JEFFAMINE® D-400 Polyetheramine

JEFFAMINE D-400 polyetheramine is characterized by repeating oxypropylene units in the backbone. As shown by the representative structure, JEFFAMINE D-400 polyetheramine is a difunctional, primary amine with average molecular weight of about 430. The primary amine groups are located on secondary carbon atoms at the end of the aliphatic polyether chains.

\[
\begin{array}{c}
\text{H}_2\text{N} \quad \text{O} \quad x \\
\text{CH}_3 \quad \text{CH}_3
\end{array}
\]

\[x \approx 6.1\]

**APPLICATIONS**
- Epoxy curing agent that provides increased flexibility and toughness
- Used in polyurethanes, polyureas, and thermoplastic polyamide adhesives
- Salts may be formed for use in cutting fluids

**BENEFITS**
- Low viscosity, color and vapor pressure
- Completely miscible with a variety of solvents

**SALES SPECIFICATIONS**

<table>
<thead>
<tr>
<th>Property</th>
<th>Specifications</th>
<th>Test Method*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance, 25°C</td>
<td>Colorless to pale yellow liquid</td>
<td>ST-30.1</td>
</tr>
<tr>
<td></td>
<td>with slight haze permitted</td>
<td></td>
</tr>
<tr>
<td>Color, Pt-Co</td>
<td>30 max.</td>
<td>ST-30.12</td>
</tr>
<tr>
<td>Primary amine, % of acetylatables</td>
<td>Report</td>
<td>ST-5.34</td>
</tr>
<tr>
<td>Primary amine, % of total amine</td>
<td>97 min.</td>
<td>ST-5.34</td>
</tr>
<tr>
<td>Total acetylatables, meq/g</td>
<td>4.2 – 4.9</td>
<td>ST-31.39</td>
</tr>
<tr>
<td>Total amine, % of acetylatables</td>
<td>Report</td>
<td>ST-5.35</td>
</tr>
<tr>
<td>Total amine, meq/g</td>
<td>4.1 – 4.7</td>
<td>ST-5.35</td>
</tr>
<tr>
<td>Water, wt%</td>
<td>0.25 max.</td>
<td>ST-31.53, 6</td>
</tr>
</tbody>
</table>

*Methods of Test are available from Huntsman Corporation upon request.

**ADDITIONAL INFORMATION**

**Regulatory Information**
- DOT/TDG Classification: Amines, liquid, corrosive, N.O.S. (polyoxypropylenediamine)
- HMIS Code: 3-1-0
- CAS Number: 9046-10-0
- US, TSCA: Listed
- Canadian WHMIS Classification: E
- Canada, DSL: Listed
- European Union, EINECS/ELINCS: Polymer Exempt
- Australia, AICS: Listed
- Japan, ENCS: Contact Huntsman Regulatory
- Korea, ECL: Listed
- China, IECSC: Listed

**Typical Properties**
- AHEW (Amine hydrogen equivalent wt.), g/eq: 115
- Equivalent wt. with isocyanates, g/eq: 230
- Viscosity, cSt, 25°C (77°F): 22
- Density, g/ml (lb/gal) 25°C: 0.972 (8.10)
- Flash point, PMCC, °C (°F): 163 (325)
- pH, 5% aqueous solution: 11.6
- Refractive index, nD 20: 1.4482
- Vapor pressure, mm Hg/°C: 1/165
- 10/193
TOXICITY AND SAFETY
For additional information on the toxicity and safe handling of this product, consult the Material Safety Data Sheet (Safety Data Sheet in Europe) prior to use of this product.

HANDLING AND STORAGE
Materials of Construction

At temperatures of 75-100°F (24-38°C)
- Tanks: Carbon steel
- Lines, valves: Carbon steel
- Pumps: Carbon steel
- Heat exchange Surfaces: Stainless steel
- Hoses: Stainless steel, polyethylene, polypropylene, and TEFLO®1
- Gaskets, packing: Polypropylene or TEFLO®1 (elastomers such as neoprene, Buna N, and VITON®1 should be avoided)
- Atmosphere: Nitrogen or dry air

At temperatures above 100°F (38°C)
- Tanks: Stainless steel or aluminum
- Lines, Valves: Stainless steel
- Pumps: Stainless steel or Carpenter 20 equivalent
- Atmosphere: Nitrogen

1VITON® and TEFLO® are registered trademarks of Dupont.

JEFFAMINE® D-400 polyetheramine may be stored under air at ambient temperatures for extended periods. A nitrogen blanket is suggested for all storage, however, to reduce the effect of accidental exposure to high temperatures and to reduce the absorption of atmospheric moisture and carbon dioxide. It should be noted that pronounced discoloration is likely to occur at temperatures above 140°F (60°C), whatever the gaseous pad.

Cleanout of lines and equipment containing JEFFAMINE D-400 polyetheramine can be accomplished using warm water and steam. In the event of spillage of this product, the area may be flushed with water. The proper method for disposal of waste material is by incineration with strict observance of all federal, state, and local regulations.

AVAILABILITY
JEFFAMINE® D-400 polyetheramine is available in tank cars, tank wagons, 55-gallon (208L) drums of 440 pounds (200kg) net weight, and 5-gallon (19L) cans. Samples are available in North America and Asia by contacting our sample department at 1-800-662-0924. Samples in other locations, including Europe, are available by contacting any Huntsman Corporation sales office.