1. Product and Company Identification

Material name: 2-AMINOETHANOL
Version #: 02
Revision date: 01-10-2011
CAS #: 141-43-5
Product Codes:
- J.T.Baker: 27499, 72715, 6200, 9314, 9339, 9355
- Mallinckrodt: 6339

Synonym(s):
- BETA-AMINOETHANOL
- ETHYLOLAMINE
- MONOETHANOLAMINE
- GLYCINOL
- ETHANOLAMINE

Manufacturer:
Avantor Performance Materials, Inc.
Address:
222 Red School Lane
Phillipsburg, NJ 08865
US
Customer Service:
800-582-2537
24 Hour Emergency:
908-859-2151
Chemtrec:
800-424-9300

2. Hazards Identification

Emergency overview:
DANGER

Combustible liquid and vapor.
Corrosive. Causes skin and eye burns. Harmful if swallowed. May be harmful if absorbed through skin. Irritating to respiratory system. Prolonged exposure may cause chronic effects. Avoid prolonged contact with eyes, skin and clothing.

OSHA regulatory status:
This product is considered hazardous under 29 CFR 1910.1200 (Hazard Communication).

Potential health effects:

Routes of exposure:
- Inhalation
- Ingestion
- Skin contact
- Eye contact

Eyes:
Causes eye burns. Risk of serious damage to eyes. Do not get this material in contact with eyes. Vapors may also produce eye irritation.

Skin:
Causes skin burns. Harmful in contact with skin. Do not get this material in contact with skin. May be harmful if absorbed through skin.

Inhalation:
Causes burns. Vapors irritate the respiratory system, and may cause coughing and difficulties in breathing. Do not breathe dust/fume/gas/mist/vapors/spray. May cause damage to the liver and kidneys.

Ingestion:
Harmful if swallowed. Components of the product may be absorbed into the body by ingestion. Ingestion may produce burns to the lips, oral cavity, upper airway, esophagus and possibly the digestive tract. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea. Do not ingest.

Target organs:
Eyes. RESPIRATORY SYSTEM. Skin. Central nervous system.

Prolonged or repeated exposure may cause liver and kidney damage. These effects have not been observed in humans.

Chronic effects:
May be harmful if absorbed through skin. May cause central nervous system disorder (e.g., narcosis involving a loss of coordination, weakness, fatigue, mental confusion and blurred vision) and/or damage.

Signs and symptoms:
Potential environmental effects: May cause long-term adverse effects in the environment.

3. Composition / Information on Ingredients

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS #</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-AMINOETHANOL</td>
<td>141-43-5</td>
<td>90 - 100</td>
</tr>
</tbody>
</table>

4. First Aid Measures

**First aid procedures**

**Eye contact**
Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention immediately.

**Skin contact**
Immediately flush skin with plenty of water. Get medical attention immediately. For minor skin contact, avoid spreading material on unaffected skin. Wash clothing separately before reuse. Take off immediately all contaminated clothing.

**Inhalation**
Move to fresh air. Oxygen or artificial respiration if needed. Do not use mouth-to-mouth method if victim inhaled the substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Get medical attention immediately.

**Ingestion**
IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. Never give anything by mouth to a victim who is unconscious or is having convulsions. Do not induce vomiting without advice from poison control center. Do not use mouth-to-mouth method if victim ingested the substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Rinse mouth thoroughly. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs.

**Notes to physician**
In case of shortness of breath, give oxygen. Keep victim warm. Symptoms may be delayed.

**General advice**
Immediate medical attention is required. In case of shortness of breath, give oxygen. Keep victim warm. Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

5. Fire Fighting Measures

**Flammable properties**
Combustible by OSHA criteria. NFPA Rating Fire = 2. Materials that must be moderately heated or exposed to relative high ambient temperatures before ignition can occur. Runoff to sewer may cause fire or explosion hazard. Heat may cause the containers to explode.

