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

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

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 pointed surfaces
• VpCI layer typically does not need to be removed prior to processing or use

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 commission protocol  
**Organization for Economic Co-Operation and Development

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
<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
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<tbody>
<tr>
<td>Appearance</td>
<td>White crystalline powder</td>
</tr>
<tr>
<td>pH</td>
<td>6-7 (1% aqueous solution)</td>
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<tr>
<td>Solubility in water</td>
<td>15%</td>
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<tr>
<td>Density</td>
<td>38-39 lb/ft³ (0.61-0.63 kg/l)</td>
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**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. Large, conventional sandblasting systems can also be used.

*Note:* Cortec’s VpCI Powder applicator, a specially designed fogging unit is available for purchase from Cortec. It may also be rented by certified applicators.

**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/m³). The dosage can be increased for more severe conditions. For aqueous applications with average environmental conditions, use 0.25% 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 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.

**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.

**LIMITATIONS**
Do not use on copper, copper-based alloys, and other soft yellow metals.

*Note:* Regular VpCI-609 has a tendency to clump. For dry fogging application use VpCI-609S (with silica) where acceptable.