



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 Amitrole

1.2 Other means of identification

Product number -

Other names Emisol; Triazol-3-amine; Cytrol

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 Yien Chemical Technology Co., Ltd
Address Building 6, 28 Yingong Road, Fengxian District, Shanghai
Chemical Industry Zone, Shanghai, 201400, China
Telephone +86-400-133-2688

1.5 Emergency phone number

Emergency phone number +86-400-133-2688

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

Specific target organ toxicity – repeated exposure, Category 2
Hazardous to the aquatic environment, long-term (Chronic) - Category Chronic 2
Reproductive toxicity, Category 2

2.2 GHS label elements, including precautionary statements

Pictogram(s)



Signal word

Hazard statement(s) Warning
H373 May cause damage to organs through prolonged or repeated exposure
H411 Toxic to aquatic life with long lasting effects

Precautionary statement(s)

Prevention	P260 Do not breathe dust/fume/gas/mist/vapours/spray. P273 Avoid release to the environment. P203 Obtain, read and follow all safety instructions before use. P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/...
Response	P319 Get medical help if you feel unwell. P391 Collect spillage. P318 IF exposed or concerned, get medical advice.
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
Amitrole	Amitrole	61-82-5	200-521-5	100%

SECTION 4: First-aid measures

4.1 Description of necessary first-aid measures

If inhaled

Fresh air, rest.

Following skin contact

Remove contaminated clothes. Rinse skin with plenty of water or shower.

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. Refer for medical attention .

4.2 Most important symptoms/effects, acute and delayed

Exposure Routes: inhalation, ingestion, skin and/or eye contact Symptoms: Irritation eyes, skin; dyspnea (breathing difficulty), muscle spasms, ataxia, anorexia, salivation, increased body temperature; lassitude (weakness, exhaustion), skin dryness, depression (thyroid function suppression) Target Organs: Eyes, skin, thyroid (NIOSH, 2016)

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

Basic treatment: Establish a patent airway. Suction if necessary. Watch for signs of respiratory insufficiency and assist ventilations if needed. Administer oxygen by nonrebreather mask at 10 to 15 L/min. Monitor for pulmonary edema and treat if necessary . Monitor for shock and treat if necessary . Anticipate seizures and treat if necessary . For eye contamination, flush eyes immediately with water. Irrigate each eye continuously with normal saline during transport . Do not use emetics. For ingestion, rinse mouth and administer 5 ml/kg up to 200 ml of water for dilution if the patient can swallow, has a strong gag reflex, and does not drool . Cover skin burns with dry sterile dressings after decontamination . Poison A and B

SECTION 5: Fire-fighting measures

5.1 Suitable extinguishing media

Fires involving this chemical can be controlled with a dry chemical, carbon dioxide or Halon extinguisher. A water spray may also be used. (NTP, 1992)

5.2 Specific hazards arising from the chemical

Literature sources indicate that this compound is non-combustible. (NTP, 1992)

5.3 Special protective actions for fire-fighters

Use water spray, foam, powder, carbon dioxide.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal protection: particulate filter respirator adapted to the airborne concentration of the substance. Do NOT let this chemical enter the environment. Sweep spilled substance into covered sealable, plastic containers. If appropriate, moisten first to prevent dusting. Carefully collect remainder. Then store and dispose of according to local regulations.

6.2 Environmental precautions

Personal protection: particulate filter respirator adapted to the airborne concentration of the substance. Do NOT let this chemical enter the environment. Sweep spilled substance into covered sealable, plastic containers. If appropriate, moisten first to prevent dusting. Carefully collect remainder. Then store and dispose of according to local regulations.

