipment use. Provides strong vapor phase protection. Package: 5 gallon (19 liter) pails, 55 gallon (208 liter) drums, liquid totes, and bulk.

Selection Guide for Fuels, Crude Oil, and Natural Gas Additives

Product	METALS PROTECTED							ATTRIBUTES					
	Carbon Steel	Stainless	Galvanized	Aluminum	Brass	Copper	Bronze	Physical State	Transport Mechanism	Solubility	Degree of Protection	Typical Applications	Typical Dosages
S-49	x	x	x					Liquid	Vapor Phase & Contact	Solvent / Oil	Long term	Fuel Oil	0.25-.1% by volume
VpCI®-629	x	x		x				Liquid	Contact	Water / Solvent Dispersable	In Process	Process Injection	Contact Cortec®
VpCI®-637	x	x		x				Liquid	Vapor Phase & Contact	Water / Solvent Dispersable	In Process	Process Injection	Contact Cortec®
VpCI®-639	x	x		x				Liquid	Contact	Solvent / Oil	In Process	Process Injection/Pigging	Contact Cortec®
VpCI®-705	x	x	x	x	x	x	x	Liquid	Vapor Phase & Contact	Solvent / Oil	Long term	Fuel Oil	0.1-.15 by volume
VpCI®-706	x	x	x					Liquid	Vapor Phase & Contact	Solvent / Oil	Long term	Fuel Oil	0.1-.5% by volume

VpCI® Additives for Lubricants and Greases

This full line of additives offers versatile corrosion inhibitor packages for both solvent- and oil-based lube and grease systems. 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 significantly increase protection of lube and grease systems. Many of these additives offer vapor phase protection for metals in the void space above the lubricant.

- **M-168:** Solvent-based additive especially effective for preventing salt corrosion attacks. Package: 5 gallon (19 liter) containers, 55 gallon (208 liter) metal drums, liquid totes, and bulk.
- **M-236:** For corrosion protection of yellow metals in contact with oil-based systems, such as transformer oil. Package: 5 gallon (19 liter) pails, 55 gallon (208 liter) drums, liquid totes, and bulk.
- **M-238:** Effective vapor and contact corrosion inhibitor for a variety of oil- and solvent-based systems. Package: 5 gallon (19 liter) pails, 55 gallon (208 liter) drums, liquid totes, and bulk.
- **M-320:** Provides vapor and contact protection to oil systems such as gearboxes. Recommended during layup. Package: 5 gallon (19 liter) pails, 55 gallon (208 liter) drums, liquid totes, and bulk
- **M-369:** Additive for greases, waxes, or heavy oils that provides a superior level of corrosion protection. Package: 5 gallon (19 liter) and 55 gallon (208 liter) drums.
- **M-408:** Provides corrosion protection to brake fluid in vehicles such as DOT 3 or 4. Especially effective in silicon based fluids like DOT 5. Package: 5 gallon (19 liter) pails, 55 gallon (208 liter) drums, 275 gallon (1041 liter) tote.
- **M-529:** Patented oil-based contact corrosion inhibitor package for lubricating oils. M-529 L contains EP lubricity package. Available in super-concentrate (M-529 SC) form. Package: 5 gallon (19 liter) pails, 55 gallon (208 liter) drums, liquid totes, and bulk.
- **M-530:** Mineral oil based inhibitor for intermittent operating systems offering both contact and vapor phase corrosion protection. Small particle size passes through 1 micron filter. Package: 5 gallon (19 liter) pails, 55 gallon (208 liter) drums, liquid totes, and bulk.
- **M-531:** PAO based oil additive that has a minimal effect on properties like water separability, thermal stability, and filters to 1 micron. Offers contact and vapor phase corrosion protection. Package: 5 gallon (19 liter) pails, 55 gallon (208 liter) drums, liquid totes, and bulk.
- **M-531 T:** An ash free oil corrosion-inhibiting additive designed for turbine applications. Package: 5 gallon (19 liter) pails, 55 gallon (208 liter) drums, liquid totes, and bulk.
- **M-533 FG:** Oil additive corrosion inhibitor which is NSF HX-1 certified for use in plants with incidental food contact. Package: 5 gallon (19 liter) pails, 55 gallon (208 liter) drums, liquid totes, and bulk.

