1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Product Name
SL-3644

Other means of identification
Product Code
249
UN/ID No.
UN3267
Synonyms
None

Recommended use of the chemical and restrictions on use
Recommended Use
Steam/Condensate Return Line Treatment.
Uses advised against
No information available

Emergency telephone number
Chemtrec 1-800-424-9300

2. HAZARDS IDENTIFICATION

Classification
<table>
<thead>
<tr>
<th>Hazard Class</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skin corrosion/irritation</td>
<td>Category 1</td>
</tr>
<tr>
<td>Serious eye damage/eye irritation</td>
<td>Category 1</td>
</tr>
<tr>
<td>Reproductive toxicity</td>
<td>Category 2</td>
</tr>
<tr>
<td>Specific target organ toxicity (single exposure)</td>
<td>Category 3</td>
</tr>
<tr>
<td>Flammable Liquids</td>
<td>Category 4</td>
</tr>
</tbody>
</table>

Label elements

Emergency Overview

Danger

Hazard statements
Causes severe skin burns and eye damage
Suspected of damaging fertility or the unborn child
May cause respiratory irritation. May cause drowsiness or dizziness
Combustible Liquid.

Appearance aqueous solution
Physical state liquid
Odor Amine

Precautionary Statements - Prevention
Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Use personal protective equipment as required
Do not breathe dust/fume/gas/mist/vapors/spray
Wash face, hands and any exposed skin thoroughly after handling
Use only outdoors or in a well-ventilated area
Keep away from flames and hot surfaces. - No Smoking.
Precautionary Statements - Response
Immediately call a POISON CENTER or doctor/physician
Specific treatment (see Section 4 on this label)
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
Immediately call a POISON CENTER or doctor/physician
IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/shower
Wash contaminated clothing before reuse
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Immediately call a POISON CENTER or doctor/physician
IF SWALLOWED: Rinse mouth. DO NOT induce vomiting
In case of fire: Use water spray (fog), carbon dioxide (CO2), or Dry chemical.

Precautionary Statements - Storage
Store locked up
Store in a well-ventilated place. Keep cool. Keep container tightly closed

Precautionary Statements - Disposal
Dispose of contents/container to an approved waste disposal plant

Hazards not otherwise classified (HNOC)

Other Information
• May be harmful if swallowed
• May be harmful in contact with skin

Unknown Acute Toxicity
8% of the mixture consists of ingredient(s) of unknown toxicity

3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS No.</th>
<th>Weight-%</th>
<th>Trade Secret</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-Diethylaminoethanol</td>
<td>100-37-8</td>
<td>15</td>
<td>Trade Secret</td>
</tr>
<tr>
<td>Cyclohexylamine</td>
<td>108-91-8</td>
<td>10</td>
<td></td>
</tr>
</tbody>
</table>

*The exact percentage (concentration) of composition has been withheld as a trade secret.

4. FIRST AID MEASURES

First aid measures

Eye contact
Flush immediately with water for 15 minutes. Lift upper and lower eyelids for complete rinsing. Get immediate medical attention.

Skin Contact
Flush with water for 15 minutes. Get medical attention. Remove contaminated clothing and wash before reuse.

Inhalation
Remove victim from immediate source of exposure to fresh air. If breathing is difficult, administer oxygen if available. If victim is not breathing, administer CPR. If individual experiences nausea, headache, or dizziness, get immediate medical attention.

Ingestion
Rinse mouth with water. Give water to dilute. Do not induce vomiting. Get immediate medical attention. Never give anything by mouth to a semi-comatose, comatose, convulsing or unconscious person.

Most important symptoms and effects, both acute and delayed

Symptoms
Contact with the eyes or skin may cause severe irritation with possible burns. May cause permanent eye damage. Toxic in contact with skin. Odor may cause nausea, vomiting, headache, and dizziness. Vapors are severely irritating to the eyes, nose and respiratory tract and may produce blurring of vision, eye injury, skin rashes, coughing, shortness of breath and breathing difficulties. Ingestion may cause severe irritation and injury to the mouth, throat, and digestive tract. Ingestion may be fatal.
Indication of any immediate medical attention and special treatment needed

Note to physicians  Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media
Water spray (fog). Carbon dioxide (CO2). Dry chemical.

Unsuitable extinguishing media  None known.

Specific hazards arising from the chemical
Dusts or fumes may form explosive mixtures in air. Vapors may travel to source of ignition and flash back. Most vapors are heavier than air. They will spread along ground and collect in low or confined areas (sewers, basements, tanks). Closed containers may rupture (due to buildup of pressure) when exposed to extreme heat. Thermal decomposition can lead to release of irritating and toxic gases and vapors. If stock solution container breaks, the product should be handled with care as it is corrosive. Under fire conditions, toxic, corrosive fumes are emitted.

Explosion data
Sensitivity to Mechanical Impact  None.
Sensitivity to Static Discharge  None.

Protective equipment and precautions for firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal precautions  Evacuate nonessential personnel. Ventilate area. Wear appropriate personal protection equipment. Remove all sources of ignition.

Environmental precautions  See Section 12 for additional ecological information. Prevent run-off into ground or surface waters or sewers.

