

Material Safety Data Sheet

HAZARD WARNINGS	RISK PHRASES	PROTECTIVE CLOTHING
   	Flammable material; avoid heat and sources of ignition. Toxic compound, do not ingest or inhale. Avoid all contact with this material. Irritating to skin, eyes, and the respiratory system. CARCINOGEN. MINIMIZE EXPOSURE. Refrigerate.	   

Section I. Chemical Product and Company Identification

Chemical Name	Bromoethane		
Catalog Number	B0588	Supplier	TCI America 9211 N. Harborgate St. Portland OR 1-800-423-8616
Synonym	Ethyl Bromide		
Chemical Formula	CH ₃ CH ₂ Br		
CAS Number	74-96-4		
		In case of Emergency Call	Chemtrec® (800) 424-9300 (U.S.) (703) 527-3887 (International)

Section II. Composition and Information on Ingredients

Chemical Name	CAS Number	Percent (%)	TLV/PEL	Toxicology Data
Bromoethane	74-96-4	Min. 99.0 (GC)	This chemical is classified as a carcinogen. There is no acceptable exposure limit for a carcinogen.	Rat LD ₅₀ (oral) 1350 mg/kg Rat LC ₅₀ (inhalation) 26980 ppm/1H Rat LD ₅₀ (intraperitoneal) 1750 mg/kg

Section III. Hazards Identification

Acute Health Effects	Irritating to eyes and skin on contact. Inhalation causes irritation of the lungs and respiratory system. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering. Toxic if ingested or inhaled. Avoid prolonged contact with this material. Overexposure may result in serious illness or death. Follow safe industrial hygiene practices and always wear proper protective equipment when handling this compound.
Chronic Health Effects	CARCINOGENIC EFFECTS : Not available. MUTAGENIC EFFECTS : Not available. TERATOGENIC EFFECTS : Tumorigenic Effects. Rat TCLo Inhalation 100 ppm/6 hours/2 years intermittent. TOXIC Effects: Tumorigenic – Equivocal tumorigenic agent by RTECS criteria. Brain and Coverings – Tumors. Mouse TCLo Inhalation 200 ppm/6 hours/2 years intermittent. TOXIC Effects: Tumorigenic – Carcinogenic by RTECS criteria. Tumorigenic Effects – Uterine tumors. DEVELOPMENTAL TOXICITY : Not available. Repeated or prolonged exposure to this compound is not known to aggravate existing medical conditions.

Section IV. First Aid Measures

Eye Contact	Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention.
Skin Contact	In case of contact, immediately flush skin with plenty of water. Remove contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.
Inhalation	If the victim is not breathing, perform mouth-to-mouth resuscitation. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, oxygen can be administered. Seek medical attention if respiration problems do not improve.
Ingestion	INDUCE VOMITING by sticking finger in throat. Lower the head so that the vomit will not reenter the mouth and throat. Loosen tight clothing such as a collar, tie, belt or waistband. If the victim is not breathing, perform mouth-to-mouth resuscitation. Examine the lips and mouth to ascertain whether the tissues are damaged, a possible indication that the toxic material was ingested; the absence of such signs, however, is not conclusive.

Section V. Fire and Explosion Data

Flammability	Flammable.	Auto-Ignition	511°C (951.8°F)
Flash Points	-23°C (-9.4°F)	Flammable Limits	LOWER: 6.8% UPPER: 11%
Combustion Products	These products are toxic carbon oxides (CO, CO ₂), halogenated compounds.		
Fire Hazards	Not available.		
Explosion Hazards	Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.		
Fire Fighting Media and Instructions	Flammable liquid. SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use alcohol foam, water spray or fog. Cool containing vessels with water jet in order to prevent pressure build-up, autoignition or explosion. Consult with local fire authorities before attempting large scale fire-fighting operations.		

Section VI. Accidental Release Measures

Spill Cleanup Instructions	Flammable material. Toxic material. Irritating material. Carcinogenic material. Keep away from heat. Mechanical exhaust required. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. DO NOT touch spilled material. Prevent entry into sewers, basements or confined areas; dike if needed. Consult federal, state, and/or local authorities for assistance on disposal.
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Section VII. Handling and Storage

Handling and Storage Information	FLAMMABLE LIQUID. TOXIC. IRRITANT. CARCINOGEN. REFRIGERATE. Keep away from heat. Mechanical exhaust required. Avoid excessive heat and light. DO NOT ingest. Do not breathe gas/fumes/ vapor/spray. Wear suitable protective clothing. If ingested, seek medical advice immediately and show the container or the label. Treat symptomatically and supportively. Always store away from incompatible compounds such as oxidizing agents, alkalis (bases).
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Section VIII. Exposure Controls/Personal Protection

Engineering Controls	Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash station and safety shower is proximal to the work-station location.
Personal Protection	Splash goggles. Lab coat. Vapor respirator. Boots. Gloves. A MSHA/NIOSH approved respirator must be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product. 
Exposure Limits	This chemical is classified as a carcinogen. There is no acceptable exposure limit for a carcinogen.

