

SAFETY DATA SHEETS

According to Globally Harmonized System of Classification and Labelling of Chemicals (GHS) - Sixth revised edition

Version: 1.0

Creation Date: Aug 10, 2017

Revision Date: Aug 10, 2017

1. Identification

1.1 GHS Product identifier

Product name	1,2-dibromoethane
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1.2 Other means of identification

Product number	–
Other names	Ethane, 1,2-dibromo–

1.3 Recommended use of the chemical and restrictions on use

Identified uses	For industry use only. Volatile organic compounds
Uses advised against	no data available

2. Hazard identification

2.1 Classification of the substance or mixture

Acute toxicity - Oral, Category 3

Acute toxicity - Dermal, Category 3

Skin irritation, Category 2

Eye irritation, Category 2


Acute toxicity - Inhalation, Category 3

Specific target organ toxicity – single exposure, Category 3

Carcinogenicity, Category 1B

Hazardous to the aquatic environment, long-term (Chronic) - Category Chronic 2

2.2 GHS label elements, including precautionary statements

Pictogram(s)	
Signal word	Danger
Hazard statement(s)	<p>H301 Toxic if swallowed</p> <p>H311 Toxic in contact with skin</p> <p>H315 Causes skin irritation</p> <p>H319 Causes serious eye irritation</p> <p>H331 Toxic if inhaled</p> <p>H335 May cause respiratory irritation</p> <p>H350 May cause cancer</p> <p>H411 Toxic to aquatic life with long lasting effects</p>
Precautionary statement(s)	
Prevention	<p>P264 Wash ... thoroughly after handling.</p> <p>P270 Do not eat, drink or smoke when using this product.</p> <p>P280 Wear protective gloves/protective clothing/eye protection/face protection.</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>P201 Obtain special instructions before use.</p> <p>P202 Do not handle until all safety precautions have been read and understood.</p> <p>P273 Avoid release to the environment.</p>
Response	<p>P301+P310 IF SWALLOWED: Immediately call a POISON CENTER/doctor/...</p> <p>P321 Specific treatment (see ... on this label).</p> <p>P330 Rinse mouth.</p> <p>P302+P352 IF ON SKIN: Wash with plenty of water/...</p> <p>P312 Call a POISON CENTER/doctor/...if you feel unwell.</p> <p>P361+P364 Take off immediately all contaminated clothing and wash it before reuse.</p> <p>P332+P313 If skin irritation occurs: Get medical</p>

	<p>advice/attention.</p> <p>P362+P364 Take off contaminated clothing and wash it before reuse.</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> <p>P337+P313 If eye irritation persists: Get medical advice/attention.</p> <p>P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.</p> <p>P311 Call a POISON CENTER/doctor/...</p> <p>P308+P313 IF exposed or concerned: Get medical advice/ attention.</p> <p>P391 Collect spillage.</p>
Storage	<p>P405 Store locked up.</p> <p>P403+P233 Store in a well-ventilated place. Keep container tightly closed.</p>
Disposal	<p>P501 Dispose of contents/container to ...</p>

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
1,2-dibromoethane	1,2-dibromoethane	106-93-4	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. Half-upright position. Refer immediately for medical attention.

In case of skin contact

Remove contaminated clothes. Rinse and then wash skin with water and soap. 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. Do NOT induce vomiting. Give one or two glasses of water to drink. Refer for medical attention .

4.2Most important symptoms/effects, acute and delayed

Local inflammation, blisters and ulcers on skin; irritation in lungs and organic injury to liver and kidneys; may be absorbed through skin. (USCG, 1999)

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

Rinse eyes with water. Wash polluted portions with soap and water.

5.Fire-fighting measures

5.1Extinguishing media

Suitable extinguishing media

Use water spray or foam for fighting fires where ethylene dibromide is stored. Use water to keep fire-exposed containers cool.

5.2Specific hazards arising from the chemical

Special Hazards of Combustion Products: Decomposition gases are toxic and irritating. Behavior in Fire: Decomposes into toxic irritating gases. Reacts with hot metals such as aluminum and magnesium. (USCG, 1999)

5.3Special protective actions for fire-fighters

Wear self-contained breathing apparatus for firefighting if necessary.

6.Accidental release measures

6.1Personal 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.

6.2Environmental precautions

Personal protection: filter respirator for organic gases and vapours adapted to the airborne concentration of the substance. Ventilation. Do NOT let this chemical enter the environment. Collect leaking and spilled liquid in sealable containers as far as possible. Absorb remaining liquid in sand or inert absorbent. Then store and dispose of according to local regulations.

6.3Methods and materials for containment and cleaning up

1. VENTILATE AREA OF SPILL OR LEAK. 2. IF IN LIQ FORM, COLLECT FOR RECLAMATION OR ABSORB IN VERMICULITE, DRY SAND, EARTH, OR SIMILAR MATERIAL. 3. IF IN SOLID FORM, COLLECT ... IN MOST CONVENIENT & SAFE MANNER FOR RECLAMATION.

7.Handling and storage

7.1Precautions 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.

