1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: Triethanolamine

Cat No.: T350-4; T350-500; T407-1; T407-4; T407-500

Synonyms: Trolamine; Tri-beta-hydroxy Ethanolamine; TEA; 2,2',2"-Nitrilotriethanol (NF/Certified)

Recommended Use: Laboratory chemicals

Company: Fisher Scientific

Fisher Scientific
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Emergency Telephone Number
CHEMTREC®, Inside the USA: 800-424-9300
CHEMTREC®, Outside the USA: 001-703-527-3887

WARNING!

Appearance: Light yellow
Physical State: Liquid, viscous liquid
Odor: Ammonia-like

2. HAZARDS IDENTIFICATION

Target Organs: Eyes, Skin, Liver, Kidney

Potential Health Effects

Acute Effects

Principle Routes of Exposure

<table>
<thead>
<tr>
<th>Route</th>
<th>Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eyes</td>
<td>Irritating to eyes. Prolonged skin contact may defat the skin and produce dermatitis. May produce an allergic reaction.</td>
</tr>
<tr>
<td>Skin</td>
<td>May cause irritation. Prolonged skin contact may defat the skin and produce dermatitis. May produce an allergic reaction.</td>
</tr>
<tr>
<td>Inhalation</td>
<td>May cause irritation of respiratory tract. May be harmful if inhaled.</td>
</tr>
<tr>
<td>Ingestion</td>
<td>May be harmful if swallowed. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.</td>
</tr>
</tbody>
</table>

Chronic Effects: Tumorigenic effects have been reported in experimental animals. May cause an allergic skin reaction. May cause adverse liver effects. May cause adverse kidney effects.

See Section 11 for additional Toxicological information.
Aggravated Medical Conditions: No information available.

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Haz/Non-haz</th>
<th>Component</th>
<th>CAS-No</th>
<th>Weight %</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Triethanolamine</td>
<td>102-71-6</td>
<td>&gt;95</td>
</tr>
</tbody>
</table>

### 4. FIRST AID MEASURES

**Eye Contact**
Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Obtain medical attention.

**Skin Contact**
Wash off immediately with plenty of water for at least 15 minutes. Obtain medical attention.

**Inhalation**
Move to fresh air. If breathing is difficult, give oxygen. Obtain medical attention.

**Ingestion**
Do not induce vomiting. Obtain medical attention.

**Notes to Physician**
Treat symptomatically.

### 5. FIRE-FIGHTING MEASURES

**Flash Point**
190°C / 374°F

**Method**
No information available.

**Autoignition Temperature**
325°C / 617°F

**Explosion Limits**
- **Upper**: 8.5 vol %
- **Lower**: 1.3 vol %

**Suitable Extinguishing Media**
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

**Unsuitable Extinguishing Media**
No information available.

**Hazardous Combustion Products**
No information available.

**Sensitivity to mechanical impact**
No information available.

**Sensitivity to static discharge**
No information available.

**Specific Hazards Arising from the Chemical**
Thermal decomposition can lead to release of irritating gases and vapors. Keep product and empty container away from heat and sources of ignition.

**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.

**NFPA**
- Health: 2
- Flammability: 1
- Instability: 0
- Physical hazards: N/A
6. ACCIDENTAL RELEASE MEASURES

Personal Precautions  
Use personal protective equipment. Ensure adequate ventilation. Avoid contact with skin, eyes and clothing.

Environmental Precautions  
Should not be released into the environment.

Methods for Containment and Clean Up  
Soak up with inert absorbent material. Keep in suitable, closed containers for disposal.

7. HANDLING AND STORAGE

Handling  
Wear personal protective equipment. Ensure adequate ventilation. Do not breathe vapors or spray mist. Avoid contact with skin, eyes and clothing. Do not ingest.

Storage  
Keep containers tightly closed in a dry, cool and well-ventilated place. Keep under nitrogen.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Measures  
Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location.