Selection Guide for Lubricants and Greases Additives

Product	METALS PROTECTED							ATTRIBUTES					
	Carbon Steel	Stainless	Galvanized	Aluminum	Brass	Copper	Bronze	Physical State	Transport Mechanism	Solubility	Degree of Protection	Typical Applications	Typical Dosages
M-168	X	X	X	X	X	X	X	Liquid	Contact	Solvent	Flash & Long Term	Lubricants/Greases	2 - 20% by weight
M-236					X	X	X	Liquid	Vapor Phase & Contact	Oil / Solvent	Flash & Long Term	Lubricants/Greases	.25 - 10% by weight
M-238	X	X	X	X	X	X	X	Liquid	Vapor Phase & Contact	Oil / Solvent	Flash & Long Term	Lubricants/Greases	1-4% by weight
M-320	X	X	X	X	X	X	X	Liquid	Vapor Phase & Contact	Oil / Solvent	Flash & Long Term	Lubricants/Greases	1-5% by weight
M-369	X	X	X	X	X	X	X	Liquid	Contact	Oil / Solvent	Flash & Long Term	Lubricants/Greases	1-5% by weight
M-408	X	X	X	X	X	X	X	Liquid	Vapor Phase & Contact	Oil / Solvent	Flash & Long Term	Lubricants	1-1.5% by weight
M-529	X	X	X	X	X	X	X	Liquid	Contact	Oil / Solvent	Flash & Long Term	Lubricants	2-5% by weight
M-530	X	X	X	X	X	X	X	Liquid	Vapor Phase & Contact	Oil / Solvent	Flash & Long Term	Lubricants	2-5% by weight
M-531	X	X	X	X	X	X	X	Liquid	Vapor Phase & Contact	Oil / Solvent	Flash & Long Term	Lubricants	2-5% by weight
M-531T	X	X	X	X				Liquid	Contact	Oil / Solvent	Flash & Long Term	Lubricants	.05-2% by weight
M-533FG	X	X	X	X				Liquid	Contact	Oil / Solvent	Flash & Long Term	Lubricants	.1-10% by weight

VpCI® Additives for Metalworking and Hydraulic Fluids

Cortec® offers a variety of additives for use with metalworking and hydraulic fluids. These additives protect metal pieces from flash corrosion during the metalworking process, while also providing protection to the cutting and machining equipment. Other additives can be used for preserving important hydraulic equipment during shipping or storage. A range of vapor phase protection capabilities adds an important dimension to protecting parts with void spaces.

- **M-95:** Versatile water soluble additive for various multi-metal systems requiring vapor phase and contact protection. Causes little to no foam. 5 gallon (19 liter) pails, 55 gallon (208 liter) drums, liquid totes, and bulk.
- **M-235:** Prevents corrosion of yellow metals. Can be added to functional fluids such as hydraulic fluids, specialty lubricants, automotive coolants, and metalworking fluids. Package: 5 pound (2.3 kg) pails, 50 pound (23 kg) and 100 pound (45 kg) fiber drums.
- **M-236:** Liquid corrosion inhibitor especially designed for oils and solvent-based products in contact with yellow metals. Package: 5 gallon (19 liter) pails, 55 gallon (208 liter) drums, liquid totes, and bulk.
- **M-241:** Corrosion inhibitor for aluminum. Add to metalworking fluids and water-based coolants. Package: 5 gallon (19 liters) pails, 55 gallon (208 liters) drums, liquid totes, and bulk.
- **M-250:** Anti-corrosion additive with emulsification properties for soluble oils. Package: 5 gallon (19 liter) pails, 55 gallon (208 liter) drums, liquid totes, and bulk.
- **M-251:** Adds multi-metal contact and vapor phase corrosion protection to synthetic cutting fluids and water-based hydraulic fluids. Package: 5 gallon (19 liters) pails, 55 gallon (208 liters) drums, liquid totes, and bulk.
- **M-320:** Provides vapor and contact protection to oil systems such as gearboxes. Recommended during layup. Package: 5 gallon (19 liter) pails, 55 gallon (208 liter) drums, liquid totes, and bulk.
- **M-370:** Multi-metal corrosion preventive additive for water-based metalworking fluids. Prevents flash corrosion on metal surfaces and forms a hydrophobic film that is virtually undetectable when dry. Also available in A (aluminum), NS (non-surfactant), HS (high surfactant), and C (additional protection for cast parts and rough surfaces) versions. Package: 5 gallon (19 liter) pails, 55 gallon (208 liter) drums, liquid totes, and bulk.
- **M-528:** Additive to hydraulic fluids for corrosion protection in subsea systems. Also for synthetic coolants and cutting fluids. M-528 L includes lubricant. Package: 5 gallon (19 liter) pails, 55 gallon (208 liter) drums, liquid totes, and bulk.
- **M-415:** Strong vapor phase corrosion inhibitor additive for oils and fluids. Contains FDA and USDA approved ingredients. Package: 5 gallon (19 liter) pails, 55 gallon (208 liter) drums, liquid totes, and bulk.

