1. Identification

Product Name: Ethanolamine
Cat No.: M251-1; M251-4
CAS-No: 141-43-5
Synonyms: 2-Aminoethanol, monoethanolamine

Recommended Use: Laboratory chemicals.
Uses advised against: Not for food, drug, pesticide or biocidal product use

Details of the supplier of the safety data sheet

Company: 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

2. Hazard(s) identification

Classification
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Category 4</td>
<td>Flammable liquids</td>
</tr>
<tr>
<td>Category 4</td>
<td>Acute oral toxicity</td>
</tr>
<tr>
<td>Category 4</td>
<td>Acute dermal toxicity</td>
</tr>
<tr>
<td>Category 4</td>
<td>Acute Inhalation Toxicity - Vapors</td>
</tr>
<tr>
<td>Category 1 B</td>
<td>Skin Corrosion/irritation</td>
</tr>
<tr>
<td>Category 1</td>
<td>Serious Eye Damage/Eye Irritation</td>
</tr>
<tr>
<td>Category 3</td>
<td>Specific target organ toxicity (single exposure)</td>
</tr>
<tr>
<td></td>
<td>Target Organs - Respiratory system.</td>
</tr>
</tbody>
</table>

Label Elements

Signal Word: Danger

Hazard Statements
Combustible liquid
Harmful if swallowed
Harmful in contact with skin
Causes severe skin burns and eye damage
May cause respiratory irritation
Harmful if inhaled
Precautionary Statements

Prevention
Wash face, hands and any exposed skin thoroughly after handling
Do not eat, drink or smoke when using this product
Wear protective gloves/protective clothing/eye protection/face protection
Use only outdoors or in a well-ventilated area
Do not breathe dust/fume/gas/mist/vapors/spray
Keep away from heat/sparks/open flames/hot surfaces. - No smoking
Keep cool

Response
Immediately call a POISON CENTER or doctor/physician

Inhalation
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing

Skin
Wash contaminated clothing before reuse
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower

Eyes
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

Ingestion
Rinse mouth
Do NOT induce vomiting

Fire
In case of fire: Use CO2, dry chemical, or foam for extinction

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

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

Hazards not otherwise classified (HNOC)
Harmful to aquatic life with long lasting effects

3. Composition/Information on Ingredients

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No</th>
<th>Weight %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethanolamine</td>
<td>141-43-5</td>
<td>&gt;95</td>
</tr>
</tbody>
</table>

4. First-aid measures

General Advice
Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.

Eye Contact
Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Immediate medical attention is required. Keep eye wide open while rinsing.

Skin Contact
Wash off immediately with plenty of water for at least 15 minutes. Remove and wash contaminated clothing before re-use. Call a physician immediately.

Inhalation
Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other
proper respiratory medical device. Remove from exposure, lie down. Call a physician immediately. If not breathing, give artificial respiration.

Ingestion

Do not induce vomiting. Never give anything by mouth to an unconscious person. Clean mouth with water. Call a physician immediately.

Most important symptoms and effects

Breathing difficulties. Causes burns by all exposure routes. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting: Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation

Notes to Physician

Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media CO₂, dry chemical, dry sand, alcohol-resistant foam. Cool closed containers exposed to fire with water spray.

Unsuitable Extinguishing Media

No information available

Flash Point

92 °C / 197.6 °F

Method

No information available

Autoignition Temperature

450 °C / 842 °F

Explosion Limits

Upper 23.5% @ 140°C
Lower 3.0% @ 140°C

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. The product causes burns of eyes, skin and mucous membranes. Combustible material. Containers may explode when heated.

Hazardous Combustion Products

Carbon monoxide (CO) Carbon dioxide (CO₂) Nitrogen oxides (NOx) Thermal decomposition can lead to release of irritating gases and vapors

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. Thermal decomposition can lead to release of irritating gases and vapors.

6. Accidental release measures

Personal Precautions

Use personal protective equipment. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak. Ensure adequate ventilation. Remove all sources of ignition. Take precautionary measures against static discharges.

Environmental Precautions

Should not be released into the environment. Do not flush into surface water or sanitary sewer system. See Section 12 for additional ecological information. Avoid release to the environment. Collect spillage.

