**VpCI®-637/637 GL**

**PRODUCT DESCRIPTION**

VpCI-637/637 GL provides effective internal corrosion control in natural gas and crude oil gatherings and transmission lines.

VpCI-637/637 GL are a combination of vapor phase, neutralizing, and film-forming corrosion inhibitors to combat the broadest range of corrosive attack from moisture and condensation, oxygen, carbon dioxide, hydrogen sulfide, and other corrosive contaminants in natural gas and petroleum. These non-emulsifying formulations offer the benefits of filming inhibitors that form a tenacious protective film on metal surfaces; neutralizing inhibitors that combat corrosive fluid formation and vapor phase inhibitors that reach areas inaccessible by direct contact to protect areas subject to varying flow ratios.

The unique chemistries of VpCI-637/637 GL allow these products to provide excellent protection in “sweet/sour” saturated carbon dioxide/hydrogen sulfide environments.

According to results obtained from the Wheel Test (NACE test method publication ID182), VpCI-637/637 GL provides excellent protection in both continuous and intermittent treatments; due to exceptional film persistency.

**FEATURES**

- Effective for a wide range of systems and corrosive conditions
- Provides maximum control over long distances for highly corrosive systems having a high ratio of water-to-hydrocarbons, including low areas in systems where water collects and extreme corrosive attack occurs
- Form an adsorbed, protective layer that protects ferrous and non-ferrous metals
- Effective against water, corrosive gases, and halogens
- Vapor phase action provides protection from atmospheric conditions and moisture condensation to areas not accessible by filming inhibitors
- Recommended concentrations do not cause foaming or upsets in gas sweetening or glycol dehydration processes
- Does not contain heavy metals, chlorinated hydrocarbons, or volatile amines
- Provides cost effective solution
- VpCI-637 GL does not affect foaming properties in the natural gas processing

**TYPICAL APPLICATIONS**

VpCI-637/637 GL are designed for use in natural gas and petroleum recovery process and crude oil when water solubility is desired.

VpCI-637 GL is recommended for systems where low foaming properties are required.

VpCI-637 is very effective in gathering systems containing a significant amount of water or as a corrosion inhibitor for secondary oil-recovery operations, where the water is a carrier.

**PERFORMANCE**

<table>
<thead>
<tr>
<th>Test Method</th>
<th>Film Persistency, ppm</th>
<th>Z**, Protection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wheel Test</td>
<td>500-1000</td>
<td>90+</td>
</tr>
<tr>
<td>Continuous Treatment</td>
<td>15-25</td>
<td>90+</td>
</tr>
<tr>
<td>Rotating Cylinder</td>
<td>20-50</td>
<td>95+</td>
</tr>
</tbody>
</table>

* Test performed by Dixie Testing and Products, Inc. Corrosion Wheel test in 90% NACE recommended electrolyte (NaCl - 73,300 ppm, CaCl₂ - 7,534 ppm, MgCl₂ - 1,000 ppm) + 10% Depolarized Kerosene containing 500ppm H₂S saturated with CO₂ at 150°F (65°C).

** Z = 100% (CR-CR) / CR, where CR - corrosion rate in electrolyte without inhibitor, CR - corrosion rate in electrolyte with inhibitor
METHOD OF APPLICATION

VpCI-637 GL is best applied by continuous injection or atomization into the transmission line at a rate of 10-30 fl. oz. (300-900 ml) of product per million cubic feet of gas. Atomization of the product neat into the gas stream enhances dispersion and length of travel. The effective distance expected through atomization varies with gas volumes and degree of dryness (quantity of water condensed inside pipeline), however the distance will usually range between 20 and 40 miles (32 to 64 kilometers).

VpCI-637/637GL can be applied at the 15-50 ppm concentration ranges in gathering systems and pipelines of crude oil systems, “as is” or be prediluted with a carrier.

TYPICAL PROPERTIES

<table>
<thead>
<tr>
<th></th>
<th>VpCI-637</th>
<th>VpCI-637 GL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Dark green/brown-liquid</td>
<td>Amber to green/brown liquid</td>
</tr>
<tr>
<td>Non-Volatile Content</td>
<td>27-31%</td>
<td>32-39%</td>
</tr>
<tr>
<td>pH</td>
<td>9.4-10.4 (neat)</td>
<td>7-8.2 (1% water)</td>
</tr>
<tr>
<td>Density</td>
<td>8.0-8.3 lb/gal (0.96-0.99 kg/l)</td>
<td>8.1-8.3 lb/gal (0.97-0.99 kg/l)</td>
</tr>
<tr>
<td>Pour Point</td>
<td>14°F (-10°C)</td>
<td>-54.45°F (-48°C)</td>
</tr>
</tbody>
</table>

STORAGE/PACKAGING

VpCI-637/637 GL are available in 5 gallon (19 liter) containers, 55 gallon (208 liter) metal drums, liquid totes, and bulk. Products should be stored in tightly closed containers.

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

LIMITED WARRANTY

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*** Data for VpCI-637. Test was performed in accordance to ASTM G 170-01, a Standard Guide for Evaluating and Qualifying Oilfield and Refinery Corrosion Inhibitors in the Laboratory.

Methyl diethanolamine Foaming Test*

<table>
<thead>
<tr>
<th>Chemical Added</th>
<th>Chemical Concentration (ppm)</th>
<th>Foam height (ml)</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>0</td>
<td>80</td>
</tr>
<tr>
<td>VpCI-637 GL</td>
<td>250</td>
<td>80</td>
</tr>
<tr>
<td>VpCI-637 GL</td>
<td>500</td>
<td>40</td>
</tr>
</tbody>
</table>

* Test performed by Dixie Testing and Products, Inc.