MATERIAL SAFETY DATA SHEET
Linamine™ LO-N

1. Product and Company Identification:
Company: Lincoln Fine Ingredients, Inc.
50 Industrial Circle
Lincoln, RI 02865
Tel: 401-722-2410

Emergency Contact: CHEMTREC: 1-800-424-9300

Chemical Name: Amine Oxide

2. Hazards Identification:
Emergency Overview:
Physical Appearance and Odor:
Colorless to pale yellow/liquid, mild odor.

Warning Statements:
DANGER! SEVERE SKIN AND EYE IRRITANT. RISK OF SERIOUS DAMAGE TO EYES.
MAY BE HARMFUL IF INGESTED.

Potential Health Effects:
Acute Eye:
Severe irritant. Can cause redness, irritation. May cause significant eye damage.

Acute Skin:
Severe irritant. Can cause redness, inflammation and irritation.

Acute Inhalation:
Inhalation not likely. Mists may cause upper respiratory tract irritation.

Acute Ingestion:
May be harmful if swallowed. May cause nausea, diarrhea, abdominal cramps and vomiting.

Chronic Effects:
This product does not contain any ingredient designated by IARC, NTP, ACGIH or OSHA as probable or suspected human carcinogens.

3. Composition/Information on Ingredients:

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS Reg #</th>
<th>OSHA Hazard</th>
<th>% wt/wt</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amines, C10-16-Alkyl(dimethyl, N-Oxides</td>
<td>70592-80-2</td>
<td>Y</td>
<td>29-31</td>
</tr>
<tr>
<td>Water/Inerts</td>
<td>**********</td>
<td>N</td>
<td>69-71</td>
</tr>
</tbody>
</table>
4. First Aid Measures:
First Aid Measures for Accidental:
Eye Exposure:
Hold eyelids open and flush with a steady, gentle stream of water for at least 15 minutes. Seek medical attention.

Skin Exposure:
In case of contact, immediately wash with plenty of soap and water for at least 15 minutes. Seek medical attention. Remove contaminated clothing and shoes while washing. Clean contaminated clothing and shoes before re-use or discard if they cannot be thoroughly cleaned.

Inhalation:
Inhalation is not an expected route of exposure. If respiratory irritation or distress occurs remove victim to fresh air. Seek medical attention if respiratory irritation or distress continues.

Ingestion:
Do not induce vomiting, unless directed to do so by a physician. If victim is conscious and alert, wash out mouth with water and keep at rest. Do not leave victim unattended. Vomiting may occur spontaneously. To prevent aspiration of swallowed product, lay victim on side. Seek medical attention.

Medical Conditions Possibly Aggravated by Exposure:
Skin contact may aggravate existing skin disease.

Notes to Physician:
All treatments should be based on observed signs and symptoms of distress in the patient. Consideration should be given to the possibility that overexposure to materials other than this product may have occurred. Treat symptomatically. No specific antidote available.

5. Fire Fighting Measures:
Fire Hazard Data:
Flash Point: 93°C (200°F). Flammability class: will burn.

Flammability Limits (vol/vol%):
Lower: No data; Upper: No data

Extinguishing Media:

Special Fire Fighting Procedures:
Firefighters should wear NIOSH/MSHA approved self-contained breathing apparatus and full protective clothing.

Unusual Fire and Explosion Hazards:
Product will burn under fire conditions. Closed containers may rupture (due to buildup of pressure) when exposed to extreme heat.

Hazardous Decomposition Materials (Under Fire Conditions): oxides of carbon, oxides of nitrogen
6. Accidental Release Measures:
Evacuation Procedures and Safety:
Wear appropriate protective gear for the situation. See Personal Protection Information in Section 8.

Containment of Spill:
Follow procedure described below under Cleanup and Disposal of Spill.

Cleanup and Disposal of Spill:
Absorb with an inert absorbent. Sweep up and place in an appropriate closed container (see Section 7: Handling and Storage). Clean up residual material by washing area with water. Collect washings for disposal.

Environmental and Regulatory Reporting:
Do not flush to drain. Prevent material from entering public sewer system or any waterways. Spills may be reportable to the National Response Center (800-424-8802) and/or local agencies.