Methods for containment  Stop leak if you can do it without risk. Completely contain spilled material with dikes or sand bags, etc.

Methods for cleaning up  Recover as much material as possible into containers for disposal or reuse. Remaining material may be diluted with water and neutralized. Flush spill area with water. Neutralization products, both solid and liquid, must be recovered for disposal.

7. HANDLING AND STORAGE

Precautions for safe handling

Advice on safe handling  Do not get in eyes, on skin, or clothing. Do not breathe vapors or mists. Do not ingest. Wash thoroughly after handling. Wear protective clothing/equipment. Use with adequate ventilation. Keep away from heat, sparks, flame and other sources of ignition (i.e., pilot lights, electric motors and static electricity).

Conditions for safe storage, including any incompatibilities

Storage Conditions  Keep containers tightly closed and properly labeled. Containers that have been emptied will retain product residue and should be handled as if they were full. Store in a cool, dry, well-ventilated place away from incompatible materials. Wash hands before eating, drinking, using tobacco, applying make-up or using the toilet. Do not store, use, and/or consume foods, beverages, tobacco in areas where this product is stored.
Incompatible materials


8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure Guidelines

Chemical Name | ACGIH TLV | OSHA PEL | NIOSH IDLH
---|---|---|---
2-Diethylaminoethanol | TWA: 2 ppm | TWA: 10 ppm (vacated) | IDLH: 100 ppm (vacated) TWA: 10 ppm S*
| TWA: 50 mg/m³ (vacated) | TWA: 10 ppm S* | TWA: 10 ppm TWA: 50 mg/m³
Cyclohexylamine | TWA: 10 ppm (vacated) | TWA: 10 ppm (vacated) | TWA: 10 ppm TWA: 40 mg/m³
| TWA: 40 mg/m³ | |

Appropriate engineering controls

- Showers
- Eyewash stations
- Ventilation systems.

Individual protection measures, such as personal protective equipment

Eye/face protection Wear protective splash proof safety goggles. Additional full face protection is recommended if splashing is a possibility.

Skin and body protection If contact is anticipated, wear protective clothing appropriate to use conditions.

Respiratory protection If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.

General Hygiene Considerations Handle in accordance with good industrial hygiene and safety practice.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Values</th>
<th>Remarks • Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>liquid</td>
<td></td>
</tr>
<tr>
<td>Appearance</td>
<td>aqueous solution</td>
<td></td>
</tr>
<tr>
<td>Color</td>
<td>clear amber</td>
<td></td>
</tr>
<tr>
<td>Odor</td>
<td>Amine</td>
<td></td>
</tr>
<tr>
<td>Odor threshold</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>pH</td>
<td>11.6</td>
<td>1% Solution</td>
</tr>
<tr>
<td>Melting point/freezing point</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Boiling point / boiling range</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Flash point</td>
<td>175 - 200 Deg F</td>
<td></td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Flammability Limit in Air</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Upper flammability limit:</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Lower flammability limit:</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Vapor density</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>0.9676</td>
<td></td>
</tr>
<tr>
<td>Water solubility</td>
<td>Soluble in water</td>
<td></td>
</tr>
<tr>
<td>Solubility in other solvents</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Partition coefficient</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Autoignition temperature</td>
<td>No information available</td>
<td></td>
</tr>
</tbody>
</table>
10. STABILITY AND REACTIVITY

Reactivity
No data available

Chemical stability
Stable under recommended storage conditions.

Possibility of Hazardous Reactions
None under normal processing.

Conditions to avoid
Heat, flames and sparks.

Incompatible materials

Hazardous Decomposition Products

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Product Information
No data available

Inhalation
May cause irritation of respiratory tract.

Eye contact
Irritating to eyes. Risk of serious damage to eyes.

Skin Contact
Contact causes severe skin irritation and possible burns.

Ingestion
Can burn mouth, throat, and stomach.

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Oral LD50</th>
<th>Dermal LD50</th>
<th>Inhalation LC50</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-Diethylaminoethanol</td>
<td>= 1300 mg/kg (Rat)</td>
<td>= 1260 µL/kg (Rabbit)</td>
<td>-</td>
</tr>
<tr>
<td>100-37-8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cyclohexylamine</td>
<td>= 11 mg/kg (Rat)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>108-91-8</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Information on toxicological effects

Symptoms
No information available.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Sensitization
No information available.

Germ cell mutagenicity
No information available.
249 SL-3644  
Revision Date  21-Jan-2016

### Carcinogenicity

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>ACGIH</th>
<th>IARC</th>
<th>NTP</th>
<th>OSHA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cyclohexylamine 108-91-8</td>
<td>-</td>
<td>Group 3</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

No information available.

### Reproductive toxicity

| STOT - single exposure | - |
| STOT - repeated exposure | - |
| Aspiration hazard | - |

No information available.