6.3 Methods and materials for containment and cleaning up

PRECAUTIONS FOR "CARCINOGENS": A high-efficiency particulate arrestor (HEPA) or charcoal filters can be used to minimize amt of carcinogen in exhausted air ventilated safety cabinets, lab hoods, glove boxes or animal rooms ... Filter housing that is designed so that used filters can be transferred into plastic bag without contaminating maintenance staff is avail commercially. Filters should be placed in plastic bags immediately after removal . The plastic bag should be sealed immediately . The sealed bag should be labelled properly . Waste liquids ... should be placed or collected in proper containers for disposal. The lid should be secured & the bottles properly labelled. Once filled, bottles should be placed in plastic bags, so that outer surface ... is not contaminated . The plastic bag should also be sealed & labelled. ... Broken glassware ... should be decontaminated by solvent extraction, by chemical destruction, or in specially designed incinerators. Chemical Carcinogens

SECTION 7: Handling and storage

7.1 Precautions for safe handling

NO open flames. 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

Store in an area without drain or sewer access. Separated from strong acids, strong oxidants, acid anhydrides and acid chlorides. Do NOT store or transport in containers made from iron, aluminium or copper and its alloys. Separated from food and feedstuffs. Store at room temperature

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure limit values

TLV: 0.2 mg/m³, as TWA; A3 (confirmed animal carcinogen with unknown relevance to humans). MAK: (inhalable fraction): 0.2 mg/m³; peak limitation category: II(8); skin absorption (H); carcinogen category: 4; pregnancy risk group: C. EU-OEL: 0.2 mg/m³ as TWA

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 if powder.

Skin protection

Protective gloves. Protective clothing.

Respiratory protection

Avoid inhalation of dust and aerosol.

Thermal hazards

no data available

SECTION 9: Physical and chemical properties and safety characteristics

Physical state	PHYSICAL DESCRIPTION: Odorless white crystals or white powder. Bitter taste. Melting point 147-159°C. Sublimes undecomposed at reduced pressure. Used as a post-emergence herbicide.
Colour	Transparent to off white crystalline powder
Odour	Odorless when pure.
Melting point/freezing point	400°C(lit.)
Boiling point or initial boiling point and boiling range	155°C/4mmHg(lit.)
Flammability	Noncombustible Solid, but may be dissolved in flammable liquids.
Lower and upper explosion limit/flammability limit	no data available
Flash point	32°C(lit.)
Auto-ignition temperature	no data available
Decomposition temperature	no data available
pH	FORMS NEUTRAL AQ SOLN BUT ACTS AS WEAK BASE WITH KB OF 1X10-10
Kinematic viscosity	no data available
Solubility	7.6 [ug/mL]
Partition coefficient n-octanol/water	log Kow= -0.97
Vapour pressure	4.41e-07 mm Hg at 68° F (NTP, 1992)
Density and/or relative density	1.138
Relative vapour density	(air = 1): 2.9
Particle characteristics	no data available

SECTION 10: Stability and reactivity

10.1 Reactivity

NIOSH considers amitrole to be a potential occupational carcinogen. Decomposes on heating and on burning. This produces toxic fumes of nitrogen oxides. The substance is a weak base. Reacts violently with strong acids, strong oxidants, acid chlorides

and acid anhydrides. This generates fire and explosion hazard.

10.2 Chemical stability

No shelf life limitations

10.3 Possibility of hazardous reactions

Aqueous, nonflammable, as amitrol-t; dry powder, non-flammable, as amizol. Dust explosion possible if in powder or granular form, mixed with air. AMITROLE is a triazole derivative. The triazoles are a group that contain several derivatives that are highly explosive materials. They are sensitive to heat, friction, and impact. Sensitivity varies with the type substitution to the triazole ring. Metal chelated and halogen substitution of the triazole ring make for a particularly heat sensitive material. Azido and nitro derivatives have been employed as high explosives. No matter the derivative these materials should be treated as explosives. AMITROLE forms chelates with some metals. It is corrosive to iron, copper and aluminum. Forms salts with most acids and alkalis. This compound is incompatible with strong oxidizers, strong acids, acid chlorides and acid anhydrides (NTP, 1992).

10.4 Conditions to avoid

no data available

10.5 Incompatible materials

Light (decomposes), strong oxidizers [Note: Corrosive to iron, aluminum & copper].

10.6 Hazardous decomposition products

When strongly heated it emits highly toxic fumes of /nitrogen oxides/.