**Extinguishing media**

**Suitable extinguishing media**

**Unsuitable extinguishing media**
Do not use a solid water stream as it may scatter and spread fire.

**Protection of firefighters**

**Specific hazards arising from the chemical**
Fire may produce irritating, corrosive and/or toxic gases.

**Protective equipment and precautions for firefighters**
In case of fire and/or explosion do not breathe fumes. If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also consider initial evacuation for 800 meters (1/2 mile) in all directions. ALWAYS stay away from tanks engulfed in flame. Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. In the event of fire, cool tanks with water spray. Use water spray to cool unopened containers. Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA. Move containers from fire area if you can do so without risk. Withdraw immediately in case of rising sound from venting safety device or any discoloration of tanks due to fire. For massive fire in cargo area, use unmanned hose holder or monitor nozzles, if possible. If not, withdraw and let fire burn out.

**Special protective equipment for fire-fighters**
Wear full protective clothing, including helmet, self-contained positive pressure or pressure demand breathing apparatus, protective clothing and face mask.

**Specific methods**
In the event of fire and/or explosion do not breathe fumes. In the event of fire, cool tanks with water spray. Use water spray to cool unopened containers.
6. Accidental Release Measures

**Personal precautions**
Ensure adequate ventilation. Keep unnecessary personnel away. Keep out of low areas. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them. Avoid inhalation of vapor, fumes, dust and/or mist from the spilled material. Wear appropriate protective equipment and clothing during clean-up.

**Environmental precautions**
Do not contaminate water.

**Methods for containment**
ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Use water spray to reduce vapors or divert vapor cloud drift. Prevent entry into waterways, sewer, basements or confined areas.

**Methods for cleaning up**
Should not be released into the environment.

Large Spills: Dike far ahead of spill for later disposal. Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal.

Small Spills: Wipe up with absorbent material (e.g. cloth, fleece).

Never return spills in original containers for re-use. Following product recovery, flush area with water. Clean surface thoroughly to remove residual contamination.

7. Handling and Storage

**Handling**
Do not smoke. All equipment used when handling the product must be grounded. Do not get this material in contact with eyes. Do not get this material in contact with skin. Avoid breathing dust/fume/gas/mist/vapors/spray. Do not get this material on clothing. Do not use in areas without adequate ventilation. Avoid prolonged exposure. Wash thoroughly after handling. DO NOT handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight.

**Storage**
The pressure in sealed containers can increase under the influence of heat. Keep away from heat and sources of ignition. This material can accumulate static charge which may cause spark and become an ignition source. Prevent electrostatic charge build-up by using common bonding and grounding techniques. Store in a well-ventilated place. Keep container tightly closed. Keep out of the reach of children. Use care in handling/storage. Keep away from food, drink and animal feedingstuffs.

8. Exposure Controls / Personal Protection

**Occupational exposure limits**

<table>
<thead>
<tr>
<th>Material</th>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-AMINOETHANOL (141-43-5)</td>
<td>STEL</td>
<td>6.0000 ppm</td>
</tr>
<tr>
<td></td>
<td>TWA</td>
<td>3.0000 ppm</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Material</th>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-AMINOETHANOL (141-43-5)</td>
<td>PEL</td>
<td>3.0000 ppm</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6.0000 mg/m³</td>
</tr>
</tbody>
</table>

**Engineering controls**
Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

**Personal protective equipment**

**Eye / face protection**
Do not get in eyes. Face-shield. Chemical goggles are recommended. Provide eyewash station and safety shower.
Skin protection
Do not get this material in contact with skin. Do not get this material on clothing. Structural firefighters protective clothing provides limited protection in fire situations ONLY; it is not effective in spill situations. Use chemical splash goggles and face shield (ANSI Z87.1 or approved equivalent). Chemical resistant gloves.

Respiratory protection
Do not breathe dust/fume/gas/mist/vapors/spray. Wear positive pressure self-contained breathing apparatus (SCBA).

General hygiene considerations
Do not get in eyes. Do not get this material in contact with skin. Do not get this material on clothing. When using, do not eat, drink or smoke. Wash hands after handling and before eating. Keep away from food and drink. Handle in accordance with good industrial hygiene and safety practice.

General
Structural firefighters protective clothing provides limited protection in fire situations ONLY; it is not effective in spill situations.

