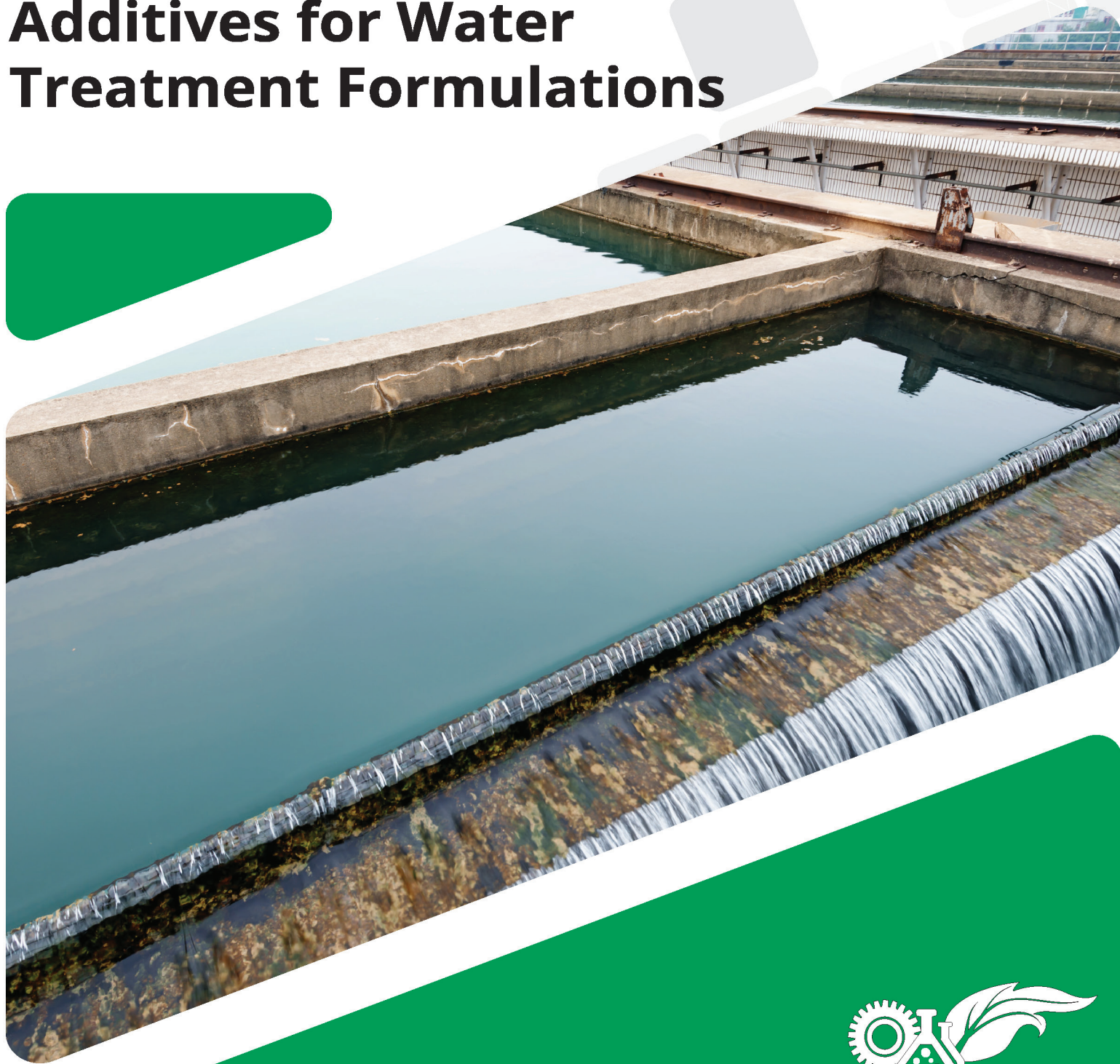


VpCI® Building Blocks and Additives for Water Treatment Formulations



Simple. Clean. Efficient.

Cortec's class of water treatment additive 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 for full water treatment formulations.

When multi-phase protection is necessary, Cortec® offers VpCI® Technology options that protect in the vapor phase, contact phase, and at the air-water interface. These VpCI® molecules diffuse throughout the enclosed space and adsorb on metal surfaces below and above the surface of the water, protecting against oxygen, chlorides, and other corrosive elements.

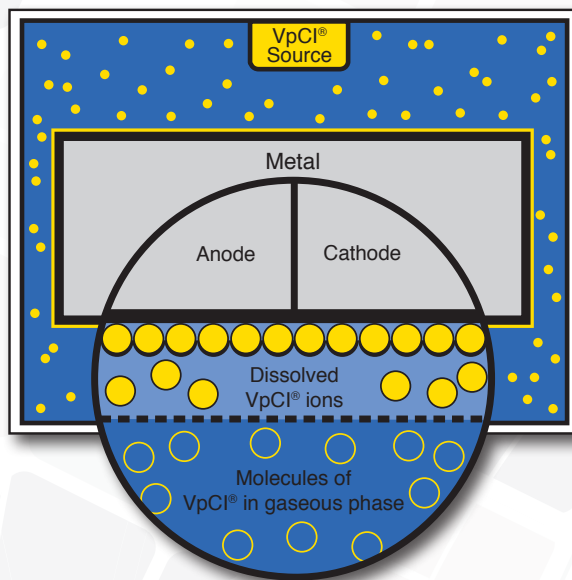
Cortec® offers many sound, environmentally friendly additives that can replace nitrites, molybdates, phosphonates, morpholine, hydrazine, and amines. Its portfolio includes a biodegradable scale and corrosion inhibitor that contains USDA certified biobased content.



Benefits of VpCI® water treatment additives:

- Easy to formulate
- Do not alter emulsion properties
- Compatible with biocides
- Multi-metal protection
- Environmentally friendly options

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. These additives provide multi-metal protection for many different cleaners and cleaning applications such as surface prep, food can sterilization, and manufacturing.



Selection Guide for Building Blocks and Additives for Water Treatment

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-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) are 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 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-605 PS: Corrosion inhibitor additive for closed-loop brine solutions. Protects ferrous and aluminum-based alloys. Contains 98% USDA certified biobased content. Package: 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.



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-605 PS	x	x		x				Powder	Contact	Water	In Process	Brine	0.3-5% by weight
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	0.5-0.8% 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 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	Vapor Phase & Contact	Water	In Process	Boilers	2-5 ppm

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