Selection Guide for Metalworking and Hydraulic Fluids Additives

Product	METALS PROTECTED							ATTRIBUTES					
	Carbon Steel	Stainless	Galvanized	Aluminum	Brass	Copper	Bronze	Physical State	Transport Mechanism	Solubility	Degree of Protection	Typical Applications	Typical Dosages
M-95	x	x	x	x	x	x	x	Liquid	Vapor Phase & Contact	Water & Glycols	Flash & Long Term	Metalworking	0.25-2.5% by weight
M-235					x	x	x	Powder	Vapor Phase	Water & Glycols	Flash & Long Term	Metalworking	0.5 - 1.5% by weight
M-236					x	x	x	Liquid	Vapor Phase & Contact	Oil / Solvent	Flash & Long Term	Metalworking	.25 - 10% by weight
M-241	x			x				Powder	Contact	Water	Flash	Metalworking	0.5 - 1.5% by weight
M-250	x	x	x	x	x	x	x	Liquid	Contact	Soluble Oils	Flash	Metalworking	0.5 - 1% by volume
M-251	x	x	x	x	x	x	x	Liquid	Contact	Synthetic Fluids	Flash	Metalworking	0.5 - 1% by volume
M-320	x	x	x	x	x	x	x	Liquid	Vapor Phase & Contact	Oil / Solvent	Flash & Long Term	Metalworking	1-5% by weight
M-370	x	x	x	x	x	x	x	Liquid	Contact	Water & Glycols	Flash & Long Term	Metalworking	0.1-5% by volume
M-528	x	x	x	x	x	x	x	Liquid	Vapor Phase & Contact	Water / PAG	Flash & Long Term	Hydraulic Fluids	1 - 5% by weight
M-415	x	x	x					Liquid	Vapor Phase & Contact	Oil / Solvent	Flash & Long Term	Metalworking	0.5-4% by weight

VpCI® Additives for Plastics, Elastomers, and Adhesives

One of the most widely used VpCI® applications is the implementation of corrosion inhibitors in plastics, elastomers, and adhesives. This has been especially strategic in 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.

- **M-95:** Versatile water soluble additive for various multi-metal systems requiring vapor phase and contact protection. Causes little to no foam. Package: 5 gallon (19 liter) pails, 55 gallon (208 liter) drums, liquid totes, and bulk.
- **M-138:** Multi-metal corrosion inhibiting additive for rubbers and sealants. M-138 C used for aluminum and cast iron applications. Package: 5 pound (2.3 kg) pails, 50 pound (23 kg) and 100 pound (45 kg) fiber drums.
- **M-240:** A multi-metal, flash rust, corrosion inhibitor additive for water-based paints, sealers, adhesives, fluids, and more. Package: 5 gallon (19 liter) pails, 55 gallon (208 liter) drums, liquid totes, and bulk.
- **M-415:** Strong vapor phase corrosion inhibitor additive for sealers, adhesives, and more. Contains FDA and USDA approved ingredients. Package: 5 gallon (19 liter) pails, 55 gallon (208 liter) drums, liquid totes, and bulk.
- **M-435:** Multi-metal, no-VOC, flash rust inhibitor for sealers and adhesives. Package: 5 gallon (19 liter) pails, 55 gallon (208 liter) drums, liquid totes, and bulk.
- **M-5120:** Patented water-based corrosion inhibitor additive for water-based skin film primers and other coatings. Package: 5 gallon (19 liter) pails, 55 gallon (208 liter) drums, liquid totes and bulk.

Various masterbatch additives to polyethylene, polypropylene, or molded plastics.

