CORRGUARD™ 90
HIGH-PERFORMANCE AMINO ALCOHOL FOR METALWORKING FLUIDS

Today’s metalworking fluid formulators require raw materials that are easy and relatively safe to handle, provide multi-functional benefits, and are of consistent high quality. CORRGUARD™ 90 (2-amino-2-methyl-1-propanol with 10% water) is a primary amino alcohol that has been used successfully to provide these benefits in metalworking fluids for many years. As a strong base with low molecular weight, CORRGUARD 90 is an effective corrosion inhibitor, and is very efficient at neutralizing acidic ingredients, such as carboxylic acids and phosphate esters.

Typical properties(a)

- Neutral equivalent: 97–101
- Water (max.): 10.8% by wt.
- Color (max.): 20 APHA
- Molecular weight (calc.): 89.1
- Specific gravity at 25/25°C: 0.949
- Viscosity at 25°C: 119 mPa•s
- Viscosity at 50°C: 21.6 mPa•s
- Vapor pressure at 82°C: ~319 hPa
- Flash point (closed cup): 85–89°C
- Freezing point: –11°C
- Surface tension at 10% aqueous solution: ~58 mN/m
- pH of 0.1 M aqueous solution at 20°C: 11.3
- pKa at 25°C: 9.75

(a) Values shown are typical properties and are not to be considered product specifications. Test methods available upon request.

Product Benefits

- Cost efficient alkaline pH development
- Efficient neutralization of acidic components
- Resistance to microbial degradation
- Provides pH stability in microbially contaminated systems
- Stable emulsions at high pH
- Improves fluid life in the presence of registered biocides
- Minimal ammonia release
- Leaches less cobalt than most competitive amines

Regulatory Status

See Safety Data Sheet (SDS)

Packaging and Storage

CORRGUARD 90 is not classified as hazardous under the European Agreement concerning International Carriage of Dangerous Goods by Road (ADR). CORRGUARD 90 does not meet any of the defined criteria for "dangerous goods" contained in the International Transportation Regulations for Air (ICAO Technical Instructions) or for Ocean Transport (IMDG Code).

Shipping containers(b)

<table>
<thead>
<tr>
<th>Container Type</th>
<th>Net wt.</th>
<th>Gross wt.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unlined steel drums</td>
<td>195 kg</td>
<td>213 kg</td>
</tr>
<tr>
<td>Intermediate bulk containers</td>
<td>950 kg</td>
<td>1003 kg</td>
</tr>
</tbody>
</table>

CORRGUARD 90 is a combustible liquid with a relatively high flash point and a low vapor pressure at ordinary temperatures. These properties cause no problems with respect to storage and handling. Do not store near heat or flame.

CORRGUARD 90 should not be exposed unnecessarily to the atmosphere, since it can pick up moisture and carbon dioxide due to its amine functionality. Evidence of this may be detected by a weight gain, a lower alkalinity equivalency than when first received, or the formation of cloudy solutions when dissolved in alcohol.

Chemical Inventories

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS No.</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-Amino-2-methyl-1-propanol</td>
<td>124-68-5</td>
<td>&gt;= 83.0 %</td>
</tr>
<tr>
<td>Water</td>
<td>7732-18-5</td>
<td>&lt;= 11.0 %</td>
</tr>
<tr>
<td>2-Methylamino-2-methyl-1-propanol</td>
<td>27646-80-6</td>
<td>&lt;= 7.0 %</td>
</tr>
</tbody>
</table>

EINECS No. 204-709-8
Product Stewardship

ANGUS encourages its customers to review their applications of ANGUS products from the standpoint of human health and environmental quality. To help ensure that ANGUS products are not used in ways for which they are not intended, ANGUS personnel will assist customers in dealing with environmental and product safety considerations. For assistance, product Safety Data Sheets, or other information, please contact your ANGUS representative at the numbers provided in this document. When considering the use of any ANGUS product in a particular application, review the latest Safety Data Sheet to ensure that the intended use is within the scope of approved uses and can be accomplished safely. Before handling any of the products, obtain available product safety information including the Safety Data Sheet(s) and take the necessary steps to ensure safety of use.