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Material Safety Data Sheet Monoethanolamine MSDS

Section 1: Chemical Product and Company Identification

Product Name: Monoethanolamine

CAS#: 141-43-5

TSCA: TSCA 8(b) inventory: Ethanolamine

CI#: Not applicable.

Synonym: Colamine, Glycinol, Olamine; Ethanolamine; 2-Aminoethanol; 2-Hydroxyethylamine; beta-Ethanolamine; beta-Hydroxyethylamine

Chemical Name: Ethanol 2-amino

Chemical Formula: HOCH₂CH₂NH₂ or C₂H₇N-O

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Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Ethanolamine	141-43-5	100

Toxicological Data on Ingredients: Ethanolamine: ORAL (LD50): Acute: 1720 mg/kg [Rat.]. 700 mg/kg [Mouse]. DERMAL (LD50): Acute: 1000 mg/kg [Rabbit.].

Section 3: Hazards Identification

Potential Acute Health Effects:

Very hazardous in case of eye contact (irritant), of ingestion, . Hazardous in case of skin contact (irritant, permeator), of inhalation (lung irritant). Slightly hazardous in case of skin contact (corrosive), of eye contact (corrosive). Liquid or spray mist may produce tissue damage particularly on mucous membranes of eyes, mouth and respiratory tract. Skin contact may produce burns. Inhalation of the spray mist may produce severe irritation of respiratory tract, characterized by coughing, choking, or shortness of breath. Inflammation of the eye is characterized by redness, watering, and itching.

Potential Chronic Health Effects:

CARCINOGENIC EFFECTS: Not available. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance may be toxic to kidneys, lungs, liver, central nervous system (CNS). Repeated or prolonged exposure to the substance can produce target organs damage. Repeated or prolonged contact with spray mist may produce chronic eye irritation and severe skin irritation. Repeated or prolonged exposure to spray mist may produce respiratory tract irritation leading to frequent attacks of bronchial infection.

Section 4: First Aid Measures

Eye Contact:

Check for and remove any contact lenses. Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Cold water may be used. Get medical attention immediately. Finish by rinsing thoroughly with running water to avoid a possible infection.

Skin Contact:

In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Cover the irritated skin with an emollient. Cold water may be used. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.

Serious Skin Contact:

Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.

Inhalation:

If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

Serious Inhalation:

Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. **WARNING:** It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek immediate medical attention.

Ingestion:

Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt or waistband.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Combustible.

Auto-Ignition Temperature: 410°C (770°F)

Flash Points: CLOSED CUP: 86°C (186.8°F). OPEN CUP: 93.34°C (200°F) (Cleveland).

Flammable Limits: LOWER: 3% UPPER: 23.5%

Products of Combustion: These products are carbon oxides (CO, CO₂), nitrogen oxides (NO, NO₂...).

Fire Hazards in Presence of Various Substances:

Flammable in presence of open flames and sparks, of heat. Non-flammable in presence of shocks.

Explosion Hazards in Presence of Various Substances:

Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.

Fire Fighting Media and Instructions:

SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray, fog or foam. Do not use water jet.

Special Remarks on Fire Hazards: Not available.

Special Remarks on Explosion Hazards: Not available.

Section 6: Accidental Release Measures

Small Spill:

Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container. If necessary: Neutralize the residue with a dilute solution of acetic acid.

Large Spill:

Combustible material. Corrosive liquid. Keep away from heat. Keep away from sources of ignition. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. Do not get water inside container. Do not touch spilled material. Use water spray curtain to divert vapor drift. Prevent entry into sewers, basements or confined areas; dike if needed. Call for assistance on disposal. Neutralize the residue with a dilute solution of acetic acid. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:

Keep container dry. Keep away from heat. Keep away from sources of ignition. Ground all equipment containing material. Do not ingest. Do not breathe gas/fumes/ vapor/spray. Never add water to this product. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. Keep away from incompatibles such as oxidizing agents, acids.

Storage:

Keep container in a cool, well-ventilated area. Keep container tightly closed and sealed until ready for use. Avoid all possible sources of ignition (spark or flame). Sensitive to light. Store in light-resistant containers. Hygroscopic

Section 8: Exposure Controls/Personal Protection

Engineering Controls:

Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Personal Protection:

Face shield. Full suit. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves. Boots.

Personal Protection in Case of a Large Spill:

Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:

TWA: 3 STEL: 5 (ppm) [United Kingdom (UK)] TWA: 3 STEL: 6 (ppm) from ACGIH (TLV) [United States] STEL: 15 (mg/m³) from NIOSH [United States] TWA: 3 STEL: 6 (ppm) from NIOSH [United States] TWA: 3 (ppm) from OSHA (PEL) [United States] TWA: 6 (mg/m³) from OSHA (PEL) [United States] Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Liquid. (Viscous liquid.)

Odor: Ammoniacal. Fish. Unpleasant.

Taste: Not available.

Molecular Weight: 61.08 g/mole

Color: Colorless. Clear

pH (1% soln/water): 10 [Basic.]

