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ISO 9001: 2015

MATERIAL SAFETY DATA SHEET

1. Identification

1.1 GHS Product identifier

Ethanolamine, 99%

Code E 1345

2. Hazard identification

2.1 Classification of the substance or mixture

Acute toxicity - Oral, Category 4

Acute toxicity - Dermal, Category 4

Skin corrosion, Category 1B

Acute toxicity - Inhalation, Category 4

2.2 GHS label elements, including precautionary statements

Pictogram(s)



Signal word

Danger

Hazard statement(s)

H302 Harmful if swallowed

H312 Harmful in contact with skin

H314 Causes severe skin burns and eye damage

H332 Harmful if inhaled

Precautionary statement(s)

Prevention

P264 Wash ... thoroughly after handling.

P270 Do not eat, drink or smoke when using this product.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P260 Do not breathe dust/fume/gas/mist/vapours/spray.

P261 Avoid breathing dust/fume/gas/mist/vapours/spray.

P271 Use only outdoors or in a well-ventilated area.

Response

P301+P312 IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.

P330 Rinse mouth.

P302+P352 IF ON SKIN: Wash with plenty of water/...

P312 Call a POISON CENTER/doctor if you feel unwell.

P321 Specific treatment (see ... on this label).

P362+P364 Take off contaminated clothing and wash it before reuse.

P301+P330+P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].

P363 Wash contaminated clothing before reuse.

P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P310 Immediately call a POISON CENTER/doctor if you feel unwell.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Storage

P405 Store locked up.

Disposal

P501 Dispose of contents/container to ...

2.3 Other hazards which do not result in classification

none

3. Composition/information on ingredients

3.1 Substances

Chemical name	Common names and synonyms	CAS number	EC number	Concentration
ethanolamine	ethanolamine	141-43-5	none	100%

4. First-aid measures

4.1 Description of necessary first-aid measures

General advice

Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled

Fresh air, rest. Refer for medical attention.

In case of skin contact

Remove contaminated clothes. Rinse skin with plenty of water or shower. Refer for medical attention .

In case of eye contact

First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then refer for medical attention.

If swallowed

Rinse mouth. Give one or two glasses of water to drink. Do NOT induce vomiting. Refer for medical attention .

4.2 Most important symptoms/effects, acute and delayed

Vapor irritates eyes and nose. Liquid causes local injury to mouth, throat, digestive tract, skin, and eyes. (USCG, 1999)

4.3 Indication of immediate medical attention and special treatment needed, if necessary

Immediate first aid: Ensure that adequate decontamination has been carried out. If patient is not breathing, start artificial respiration, preferably with a demand-valve resuscitator, bag-valve-mask device, or pocket mask, as trained. Perform CPR as necessary. Immediately flush contaminated eyes with gently flowing water. Do not induce vomiting. If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain an open airway and prevent aspiration. Keep patient quiet and maintain normal body temperature. Obtain medical attention. /Organic bases/Amines and related compounds/

5. Fire-fighting measures

5.1 Extinguishing media

Suitable extinguishing media

Suitable extinguishing media: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Specific hazards arising from the chemical

Special Hazards of Combustion Products: Irritating vapors generated when heated. (USCG, 1999)

5.3 Special protective actions for fire-fighters

Wear self-contained breathing apparatus for firefighting if necessary.

6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation.

Evacuate personnel to safe areas. Avoid breathing dust. For personal protection see section 8.

6.2 Environmental precautions

Personal protection: filter respirator for organic gases and vapours adapted to the airborne concentration of the substance. Collect leaking and spilled liquid in sealable containers as far as possible. Cautiously neutralize spilled liquid. Then wash away with plenty of water.

6.3 Methods and materials for containment and cleaning up

Accidental release measures. Personal precautions, protective equipment and emergency procedures: Use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.; Environmental precautions: Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.; Methods and materials for containment and cleaning up: Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations ... Keep in suitable, closed containers for disposal.

7. Handling and storage

7.1 Precautions for safe handling

Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Avoid exposure - obtain special instructions before use. Provide appropriate exhaust ventilation at places where dust is formed. For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Separated from strong oxidants, strong acids, aluminium and food and feedstuffs. Dry. Ventilation along the floor. Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Hygroscopic. Handle and store under inert gas.

8. Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure limit values

Recommended Exposure Limit: 10 Hr Time-Weighted Avg: 3 ppm (8 mg/cu m).

Recommended Exposure Limit: 15 Min Short-Term Exposure Limit: 6 ppm (15 mg/cu m).

