**VpCI®-347**

**PRODUCT DESCRIPTION**

VpCI®-347 is a multifunctional corrosion inhibitor/heavy-duty lubricant concentrate for metalworking operations. High performance characteristics make VpCI®-347 ideally suited for heavy-duty cutting, milling, turning, drilling, boring, broaching, gear cutting, and other machining operations. VpCI®-347 contains lubricating and corrosion inhibiting compounds, and is resistant to rancid attack by bacteria. When used as directed, VpCI®-347 prevents corrosion during in-plant processing, storage, and export shipment for up to 24 months, while also eliminating problems caused by petroleum-based products.

**FEATURES**

- Low to no smoke or burning vapors
- Low foaming
- Prevents corrosive attack caused by chlorides, aggressive industrial gases and acidic atmospheres
- Effective in high humidity (laboratory tests of standard cold-rolled steel panels showed no signs of corrosion at 100% relative humidity after 2,000 hr. per ASTM D-1748)
- Provides excellent drawability, lubricity and wetting under pressure
- Displaces water and oil from metal surfaces, leaving a thin transparent film
- Economical (can be diluted up to 1 part VpCI®-347 to 40 parts water)
- Protects ferrous and non-ferrous metals
- Easy to remove from metal surfaces
- Contains no chlorinated compounds, chromates, or nitrites
- Eliminates cleaning and housekeeping problems associated with rust inhibiting oils
- No need for slushing oils
- Weldable in most cases.
- Resistant to rancid attack by bacteria
- Forms a transparent film
- NATO #6850-66-132-6101
  #6850-66-132-6102
- NSN 6850-01-470-2740

**TYPICAL APPLICATION**

- Lubricant for heavy-duty rolling, drawing, extruding, stamping and cutting
- In-plant machining
- Protection of hot-rolled, cold-rolled, galvanized, and aluminized steel
- Corrosion protection for bearings, piping and tubular parts, housings, stampings, bar and roll stock, and structural steel during in-plant storage or domestic and export shipments
- Coolant for machining of castings, highly polished pieces and other parts; providing superior protection between machining operations and further processing or assembly

**METALS PROTECTED**

- Carbon steel
- Aluminum
- Cast iron
- Stainless steel
- Copper

**TYPICAL PROPERTIES**

- Appearance: Brown to tan viscous liquid
- Film Type: Non-drying
- pH: 10-11 (1% water)
- Pour Point: 21°F (-6°C)
- Removal Methods: Alkaline cleaners (VpCI-410 series)
- Viscosity: 7,000-13,000 cps
- Density: 8.2-8.7 lb/gal (0.98-1.04 kg/l)
APPLICATION

Product Preparation:
Add VpCI®-347 to water using a high dispersion mixing blade. Mix for at least 5-10 minutes. VpCI®-347 can be mixed in this manner at higher concentrations (20-50%) and then added into larger volumes of water.

Methods for monitoring solution:
Refractometer, pH

Recommended applicators and dilutions:
- Grinding disks 1:40
- Draw bench 1:30
- Straight and cut 1:40
- CNCs 1:30 to 1:40

Product cleanup:
Use soap and water to clean equipment.

Add VpCI®-347 to water as follows for:
- Short-term protection (1-6 months): 1 part concentrate to 20-40 parts water
- Medium-term protection (6-12 months): 1 part concentrate to 15-20 parts water
- Protection up to 2 years and/or lubricity: 1 part concentrate to 10-15 parts water

Shell 4-Ball E.P. Test (ASTM D-2783)

<table>
<thead>
<tr>
<th>Concentration</th>
<th>Seizure</th>
<th>Weld</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.5%</td>
<td>139</td>
<td>278</td>
</tr>
<tr>
<td>5%</td>
<td>220</td>
<td>353</td>
</tr>
<tr>
<td>10%</td>
<td>278</td>
<td>353</td>
</tr>
</tbody>
</table>