SECTION 11: Toxicological information

Acute toxicity

- Oral: LD50 Mouse oral 14.7 g/kg
- Inhalation: LC50 Mouse inhalation 439 mg/cu m/4 hr
- Dermal: LD50 Rat percutaneous >2500 mg/kg

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

Cancer Classification: Group B2 Probable Human Carcinogen

Reproductive toxicity

no data available

STOT-single exposure

The substance is mildly irritating to the eyes and skin.

STOT-repeated exposure

Tumours have been detected in experimental animals but may not be relevant to humans.

Aspiration hazard

A nuisance-causing concentration of airborne particles can be reached on spraying.

SECTION 12: Ecological information

12.1 Toxicity

- Toxicity to fish: LC50 /Pimephales promelas/ (Fathead minnow, weight 1.2 g) >100 mg/L/96 hr at 18 deg C. /static conditions without aeration
- Toxicity to daphnia and other aquatic invertebrates: EC50 Daphnia magna (Water flea; intoxication, immobilization) 30 ppm/48 hr; static /formulated product
- Toxicity to algae: no data available
- Toxicity to microorganisms: no data available

12.2 Persistence and degradability

Whatever the mechanism whereby triazole ring is opened, there appears to be little doubt that ring opening does occur rapidly in soils & resulting products (urea, cyanamid, & nitrogen) should be readily metabolized by soil microorganisms.

12.3 Bioaccumulative potential

Carp exposed to 2 and 0.2 mg/L 2-amino-1,3,4-triazole over a 6 week incubation period had reported BCF values of <0.3 and <3, respectively(1). According to a classification scheme(2), these BCF values suggest bioconcentration in aquatic organisms is low(SRC).

12.4 Mobility in soil

Based on batch equilibrium experiments, 2-amino-1,3,4-triazole (dissolved in 1% sodium azide solutions) was determined to be mobile in silty clay, sandy loam, sand, and silt soils, with Freundlich Kf values of 0.152-0.922 ml/g(1). Freundlich Kf values were 0.714 (1/n = 0.7671) for the silty clay soil, 0.223 (1/n = 0.8549) for the sandy loam soil, 0.152 (1/n = 0.8722) for the sand soil, and 0.922 (1/n = 0.8590) for the silt soil; corresponding Koc values were 11.6, 29.7, 20.2, and 51.2, respectively(1). 2-Amino-1,3,4-triazole was mobile in these same soils when the soils were acidified to approximately pH 4.5; Freundlich Kf values ranged from 0.575-2.28. In another batch equilibrium study, 2-amino-1,3,4-triazole was determined to be mobile in Plainsfield sand (Kf = 0.685, 1/n = 0.7975), California sandy loam (Kf = 3.52, 1/n = 0.6487), Kewaunee silty clay loam (K = 1.57, 1/n = 0.8563), and Plano silt loam (Kf = 3.79, 1/n = 0.7739) soils(1). No discernible correlation between adsorption and either organic carbon content or CEC of the soils was observed(1). According to a classification scheme(2), these Koc values suggests that 2-amino-1,3,4-triazole is expected to have very high to high mobility in soil(SRC).

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: UN3077 (For reference only, please check.)

IMDG: UN3077 (For reference only, please check.)

IATA: UN3077 (For reference only, please check.)

14.2 UN Proper Shipping Name

ADR/RID: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (For reference only, please check.)	IMDG: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (For reference only, please check.)	IATA: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (For reference only, please check.)
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14.3 Transport hazard class(es)

ADR/RID: 9 (For reference only, please check.)	IMDG: 9 (For reference only, please check.)	IATA: 9 (For reference only, please check.)
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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.)
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14.5 Environmental hazards

ADR/RID: Yes	IMDG: Yes	IATA: Yes
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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
Amitrole	Amitrole	61-82-5	200-521-5
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			Not 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.
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

Insufficient data are available on the effect of this substance on human health, therefore utmost care must be taken. Do NOT take working clothes home.

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

Disclaimer: The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. We as supplier shall not be held liable for any damage resulting from handling or from contact with the above product.