

SAFETY DATA SHEETS

According to the UN GHS revision 9

Version: 1.0
Creation Date: July 15, 2019
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SECTION 1: Identification

1.1 GHS Product identifier

Product name Bromoethylene

1.2 Other means of identification

Product number -

Other names Vinyl bromide; cis-vinyl bromide; Ethene, bromo-

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

Gases under pressure: Compressed gas
Flammable gases, Category 1A, Flammable gas
Carcinogenicity, Category 1B

2.2 GHS label elements, including precautionary statements

Pictogram(s)



Signal word

Danger

Hazard statement(s)

H220 Extremely flammable gas
H350 May cause cancer

Precautionary statement(s)

Prevention

P210 Keep away from heat, hot surfaces, sparks, open flames

Response	and other ignition sources. No smoking. P203 Obtain, read and follow all safety instructions before use. P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/...
Storage	P377 Leaking gas fire: Do not extinguish, unless leak can be stopped safely. P381 In case of leakage, eliminate all ignition sources. P318 IF exposed or concerned, get medical advice. P410+P403 Protect from sunlight. Store in a well-ventilated place. P403 Store in a well-ventilated place. 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
Bromoethylene	Bromoethylene	593-60-2	209-800-6	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

ON FROSTBITE: rinse with plenty of water, do NOT remove clothes.

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

Give one or two glasses of water to drink. Refer for medical attention .

4.2 Most important symptoms/effects, acute and delayed

Excerpt from ERG Guide 116P [Gases - Flammable (Unstable)]: Vapors may cause dizziness or asphyxiation without warning. Some may be toxic if inhaled at high concentrations. Contact with gas or liquefied gas may cause burns, severe injury and/or frostbite. Fire may produce irritating and/or toxic gases. (ERG, 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 necessary. 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. Administer activated charcoal . Cover skin burns with dry sterile dressings after decontamination . Bromine, methyl bromide, and related compounds

SECTION 5: Fire-fighting measures

5.1 Suitable extinguishing media

To fight fire, use /carbon dioxide/, dry chemical, or water spray.

5.2 Specific hazards arising from the chemical

Excerpt from ERG Guide 116P [Gases - Flammable (Unstable)]: EXTREMELY FLAMMABLE. Will be easily ignited by heat, sparks or flames. Will form explosive mixtures with air. Silane (UN2203) will ignite spontaneously in air. Those substances designated with a (P) may polymerize explosively when heated or involved in a fire. Vapors from liquefied gas are initially heavier than air and spread along ground. Vapors may travel to source of ignition and flash back. Cylinders exposed to fire may vent and release flammable gas through pressure relief devices. Containers may explode when heated. Ruptured cylinders may rocket. (ERG, 2016)

5.3 Special protective actions for fire-fighters

Use water spray, foam, carbon dioxide. In case of fire: keep cylinder cool by spraying with water.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Evacuate danger area! Personal protection: chemical protection suit including self-contained breathing apparatus. Ventilation. Remove all ignition sources. NEVER direct water jet on liquid. Remove fumes with fine water spray. Do NOT wash away into sewer.

6.2 Environmental precautions

Evacuate danger area! Personal protection: chemical protection suit including self-contained breathing apparatus. Ventilation. Remove all ignition sources.

6.3 Methods and materials for containment and cleaning up

PRECAUTIONS FOR "CARCINOGENS": A high-efficiency particulate arrester (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 bag, 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, NO sparks and NO smoking. Closed system, ventilation, explosion-proof electrical equipment and lighting. 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

Fireproof. Cool. Keep in a well-ventilated room. Separated from oxidants. Store only if stabilized. Keep container in a well-ventilated place.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure limit values

TLV: 0.5 ppm as TWA; A2 (suspected human carcinogen).EU-OEL: 4.4 mg/m³, 1 ppm 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 safety goggles or eye protection in combination with breathing protection.

