



CORROSION INHIBITING VpCI® POWDERS

# VpCI®-609/609S Biodegradable Powders

## Corrosion Inhibiting Powders for Ferrous Metals, Patented



### PRODUCT DESCRIPTION

VpCI-609 is a water-soluble Vapor phase Corrosion Inhibitor (VpCI) powder for wet or dry corrosion protection of ferrous metals and aluminum. VpCI-609 is also available as VpCI-609S (with silica).

### FEATURES

- Conforms to MIL-I-22110C
- Provides liquid, vapor-phase, and interface protection (above the liquid level)
- Creates a monomolecular inhibiting layer on metal surface
- Provides up to 24 months of continuous protection
- Does not contain nitrites, phosphates, or heavy metals
- Conforms to NACE Standard TM0208-2008

### ADVANTAGES

- Vapor-phase inhibiting action protects inaccessible and recessed surfaces
- Protected products can be shipped to customers without removing powder
- If the VpCI layer is disturbed by moisture or the opening of an enclosed space, the layer is replenished by continuous vapor redeposition
- Little or no surface preparation is required
- Prevents future corrosion of precoated and painted surfaces
- Does not increase alkalinity
- Provides economical protection for very large applications

### VpCI-609 TOXICOLOGICAL TESTING RESULTS (Performed by RF Rogaland Research (Norway))\*

Skeletonema costatum	72 h EC <sub>50</sub> (mg/l):	240
Acartia tonsa	48 h LC <sub>50</sub> (mg/l):	100
Corophium volutator	10 d LC <sub>50</sub> (mg/kg dry weight):	1410
Biodegradability (Marine BOD28) (%)		100
Bioaccumulation potential (log P <sub>ow</sub> ):		<0

\*Testing performed in accordance with Oslo-Paris commission protocol

### TYPICAL USES

- 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

### TYPICAL PROPERTIES

Appearance	Off-white to light brown crystalline powder
pH	6-7 (1% aqueous solution)
Solubility in water	15%
Density	38-39 lb/ft <sup>3</sup> (0.61-0.63 kg/l)

### METALS PROTECTED

- Carbon steel
- Mild steel
- Stainless steel
- Other ferrous metals
- Aluminum



## METHOD OF APPLICATION

Apply VpCI-609 in dry form by dusting, fogging, or sprinkling. Apply VpCI-609 in aqueous form by spray, brush, flush, or immersion. After application, simply cover and close or seal the interior cavity or void. Fogging is easily achieved by using a low pressure air hose and sandblast cup. Inverted shop vacuums and large conventional sandblasting systems can also be used.

## DOSAGE

For powder application with average environmental conditions, use 0.3-0.5 ounce (8.5-14 grams) of VpCI-609 per 1 cubic foot (28 liters) of enclosed space (300-500 g/m<sup>3</sup>). The dosage can be increased for more severe conditions. For aqueous applications with average environmental conditions, use 0.5% VpCI-609 by weight of water. The dosage can be increased for more severe conditions. To improve the wetting of metal surfaces, Cortec S-5 Wetting Agent can be used at the rate of 0.5% by weight of VpCI-609 powder.

## METHOD OF REMOVAL

When required, VpCI-609/609S in powder form can be removed by using a low pressure air gun or by a water rinse. Typically, if applied in aqueous form the product does not require removal.

## FOR INDUSTRIAL USE ONLY

**KEEP OUT OF REACH OF CHILDREN**

**KEEP CONTAINER TIGHTLY CLOSED**

**NOT FOR INTERNAL CONSUMPTION**

**CONSULT MATERIAL SAFETY DATA SHEET FOR MORE INFORMATION**

## PACKAGING AND STORAGE

VpCI-609/609S powders are available in 5 pound (2.3 kg), 50 pound (23 kg), and 100 pound (45 kg) moisture barrier bags packed in fiber-lined drums. Store in a sealed container in a dry warehouse, and avoid direct exposure to sunlight with temperatures not exceeding 150°F (65°C). Under these conditions, shelf life is up to 24 months.

## PRECAUTIONS

- Do not use on copper, copper-based alloys, and other soft yellow metals. Compatibility with non-metallics should be evaluated.
- Caking of powder may occur when it is exposed to moisture and then dried. The likelihood of this is increased when powder is exposed to high heat and multiple wet/dry cycles. When powder gets caked, baked, and hardened it requires removal by mechanical means or by aggressive acid clean. To avoid caking of powder do not over apply or unevenly disperse the dry powder. In aqueous applications make sure powder has been totally dissolved before using.
- Powder is not soluble hydrocarbon fluids. Rinse powder from vessels before adding hydrocarbon fluids.
- Powder should be removed from area, 5 -10 inches on each side of weld, before welding or other high temperature processing.

Note: Regular VpCI-609 has a tendency to clump. For dry fogging application use VpCI-609S (with silica) where acceptable. Not recommended for steam application such as boilers, turbines, steam piping, etc.

## LIMITED WARRANTY

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4119 White Bear Parkway, St. Paul, MN 55110 USA  
Phone (651) 429-1100, Fax (651) 429-1122  
Toll Free (800) 4-CORTEC, E-mail [info@cortecvci.com](mailto:info@cortecvci.com)  
Internet <http://www.CortecVCI.com>

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