Methods for Containment and Clean Up

Soak up with inert absorbent material. Keep in suitable, closed containers for disposal. Remove all sources of ignition.

7. Handling and storage

Handling

Use only under a chemical fume hood. Wear personal protective equipment. Do not get in
eyes, on skin, or on clothing. Do not ingest. Do not breathe vapors or spray mist. Keep away from open flames, hot surfaces and sources of ignition.

Storage

Keep containers tightly closed in a dry, cool and well-ventilated place. Corrosives area. Keep away from heat and sources of ignition. Store under an inert atmosphere.

8. Exposure controls / personal protection

Exposure Guidelines

<table>
<thead>
<tr>
<th>Component</th>
<th>ACGIH TLV</th>
<th>OSHA PEL</th>
<th>NIOSH IDLH</th>
<th>Mexico OEL (TWA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethanolamine</td>
<td>TWA: 3 ppm</td>
<td>(Vacated) TWA: 3 ppm</td>
<td>TWA: 3 ppm</td>
<td>TWA: 3 ppm</td>
</tr>
<tr>
<td></td>
<td>STEL: 6 ppm</td>
<td>(Vacated) STEL: 6 ppm</td>
<td>TWA: 3 ppm</td>
<td>TWA: 8 mg/m³</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA: 15 mg/m³</td>
<td>TWA: 6 mg/m³</td>
<td>STEL: 6 ppm</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA: 3 ppm</td>
<td>TWA: 6 mg/m³</td>
<td>STEL: 15 mg/m³</td>
</tr>
</tbody>
</table>

Legend

ACGIH - American Conference of Governmental Industrial Hygienists
OSHA - Occupational Safety and Health Administration
NIOSH IDLH: The National Institute for Occupational Safety and Health Immediately Dangerous to Life or Health

Engineering Measures

Use only under a chemical fume hood. Ensure that eyewash stations and safety showers are close to the workstation location. Use explosion-proof electrical/ventilating/lighting/equipment. Ensure adequate ventilation, especially in confined areas.

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. Tightly fitting safety goggles. Face-shield.

Skin and body protection: Wear impervious gloves and/or clothing if needed to prevent contact with the material.

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.

Hygiene Measures: Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

<table>
<thead>
<tr>
<th>Physical State</th>
<th>Liquid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Colorless</td>
</tr>
<tr>
<td>Odor</td>
<td>Fishy</td>
</tr>
<tr>
<td>Odor Threshold</td>
<td>No information available</td>
</tr>
<tr>
<td>pH</td>
<td>12 @ 20°C / 20 g/l aq. sol</td>
</tr>
<tr>
<td>Melting Point/Range</td>
<td>10 °C / 50 °F</td>
</tr>
<tr>
<td>Boiling Point/Range</td>
<td>170 °C / 338 °F @ 760 mmHg</td>
</tr>
<tr>
<td>Flash Point</td>
<td>92 °C / 197.6 °F</td>
</tr>
<tr>
<td>Evaporation Rate</td>
<td>&gt; 1 (Butyl Acetate = 1.0)</td>
</tr>
<tr>
<td>Flammability (solid,gas)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Flammability or explosive limits</td>
<td></td>
</tr>
<tr>
<td>Upper</td>
<td>23.5% @ 140°C</td>
</tr>
<tr>
<td>Lower</td>
<td>3.0% @ 140°C</td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>0.48 mmHg @ 20°C</td>
</tr>
<tr>
<td>Vapor Density</td>
<td>2.1 (Air = 1.0)</td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>1.012</td>
</tr>
</tbody>
</table>
10. Stability and reactivity

**Reactive Hazard**
None known, based on information available

**Stability**
Hygroscopic. Air sensitive.

**Conditions to Avoid**
Incompatible products. Excess heat. Keep away from open flames, hot surfaces and sources of ignition. Exposure to air. Exposure to moist air or water.

