



**CORTEC**  
CORPORATION

Environmentally Safe VpCI®/MCI® Technologies

## VpCI®-609/609 S Biodegradable Powders Corrosion Inhibiting Powder for Ferrous Metals Patent Pending

### 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®-609 S (with silica).

### PACKAGING & STORAGE

VpCI®-609/609 S 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. Also available in pouches such as EcoPouch®.

To ensure best product performance, store in original packaging, indoors, and out of direct sunlight at 40-100 °F (4-38 °C).

Shelf life: 2 years

### CORROSION INHIBITING VpCI® POWDER



### FEATURES

- Accepted by Cefas as an offshore chemical. Registered under OCNS number 25717 allowing use at 5,000 ppm
- 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
- Passes Vapor Inhibiting Ability Test (NACE Standard TM0208-2008) before and after Exhaustion Test (MIL-STD-3010C)
- UFI: 3U20-J0EA-E002-G43C

### ADVANTAGES

- Vapor-phase inhibiting action protects inaccessible and recessed surfaces
- If the VpCI® layer is disturbed by moisture or the opening of an enclosed space, the layer is replenished by continuous vapor redeposition
- Prevents future corrosion of precoated and painted surfaces
- VpCI® layer typically does not need to be removed prior to processing or use
- If required, powder is easily removed by air gun or water flush
- Does not increase alkalinity
- Provides economical protection for very large applications

### TOXICOLOGICAL TESTING RESULTS

(Performed by Nortech A.S. (Norway))\*

- Biodegradability: 100% biodegradable in marine environment, rapidly degradable substance (OECD\*\* 306, BOD 28 Marine test)
- Toxicity: Very low (LD-50 = 5,000 mg oral-rat)
- Bioaccumulation potential: none (OECD Guideline 117)

\*Testing performed in accordance with Oslo-Paris convention mission protocol

\*\*Organization for Economic Co-Operation and Development

# VpCI®-609/609 S Biodegradable Powders

## TYPICAL USES

- Tubular structures, pipes, and vessels
- Voids, cavities, and tanks
- 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

## PHYSICAL PROPERTIES

VpCI®-609	
Appearance	Off White Crystalline Powder
pH	6-7 (1% Aqueous Solution)
Solubility in Water	15%
Bulk Density	38-39 lb/ft <sup>3</sup> (0.61-0.63 kg/L)
VpCI®-609 S	
Appearance	White to Off-White Powder
pH	5.9-6.9 (1% Water)
Bulk Density	37-38 lb/ft <sup>3</sup> (0.59-0.61 kg/L)

## METALS PROTECTED

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

## METHOD OF APPLICATION

Apply VpCI®-609 in dry form by dusting, fogging, or sprinkling. Apply VpCI®-609 in aqueous form by spray, 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. 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 L) of enclosed space (300-500 g/m<sup>3</sup>). The dosage can be increased for more severe conditions. For aqueous submersion or partial submersion applications, consult Cortec® Technical Service.

## METHOD OF REMOVAL

When required, VpCI®-609/609 S in powder form can be easily 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. If necessary, a simple water rinse or flush will suffice.

## LIMITATIONS

- 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. 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. Over extended periods of protection, this caking may require a more involved cleaning procedure. Contact Cortec® Technical Service for further details.
- Powder is not soluble in hydrocarbon fluids. Rinse powder from vessels before adding hydrocarbon fluid.
- Powder should be removed from the area 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®-609 S (with silica) where acceptable.

## STANDARD TEST METHODS

NACE Standard TM0208-2008	Vapor Inhibiting Ability
NACE RP0487-2000	Selection of Rust Preventives
OECD 306, BOD-28	Marine Biodegradability Test
EPA/600/4-90/027F	Sea Water Toxicity Test
MIL-I-22110C	Vapor Inhibiting Ability



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