Exposure Guidelines  

<table>
<thead>
<tr>
<th>Component</th>
<th>ACGIH TLV</th>
<th>OSHA PEL</th>
<th>NIOSH IDLH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Triethanolamine</td>
<td>TWA: 5 mg/m³</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Component</th>
<th>Quebec</th>
<th>Mexico OEL (TWA)</th>
<th>Ontario TWAEV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Triethanolamine</td>
<td>TWA: 5 mg/m³</td>
<td>TWA: 0.5 ppm</td>
<td>TWA: 3.1 mg/m³</td>
</tr>
</tbody>
</table>

NIOSH IDLH: Immediately Dangerous to Life or Health

Personal Protective Equipment

Eye/face Protection  
Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA’s eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166

Skin and body protection  
Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection  
Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical State</td>
<td>Liquid, viscous liquid</td>
</tr>
<tr>
<td>Appearance</td>
<td>Light yellow</td>
</tr>
<tr>
<td>odor</td>
<td>Ammonia-like</td>
</tr>
<tr>
<td>Odor Threshold</td>
<td>No information available.</td>
</tr>
<tr>
<td>pH</td>
<td>10.5 15 g/L water</td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>&lt;0.01 mmHg @ 20 °C</td>
</tr>
<tr>
<td>Vapor Density</td>
<td>5.14 (Air = 1.0)</td>
</tr>
<tr>
<td>Viscosity</td>
<td>600 mPa.s at 25 °C</td>
</tr>
<tr>
<td>Boiling Point/Range</td>
<td>360°C / 680°F</td>
</tr>
<tr>
<td>Melting Point/Range</td>
<td>21°C / 69.8°F</td>
</tr>
</tbody>
</table>
9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Decomposition temperature</td>
<td>No information available.</td>
</tr>
<tr>
<td>Flash Point</td>
<td>190°C / 374°F</td>
</tr>
<tr>
<td>Evaporation Rate</td>
<td>No information available.</td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>1.125</td>
</tr>
<tr>
<td>Solubility</td>
<td>No information available.</td>
</tr>
<tr>
<td>log Pow</td>
<td>No data available</td>
</tr>
<tr>
<td>Molecular Weight</td>
<td>149.19</td>
</tr>
<tr>
<td>Molecular Formula</td>
<td>C6 H15 N O3</td>
</tr>
</tbody>
</table>

10. STABILITY AND REACTIVITY


Conditions to Avoid: Incompatible products. Excess heat. Exposure to air. Exposure to light. Exposure to moist air or water.

Incompatible Materials: Strong oxidizing agents, Acids, Metals

Hazardous Decomposition Products: Nitrogen oxides (NOx), Carbon monoxide (CO), Carbon dioxide (CO₂), Hydrogen cyanide (hydrocyanic acid), Formaldehyde

Hazardous Polymerization: Hazardous polymerization does not occur.

Hazardous Reactions: None under normal processing.

11. TOXICOLOGICAL INFORMATION

Acute Toxicity

Component Information

<table>
<thead>
<tr>
<th>Component</th>
<th>LD₅₀ Oral (Rat)</th>
<th>LD₅₀ Dermal (Rat)</th>
<th>LC₅₀ Inhalation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Triethanolamine</td>
<td>4190 mg/kg</td>
<td>16 mL/kg</td>
<td>Not listed</td>
</tr>
</tbody>
</table>

Irritation: Irritating to eyes

Toxicologically Synergistic Products: No information available.

Chronic Toxicity

Carcinogenicity: There are no known carcinogenic chemicals in this product

<table>
<thead>
<tr>
<th>Component</th>
<th>ACGIH</th>
<th>IARC</th>
<th>NTP</th>
<th>OSHA</th>
<th>Mexico</th>
</tr>
</thead>
<tbody>
<tr>
<td>Triethanolamine</td>
<td>Not listed</td>
<td>group 3</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
</tr>
</tbody>
</table>

Sensitization: May cause sensitization by skin contact
12. ECOLOGICAL INFORMATION

Ecotoxicity
Do not empty into drains.

