JEFFAMINE® THF-140 Polyetheramine

JEFFAMINE® THF-140 polyetheramine is a diamine of approximately 1400 molecular weight, based on a PTMEG [poly(tetramethylene ether glycol)]/PPG (polypropylene glycol) copolymer. Polyetheramines of this type are useful in a variety of polymers, including cured epoxy resins, polyurea, and polyamides. In particular, higher molecular weight polyetheramines are effective in flexibilizing and promoting adhesive peel strength in epoxy formulations. They have also been used to improve flexibility and low temperature properties of polyamides. Like most other polyetheramines, the JEFFAMINE THF-140 polyetheramine has amine groups that are adjacent to methyl groups, which moderates their reactivity somewhat.

APPLICATIONS
- Modification of polyurea formulations
- Modification of epoxy resins and other thermoset resins

BENEFITS
- Improved anticorrosion property in polyurea formulations
- Increasing flexibility and adhesion in cured epoxy resins and other thermoset polymers
- Improved mechanical properties from PTMEG segment
- Amine end group more reactive than alcohol

SALES SPECIFICATIONS

<table>
<thead>
<tr>
<th>Property</th>
<th>Specifications</th>
<th>Test Method*</th>
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</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Colorless to pale yellow liquid</td>
<td>ST-30.1</td>
</tr>
<tr>
<td></td>
<td>slight haze permitted</td>
<td></td>
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<tr>
<td>Color, Pt-Co</td>
<td>50 max.</td>
<td>ST-30.12</td>
</tr>
<tr>
<td>Primary amine, % of total amine</td>
<td>98 min.</td>
<td>ST-5.34</td>
</tr>
<tr>
<td>Total acetylatables, meq/g</td>
<td>1.39 – 1.49</td>
<td>ST-31.39</td>
</tr>
<tr>
<td>Total amine, meq/g</td>
<td>1.35 – 1.46</td>
<td>ST-5.35</td>
</tr>
<tr>
<td>Water, wt%</td>
<td>0.50 max.</td>
<td>ST-31.53, 6</td>
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</tbody>
</table>

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

ADDITIONAL INFORMATION

Regulatory Information
- DOT/TDG Classification: Amines, liquids, corrosive, N.O.S. (polyetheramine)
- HMIS Code: 3-1-0
- CAS Number: 796093-55-5
- US, TSCA: Listed
- Canadian WHMIS Classification: D1B, E
- Canada, DSL: Not Listed
- European Union, EINECS/ELINCS: Polymer Exempt
- Australia, AICS: Not Listed
- Japan, METI: Not Listed
- Korea, ECL: Not Listed
- China, IECSC: Not Listed

Typical Physical Properties
- AHEW (Amine hydrogen equivalent wt.), g/eq: 355
- Equivalent wt. with isocyanates, g/eq: 710
- Viscosity, cSt, 40°C (104°F): 234
- Density, g/ml (lb/gal), 25°C: 0.977 (8.14)
- Flash point, PMCC, °C (°F): 246 (475)
- pH: 11.8
- Melting point**, °C (°F): 16 (60.8)

** Crystallizes at room temperature over several months
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 (34-38°C)
- Tanks: Carbon steel
- Lines, valves: Carbon steel
- Pumps: Carbon steel
- Heat exchange Surfaces: Stainless steel
- Hoses: Stainless steel, polyethylene, polypropylene, and TEFLOW®
- Gaskets, packing: Polypropylene or TEFLOW® (elastomers such as neoprene, Buna N, and VITON® 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

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JEFFAMINE® THF-140 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® THF-140 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
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.