Biological limit values

no data available

8.2 Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

8.3 Individual protection measures, such as personal protective equipment (PPE)

Eye/face protection

Safety glasses with side-shields conforming to EN166. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection

Wear impervious clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace. Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands. The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

Respiratory protection

Wear dust mask when handling large quantities.

Thermal hazards

no data available

9. Physical and chemical properties

Physical state	clear liquid
Colour	Colorless, viscous liquid or solid (below 51 deg F)
Odour	Unpleasant, ammonia-like
Melting point/ freezing point	140\u00b0C(lit.)
Boiling point or initial boiling point and boiling range	170\u00b0C(lit.)
Flammability	Class IIIA Combustible Liquid: F.I.P. at or above 60\u00b0C and below 93.33\u00b0C. Combustible. Gives off irritating or toxic fumes (or gases) in a fire.
Lower and upper explosion limit / flammability limit	Lower flammable limit: 3.0% by volume; Upper flammable limit: 23.5% by volume at 140\u00b0C
Flash point	91\u00b0C
Auto-ignition temperature	780\u00b0C
Decomposition temperature	no data available
pH	25% aqueous solution: 12.1; 0.1 N aqueous solution: 12.05
Kinematic viscosity	18.95 cP at 25\u00b0C; 5.03 cP at 60\u00b0C
Solubility	In water: miscible
Partition coefficient n-octanol/water (log value)	no data available
Vapour pressure	0.2 mm Hg (20 \u00b0C)
Density and/or relative density	1.012g/mL at 25\u00b0C(lit.)
Relative vapour density	2.1 (vs air)
Particle characteristics	no data available

10. Stability and reactivity

10.1 Reactivity

no data available

10.2 Chemical stability

Chemical stability: Absorbs carbon dioxide (CO₂) from air. Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

Combustible liquid. ETHANOLAMINE is a base. Reacts with organic acids (acetic acid, acrylic acid), inorganic acids (hydrochloric acid, hydrofluoric acid, nitric acid, sulfuric acid, chlorosulfonic acid), acetic anhydride, acrolein, acrylonitrile, cellulose, epichlorohydrin, mesityl oxide, beta-propiolactone, vinyl acetate. Emits toxic fumes of nitrogen oxides when heated to decomposition [Sax, 9th ed., 1996, p. 1498].

10.4 Conditions to avoid

no data available

10.5 Incompatible materials

Incompatible materials: Strong acids and oxidizing agents, iron, copper, brass, rubber.

10.6 Hazardous decomposition products

When heated to decomposition it emits toxic fumes of /nitrogen oxides/.

11. Toxicological information

Acute toxicity

Oral: LD50 Guinea pig oral 620 mg/kg body weight

Inhalation: no data available

Dermal: no data available

Skin corrosion/irritation

no data available

Serious eye damage/irritation

no data available

Respiratory or skin sensitization

no data available

Germ cell mutagenicity

no data available

Carcinogenicity

no data available

Reproductive toxicity

no data available
STOT-single exposure
no data available
STOT-repeated exposure
no data available
Aspiration hazard
no data available

12. Ecological information

12.1 Toxicity

Toxicity to fish: LC50; Species: *Lepomis macrochirus* (Bluegill); Concentration: >375 mg/L for 24 hr /Conditions of bioassay not specified in source examined

Toxicity to daphnia and other aquatic invertebrates: LC50; Species: *Daphnia magna* (Water flea); Conditions: static; Concentration: 140 mg/L for 24 hr

