**M-528/ 528 L**

**PRODUCT DESCRIPTION**

M-528/528L are the additives for hydraulic fluids used in subsea production control systems and other water based process fluids.

They provide corrosion protection for steel, copper, brass, aluminum, bronze, galvanized steel, and other ferrous and non-ferrous metals and their alloys. M-528/528L prevent corrosion in both phases: contact and vapor.

M-528L contains an additional lubricant package.

**FEATURES**

- Stable in aqueous systems at pH of 6 or above
- Soluble in water, glycols and alcohols; insoluble in hydrocarbon-based solvents; dispersible in oils
- Non-phenolic
- Seawater compatible
- Thermostable
- Was evaluated with good results in Ethylene Glycol/water blend according to IP287 with and without seawater addition
- Falex test data show that antiwear properties of Ethylene glycol/water based fluid containing M-528L are excellent
- Biodegradable
- Non-hazardous, environmentally friendly
- M-528 is in compliance with HOCNF (Harmonized Offshore Chemical Notification Format) environmental requirements

**TYPICAL PROPERTIES**

**M-528**
- Appearance: Clear yellowish to amber liquid
- pH: 8-9 (1% in water)
- Density: 8.5-8.7 lb/gal (1.02-1.03 kg/l)
- Non-volatile (weight): 50-60% (M-528) 295°F (146°C)

**M-528L**
- Appearance: Clear yellowish to amber liquid
- pH: 7.5-8.5 (1% in water)
- Density: 8.6-8.8 lb/gal (1.03-1.06 kg/l)
- Non-volatile (weight): 60-70% (M-528L)

**APPLICATIONS**

- Hydraulic fluids used in subsea production control systems
- Synthetic coolants and cutting fluids
- Industrial cooling towers
- Water based lubricants
- Aerosol formulations
- Alkaline metal cleaners
- Radiator fluid additive
- Water based drilling muds

**distributed by:**

TRiiSO™

Request Quote or Samples
**TEST RESULTS**

<table>
<thead>
<tr>
<th>Test Performed</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>IP287</td>
<td></td>
</tr>
<tr>
<td>a. Liquid corrosion test on neat fluid</td>
<td>No Corrosion</td>
</tr>
<tr>
<td>b. with 10% of seawater</td>
<td>No Corrosion</td>
</tr>
<tr>
<td>c. with 2.5% of seawater</td>
<td>No Corrosion</td>
</tr>
<tr>
<td>IP125: Vapor phase corrosion test</td>
<td>Pass</td>
</tr>
<tr>
<td>10% by volume seawater contamination</td>
<td>Clear Fluid</td>
</tr>
</tbody>
</table>

*All tests were performed in the solution Ethylene Glycol/water=40:50 with added 10% of M-528 or M-528L.

**Falex Lubricant Testing**

**Ethylene Glycol/water 40:50 with 10% of M-528L**

<table>
<thead>
<tr>
<th>Load (lb) at (min)</th>
<th>Torque values (lb.in)</th>
</tr>
</thead>
<tbody>
<tr>
<td>100(1)</td>
<td>6.3</td>
</tr>
<tr>
<td>200(1)</td>
<td>10.7</td>
</tr>
<tr>
<td>300(1)</td>
<td>13.3</td>
</tr>
<tr>
<td>400(1)</td>
<td>17.8</td>
</tr>
<tr>
<td>500(1)</td>
<td>21.3</td>
</tr>
<tr>
<td>500(30)</td>
<td>18.2</td>
</tr>
<tr>
<td>Number of tests</td>
<td>6</td>
</tr>
<tr>
<td>% Weight loss on pin</td>
<td>0.058%</td>
</tr>
</tbody>
</table>

**STANDARD TEST METHODS**

<table>
<thead>
<tr>
<th>Method</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>OECD Method 301D</td>
<td>Biodegradable</td>
</tr>
<tr>
<td>ASTM D-4172</td>
<td>4-Ball Wear Test</td>
</tr>
<tr>
<td>ASTM D-130</td>
<td>Copper Strip Corrosion</td>
</tr>
<tr>
<td>ASTM D-665</td>
<td>Rust Preventing Characteristics</td>
</tr>
<tr>
<td>ASTM D-974</td>
<td>Acid/Base Number by Titration</td>
</tr>
<tr>
<td>ASTM D-1748</td>
<td>Humidity Testing</td>
</tr>
<tr>
<td>ASTM D-2196</td>
<td>Brookfield Viscometer</td>
</tr>
</tbody>
</table>

**PACKAGING AND STORAGE**

M-528/528L are packaged in 5 gallon (19 liter) pails, 55 gallon (208 liter) drums, liquid totes, and bulk.

These products should be stored sealed in a heated warehouse to avoid freezing. M-528/528L have a shelf life of 24 months.

**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**

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.

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BEFORE USING, USER SHALL DETERMINE THE SUITABILITY OF THE PRODUCT FOR ITS INTENDED USE.

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