Skin protection

Cold-insulating 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	Boiling point 60°F. Liquid at low ambient temperatures. Specific gravity 1.51. A suspected carcinogen. Under exposure to fire or heat containers may rupture violently and rocket.
Colour	Gas under normal atmospheric conditions, colorless liquid under pressure
Odour	Characteristic pungent odor
Melting point/freezing point	-139°C
Boiling point or initial boiling point and boiling range	16°C
Flammability	Flammable Gas
Lower and upper explosion limit/flammability limit	Lower Flammable limit: 9% by vol, higher flammable limit: 15% by vol
Flash point	5°C
Auto-ignition temperature	882° F (NTP, 1992)
Decomposition temperature	no data available
pH	no data available
Kinematic viscosity	0.2393 cSt
Solubility	Insoluble (NTP, 1992)
Partition coefficient n-octanol/water	log Kow= 1.57
Vapour pressure	1551 mm Hg (37.8 °C)
Density and/or relative density	1.4933
Relative vapour density	3.8 (15 °C, vs air)
Particle characteristics	no data available

SECTION 10: Stability and reactivity

10.1 Reactivity

NIOSH considers vinyl bromide to be a potential occupational carcinogen. Reacts violently with oxidants. Decomposes on burning. This produces toxic gases. The substance polymerizes under the influence of heat and light.

10.2 Chemical stability

no data available

10.3 Possibility of hazardous reactions

A VERY DANGEROUS FIRE HAZARD WHEN EXPOSED TO HEAT OR FLAME. The vapour is heavier than air. VINYL BROMIDE is a light sensitive, peroxidizable monomer may initiate exothermic polymerization of the bulk material [Handling Chemicals Safely 1980.. p. 958]. It will react violently with oxidants.

10.4 Conditions to avoid

no data available

10.5 Incompatible materials

Reacts violently with oxidants .

10.6 Hazardous decomposition products

When strongly heated, they emit highly toxic fumes of /hydrogen bromide/.

SECTION 11: Toxicological information

Acute toxicity

- Oral: LD50 Rat oral (50% soln in corn oil) 500 mg/kg
- 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

Evaluation: No epidemiological data relevant to the carcinogenicity of vinyl bromide were available. There is sufficient evidence in experimental animals for the carcinogenicity of vinyl bromide. Overall evaluation: Vinyl bromide is probably carcinogenic to humans (Group 2A). In making the overall evaluation, the Working Group took into consideration that all available studies showed a consistently parallel response between vinyl bromide and vinyl chloride. In addition, both vinyl chloride and vinyl bromide are activated via P450 dependent pathway to their corresponding epoxides. For both vinyl chloride and vinyl bromide, the covalent binding of these compounds to DNA forms the respective etheno adducts. The weight of positive evidence for both compounds was also noted among the studies for genotoxicity, although the number and variety of tests for vinyl bromide were fewer.

Reproductive toxicity

No information is available on the reproductive or developmental effects of vinyl bromide in animals or humans.

STOT-single exposure

Rapid evaporation of the liquid may cause frostbite. The substance is irritating to the eyes. The substance may cause effects on the central nervous system.

STOT-repeated exposure

This substance is probably carcinogenic to humans.

Aspiration hazard

A harmful concentration of this gas in the air will be reached very quickly on loss of containment.

SECTION 12: Ecological information

12.1 Toxicity

- Toxicity to fish: no data available
- Toxicity to daphnia and other aquatic invertebrates: no data available
- Toxicity to algae: no data available
- Toxicity to microorganisms: no data available

12.2 Persistence and degradability

no data available

12.3 Bioaccumulative potential

An estimated BCF of 3 was calculated for vinyl bromide(SRC), using a log Kow of 1.57(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 Koc of vinyl bromide is estimated as 170(SRC), using a log Kow of 1.57(1) and a regression-derived equation(2). According to a classification scheme(3), this estimated Koc value suggests that vinyl bromide is expected to have moderate 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: UN1085 (For reference only, please check.)

IMDG: UN1085 (For reference only, please check.)

IATA: UN1085 (For reference only, please check.)

14.2 UN Proper Shipping Name

ADR/RID: VINYL BROMIDE, STABILIZED

IMDG: VINYL BROMIDE, STABILIZED (For reference only, please check.)

IATA: VINYL BROMIDE, STABILIZED (For reference only, please check.)

(For reference only, please check.)

14.3 Transport hazard class(es)

ADR/RID: 2.1 (For reference only, please check.)

IMDG: 2.1 (For reference only, please check.)

IATA: 2.1 (For reference only, please check.)

14.4 Packing group, if applicable

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

IMDG: (For reference only, please check.)

IATA: (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
Bromoethylene	Bromoethylene	593-60-2	209-800-6
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			Not Listed.
Chinese Chemical Inventory of Existing Chemical Substances (China IECSC)			Not Listed.
Korea Existing Chemicals List (KECL)			Listed.

SECTION 16: Other information

Information on revision

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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

An added stabilizer or inhibitor can influence the toxicological properties of this substance, consult an expert. Turn leaking cylinder with the leak up to prevent escape of gas in liquid state.

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.