Chemical Safety Data Sheet MSDS / SDS

Bromoform SDS

Revision Date:2024-04-25 Revision Number:1

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

Product identifier

Product name: Bromoform

CAS: 75-25-2

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.in

Address: 5 vasavi Layout Basaveswara Nilayam Pragathi Nagar Hyderabad, India -500090

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SECTION 2: Hazards identification

Classification of the substance or mixture

Acute toxicity - Category 4, Oral
Skin irritation, Category 2

Eye irritation, Category 2
Acute toxicity - Category 3, Inhalation
Hazardous to the aquatic environment, long-term (Chronic) - Category Chronic 2

GHS label elements, including precautionary statements

Pictogram(s)

Signal word Danger

Hazard statement(s)

H302 Harmful if swallowed
H315 Causes skin irritation
H319 Causes serious eye irritation
H331 Toxic if inhaled
H411 Toxic to aquatic life with long lasting effects

Precautionary statement(s)

Prevention

P264 Wash ... thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/...
P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
P271 Use only outdoors or in a well-ventilated area.
P273 Avoid release to the environment.

Response

P301+P317 IF SWALLOWED: Get medical help.
P330 Rinse mouth.
P302+P352 IF ON SKIN: Wash with plenty of water/...
P321 Specific treatment (see ... on this label).
P332+P317 If skin irritation occurs: Get medical help.
P362+P364 Take off contaminated clothing and wash it before reuse.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P316 Get emergency medical help immediately.

P391 Collect spillage.

Storage

P403+P233 Store in a well-ventilated place. Keep container tightly closed.
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 which do not result in classification

no data available

SECTION 3: Composition/information on ingredients

Substance

Chemical name:	Bromoform
Common names and synonyms:	Bromoform
CAS number:	75-25-2
EC number:	200-854-6
Concentration:	100%

SECTION 4: First aid measures

Description of necessary first-aid measures

If inhaled

Fresh air, rest. Artificial respiration may be needed. Refer for medical attention.

Following skin contact

Rinse and then wash skin with water and soap. Seek medical attention if you feel unwell.

Following eye contact

Rinse with plenty of water (remove contact lenses if easily possible).

Following ingestion

Rinse mouth. Do NOT induce vomiting. Refer for medical attention .

Most important symptoms/effects, acute and delayed

Harmful if inhaled, swallowed, contacts skin or eyes or is absorbed through skin. It is a lachrymator, respiratory irritant, a narcotic and an hepatotoxin. Prolonged exposure may cause dermatitis. Inhalation causes irritation of nose and throat; provokes the flow of tears and saliva and reddening of the face. Ingestion may cause dizziness, disorientation and slurred speech, unconsciousness and death. (USCG, 1999)

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. Halogenated aliphatic hydrocarbons and related compounds

SECTION 5: Firefighting measures

Suitable extinguishing media

If material on fire or involved in fire: Do not extinguish fire unless flow can be stopped. Extinguish fire using agent suitable for type of surrounding fire (Material itself does not burn or burns with difficulty.) Use water in flooding quantities as fog. Cool all affected containers with flooding quantities of water. Apply water from as far a distance as possible. Use foam, dry chemical, or carbon dioxide. Keep run-off water out of sewers and water sources.

Specific hazards arising from the chemical

Behavior in Fire: May decompose to produce toxic gases and vapor such as hydrogen bromide and bromine. (USCG, 1999)

Special protective actions for fire-fighters

In case of fire in the surroundings, use appropriate extinguishing media.

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

Evacuate danger area! Consult an expert! Personal protection: complete protective clothing including self-contained breathing apparatus. Do NOT let this chemical enter the environment. Ventilation. Collect leaking liquid in sealable containers. Absorb remaining liquid in sand or inert absorbent. Then store and dispose of according to local regulations. Do NOT wash away into sewer.

Environmental precautions

Evacuate danger area! Consult an expert! Personal protection: complete protective clothing including self-contained breathing apparatus. Do NOT let this chemical enter the environment. Ventilation. Collect leaking liquid in sealable containers. Absorb remaining liquid in sand or inert absorbent. Then store and dispose of according to local regulations. Do NOT wash away into sewer.

Methods and materials for containment and cleaning up

1. Ventilate area of spill or leak. 2. Collect for reclamation or absorb in vermiculite, dry sand, earth, or similar material.

SECTION 7: Handling and storage

Precautions for safe handling

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

Separated from strong bases, oxidants, metals and food and feedstuffs. Keep in the dark. Ventilation along the floor. Store only if stabilized. Store in an area without drain or sewer access. Provision to contain effluent from fire extinguishing.Keep in well-closed containers, protected from light.

SECTION 8: Exposure controls/personal protection

Control parameters

Occupational Exposure limit values

TLV: 0.5 ppm as TWA; A3 (confirmed animal carcinogen with unknown relevance to humans).MAK: carcinogen category: 3B

Biological limit values

no data available

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.

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

Eye/face protection

Wear safety spectacles 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:	Bromoform is a colorless liquid with a chloroform-like odor. Denser than water (density: 2.9 g / cm3) and slightly soluble in water. Hence sinks in water. Nonflammable. Toxic by ingestion, inhalation and skin absorption. A lachrymator. Used as a solvent and to make pharmaceuticals. Often stabilized with 1 to 3% ethanol.
Colour:	Colorless heavy liquid
Odour:	Similar to chloroform
Melting point/freezing point:	8°C(lit.)