7.2Conditions for safe storage, including any incompatibilities

Separated from strong oxidants, strong bases, powdered metals and food and feedstuffs. See Chemical Dangers. Ventilation along the floor. Store in an area without drain or sewer access. Store in a cool, dry, dark, well-ventilated location. Separate from oxidizing materials, alkali metal, ammonia.

8.Exposure controls/personal protection

8.1Control parameters

Occupational Exposure limit values

Recommended Exposure Limit: 10 Hr Time-Weighted avg: 0.045 ppm

Recommended Exposure Limit: 15 min Ceiling value: 0.13 ppm.

NIOSH recommends that ethylene dibromide be regulated as a potential human carcinogen.

NIOSH usually recommends that occupational exposures to carcinogens be limited to the lowest feasible concn.

Biological limit values

no data available

8.2Appropriate engineering controls

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

8.3Individual 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	Heavy liquid
Odour	Chloroform odor
Melting point/	317° C(lit.)

freezing point	
Boiling point or initial boiling point and boiling range	132° C
Flammability	Noncombustible LiquidNot combustible. Gives off irritating or toxic fumes (or gases) in a fire.
Lower and upper explosion limit / flammability limit	no data available
Flash point	103° C(lit.)
Auto-ignition temperature	Not flammable (USCG, 1999)
Decomposition temperature	no data available
pH	no data available
Kinematic viscosity	1.727 cP @ 20° C
Solubility	In water:4 g/L (20 °C)
Partition coefficient n-octanol/water (log value)	log Kow = 1.96
Vapour pressure	11.7 mm Hg (25 ° C)
Density and/or relative density	2.173
Relative vapour density	~6.5 (vs air)

Particle characteristics

no data available

10.Stability and reactivity

10.1Reactivity

no data available

10.2Chemical stability

/1,2-Dibromomethane/ is stable and nonflammable.

10.3Possibility of hazardous reactions

Not flammableETHYLENE DIBROMIDE slowly decomposes in the presence of light and heat. Turns brown upon exposure to light. Corrosive to iron and other metals. May decompose upon contact with alkalis. Incompatible with oxidizing agents. Reacts with sodium, potassium, calcium, powdered aluminum, zinc, magnesium and liquid ammonia. May attack some plastics, rubber and coatings. May poison platinum catalysts [Hawley]. Reacts as an alkylating agent .

10.4Conditions to avoid

no data available

10.5Incompatible materials

Incompatible with calcium, liquid ammonia, zinc, sodium, potassium, and strong oxidizers.

10.6Hazardous decomposition products

At 240-270°C in a glass vessel, ethylene bromide decomposes into vinyl bromide & hydrogen bromide.

11.Toxicological information

Acute toxicity

- Oral: LD50 Rat oral 108 mg/kg
- Inhalation: LC50 Rat inhalation 14,300 mg/cu m/30 min
- 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

NTP: Reasonably anticipated to be a human carcinogen, EPA: Probable human carcinogen, IARC: Probably carcinogenic to humans

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 *Lepomis macrochirus* 18 mg/l/48 hr /Conditions of bioassay not specified
- 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

Ethylene dibromide degraded readily in primary sewage sludge suspensions under both aerobic and anaerobic conditions(1); under aerobic conditions, degradation occurred within days, while under anaerobic conditions, degradation took 5-6 weeks(1). In three day die-away tests using Japanese river and seawater, ethylene dibromide was observed to have moderate degradation (21-35% degradation)(2). Low concs of ethylene dibromide (<100 ug/l) were biotransformed completely within 2 weeks by a reductive dehalogenation under methanogenic conditions in a continuous-flow column(3); sterile controls showed that some abiotic degradation was also occurring, but microbial degradation was dominant(3). In a microcosm study simulating methanogenic conditions found in aquifer material, ethylene dibromide was found to biodegrade relatively rapidly(4); after 16 weeks of incubation, greater than 99% of initial ethylene dibromide was transformed(4); in sterile controls, only 20% was transformed after 40 weeks(4).

12.3 Bioaccumulative potential

A BCF for ethylene dibromide has been measured to be < 1(1). Orange red killifish exposed to an aqueous solution containing ethylene dibromide at 15 and 150 ug/l had a BCF ranging from <3.5-14.9 and 1.6-3.2, respectively(2). According to a classification scheme(3), these BCF values suggest the potential for bioconcentration in aquatic organisms is low(SRC).

12.4 Mobility in soil

Ethylene dibromide exhibits slow to moderate adsorption to soil with measured Koc values ranging from 14 to 160(1). According to a classification scheme(2), these Koc values suggest that ethylene dibromide is expected to have high to very high mobility in soil.

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: UN1605	IMDG: UN1605	IATA: UN1605
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14.2 UN Proper Shipping Name

ADR/RID: ETHYLENE DIBROMIDE
IMDG: ETHYLENE DIBROMIDE
IATA: ETHYLENE DIBROMIDE

14.3 Transport hazard class(es)

ADR/RID: 6.1	IMDG: 6.1	IATA: 6.1
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14.4 Packing group, if applicable

ADR/RID: III	IMDG: III	IATA: III
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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 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
1,2-dibromoethane	1,2-dibromoethane	106-93-4	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.

16. Other information

Information on revision

Creation Date	Aug 10, 2017
Revision Date	Aug 10, 2017

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/>

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.