<table>
<thead>
<tr>
<th>Component</th>
<th>Freshwater Algae</th>
<th>Freshwater Fish</th>
<th>Microtox</th>
<th>Water Flea</th>
</tr>
</thead>
<tbody>
<tr>
<td>Triethanolamine</td>
<td>216 mg/L EC50 = 72 h</td>
<td>450-1000 mg/L LC50 = 96 h</td>
<td>EC50 &gt; 10000 mg/L 30 min</td>
<td>1386 mg/L EC50 = 24 h</td>
</tr>
<tr>
<td></td>
<td>169 mg/L EC50 = 96 h</td>
<td>10600-13000 mg/L LC50 = 96 h</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>1000 mg/L LC50 = 96 h</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>EC50 &gt; 10000 mg/L 30 min</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>1386 mg/L EC50 = 24 h</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Persistence and Degradability
Readily biodegradable.

Bioaccumulation/Accumulation
No information available

Mobility

<table>
<thead>
<tr>
<th>Component</th>
<th>log Pow</th>
</tr>
</thead>
<tbody>
<tr>
<td>Triethanolamine</td>
<td>-2.53</td>
</tr>
</tbody>
</table>

13. DISPOSAL CONSIDERATIONS

Waste Disposal Methods
Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

14. TRANSPORT INFORMATION

DOT
Not regulated

TDG
Not regulated

IATA
Not regulated

IMDG/IMO
Not regulated
14. TRANSPORT INFORMATION

15. REGULATORY INFORMATION

### International Inventories

<table>
<thead>
<tr>
<th>Component</th>
<th>TSCA</th>
<th>DSL</th>
<th>NDSL</th>
<th>EINECS</th>
<th>ELINCS</th>
<th>NLP</th>
<th>PICCS</th>
<th>ENCS</th>
<th>AICS</th>
<th>CHINA</th>
<th>KECL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Triethanolamine</td>
<td>X</td>
<td>X</td>
<td>-</td>
<td>203-049-8</td>
<td>-</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

Legend:
- **X** - Listed
- **E** - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.
- **F** - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.
- **N** - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.
- **P** - Indicates a commenced PMN substance
- **R** - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.
- **S** - Indicates a substance that is identified in a proposed or final Significant New Use Rule
- **T** - Indicates a substance that is the subject of a Section 4 test rule under TSCA.
- **XU** - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B)).
- **Y1** - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.
- **Y2** - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

### U.S. Federal Regulations

- **TSCA 12(b)** Not applicable
- **SARA 313** Not applicable

### SARA 311/312 Hazardous Categorization

<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>

### Clean Water Act

Not applicable

### Clean Air Act

Not applicable

### OSHA

Not applicable

### CERCLA

Not Applicable

### California Proposition 65

This product does not contain any Proposition 65 chemicals.
State Right-to-Know

<table>
<thead>
<tr>
<th>Component</th>
<th>Massachusetts</th>
<th>New Jersey</th>
<th>Pennsylvania</th>
<th>Illinois</th>
<th>Rhode Island</th>
</tr>
</thead>
<tbody>
<tr>
<td>Triethanolamine</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>-</td>
<td>X</td>
</tr>
</tbody>
</table>

U.S. Department of Transportation
Reportable Quantity (RQ): N
DOT Marine Pollutant: N
DOT Severe Marine Pollutant: N

U.S. Department of Homeland Security
This product contains the following DHS chemicals:

<table>
<thead>
<tr>
<th>Component</th>
<th>DHS Chemical Facility Anti-Terrorism Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Triethanolamine</td>
<td>0 lb STQ</td>
</tr>
</tbody>
</table>

Other International Regulations

Mexico - Grade: No information available

Canada
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

WHMIS Hazard Class
Non-controlled

16. OTHER INFORMATION

Prepared By
Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Creation Date
03-Nov-2010

Print Date
02-May-2012

Revision Summary
(M)SDS sections updated 14
Disclaimer
The information provided on this 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 guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as 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 material or in any process, unless specified in the text.

End of MSDS