AMMONYX® LO

Chemical Structure

\[
\begin{align*}
&\text{CH}_3 \\
&\text{CH}_3(\text{CH}_2)_x - N \to O \\
&\text{CH}_3 \\
x = 11 \text{ (predominantly)}
\end{align*}
\]

CAS Registry No. 1643-20-5

INCI Name Lauramine Oxide

Applications

- Foam Enhancer
- Foam Stabilizer
- Viscosity Builder
- Lubricant
- Bleach Stable
- Emulsifier
- Wetting Agent
- Dye Dispersant
- Can be formulated with anionic, nonionic and cationic materials.
- Acid Stable

(*For the textile industry)

End Product Uses

- Personal Care
  - Shampoos
  - Handsoaps
  - Bath Products
  - Creams & Lotions
  - Hair Conditioners
- Household & I&I
  - Dishwashing Detergents
  - Cleansers
  - Hard Surface Cleaners
  (which contain acids or bleach)

Typical Properties

- Appearance at 25 °C: Light to straw liquid
- Amine Oxide (MW 251), %: 30
- Free Amine (MW 235), %: 0.49
- pH, 10% aqueous: 8.0
- Cooling Cloud Point (as is), °C (°F): -1 (30)
- Boiling Point, °C (°F): 100 (212)
- Color (APHA), as is: 100 max.
- Viscosity at 25 °C, cps: 18
- Flash Point (PMCC), °C (°F): >94 (>201)
- Density, g/ml (lbs/U.S. gal): 0.968 (8.05)
- RVOC, U.S. EPA: 0
- Free Peroxide, %: 0.13
- Preservative: Not required

Biodegradability

Product is readily biodegradable. A detailed biodegradability statement is available upon request.

Toxicity

The available toxicity data shows AMMONYX LO to be slightly toxic orally to rats, (LD₅₀ = 3600 mg/kg). At 2.5% active, AMMONYX LO may cause severe eye irritation and minimal irritation to the skin.

Storage & Handling

Normal safety precautions (i.e., gloves and safety goggles) should be employed when handling AMMONYX LO. Contact with the eyes and prolonged contact with the skin should be avoided. Wash thoroughly after handling material.

It is recommended that AMMONYX LO be stored in sealed containers and kept at temperatures not lower than 50 °F (10 °C) nor higher than 120 °F (49 °C). Avoid overheating or freezing.

Bulk Storage Information: Tanks, with a conservation vent, made of 316L stainless steel or fiberglass with an Atlac 382 corrosion liner are recommended. Centrifugal or positive displacement gear pumps and piping should be 316L stainless steel. Recommended storage for bulk tanks is 20-52 °C (68-125 °F).

Standard Packaging: AMMONYX LO is available in bulk and drum quantities.

Clearances

The international inventories (country clearances) of AMMONYX LO can be found in Section 15 of the Safety Data Sheet (SDS). It is the responsibility of the formulator to review the chemical control regulations for each country where the end product is intended to be sold or used. If you have any further questions regarding inventories, please contact North America Technical Service at techserv@stepan.com.
AMMONYX LO is cleared for use under 40 CFR 180.910, pre- and post-harvest applications.

AMMONYX LO meets the U.S. EPA Safe Choice Program’s surfactant screen and is listed on www.cleangredients.org (an on-line database for green formulators). For further information, visit www.cleangredients.org. Additional Stepan ingredient listing can be found at www.stepan.com.

<table>
<thead>
<tr>
<th>Formulations</th>
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**CONDITIONING SHAMPOO**

**Ingredients**

<table>
<thead>
<tr>
<th>Wt. % (as is)</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. AMPHOSOL® CA</td>
<td>Cosurfactant</td>
</tr>
<tr>
<td>2. AMMONYX LO</td>
<td>Cosurfactant</td>
</tr>
<tr>
<td>3. AMMONYX 4</td>
<td>Conditioning Agent</td>
</tr>
<tr>
<td>4. Preservative, Dye, Fragrance</td>
<td>Additives</td>
</tr>
<tr>
<td>5. Citric Acid (50%)</td>
<td>pH Adjuster</td>
</tr>
<tr>
<td>6. Distilled Water</td>
<td>Solvent, Carrier</td>
</tr>
<tr>
<td>7. Sodium Chloride</td>
<td>Thickener</td>
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</tbody>
</table>

**Mixing Procedure:**

Add AMPHOSOL CA, AMMONYX LO and AMMONYX 4 to water. Heat with mixing to 40-50 °C (104-122 °F), until AMMONYX 4 is completely blended into solution. Cool to 30-35°C (86-95°F). Add perfume, preservative and dye, as desired. Adjust pH with citric acid to 6.0 - 6.5. Add sodium chloride to achieve desired viscosity. Changing pH changes properties.

**Physical Properties:**

- pH, as is: 6.0 - 6.5
- Appearance at 25 °C: Liquid

This product bulletin has been written in accordance with ACC’s Product Stewardship guidelines.

A Safety Data Sheet is available upon request.

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