Additin® RC 3880
Antiwear Additive

Type
Ashless antiwear additive and antioxidant

Technical data*

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Composition</td>
<td>amine dialkyldithiophosphate</td>
</tr>
<tr>
<td>Appearance</td>
<td>clear, yellow, oily liquid</td>
</tr>
<tr>
<td>Colour (ASTM-D 1500)</td>
<td>approx. 2-3</td>
</tr>
<tr>
<td>Phosphorus</td>
<td>approx. 5 % weight</td>
</tr>
<tr>
<td>Sulphur</td>
<td>approx. 11 % weight</td>
</tr>
<tr>
<td>Nitrogen</td>
<td>approx. 2 % weight</td>
</tr>
<tr>
<td>Viscosity, 40 °C (ASTM-D 445)</td>
<td>approx. 200 mm²/s</td>
</tr>
<tr>
<td>Density, 20 °C (ASTM-D 1298)</td>
<td>approx. 940 kg/m³</td>
</tr>
<tr>
<td>Flash point, COC (ASTM-D 92)</td>
<td>&gt; 130 °C</td>
</tr>
<tr>
<td>Mineral oil content</td>
<td>approx. 10 % weight</td>
</tr>
</tbody>
</table>

Application
- neat metalworking fluids
- broaching oils
- deep-hole drilling oils
- drawing oils
- machining oils
- hydraulic fluids
- industrial gear oils
- lubricating greases

Additin RC 3880 is an ashless antiwear additive with additional outstanding antioxidant properties. It can be used as a substitute for zinc dialkyldithiophosphates for the formulation of metalworking fluids and industrial oils where metals e.g. zinc are not desired.

For metalworking Additin RC 3880 is preferably used in combination with sulphur carriers. Additin RC 3880 enhances the surface finish of the workpiece and improves the tool life.

The typical treat rate is in the range of 0.4 - 5.0 % by weight Additin RC 3880.
The following guideline formulation is recommended for heavy duty operations such as broaching or deep drilling:
2 - 4 % weight Additin RC 3880 15 - 20 % weight Additin RC 2415 or Additin RC 2418 1 - 2 % weight Additin RC 2540. Fundamental investigations about the substitution of chlorinated paraffins have proved the possibility to achieve or exceed the performance of chlorine containing formulations.

The following guideline formulation based on the combination of Additin RC 3880 with Additin RC 2526 was found to be an excellent alternative to chlorinated paraffins for peripheral milling processes: 1 % weight Additin RC 3880 5 % weight Additin RC 2526. Due to its excellent load carrying (FZG) and antioxidant properties Additin RC 3880 can also be used for the formulations of industrial oils e.g. hydraulic oils and industrial gear oils. For this application the typical treat rate is in the range of 0.4 % - 0.8 % by weight Additin RC 3880. Additionally Additin RC 3880 can be used as a highly efficient antiwear additive and antioxidant in lubricating greases.

**Solubility**
Soluble in mineral oils and synthetic base oils. However, it is necessary to verify the solubility in the base oils used and the compatibility with other additives.

**Test results**
Test results see Technical Report

**Packing unit**
180 kg bunghole drums

**Storage conditions**
in a dry place at room temperature approx. 24 months

**Handling**
Consult material safety data sheet (MSDS) for additional handling information on Additin RC 3880.

® = registered trade mark
* The analytical data are guide values.
Additin RC 3880 is on EINECS and TSCA inventory.
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