Selection Guide for Plastics, Elastomers, and Adhesives Additives

Product	METALS PROTECTED							ATTRIBUTES					
	Carbon Steel	Stainless	Galvanized	Aluminum	Brass	Copper	Bronze	Physical State	Transport Mechanism	Solubility	Degree of Protection	Typical Applications	Typical Dosages
M-95	x	x	x	x	x	x	x	Liquid	Vapor Phase & Contact	Water	Long Term	Adhesives	0.25-2.5% by weight
M-138	x	x	x	x	x	x	x	Powder	Vapor Phase & Contact	Solvent	Long Term	Plastics/Rubber	1-6% by weight
M-240	x	x	x	x	x	x	x	Liquid	Vapor Phase & Contact	Water	Long Term	Adhesives	0.5-2% by weight
M-415	x	x	x	x				Liquid	Vapor Phase & Contact	Solvent	Long Term	Adhesives	0.5-4% by weight
M-435	x	x	x	x	x	x	x	Liquid	Vapor Phase & Contact	Water	Long Term	Adhesives	0.2-2% by weight
M-5120	x	x	x	x	x	x	x	Liquid	Vapor Phase & Contact	Water	Long Term	Adhesives	0.5-4% by weight



VpCI® Building Blocks and Additives for Water Treatment Formulations

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

- **M-95:** Versatile water soluble additive for various multi-metal systems requiring vapor phase and contact protection. Causes little to no foam. 5 gallon (19 liter) pails, 55 gallon (208 liter) drums, liquid totes, and bulk.
- **M-235:** Prevents corrosion of yellow metals. Can be used in circulating cooling systems such as cooling towers and air conditioning systems. Package: 5 pound (2.3 kg) pails, 50 pound (23 kg) and 100 pound (45 kg) fiber drums.
- **S-7/S-7 Liquid:** Catalyzed sodium sulfite based oxygen scavenger for low to medium pressure boilers. Package: 5 pound (2.3 kg) pails, 50 pound (23 kg) and 100 pound (45 kg) fiber drums. Also available in liquid 5 gallon (19 liter) pails, 55 gallon (208 liter) drums, liquid totes, and bulk.
- **S-8:** Wash water additive for protecting food cans from corrosion during washing or sterilization. Contains only FDA approved ingredients. Package: 5 gallon (19 liter) plastic pails, 55 gallon (208 liter) metal drums, liquid totes, and bulk.
- **S-10:** Corrosion inhibitor for boiler condensate lines. Package: 5 gallon (19 liter) pails, 55 gallon (208 liter) drums, liquid totes, and bulk.
- **S-10 F Boiler Additive:** Non-toxic "green" filming corrosion inhibitor for boiler condensate. Contains only FDA approved ingredients. Listed on BioPreferred® Mandatory Federal Purchasing list. Package: 5 gallon (19 liter) pails, 55 gallon (208 liter) drums, liquid totes, and bulk.
- **S-10 FA:** Filming amine blend for controlling corrosion in condensate systems by the formation of a protective film on the metal surface. Package: 5 gallon (19 liter) pails, 55 gallon (208 liter) drums, liquid totes, and bulk.
- **S-11:** Corrosion inhibitor for aqueous systems with low pH. S-11 Org/S-11 P (powder) especially designed for organic acids. Package: 5 gallon (19 liter) pails, 55 gallon (208 liter) drums, liquid totes, and bulk. S-11 P available in 5 pound (2.3 kg) pails, 50 pound (22.7 kg) and 100 lb (45.4 kg) fiber drums.
- **S-14:** General purpose antiscalant for water treatment applications. Non-flammable and non-toxic. Package: 5 gallon (19 liter) pails, 55 gallon (208 liter) drums, liquid totes, and bulk.
- **S-14 Bio:** Patented biodegradable scale and corrosion inhibitor for open loop cooling systems. Contains 84% USDA certified biobased content. Package: 5 gallon (19 liter) pails, 55 gallon (208 liter) drums, liquid totes, and bulk.
- **S-14 Bio Powder:** Patented biodegradable, biobased water soluble powder antiscalant for open-loop cooling systems. Package: 5 pound (2.3 kg) pails, 50 pound (22.7 kg) and 100 pound (45.4 kg) fiber drums.
- **S-14 RO:** Multifunctional antiscalant for reverse osmosis systems. Package: 5 gallon (19 liter) pails, 55 gallon (208 liter) drums, liquid totes, and bulk.
- **S-15:** Low toxicity corrosion inhibitor for high pressure boilers. Replaces hydrazine. Package: 5 gallon (19 liter) pails, 55 gallon (208 liter) drums, liquid totes, or bulk.
- **S-69:** Multi-metal, multiphase corrosion prevention additive for water treatment. Available in P (powder), B (aluminum protection), N (nitrate tracer), PMF (molybdenum-free), and EcoShield® S-69 IT (UV traceable) versions. Package: 5 gallon (19 liter) pails, 55 gallon (208 liter) drums, liquid totes, and bulk. Powders come in 5 pound (2.3 kg) pails, 50 pound (23 kg) and 100 pound (45 kg) fiber drums.
- **M-615:** Corrosion inhibitor and antiscalant combination for use in low to medium pressure boilers. Package: 5 gallon (19 liter) containers, 55 gallon (208 liter) drums, liquid totes, and bulk.
- **M-640:** Multi-metal corrosion inhibiting additive for water and glycol-based heat exchange fluids. Contains vapor phase corrosion inhibitors for void space protection. Package: 5 pound (2.3 kg) pails, 50 pound (23 kg) and 100 pound (45 kg) fiber drums. M-640 L (liquid) comes in 5 gallon (19 liter) pails, 55 gallon (208 liter) drums, liquid totes, and bulk.
- **M-645:** Corrosion inhibiting float coat/hydrostatic testing additive for use in seawater or brine. Package: 5 gallon (19 liter) pails, 55 gallon (208 liter) drums, liquid totes, and bulk.