9. Physical & Chemical Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Clear</td>
</tr>
<tr>
<td>Color</td>
<td>Colorless</td>
</tr>
<tr>
<td>Odor</td>
<td>Ammoniacal</td>
</tr>
<tr>
<td>Odor threshold</td>
<td>Not available</td>
</tr>
<tr>
<td>Physical state</td>
<td>Liquid</td>
</tr>
<tr>
<td>Form</td>
<td>Liquid</td>
</tr>
<tr>
<td>pH</td>
<td>12.1 (25% solution)</td>
</tr>
<tr>
<td>Melting point</td>
<td>50 °F (10.3 °C)</td>
</tr>
<tr>
<td>Freezing point</td>
<td>50 °F (10.3 °C)</td>
</tr>
<tr>
<td>Boiling point</td>
<td>339.8 °F (170.8 °C) 101.325 kPa</td>
</tr>
<tr>
<td>Flash point</td>
<td>186 °F (85.6 °C) Closed Cup</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>&lt;= 1 BuAc</td>
</tr>
<tr>
<td>Flammability limits in air, upper, % by volume</td>
<td>23.5</td>
</tr>
<tr>
<td>Flammability limits in air, lower, % by volume</td>
<td>3</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>0.053861 kPa at 25°C</td>
</tr>
<tr>
<td>Vapor density</td>
<td>2.1</td>
</tr>
<tr>
<td>Specific gravity</td>
<td>1.018</td>
</tr>
<tr>
<td>Relative density</td>
<td>Not available</td>
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<tr>
<td>Solubility (water)</td>
<td>Miscible</td>
</tr>
<tr>
<td>Partition coefficient (n-octanol/water)</td>
<td>-1.31</td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>770 °F (410 °C)</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>Not available</td>
</tr>
<tr>
<td>Percent volatile</td>
<td>100 %</td>
</tr>
<tr>
<td>Molecular weight</td>
<td>61.08 g/mol</td>
</tr>
<tr>
<td>Molecular formula</td>
<td>C2-H7-N-O</td>
</tr>
</tbody>
</table>

10. Chemical Stability & Reactivity Information

Chemical stability
Stable at normal conditions. The substance is hygroscopic and will absorb water by contact with the moisture in the air.

Conditions to avoid
Heat, flames and sparks. This product may react with oxidizing agents. Do not mix with other chemicals. Reacts violently with strong acids.

Incompatible materials
Hazardous decomposition products


11. Toxicological Information

**Toxicological data**

<table>
<thead>
<tr>
<th>Product</th>
<th>Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-AMINOETHANOL (141-43-5)</td>
<td>Acute Dermal LD50 Rabbit: 1025 mg/kg</td>
</tr>
<tr>
<td></td>
<td>Acute Oral LD50 Rat: 10.2 g/kg</td>
</tr>
</tbody>
</table>

* Estimates for product may be based on additional component data not shown.

**Acute effects**
Causes burns.

**Local effects**
Irritating to respiratory system.

**Chronic effects**
Hazardous by OSHA criteria. May be harmful if absorbed through skin. Repeated absorption may cause disorder of central nervous system, liver, kidneys and blood. Prolonged exposure may cause chronic effects.

Prolonged or repeated exposure may cause liver and kidney damage. These effects have not been observed in humans.

**Carcinogenicity**
This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.

**Skin corrosion/irritation**
Hazardous by OSHA criteria.

**Epidemiology**
Not available.

**Neurological effects**
Hazardous by OSHA criteria.

**Further information**
Symptoms may be delayed.

12. Ecological Information

**Ecotoxicological data**

<table>
<thead>
<tr>
<th>Product</th>
<th>Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-AMINOETHANOL (141-43-5)</td>
<td>LC50 Rainbow trout,donaldson trout (Oncorhynchus mykiss): 114 mg/l 96.00 hours</td>
</tr>
</tbody>
</table>

* Estimates for product may be based on additional component data not shown.

**Ecotoxicity**
Contains a substance which causes risk of hazardous effects to the environment.

**Environmental effects**
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

**Persistence and degradability**
Not available.

**Partition coefficient (n-octanol/water)**
-1.31

13. Disposal Considerations

**Disposal instructions**
Dispose of this material and its container to hazardous or special waste collection point. Incinerate the material under controlled conditions in an approved incinerator. Dispose in accordance with all applicable regulations.

14. Transport Information

**DOT**

<table>
<thead>
<tr>
<th>Basic shipping requirements:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>UN number</strong></td>
</tr>
<tr>
<td><strong>Proper shipping name</strong></td>
</tr>
<tr>
<td><strong>Hazard class</strong></td>
</tr>
<tr>
<td><strong>Packing group</strong></td>
</tr>
</tbody>
</table>
**15. Regulatory Information**

**US federal regulations**
This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200. All components are on the U.S. EPA TSCA Inventory List.