7. Handling and Storage:
Minimum/Maximum Storage Temperatures:
4 to 49°C (39 to 120°F)

Handling:
Avoid breathing vapors and mists. Avoid direct or prolonged contact with skin and eyes.

Storage:
Store in tightly closed containers. Store in an area that is dry, well-ventilated, away from ignition sources, away from incompatible materials (see Section 10. Stability and Reactivity).

8. Exposure Controls/Personal Protection:
Introductory Remarks:
These recommendations provide general guidance for handling this product. Because specific work environments and material handling practices vary, safety procedures, do not overlook the need to clean equipment and piping systems for maintenance and repairs. Waste resulting from these procedures should be handled in accordance with Section 13: Disposal Considerations. Assistance with selection, use and maintenance of worker protection equipment is generally available from equipment manufacturers.

Exposure Guidelines:
No exposure limits were found for this product or any of its ingredients.

Engineering Controls:
Where engineering controls are indicated by use conditions or a potential for excessive exposure exists, the following traditional exposure control techniques may be used to effectively minimize employee exposures: general area dilution/exhaust ventilation.
Respiratory Protection:
When respirators are required, select NIOSH/MSHA approved equipment based on actual or potential airborne concentrations and in accordance with the appropriate regulatory standards and/or industrial recommendations. For reasonable foreseeable industrial end uses of this material, respiratory protection should not be necessary.

Eye/Face Protection:
Eye and face protection requirements will vary dependent upon work environment conditions and material handling practices. Appropriate ANSI Z87 approved equipment should be selected for the particular use intended for this material. Eye contact should be prevented through use of chemical safety glasses with side shields or splash proof goggles. An emergency eye wash must be readily accessible to the work area.

Skin Protection:
Skin contact should be minimized through use of gloves and suitable long-sleeved clothing (i.e., shirts and pants). Consideration must be given both to durability as well as permeation resistance.

Work Practice Controls:
Personal hygiene is an important work practice exposure control measure and the following general measures should be taken when working with or handling this material.
- Do not store, use and/or consume goods, beverages, tobacco products or cosmetics in areas where this material is stored.
- Wash hands and face carefully before eating, drinking, using tobacco, applying cosmetics or using the toilet.
- Wash exposed skin promptly to remove accidental splashes or contact with this material.

9. Physical and Chemical Properties:
Physical and Chemical properties here represent typical properties of this product. Contact the business area using the Product Information phone number in Section 1 for its exact specifications.

Physical Appearance: Colorless to pale yellow/liquid
Odor: Mild Odor
pH: 7 to 9 at 10 wt/wt%
Specific Gravity: 0.96 at 25°C (77°F)
Water Solubility: Soluble
Melting Point Range: Not Available
Freezing Point Range: <4°C (39°F)
Boiling Point Range: >100°C (212°F) at 760 mmHg
Vapor Pressure: <23.5 mmHg at 25°C (77°F)
Vapor Density: Not Available
Evaporation Rate: <1 (Butyl Acetate = 1)
% Volatiles by Volume: <70
Octanol/Water Partition Coefficient: Not Available
10. Stability and Reactivity:
Chemical Stability:
This material is stable under normal handling and storage conditions described in Section 7.

Conditions to be Avoided:
Contamination, heat, open flame and spark

Materials/Chemicals to be Avoided:
Strong oxidizing agents, strong reducing agents

The Following Hazardous Decomposition Products Might Be Expected:
Decomposition Type: Thermal
Oxides of nitrogen; oxides of carbon

Hazardous Polymerization will not occur.

Avoid the Following to Inhibit Hazardous Polymerization:
Not Applicable

11. Toxicological Information:
Acute Eye Irritation:
The following data are for similar or related products.
Toxicological Information and Interpretation:
Eye – eye irritation, rabbit. Severely irritating

Acute Skin Irritation:
The following data are for similar or related products.
Toxicological Information and Interpretation:
Skin – skin irritant, rabbit. Severely irritating
Skin – sensitization, guinea pig. Not sensitizing

Acute Dermal Toxicity:
No test data found for product.

Acute Respiratory Irritation:
No test data found for product.

Acute Inhalation Toxicity:
No test data found for product.

Acute Oral Toxicity:
No test data found for product.