### Ecotoxicity

8% of the mixture consists of components(s) of unknown hazards to the aquatic environment

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Algae/aquatic plants</th>
<th>Fish</th>
<th>Crustacea</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-Diethylaminoethanol 100-37-8</td>
<td>30: 72 h Desmodesmus subspicatus mg/L EC50</td>
<td>1660 - 1920: 96 h Pimephales promelas mg/L LC50 flow-through 100 - 220: 96 h Leuciscus idus mg/L LC50 static</td>
<td>83.6: 48 h Daphnia magna Straus mg/L EC50</td>
</tr>
<tr>
<td>Cyclohexylamine 108-91-8</td>
<td>20: 96 h Pseudokirchneriella subcapitata mg/L EC50 static 20: 96 h Pseudokirchneriella subcapitata mg/L EC50</td>
<td>44 - 90: 96 h Oncorhynchus mykiss mg/L LC50 470: 96 h Brachydanio rerio mg/L LC50 static</td>
<td>49: 24 h Daphnia magna mg/L EC50</td>
</tr>
</tbody>
</table>

### Persistence and degradability

No information available.

### Bioaccumulation

No information available.

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Partition coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-Diethylaminoethanol 100-37-8</td>
<td>0.21</td>
</tr>
<tr>
<td>Cyclohexylamine 108-91-8</td>
<td>1.2</td>
</tr>
</tbody>
</table>

### Other adverse effects

No information available.

### 12. ECOLOGICAL INFORMATION

#### Ecotoxicity

8% of the mixture consists of ingredient(s) of unknown toxicity

The following values are calculated based on chapter 3.1 of the GHS document.

### 13. DISPOSAL CONSIDERATIONS

#### Waste treatment methods

**Disposal of wastes**

Disposal should be in accordance with applicable regional, national and local laws and regulations.

**Contaminated packaging**

Do not reuse container.

### 14. TRANSPORT INFORMATION

**DOT**

Regulated

**UN/ID No.**

UN3267

**Proper shipping name**

Corrosive liquid, basic, organic, N.O.S.

**Hazardous ingredients**

(Cyclohexylamine, Diethylaminoethanol)
15. Regulatory Information

International Inventories

<table>
<thead>
<tr>
<th>International Inventories</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>TSCA - United States Toxic</td>
<td>Complies</td>
</tr>
<tr>
<td>DSL/NDSL - Canadian Domestic</td>
<td>Complies</td>
</tr>
<tr>
<td>EINECS/ELINCS - European</td>
<td>Complies</td>
</tr>
<tr>
<td>ENCS - Japan Existing and</td>
<td>Does not comply</td>
</tr>
<tr>
<td>New Chemical Substances</td>
<td></td>
</tr>
<tr>
<td>IECSC - China Inventory of</td>
<td>Complies</td>
</tr>
<tr>
<td>Existing Chemical Substances</td>
<td></td>
</tr>
<tr>
<td>KECL - Korean Existing and</td>
<td>Complies</td>
</tr>
<tr>
<td>Evaluated Chemical Substances</td>
<td></td>
</tr>
<tr>
<td>PICCS - Philippines Inventory of Chemicals and Chemical Substances</td>
<td>Complies</td>
</tr>
<tr>
<td>AICS - Australian Inventory of Chemical Substances</td>
<td>Complies</td>
</tr>
</tbody>
</table>

Legend:
- TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
- DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
- EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
- ENCS - Japan Existing and New Chemical Substances
- IECSC - China Inventory of Existing Chemical Substances
- KECL - Korean Existing and Evaluated Chemical Substances
- PICCS - Philippines Inventory of Chemicals and Chemical Substances
- AICS - Australian Inventory of Chemical Substances

US Federal Regulations

SARA 313
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1996 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

SARA 311/312 Hazard Categories

<table>
<thead>
<tr>
<th>Hazard Category</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute health hazard</td>
<td>Yes</td>
</tr>
<tr>
<td>Chronic Health Hazard</td>
<td>No</td>
</tr>
<tr>
<td>Fire hazard</td>
<td>No</td>
</tr>
<tr>
<td>Sudden release of pressure hazard</td>
<td>No</td>
</tr>
<tr>
<td>Reactive Hazard</td>
<td>No</td>
</tr>
</tbody>
</table>

CWA (Clean Water Act)
This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

CERCLA
This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Hazardous Substances RQs</th>
<th>CERCLA/SARA RQ</th>
<th>Reportable Quantity (RQ)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cyclohexylamine</td>
<td></td>
<td>10000 lb</td>
<td></td>
</tr>
</tbody>
</table>

US State Regulations

California Proposition 65
This product does not contain any Proposition 65 chemicals
U.S. State Right-to-Know Regulations

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>New Jersey</th>
<th>Massachusetts</th>
<th>Pennsylvania</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-Diethylaminoethanol</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>100-37-8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cyclohexylamine</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>108-91-8</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

U.S. EPA Label Information
EPA Pesticide Registration Number Not Applicable

16. OTHER INFORMATION

NFPA
Health hazards 3 Flammability 1 Instability 0

HMIS
Health hazards 3 Flammability 1 Physical hazards 0

Prepared By lmth
Issue Date 26-Nov-2014
Revision Date 21-Jan-2016
Revision Note No information available

Disclaimer
The information provided in this Material Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

End of Safety Data Sheet