**Incompatible Materials**
Strong oxidizing agents

**Hazardous Decomposition Products**
Carbon monoxide (CO), Carbon dioxide (CO₂), Nitrogen oxides (NOx), Thermal decomposition can lead to release of irritating gases and vapors

**Hazardous Polymerization**
Hazardous polymerization does not occur.

**Hazardous Reactions**
None under normal processing.

11. Toxicological information

**Acute Toxicity**

<table>
<thead>
<tr>
<th>Component</th>
<th>LD₅₀ Oral Oral (Rat)</th>
<th>LD₅₀ Dermal (Rabbit)</th>
<th>LC₅₀ Inhalation (Rabbit)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethanolamine</td>
<td>1720 mg/kg</td>
<td>1000 mg/kg</td>
<td>Not listed</td>
</tr>
</tbody>
</table>

**Toxicologically Synergistic Products**
No information available

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

**Irritation**
Causes burns by all exposure routes

**Sensitization**
No information available

**Carcinogenicity**
The table below indicates whether each agency has listed any ingredient as a carcinogen.

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No</th>
<th>IARC</th>
<th>NTP</th>
<th>ACGIH</th>
<th>OSHA</th>
<th>Mexico</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethanolamine</td>
<td>141-43-5</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
</tr>
</tbody>
</table>

**Mutagenic Effects**
No information available

**Reproductive Effects**
No information available.

**Developmental Effects**
No information available.

**Teratogenicity**
No information available.

**STOT - single exposure**
Respiratory system

**STOT - repeated exposure**
None known

**Aspiration hazard**
No information available

**Symptoms / effects, both acute and**
Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting.
Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated; ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation.

Endocrine Disruptor Information
No information available

Other Adverse Effects
The toxicological properties have not been fully investigated.

12. Ecological information

Ecotoxicity
Do not empty into drains. Contains a substance which is: Harmful to aquatic organisms. The product contains following substances which are hazardous for the environment. Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

<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>Ethanolamine</td>
<td>EC50: 15 mg/L/72h</td>
<td>Leisiscus idus: LC50: &gt;200 mg/L/48h</td>
<td>Pseudomonas putida: EC50: 110 mg/L/17 h</td>
<td>EC50: 65 mg/L/48h</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Salmo gairdneri: LC50: 150 mg/L/96h</td>
<td>Nitrosomonas: EC50: 12200 mg/L/2 h</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Photobacterium phosphoreum: EC50: 13.7 mg/L/30 min</td>
<td></td>
</tr>
</tbody>
</table>

Persistence and Degradability
Soluble in water. Persistence is unlikely based on information available. Miscible with water.

Bioaccumulation/ Accumulation
No information available.

Mobility
Will likely be mobile in the environment due to its water solubility.

<table>
<thead>
<tr>
<th>Component</th>
<th>log Pow</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethanolamine</td>
<td>-1.91</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
- UN-No: UN2491
- Proper Shipping Name: ETHANOLAMINE
- Hazard Class: 8
- Packing Group: III

TDG
- UN-No: UN2491
- Proper Shipping Name: ETHANOLAMINE
- Hazard Class: 8
- Packing Group: III

IATA
- UN-No: UN2491
- Proper Shipping Name: ETHANOLAMINE
- Hazard Class: 8
- Packing Group: III

IMDG/IMO
- UN-No: UN2491
- Proper Shipping Name: ETHANOLAMINE
- Hazard Class: 8
- Packing Group: III

15. Regulatory information
All of the components in the product are on the following Inventory lists: X = listed

**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>IECSC</th>
<th>KECL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethanolamine</td>
<td>X</td>
<td>X</td>
<td>-</td>
<td>205-483-3</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 Hazard Categories See section 2 for more information
- CWA (Clean Water Act) Not applicable
- Clean Air Act Not applicable
- OSHA Occupational Safety and Health Administration Not applicable
- CERCLA Not applicable
- California Proposition 65 This product does not contain any Proposition 65 chemicals

**U.S. State Right-to-Know Regulations**

<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>Ethanolamine</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</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 does not contain any DHS chemicals.

**Other International Regulations**

- Mexico - Grade Slight risk, Grade 1

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16. Other information

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

<table>
<thead>
<tr>
<th>Creation Date</th>
<th>11-Jun-2009</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revision Date</td>
<td>17-Jan-2018</td>
</tr>
<tr>
<td>Print Date</td>
<td>17-Jan-2018</td>
</tr>
<tr>
<td>Revision Summary</td>
<td>This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).</td>
</tr>
</tbody>
</table>

Disclaimer
The information provided in 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 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 SDS