Load Wear index 65 29 97 44 88 40

Shell 4-Ball Wear Test (ASTM D-2266)

Cortec® VpCI®-347 in Tap Water

<table>
<thead>
<tr>
<th>Concentration</th>
<th>Average Coefficient of Friction</th>
<th>Average Scar Diameter (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.5%</td>
<td>0.88</td>
<td>0.90</td>
</tr>
<tr>
<td>5%</td>
<td>0.108</td>
<td>0.69</td>
</tr>
<tr>
<td>10%</td>
<td>0.101</td>
<td>0.81</td>
</tr>
</tbody>
</table>

Tapping Torque Test

Cortec® VpCI®-347 in Tap Water

<table>
<thead>
<tr>
<th>Reference</th>
<th>Torque (lb/kg)</th>
<th>% Efficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>12.53</td>
<td>77.87</td>
<td>106</td>
</tr>
<tr>
<td>12.53</td>
<td>10.35</td>
<td>121</td>
</tr>
<tr>
<td>36.83-16.7</td>
<td>10.35-4.7</td>
<td>122</td>
</tr>
<tr>
<td>42.11-20.5</td>
<td>353</td>
<td>100</td>
</tr>
</tbody>
</table>

PACKAGING AND STORAGE

VpCI®-347 is available in 5 gallon (19 liter) pails, 55 gallon (208 liter) drums, liquid totes, and bulk. The product should be sealed and stored in a heated warehouse to avoid freezing. VpCI®-347 has a shelf life of 24 months.

Minimum storage temperature: 32°F (0°C)
Maximum storage temperature: 120°F (49°C)

STANDARD TEST METHODS

<table>
<thead>
<tr>
<th>Test Method</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASTM D-1748</td>
<td>Humidity Test</td>
</tr>
<tr>
<td>ASTM D-4627</td>
<td>Cast Iron Chip Test</td>
</tr>
<tr>
<td>ASTM D-2783</td>
<td>4-Ball E.P. Test</td>
</tr>
<tr>
<td>ASTM D5619</td>
<td>Tapping Torque Test</td>
</tr>
<tr>
<td>ASTM G-31</td>
<td>Immersion Corrosion Testing</td>
</tr>
<tr>
<td>NACE RP0487-2000</td>
<td>Selection of Rust Preventives</td>
</tr>
</tbody>
</table>

LIMITED WARRANTY

All statements, technical information and recommendations contained herein are based on tests Cortec® Corporation believes to be reliable, but the accuracy or completeness thereof is not guaranteed.

Cortec® Corporation warrants Cortec® products will be free from defects when shipped to customer. Cortec® Corporation’s obligation under this warranty shall be limited to replacement of product that proves to be defective. To obtain replacement product under this warranty, the customer must notify Cortec® Corporation of the claimed defect within six months after shipment of product to customer. All freight charges for replacement products shall be paid by customer.

Cortec® Corporation shall have no liability for any injury, loss or damage arising out of the use of or the inability to use the products.
BEFORE USING, USER SHALL DETERMINE THE SUITABILITY OF THE PRODUCT FOR ITS INTENDED USE, AND USER ASSUMES ALL RISK AND LIABILITY WHATSOEVER IN CONNECTION THEREWITH. No representation or recommendation not contained herein shall have any force or effect unless in a written document signed by an officer of Cortec® Corporation.

THE FOREGOING WARRANTY IS EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES, EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION ANY IMPLIED WARRANTY OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE. IN NO CASE SHALL CORTEC® CORPORATION BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES.

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

Distributed by:

CORTEC CORPORATION
Environmental Safety VpCI®/MCI® Technologies
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
http://www.cortecvci.com

Printed on recycled paper 100% post consumer

All Rights Reserved. Copying of these materials in any form without the written authorization of Cortec Corporation is strictly prohibited. 2017, ©Cortec Corp. ISO accreditation applies to Cortec’s processes only.