SMART OIL & CHEMICAL LTD.  SMART OIL PRODUCT DATASHEET

SMARTLUB 3699
Water Based Lubricating & Anti-Rust Co-Emulsifiers
Self Emulsifying Ester Of TMP

TYPICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Clear Light Yellow Liquid</td>
</tr>
<tr>
<td>Specific Gravity@25°C</td>
<td>0.950 - 1.050</td>
</tr>
<tr>
<td>Neutralization Value, meqKOH/g</td>
<td>≤ 5</td>
</tr>
<tr>
<td>pH Value (5% Water Dilution)</td>
<td>8.0 - 9.0</td>
</tr>
<tr>
<td>Refractive Reading (5% Water Dilution)</td>
<td>4.5 - 5.5</td>
</tr>
</tbody>
</table>

PRODUCT DESCRIPTION

SMARTLUB 3699 is a self emulsifying ester of trimethylolpropane designed for the incorporation into most water-based products such as soluble oil, semi-synthetic coolant and fully-synthetic coolant, for steel milling and metalworking processing.

SMARTLUB 3699 has its unique metal affinity molecular structure that can adhere tightly to the metal surface even at elevated temperature. Hence, good boundary lubricity and metal wetting characteristics can effectively reduce the oil smoke or oil aerosols evolved during machining.

SMARTLUB 3699 process strong dispensability, thermal and hydrolytic stabilities that make it good for used in the formulation of water-based coolants with heavy duty application.

SMARTLUB 3699 is an multifunctional additive that can help to reduce addition other additives such as corrosion inhibitor, biocide or emulsifiers in the same system, hence, the chances for the skin irritations or irritation of the air passage to the workers can be reduced.

SMARTLUB 3699 is a biodegradable product that is good to the environment.

Applications | Suggested Treat Rates %wt |
-------------|---------------------------|
General Application | 5 - 10 |
Drawing Fluids | 10 - 20 |

STANDARD PACKAGING

Net Weight/Gross Weight, kg | 180/197 |

Disclaimer: Information provided by this sheet including specifications and applications is based on tests and data supplied by Smart Oil companies, manufacturers or any of our collaborated companies, which are believed to be correct and reliable at the time of data update. However, Smart Oil companies, manufacturers or any of our collaborated companies make no warranty or responsibility, express or implied, of any kind regarding products, performance or applications, as operation conditions and application environments are beyond our control. User are herewith expressively requested to conduct test to determine the suitability of our products before use. Furthermore, we regret that we cannot otherwise inform customers any changes in specifications or other content in this sheet.