Selection Guide for Building Blocks and Additives for Water Treatment

Product	METALS PROTECTED							ATTRIBUTES					
	Carbon Steel	Stainless	Galvanized	Aluminum	Brass	Copper	Bronze	Physical State	Transport Mechanism	Solubility	Degree of Protection	Typical Applications	Typical Dosages
M-95	x	x	x	x	x	x	x	Liquid	Vapor Phase & Contact	Water & Glycols	Flash & Long Term	Corrosion Inhibitor	0.25-2.5% by weight
M-235					X	X	X	Powder	Vapor Phase & Contact	Water & Glycols	Flash & Long Term	Corrosion Inhibitor	0.5 - 1.5% by weight
S-69	x	x	x	x	x	x	x	Liquid	Vapor Phase & Contact	Water & Glycols	Flash & Long Term	Corrosion Inhibitor	200-3000 ppm
M-615	x	x	x	x	x	x	x	Liquid	Vapor Phase & Contact	Water & Glycols	Flash & Long Term	Corrosion Inhibitor	75-250 ppm
M-640	x	x	x	x	x	x	x	Powder	Vapor Phase & Contact	Water & Glycols	Flash & Long Term	Corrosion Inhibitor	0.5-.8% by weight
M-640L	x	x	x	x	x	x	x	Liquid	Vapor Phase & Contact	Water & Glycols	Flash & Long Term	Corrosion Inhibitor	1-3% by weight
M-645	x	x	x	x	x	x	x	Liquid	Contact	Oils	Flash & Long Term	Float Coat	Contact Cortec
S-7	x	x	x	x	x	x	x	Liquid	Contact	Water	In Process	H2S Scavenger	5-60 ppm
S-8	x	x	x	x	x	x	x	Liquid	Contact	Water	Flash	In Can Rinse	150-250 ppm
S-10	x	x	x	x	x	x	x	Liquid	Contact	Water	In Process	Boilers	10-30 ppm feed
S-10F	x	x	x	x	x	x	x	Liquid	Contact	Water	In Process	Boilers	10-30 ppm feed
S-10FA	x	x	x	x	x	x	x	Liquid	Contact	Water	In Process	Boilers	10-30 ppm feed
S-11	x	x	x	x	x	x	x	Liquid	Contact	Water	Flash	Acid Additive	0.1-4% by weight
S-14	x	x	x	x	x	x	x	Liquid	Contact	Water	In Process	Scale Inhibitors	1-10 ppm
S-14 Bio	x	x	x	x	x	x	x	Liquid	Contact	Water	In Process	Scale Inhibitors	100-200 ppm
S-14 Bio Powder	x	x	x	x	x	x	x	Powder	Contact	Water	In Process	Scale Inhibitors	5-10 ppm
S-14 RO	x	x	x	x	x	x	x	Liquid	Contact	Water	In Process	Scale Inhibitors	0.5-200 ppm
S-15	x	x	x	x	x	x	x	Liquid	Contact	Water	In Process	Boilers	2-5 ppm



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

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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.

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