

SAFETY DATA SHEETS

According to the UN GHS revision 9

Version: 1.0
Creation Date: July 15, 2019
Revision Date: July 15, 2019

SECTION 1: Identification

1.1 GHS Product identifier

Product name 2-aminoethanol

1.2 Other means of identification

Product number -
Other names Ethanolamine; amino-2-butanol; mono-sec-butanolamine

1.3 Recommended use of the chemical and restrictions on use

Identified uses Industrial and scientific research use.
Uses advised against no data available

1.4 Supplier's details

Company Shanghai Yansheng Internet Technology Co., Ltd
Address 513, A3 / F, green space future center, Fengxian District, Shanghai, 201400, China
Telephone +86-4000-6969-66

1.5 Emergency phone number

Emergency phone number +86-4000-6969-66
Service hours Monday to Friday, 9am-5pm (Standard time zone: UTC/GMT +8 hours).

SECTION 2: Hazard identification

2.1 Classification of the substance or mixture

Acute toxicity - Category 4, Oral
Acute toxicity - Category 4, Dermal
Skin corrosion, Sub-category 1B
Acute toxicity - Category 4, Inhalation

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.

Response	<p>P270 Do not eat, drink or smoke when using this product.</p> <p>P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/...</p> <p>P260 Do not breathe dust/fume/gas/mist/vapours/spray.</p> <p>P261 Avoid breathing dust/fume/gas/mist/vapours/spray.</p> <p>P271 Use only outdoors or in a well-ventilated area.</p> <p>P301+P317 IF SWALLOWED: Get medical help.</p> <p>P330 Rinse mouth.</p> <p>P302+P352 IF ON SKIN: Wash with plenty of water/...</p> <p>P317 Get medical help.</p> <p>P321 Specific treatment (see ... on this label).</p> <p>P362+P364 Take off contaminated clothing and wash it before reuse.</p> <p>P301+P330+P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.</p> <p>P363 Wash contaminated clothing before reuse.</p> <p>P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.</p> <p>P316 Get emergency medical help immediately.</p> <p>P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.</p>
Storage	P405 Store locked up.
Disposal	P501 Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

2.3 Other hazards which do not result in classification

no data available

SECTION 3: Composition/information on ingredients

3.1 Substances

Chemical name	Common names and synonyms	CAS number	EC number	Concentration
2-aminoethanol	2-aminoethanol	141-43-5	205-483-3	100%

SECTION 4: First-aid measures

4.1 Description of necessary first-aid measures

If inhaled

Fresh air, rest. Refer for medical attention.

Following skin contact

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

Following eye contact

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

Following ingestion

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/

SECTION 5: Fire-fighting measures

5.1 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

Use water spray, powder, alcohol-resistant foam, carbon dioxide.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

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.

6.2 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.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

NO open flames. Above 85°C use a closed system and ventilation. Handling in a well ventilated place. Wear suitable protective clothing. Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Use non-sparking tools. Prevent fire caused by electrostatic discharge steam.

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.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure limit values

TLV: 3 ppm as TWA; 6 ppm as STEL.MAK: 0.51 mg/m³, 0.2 ppm; peak limitation category: I(1); sensitization of skin (SH); pregnancy risk group: C.EU-OEL: 2.5 mg/m³, 1 ppm as TWA; 7.6 mg/m³, 3 ppm as STEL; (skin)

Biological limit values

no data available

8.2 Appropriate engineering controls

Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Set up emergency exits and the risk-elimination area.

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

Eye/face protection

Wear face shield or eye protection in combination with breathing protection.

Skin protection

Protective gloves. Protective clothing.

Respiratory protection

Use ventilation, local exhaust or breathing protection.

Thermal hazards

no data available

SECTION 9: Physical and chemical properties and safety characteristics

Physical state	Liquid. Viscous.
Colour	Colorless, viscous liquid or solid (below 51 deg F)
Odour	Unpleasant, ammonia-like
Melting point/freezing point	Ca. 10.3 °C.
Boiling point or initial boiling point and boiling range	Ca. 170.8 °C. Atm. press.:Ca. 1 atm.
Flammability	Class IIIA Combustible Liquid: Fl.P. at or above 140°F and below 200°F.
Lower and upper explosion limit/flammability limit	Lower flammable limit: 3.0% by volume; Upper flammable limit: 23.5% by volume at 140 deg C
Flash point	Ca. 86 °C. Atm. press.:Ca. 1 013 hPa.
Auto-ignition temperature	Ca. 410 °C. Atm. press.:Ca. 1 atm.
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 deg C; 5.03 cP at 60 deg C
Solubility	Miscible with water
Partition coefficient n-octanol/water	log Pow = Ca. -1.31. Temperature:25 °C. Remarks:No information on pH value.
Vapour pressure	Ca. 0.404 mm Hg. Temperature:Ca. 25 °C.
Density and/or relative density	Ca. 1.018 g/cm ³ . Temperature:20 °C.
Relative vapour density	2.1 (vs air)
Particle characteristics	no data available