Boiling point or initial boiling point and boiling range:	149°C
Flammability:	Noncombustible Liquid
Lower and upper explosion limit/flammability limit:	no data available
Flash point:	174°C(lit.)
Auto-ignition temperature:	no data available
Decomposition temperature:	no data available
pH:	no data available
Kinematic viscosity:	0.74 (calculated) mm2/s at 15°C
Solubility:	less than 0.1 mg/mL at 72.5° F (NTP, 1992)
Partition coefficient n-octanol/water:	log Kow = 2.40
Vapour pressure:	5 mm Hg (20 °C)
Density and/or relative density:	2.894
Relative vapour density:	8.7 (vs air)
Particle characteristics:	no data available

SECTION 10: Stability and reactivity

Reactivity

Decomposes on heating. This produces toxic and corrosive fumes including hydrogen bromide and bromine. Reacts violently with

oxidants and bases. Reacts with powdered metals. This generates fire and explosion hazard. Attacks some forms of plastic, rubber and coatings.

Chemical stability

Gradually decomp, acquiring yellow color, air & light accelerate the decomposition.

Possibility of hazardous reactions

Not flammable by standard tests in airHeating BROMOFORM to decomposition produces highly toxic fumes of carbon oxybromide (carbonyl bromide) and hydrogen bromide [Sax, 9th ed., 1996, p. 519]. Reaction with powdered potassium or sodium hydroxide, Li or Na/K alloys, is violently exothermic [Weizmann, C. et al., J. Am Chem. Soc., 1948, 70, p. 1189]. Explosive reaction with crown ethers in the presence of potassium hydroxide [Le Goaller, R. et al., Synth. Comm., 1982, 12, p. 1163].

Conditions to avoid

no data available

Incompatible materials

Incompatibilities: chemically active metals: sodium, potassium, calcium, powdered aluminum, zinc, magnesium, strong caustics.

Hazardous decomposition products

Gradually decomp, acquiring a yellow color, air & light accelerate the decomposition.

SECTION 11: Toxicological information

Acute toxicity

Oral: LD50 Rat male oral 1388 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 bromoform were available. There is limited evidence in experimental animals for the carcinogenicity of bromoform. Overall evaluation: Bromoform is not classifiable as to its carcinogenicity to humans (Group 3).

Reproductive toxicity

No studies were located regarding developmental or reproductive effects in humans. Animal studies indicate that oral exposure to bromoform does not cause developmental or reproductive effects.

STOT-single exposure

The substance is irritating to the eyes, skin and respiratory tract. The substance may cause effects on the central nervous system.

STOT-repeated exposure

The substance may have effects on the liver and kidneys.

Aspiration hazard

A harmful contamination of the air can be reached very quickly on evaporation of this substance at 20°C.

SECTION 12: Ecological information

Toxicity

Toxicity to fish: LC50; Species: Lepomis macrochirus (Bluegill, young of year, weight 0.32-1.2 g); Conditions: freshwater, static, 21-23 deg C, pH 6.5-7.9, hardness 32-48 mg/L CaCO3, alkalinity 28-34 mg/L CaCO3; Concentration: 33000 ug/L for 24 hr /> or =80% purity

Toxicity to daphnia and other aquatic invertebrates: LC50; Species: Daphnia magna (Water flea, age <24 hr); Conditions: freshwater, static, 22 deg C, pH 8.0 (7.4-9.4), hardness 173 mg/L CaCO3, dissolved oxygen >60%; Concentration: 56000 ug/L for 24 hr (95% confidence interval: 44000-68000 ug/L) />80% purity

Toxicity to algae: no data available

Toxicity to microorganisms: no data available

Persistence and degradability

AEROBIC: Bromoform, present at 100 mg/L, underwent 0% biodegradation in 4 weeks using an activated sludge inoculum at 30 mg/L in the Japanese MITI test(1). Bromoform was incubated with sewage seed at 5 and 10 mg/L for 7 days followed by three weekly subcultures at 25 deg C(2). In the 5 and 10 mg/L cultures, bromoform had degraded by 11% and 4% respectively, at 7 days and by 48% and 35% respectively at 28 days(2). Bromoform was not biodegraded in aerobic batch cultures(3). No biodegradation of bromoform was observed after 39 days in seawater collected from kelp beds from southern California(4).

Bioaccumulative potential

An estimated BCF of 14 was calculated in fish for bromoform(SRC), using a log Kow of 2.40(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

Koc values for bromoform have been reported as 116(1) and 126(2). According to a classification scheme(3), these Koc values suggest that bromoform is expected to have high mobility in soil. A Freundlich K value of 1.54 was determined on Keweenaw sandy loam(1).

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: UN2515 (For reference only, please check.)
IMDG: UN2515 (For reference only, please check.)
IATA: UN2515 (For reference only, please check.)

UN Proper Shipping Name

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

Transport hazard class(es)

ADR/RID: 6.1 (For reference only, please check.)
IMDG: 6.1 (For reference only, please check.)
IATA: 6.1 (For reference only, please check.)

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.)

Environmental hazards

ADR/RID: Yes
IMDG: Yes
IATA: Yes

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

Listed.

IECSC)

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.