Boiling Point: 170.8°C (339.4°F)

Melting Point: 10.3°C (50.5°F)

Critical Temperature: 341°C (645.8°F)

Specific Gravity: 1.018 (Water = 1)

Vapor Pressure: 0.1 kPa (@ 20°C)

Vapor Density: 2.1 (Air = 1)

Volatility: Not available.

Odor Threshold: Not available.

Water/Oil Dist. Coeff.: The product is more soluble in water; $\log(\text{oil/water}) = -1.3$

Ionicity (in Water): Not available.

Dispersion Properties: See solubility in water, methanol, diethyl ether, acetone.

Solubility:

Soluble in cold water, hot water, methanol, acetone. Partially soluble in diethyl ether. Solubility in Benzene @ 25 deg. C: 1.4% Solubility in Ether: 2.1% Solubility in Carbon Tetrachloride: 0.2% Solubility in Heptane: <0.1% Miscible with Chloroform, Glycerin. Immiscible with fixed oils, solvent Hexane. Slightly soluble in Petroleum Ether.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Heat, ignition sources, incompatible materials, light, moisture

Incompatibility with various substances: Reactive with oxidizing agents, acids.

Corrosivity: Highly corrosive in presence of aluminum, of copper.

Special Remarks on Reactivity:

Hygroscopic; keep container tightly closed. Sensitive to light. INCOMPATIBLE WITH: ACETIC ACID, ACETIC ANHYDRIDE, ACROLEIN, ACRYLIC ACID, ACRYLONITRILE, CHLOROSULFONIC ACID, EPICHLOROHYDRIN, HYDROCHLORIC ACID, HYDROFLUORIC ACID, MESITYL OXIDE, NITRIC ACID, OLEUM, PROPIOLACTONE (BETA-), SULFURIC ACID, VINYL ACETATE, HALOGENS.

Special Remarks on Corrosivity: Not available.

Polymerization: Will not occur.

Section 11: Toxicological Information

Routes of Entry: Absorbed through skin. Eye contact. Inhalation. Ingestion.

Toxicity to Animals:

Acute oral toxicity (LD50): 700 mg/kg [Mouse]. Acute dermal toxicity (LD50): 1000 mg/kg [Rabbit].

Chronic Effects on Humans: May cause damage to the following organs: kidneys, lungs, liver, central nervous system (CNS).

Other Toxic Effects on Humans:

Very hazardous in case of ingestion, . Hazardous in case of skin contact (irritant, permeator), of inhalation (lung irritant). Slightly hazardous in case of skin contact (corrosive), of eye contact (corrosive).

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans:

May cause adverse reproductive effects and birth defects (teratogenic) based on animal test data. May affect genetic material (mutagenic)

Special Remarks on other Toxic Effects on Humans:

Acute Potential Health Effects: Skin: Causes moderate skin irritation and possible burns. It can be absorbed through the skin. It may be harmful if absorbed through the skin. Eyes: Causes severe eye irritation and possible eye burns. Inhalation: Causes respiratory tract irritation. May cause shortness of breath and an asthma-like condition. It may also affect behavior/central nervous system (nausea, headache, weakness, dizziness, giddiness, sleepiness, loss of coordination and judgement) Ingestion: May be harmful if swallowed. Causes gastrointestinal tract irritation with nausea, vomiting and

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation:

Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are less toxic than the product itself.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:

Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14: Transport Information

DOT Classification: Class 8: Corrosive material

Identification: : Ethanolamine UNNA: 2491 PG: III

Special Provisions for Transport: Not available.

Section 15: Other Regulatory Information

Federal and State Regulations:

Connecticut hazardous material survey.: Ethanolamine Illinois toxic substances disclosure to employee act: Ethanolamine Rhode Island RTK hazardous substances: Ethanolamine Pennsylvania RTK: Ethanolamine Minnesota: Ethanolamine Massachusetts RTK: Ethanolamine Massachusetts spill list: Ethanolamine New Jersey: Ethanolamine TSCA 8(b) inventory: Ethanolamine

Other Regulations:

OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200). EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

Other Classifications:

WHMIS (Canada):

CLASS B-3: Combustible liquid with a flash point between 37.8°C (100°F) and 93.3°C (200°F). CLASS E: Corrosive liquid.

DSCL (EEC):

R20- Harmful by inhalation. R36/37/38- Irritating to eyes, respiratory system and skin. S26- In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. S28- After contact with skin, wash immediately with plenty of water. S36/37/39- Wear suitable protective clothing, gloves and eye/face protection. S46- If swallowed, seek medical advice immediately and show this container or label.

HMIS (U.S.A.):

Health Hazard: 3

Fire Hazard: 2

Reactivity: 0

Personal Protection: H

National Fire Protection Association (U.S.A.):

Health: 3

Flammability: 2

Reactivity: 0

Specific hazard:

Protective Equipment:

Gloves. Synthetic apron. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Splash goggles.

Section 16: Other Information

References:

-SAX, N.I. Dangerous Properties of Industrial Materials. Toronto, Van Nostrand Reinold, 6e ed. 1984. -Hawley, G.G.. The Condensed Chemical Dictionary, 11e ed., New York N.Y., Van Nostrand Reinold, 1987. -The Sigma-Aldrich Library of Chemical Safety Data, Edition II.

Other Special Considerations: Not available.

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