SECTION 10: Stability and reactivity

10.1 Reactivity

Decomposes on heating and on burning. This produces toxic and corrosive gases including nitrogen oxides. The substance is a medium strong base. Reacts with cellulose nitrate. This generates fire and explosion hazard. Reacts violently with strong acids and strong oxidants. Attacks copper, aluminium, their alloys and rubber.

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/.

SECTION 11: Toxicological information

Acute toxicity

- Oral: LD₅₀ - rat (male/female) - ca. 1 515 mg/kg bw. Remarks:Ca. 1500 ml/kg bw (calculated with a specific density of 1.01 g/ml).
- 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

The substance is corrosive to the respiratory tract, skin and eyes. Corrosive on ingestion. The vapour is irritating to the eyes, skin and respiratory tract. The substance may cause effects on the central nervous system. Exposure could cause lowering of consciousness.

STOT-repeated exposure

Repeated or prolonged contact may cause skin sensitization.

Aspiration hazard

A harmful contamination of the air will be reached rather slowly on evaporation of this substance at 20°C; on spraying or dispersing, however, much faster.

SECTION 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: EC50 - *Daphnia magna* - 65 mg/L - 48 h.
- Toxicity to algae: EC50 - *Pseudokirchneriella subcapitata* (previous names: *Raphidocelis subcapitata*, *Selenastrum capricornutum*) - ca. 2.5 mg/L - 72 h.
- 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

SECTION 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.

SECTION 14: Transport information

14.1 UN Number

ADR/RID: UN2491 (For reference only, please check.) IMDG: UN2491 (For reference only, please check.) IATA: UN2491 (For reference only, please check.)

14.2 UN Proper Shipping Name

ADR/RID: ETHANOLAMINE or ETHANOLAMINE SOLUTION (For reference only, please check.) IMDG: ETHANOLAMINE or ETHANOLAMINE SOLUTION (For reference only, please check.) IATA: ETHANOLAMINE or ETHANOLAMINE SOLUTION (For reference only, please check.)

14.3 Transport hazard class(es)

ADR/RID: 8 (For reference only, please check.) IMDG: 8 (For reference only, please check.) IATA: 8 (For reference only, please check.)

14.4 Packing group, if applicable

ADR/RID: III (For reference only, please check.) IMDG: III (For reference only, please check.) IATA: III (For reference only, please check.)

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 IMO instruments

no data available

SECTION 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
2-aminoethanol	2-aminoethanol	141-43-5	205-483-3
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			Listed.

(China IECSC)	
Korea Existing Chemicals List (KECL)	Listed.

SECTION 16: Other information

Information on revision

Creation Date July 15, 2019
Revision Date July 15, 2019

Abbreviations and acronyms

- CAS: Chemical Abstracts Service
- ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road
- RID: Regulation concerning the International Carriage of Dangerous Goods by Rail
- IMDG: International Maritime Dangerous Goods
- IATA: International Air Transportation Association
- TWA: Time Weighted Average
- STEL: Short term exposure limit
- LC50: Lethal Concentration 50%
- LD50: Lethal Dose 50%
- EC50: Effective Concentration 50%

References

- IPCS - The International Chemical Safety Cards (ICSC), website: <http://www.ilo.org/dyn/icsc/showcard.home>
- HSDB - Hazardous Substances Data Bank, website: <https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm>
- IARC - International Agency for Research on Cancer, website: <http://www.iarc.fr/>
- eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website: http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en
- CAMEO Chemicals, website: <http://cameochemicals.noaa.gov/search/simple>
- ChemIDplus, website: <http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp>
- ERG - Emergency Response Guidebook by U.S. Department of Transportation, website: <http://www.phmsa.dot.gov/hazmat/library/erg>
- Germany GESTIS-database on hazard substance, website: <http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp>
- ECHA - European Chemicals Agency, website: <https://echa.europa.eu/>

Other Information

Depending on the degree of exposure, periodic medical examination is suggested. The odour warning when the exposure limit value is exceeded is insufficient. Do NOT take working clothes home.

Any questions regarding this SDS, Please send your inquiry to sds@xixisys.com

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