ChemicalBook

Chemical Safety Data Sheet MSDS / SDS

Vinyl bromide

Revision Date:2024-12-21 Revision Number:1

SECTION 1: Identification of the substance/mixture and of the company/undertaking

Product identifier

Product name	: Vinyl bromide
CBnumber	: CB5853922
CAS	: 593-60-2
EINECS Number	: 209-800-6
Synonyms	: vinyl bromide,bromoethene

Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses	: For R&D use only. Not for medicinal, household or other use.
Uses advised against	: none

Company Identification

Company	: Chemicalbook
Address	: Building 1, Huihuang International, Shangdi 10th Street, Haidian District, Beijing
Telephone	: 400-158-6606

SECTION 2: Hazards identification

Classification of the substance or mixture

Gases under pressure: Compressed gas

Flammable gases, Category 1A, Flammable gas

Carcinogenicity, Category 1B

Label elements

Pictogram(s)

Signal word	Danger

Hazard statement(s)

H225 Highly Flammable liquid and vapour

H280 Contains gas under pressure; may explode if heated

H302 Harmful if swallowed

H319 Causes serious eye irritation

H335 May cause respiratory irritation

H350 May cause cancer

Precautionary statement(s)

P201 Obtain special instructions before use.

P210 Keep away from heat/sparks/open flames/hot surfaces. — No smoking.

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

P308+P313 IF exposed or concerned: Get medical advice/attention.

P370+P378 In case of fire: Use … for extinction.

P403+P235 Store in a well-ventilated place. Keep cool.

P410+P403 Protect from sunlight. Store in a well-ventilated place.

Prevention

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

Response

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.

Storage

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.

Other hazards

no data available

SECTION 3: Composition/information on ingredients

Substance

Product name	: Vinyl bromide
Synonyms	: vinyl bromide,bromoethene
CAS	: 593-60-2
EC number	: 209-800-6
MF	: C2H3Br
MW	: 106.95

SECTION 4: First aid measures

Description of 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 .

Most important symptoms and effects, both 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)

Indication of any immediate medical attention and special treatment needed

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

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SECTION 5: Firefighting measures

Extinguishing media

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

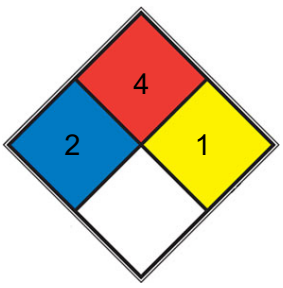
Specific Hazards Arising from the Chemical

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)

Advice for firefighters

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

NFPA 704



■	HEALTH	2	Intense or continued but not chronic exposure could cause temporary incapacitation or possible residual injury (e.g. diethyl ether, ammonium phosphate, iodine)
■	FIRE	4	Will rapidly or completely vaporize at normal atmospheric pressure and temperature, or is readily dispersed in air and will burn readily. Includes pyrophoric substances. Flash point below room temperature at 22.8 °C (73 °F). (e.g. acetylene, propane, hydrogen gas)
■	REACT	1	Normally stable, but can become unstable at elevated temperatures and pressures (e.g. propene)
□	SPEC. HAZ.		

SECTION 6: Accidental release measures

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.

Environmental precautions

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

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 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

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.

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

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

Exposure controls

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

Individual protection measures

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

Information on basic physicochemical properties

Physical state	Gas
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	15%
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

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.

Chemical stability

no data available

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.

Conditions to avoid

no data available

Incompatible materials

Reacts violently with oxidants .

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

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

Persistence and degradability

no data available

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).

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).

Other adverse effects

no data available

SECTION 13: Disposal considerations

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

UN Number

ADR/RID: UN1085 (For reference only, please check.)

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

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

UN Proper Shipping Name

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

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

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

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.)

Packing group, if applicable

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

IMDG: (For reference only, please check.)

IATA: (For reference only, please check.)

Environmental hazards

ADR/RID: No

IMDG: No

IATA: No

Special precautions for user

no data available

Transport in bulk according to IMO instruments

no data available

SECTION 15: Regulatory information

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

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.

PICCS

Listed.

Vietnam National Chemical Inventory

Not Listed.

IECSC

Not Listed.

Korea Existing Chemicals List (KECL)

Listed.

SECTION 16: Other information

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.