VpCI®-649 BD/VpCI®-649 BD MF

FEATURES

- Effective for a broad range of applications to stop aggressive corrosion in systems containing fresh water or glycol coolants
- Low concentration effectiveness provides economical treatment
- Vapor phase action provides protection to areas that contact inhibitor cannot reach
- Protects steel, copper, galvanized steel, and aluminum
- Contains an acrylic polymer to prevent scale formation
- VpCI®-649 BD contains molybdate tracer
- VpCI®-649 BD MF contains a PTSA tracer
- Contains organic dispersing agent

DOSAGE

<table>
<thead>
<tr>
<th>Protection Length</th>
<th>Volume VpCI®-649 BD per 100 gal</th>
<th>Volume VpCI®-649 BD per 100 L</th>
<th>Dosage (%)</th>
<th>ppm</th>
</tr>
</thead>
<tbody>
<tr>
<td>During Testing &amp;</td>
<td>0.3 gallons (38 ounces)</td>
<td>300 mL</td>
<td>0.3</td>
<td>3000</td>
</tr>
<tr>
<td>Operational Protection</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Up to 6 months</td>
<td>0.5 gallons (64 ounces)</td>
<td>500 mL</td>
<td>0.5</td>
<td>5000</td>
</tr>
<tr>
<td>6-12 months</td>
<td>1 gallon</td>
<td>1 L</td>
<td>1</td>
<td>10,000</td>
</tr>
<tr>
<td>12-24 months</td>
<td>1.5 gallons</td>
<td>1.5 L</td>
<td>1.5</td>
<td>15,000</td>
</tr>
</tbody>
</table>

*These are general dosing guidelines and may not be suitable for every application. Please contact Cortec® Technical Service for specific dosage information.

Detection: Concentration of VpCI®-649 BD can be monitored via molybdate tracer, pH, or refractometer. Concentration of VpCI®-649 BD MF can be monitored via pH, refractometry, PTSA, or QAC test kit. Contact Cortec® Technical Service for more information on monitoring product concentration.

PRODUCT DESCRIPTION

VpCI®-649 BD is a unique concentrated liquid formulation designed to provide long-term protection for ferrous and non-ferrous metals in water and glycol closed-loop systems. VpCI®-649 BD is effective at corrosion protection during hydrostatic testing.

VpCI®-649 BD combines contact and volatile corrosion inhibitors, along with anti-scalant and an organic dispersing agent. The product does not contain nitrite, phosphate, or chromate.

VpCI®-649 BD is available in a molybdate-free version: VpCI®-649 BD MF.

APPLICATIONS

Typical Applications:

- Closed loop cooling systems
- Hydrostatic testing of pressurized vessels and pipelines
- Cooling system lay-up
- Packer fluid additive
- Prevents water-bottom corrosion in oil storage tanks
- Fire extinguishing system dry layup
TYPICAL PROPERTIES

VpCI®-649 BD & VpCI®-649 BD MF

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Appearance</strong></td>
<td>Yellow to amber liquid</td>
</tr>
<tr>
<td><strong>Density</strong></td>
<td>9.3-9.8 lb/gal (1.12-1.18 kg/L)</td>
</tr>
<tr>
<td><strong>Type</strong></td>
<td>Water-based</td>
</tr>
<tr>
<td><strong>pH</strong></td>
<td>9.1-9.6 (Neat)</td>
</tr>
<tr>
<td><strong>Freeze Point</strong></td>
<td>1 to 10 °F (-17 to -12 °C)</td>
</tr>
</tbody>
</table>

STORAGE AND PACKAGING

VpCI®-649 BD is available in 5 gallon (19 liter) pails, 55 gallon (208 liter) drums, liquid totes, and bulk.

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

CONSIDERATIONS

The organic dispersing agent utilizes a chloride counter ion. An increase to the chloride concentration of 5-16 ppm should be expected at working concentrations.

The PTSA tracer used in VpCI®-649 BD MF degrades with exposure to light. Solutions of VpCI®-649 BD MF must be sheltered from light to retain PTSA tracer. If PTSA degrades, the concentration can still be monitored via a titration. Contact Cortec® Technical Service for more information.

FOR INDUSTRIAL USE ONLY
KEEP OUT OF REACH OF CHILDREN
KEEP CONTAINER TIGHTLY CLOSED
NOT FOR INTERNAL CONSUMPTION
CONSULT SAFETY DATA SHEET FOR MORE INFORMATION

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