CERCLA/SARA Hazardous Substances - Not applicable.

**CERCLA (Superfund) reportable quantity**
None

**Superfund Amendments and Reauthorization Act of 1986 (SARA)**

**Hazard categories**
- Immediate Hazard - Yes
- Delayed Hazard - Yes
- Fire Hazard - Yes
- Pressure Hazard - No
- Reactivity Hazard - No

**Section 311 hazardous chemical**
Yes
<table>
<thead>
<tr>
<th>Country(s) or region</th>
<th>Inventory name</th>
<th>On inventory (yes/no)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>Australian Inventory of Chemical Substances (AICS)</td>
<td>Yes</td>
</tr>
<tr>
<td>Canada</td>
<td>Domestic Substances List (DSL)</td>
<td>Yes</td>
</tr>
<tr>
<td>Canada</td>
<td>Non-Domestic Substances List (NDSL)</td>
<td>No</td>
</tr>
<tr>
<td>China</td>
<td>Inventory of Existing Chemical Substances in China (IECSC)</td>
<td>Yes</td>
</tr>
<tr>
<td>Europe</td>
<td>European Inventory of Existing Commercial Chemical Substances (EINECS)</td>
<td>Yes</td>
</tr>
<tr>
<td>Europe</td>
<td>European List of Notified Chemical Substances (ELINCS)</td>
<td>No</td>
</tr>
<tr>
<td>Japan</td>
<td>Inventory of Existing and New Chemical Substances (ENCS)</td>
<td>Yes</td>
</tr>
<tr>
<td>Korea</td>
<td>Existing Chemicals List (ECL)</td>
<td>Yes</td>
</tr>
<tr>
<td>New Zealand</td>
<td>New Zealand Inventory</td>
<td>Yes</td>
</tr>
<tr>
<td>Philippines</td>
<td>Philippine Inventory of Chemicals and Chemical Substances (PICCS)</td>
<td>Yes</td>
</tr>
<tr>
<td>United States &amp; Puerto Rico</td>
<td>Toxic Substances Control Act (TSCA) Inventory</td>
<td>Yes</td>
</tr>
</tbody>
</table>

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

**State regulations**

This product does not contain a chemical known to the State of California to cause cancer, birth defects or other reproductive harm.

**US - Pennsylvania RTK - Hazardous Substances: Listed substance**

2-AMINOETHANOL (CAS 141-43-5) Listed.

**Saf-T-Data**

<table>
<thead>
<tr>
<th>Health</th>
<th>Flammability</th>
<th>Reactivity</th>
<th>Contact</th>
<th>Lab Protective Equip</th>
<th>Storage Color Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 - Severe</td>
<td>2 - Moderate</td>
<td>1 - Slight</td>
<td>4 - Extreme (Corrosive)</td>
<td>DB - GOGGLES &amp; SHIELD; LAB COAT &amp; APRON; VENT HOOD; PROPER GLOVES; CLASS B EXTINGUISHER</td>
<td>W - White (Corrosive)</td>
</tr>
</tbody>
</table>

**16. Labeling Info**

**Label Hazard Warning**

DANGER

Combustible liquid and vapor. Corrosive. Causes skin and eye burns. Harmful if swallowed. May be harmful if absorbed through skin. Irritating to respiratory system. Prolonged exposure may cause chronic effects.

**Label Precautions**

Do not get in eyes, on skin, or on clothing. Do not breathe mist or vapor. Keep container closed. Keep away from heat, sparks and flame. Use only with adequate ventilation. Wash thoroughly after handling.

**Label First Aid**

Immediately flush eyes with plenty of water for at least 15 minutes. Immediately flush skin with plenty of water. If gas/fume/vapor/dust/mist from the material is inhaled, remove the affected person immediately to fresh air. IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. Do not induce vomiting without advice from poison control center. Get medical attention immediately.

**17. Other Information**

**NFPA ratings**

<table>
<thead>
<tr>
<th>Health</th>
<th>Flammability</th>
<th>Instability</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>2</td>
<td>0</td>
</tr>
</tbody>
</table>
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Issue date
01-10-2011