Toxicity to algae: no data available

Toxicity to microorganisms: no data available

12.2 Persistence and degradability

AEROBIC: 2-Aminoethanol, present at 100 mg/L, reached 49.2% (nitrogen dioxide end product) and 93.6% (ammonia end product) of its theoretical BOD in 2 weeks using an activated sludge inoculum at 30 ppm in the Japanese MITI test(1). 2-Aminoethanol achieved 91.8% biodegradation after 28 days in a OECD Guideline 301B Sturm Test and 93.4% after 22 days in a Sealed vessel test(2). 2-Aminoethanol, present at 10 ppm, reached 34% of its theoretical BOD in 5 days and 40% of its theoretical BOD in 20 days using a sewage inoculum(3). Other screening studies using a sewage inoculum gave similar results: 2.5 ppm test concentration, 5 day, 61-84% theoretical BOD(4); test concentration not specified, 10 day, 65% theoretical BOD(5); test concentration not specified, 5 day, 71% theoretical BOD, and 98% COD removal(6); 2.5 ppm test concentration, 5, 10, 20 and 50 days - 0, 58.4, 64, 75% theoretical BOD, respectively(7). In a Modified OECD Screening test, 2-aminoethanol, present at 20 mg/L, achieved 94% after 28 days using fresh inoculum and 99% after 28 days using preconditioned inoculum. In the Modified Sturm tests, 2-aminoethanol reached 97% DOC and 92% of its theoretical CO₂ in 28 days using fresh inoculum; the compound also reached 96% DOC and 62% of its theoretical CO₂ after 28 days using preconditioned inoculum(8). Using an activated sludge inoculum and the Closed Bottle, CO₂ Evolution, and MITI tests, 2-aminoethanol starting concentrations of 7.64, 25.4, 76.4, and 100 mg/L exhibited 64.4, 91.4, and 71.2% O₂ consumption, respectively, after 28 days; all tests had a lag time of approximately 5 days(9). Using an activated sludge inoculum and the Manometric Respirometry test, 2-aminoethanol starting concentration of 76.4 mg/L exhibited 83.0% O₂ consumption, after 28 days with a lag time of approximately 5 days(9).

12.3 Bioaccumulative potential

An estimated BCF of 3.2 was calculated in fish for 2-aminoethanol(SRC), using a log K_{ow} of -1.31(1) and a regression-derived equation(2). According to a classification scheme(3), this BCF suggests the potential for bioconcentration in aquatic organisms is low(SRC). [

12.4 Mobility in soil

The K_{oc} of 2-aminoethanol is estimated as 0.59(SRC), using a log K_{ow} of -1.31(1) and a regression-derived equation(2). According to a classification scheme(3), this estimated K_{oc} value suggests that 2-aminoethanol is expected to have very high mobility in soil. Adsorption can be affected by the acidity of the soil(SRC). The pK_a of 2-aminoethanol is 9.5(4), indicating that this compound will exist almost entirely in the cation form in the environment and cations generally adsorb more strongly to soils containing organic carbon and clay than their neutral counterparts(5).

12.5 Other adverse effects

no data available

13. Disposal considerations

13.1 Disposal methods

Product

The material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing. Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.

Contaminated packaging

Containers can be triply rinsed (or equivalent) and offered for recycling or reconditioning. Alternatively, the packaging can be punctured to make it unusable for other purposes and then be disposed of in a sanitary landfill. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.

14. Transport information

14.1 UN Number

ADR/RID: UN2491 IMDG: UN2491 IATA: UN2491

14.2 UN Proper Shipping Name

ADR/RID: ETHANOLAMINE or ETHANOLAMINE SOLUTION

IMDG: ETHANOLAMINE or ETHANOLAMINE SOLUTION

IATA: ETHANOLAMINE or ETHANOLAMINE SOLUTION

14.3 Transport hazard class(es)

ADR/RID: 8 IMDG: 8 IATA: 8

14.4 Packing group, if applicable

ADR/RID: III IMDG: III IATA: III

14.5 Environmental hazards

ADR/RID: no IMDG: no IATA: no

14.6 Special precautions for user

no data available

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
no data available

15. Regulatory information

15.1 Safety, health and environmental regulations specific for the product in question

Chemical name	Common names and synonyms	CAS number	EC number
ethanolamine	ethanolamine	141-43-5	none
European Inventory of Existing Commercial Chemical Substances (EINECS)			Listed.
EC Inventory			Listed.
United States Toxic Substances Control Act (TSCA) Inventory			Listed.
China Catalog of Hazardous chemicals 2015			Listed.
New Zealand Inventory of Chemicals (NZIoC)			Listed.
Philippines Inventory of Chemicals and Chemical Substances (PICCS)			Listed.
Vietnam National Chemical Inventory			Listed.
Chinese Chemical Inventory of Existing Chemical Substances (China IECSC)			Listed.

Section 16: Other Information

This safety data sheet should be used in conjunction with technical sheets. It does not replace them. The information given is based on our knowledge of this product, at the time of publication. It is given in good faith. The attention of the user is drawn to the possible risks incurred by using the product for any other purpose other than that for which it was intended. This does not in any way excuse the user from knowing and applying all the regulations governing his activity. It is the sole responsibility of the user to take all precautions required in handling the product. The aim of the mandatory regulations mentioned is to help the user to fulfill his obligations regarding the use of hazardous products.