Toxicological Information and Interpretation:
LD50 – lethal dose 50% of test species, 1250 mg/kg, rat.

Chronic Toxicity:
This product does not contain any substances that are considered by OSHA, NTP, IARC, or ACGIH to be “probable” or “suspected” human carcinogens. No additional test data found for product.
12. Ecological Information:
Ecotoxicological Information:
The following data is for similar or related products.

Ecotoxicological Information and Interpretation:
LC50 – lethal concentration 50% of test species, 1 mg/1/96 hr, freshwater invertebrate Daphnia magna (water fleas).
LC50 – lethal concentration 50% of test species, 3.1 mg/1/96 hr, fish: Lepomis macrochirus (Bluegill sunfish).
EC50 – effective concentration 50% of test species, 0.37 mg/1/72 hr, aquatic plant: algae.

Chemical Fate Information:
The following data is for similar or related product. Readily biodegradable.

13. Disposal Considerations:
Waste Disposal Method:
Chemical additions, processing or otherwise altering this material may make the waste management information presented in this MSDS incomplete, inaccurate or otherwise inappropriate. Please be advised that state and local requirements for waste disposal may be more restrictive or otherwise different from federal laws and regulations. Consult state and local regulations regarding the proper disposal of this material.

Container Handling and Disposal:
Any containers or equipment used should be decontaminated immediately after use.

EPA Hazardous Waste – NO

14. Transport Information:
Transportation Status: IMPORTANT! Statements below provide additional data on listed transport classification. The listed Transportation Classification does not address regulatory variations due to changes in package size, mode of shipment or other regulatory descriptors.

US DOT:
Hazard Class: 9
Shipping Name: Environmentally Hazardous Substance, Liquid, N.O.S.
Technical Shipping Name: (Aklyldimethylamine Oxide)
ID Number: UN3082
Packing Group: III
Emergency Guide #: 171

DOT Marine Pollutant

TDG:
Hazard Class: 9
Shipping Name: Environmentally Hazardous Substance, Liquid, N.O.S.
Technical Shipping Name: (Aklyldimethylamine Oxide)
ID Number: UN3082
Packing Group: III
IMO:
Hazard Class: 9
Shipping Name: Environmentally Hazardous Substance, Liquid, N.O.S.
Technical Shipping Name: (Aklyldimethylamine Oxide)
ID Number: UN3082
Packing Group: III

IMO Marine Pollutant

IATA:
Hazard Class: 9
Shipping Name: Environmentally Hazardous Substance, Liquid, N.O.S.
Technical Shipping Name: (Aklyldimethylamine Oxide)
ID Number: UN3082
Packing Group: III

15. Regulatory Information:
Inventory Status:

<table>
<thead>
<tr>
<th>Inventory</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States (TSCA):</td>
<td>Y</td>
</tr>
<tr>
<td>Canada (DSL):</td>
<td>Y</td>
</tr>
<tr>
<td>Europe (EINECS/ELINCS):</td>
<td>Y</td>
</tr>
<tr>
<td>Australia (AICS):</td>
<td>Y</td>
</tr>
<tr>
<td>Japan (MITI):</td>
<td>N</td>
</tr>
<tr>
<td>South Korea (KECL):</td>
<td>Y</td>
</tr>
</tbody>
</table>

Y=All ingredients are on the inventory.
N=Not determined or one of more ingredients are not on the inventory and are not exempt from listing.

Federal Regulations:
Inventory Issues:
All functional components of this product are listed on the TSCA Inventory.

SARA Title III Hazard Classes:
Fire Hazard: No
Reactive Hazard: No
Release of Pressure: No
Acute Health Hazard: Yes
Chronic Health Hazard: No

State Regulations:
This product does not contain any components that are regulated under California Proposition 65.
16. Other Information:
National Fire Protection Association Hazards Ratings - NFPA (R):
2 – Health Hazard Rating – Moderate
1 – Flammability Rating – Slight
0 – Instability Rating – Minimal

National Paint & Coating Hazardous Materials Identification System HMIS (R):
3 – Health Hazard Rating – Serious
1 – Flammability Rating – Slight
0 – Reactivity Rating – Minimal

Disclaimer:
The information herein is given in good faith but no warranty, expressed or implied, is made.

Reissue Date: 5/3/2013