Section IX. Physical and Chemical Properties

Physical state @ 20°C	Liquid. (Colorless Clear.)	Solubility	Very slightly soluble in water. Miscible with chloroform, ether, alcohol, other organic solvents.
Specific Gravity	1.46 (water=1)	Partition Coefficient	Log P _{ow} : 1.61
Molecular Weight	108.97	Vapor Pressure	51 kPa (@ 20°C)
Boiling Point	38°C (100.4°F)	Vapor Density	3.76 (Air = 1)
Melting Point	-119°C (-182.2°F)	Volatility	Not available.
Refractive Index	1.423-1.426	Odor	Ether-like.
Critical Temperature	Not available.	Taste	Burning.
Viscosity	0.379 cP @ 25°C		

Section X. Stability and Reactivity Data

Stability	This material is stable if stored under proper conditions. (See Section VII for instructions)
Conditions of Instability	Avoid excessive heat and light.
Incompatibilities	Reactive with strong oxidizing agents, strong alkalis (bases), magnesium, aluminium, zinc, potassium, calcium, sodium, alkali metals.

Section XI. Toxicological Information

RTECS Number	KH6475000
Routes of Exposure	Eye Contact. Ingestion. Inhalation.
Toxicity Data	Rat LD ₅₀ (oral) 1350 mg/kg Rat LC ₅₀ (inhalation) 26980 ppm/1H Rat LD ₅₀ (intraperitoneal) 1750 mg/kg
Chronic Toxic Effects	CARCINOGENIC EFFECTS : Not available. MUTAGENIC EFFECTS : Not available. TERATOGENIC EFFECTS : Tumorigenic Effects. Rat TCLo Inhalation 100 ppm/6 hours/2 years intermittent. TOXIC Effects: Tumorigenic – Equivocal tumorigenic agent by RTECS criteria. Brain and Coverings – Tumors. Mouse TCLo Inhalation 200 ppm/6 hours/2 years intermittent. TOXIC Effects: Tumorigenic – Carcinogenic by RTECS criteria. Tumorigenic Effects – Uterine tumors. DEVELOPMENTAL TOXICITY : Not available. Repeated or prolonged exposure to this compound is not known to aggravate existing medical conditions.
Acute Toxic Effects	Irritating to eyes and skin on contact. Inhalation causes irritation of the lungs and respiratory system. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering. Toxic if ingested or inhaled. Avoid prolonged contact with this material. Overexposure may result in serious illness or death. Follow safe industrial hygiene practices and always wear proper protective equipment when handling this compound.

Section XII. Ecological Information

Ecotoxicity	Not available.
Environmental Fate	Ethyl bromide's production and use as an ethylating agent in organic synthesis, a refrigerant, and a solvent may result in its release to the environment through various waste streams. Ethyl bromide may be released to the environment naturally from volcanic gases and by polar algae. If released to air, a vapor pressure of 467 mm Hg at 25 deg C indicates ethyl bromide will exist solely as a vapor in the ambient atmosphere. Vapor-phase ethyl bromide will be degraded in the atmosphere by reaction with photochemically-produced hydroxyl radicals; the half-life for this reaction in air is estimated to be 46 days. If released to soil, ethyl bromide is expected to have moderate mobility based upon an estimated Koc of 179. Volatilization from moist soil surfaces is expected to be an important fate process based upon a Henry's Law constant of 7.41X10 ⁻³ atm-cu m/mole. Ethyl bromide will be susceptible to hydrolysis under wet soil conditions. Ethyl bromide may volatilize from dry soil surfaces based upon its vapor pressure. If released into water, ethyl bromide is not expected to adsorb to suspended solids and sediment based upon the estimated Koc. Volatilization from water surfaces is expected to be an important fate process based upon this compound's Henry's Law constant. Estimated volatilization half-lives for a model river and model lake are 1.1 hours and 4.2 days, respectively. An estimated BCF of 3.5 suggests the potential for bioconcentration in aquatic organisms is low. The aqueous hydrolysis half-lives at 20 and 25 deg C are 40 and 30 days, respectively. Occupational exposure to ethyl bromide may occur through inhalation and dermal contact with this compound at workplaces where ethyl bromide is produced or used.

Section XIII. Disposal Considerations

Waste Disposal	Recycle to process, if possible. Consult your local regional authorities. You may be able to dissolve or mix material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber system. Observe all federal, state and local regulations when disposing of the substance.
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Section XIV. Transport Information

DOT Classification	DOT Class 6.1: Toxic material.
PIN Number	UN1891
Proper Shipping Name	Ethyl bromide
Packing Group (PG)	II
DOT Pictograms	

Section XV. Other Regulatory Information and Pictograms

TSCA Chemical Inventory (EPA)	This compound is ON the EPA Toxic Substances Control Act (TSCA) inventory list.
WHMIS Classification (Canada)	CLASS B-2: Flammable liquid with a flash point lower than 37.8°C (100°F). CLASS D-1B: Material causing immediate and serious toxic effects (TOXIC). On DSL.
EINECS Number (EEC)	200-825-8
EEC Risk Statements	

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Emergency phone number (800) 424-9300

R10- Flammable.
R18- In use, may form flammable/explosive vapor-air mixture.
R23/24/25- Toxic by inhalation, in contact with skin and if swallowed.
R36/37/38- Irritating to eyes, respiratory system and skin.
R45- May cause cancer.

Japanese Regulatory Data

ENCS No. (9)-518

Section XVI. Other Information**Version 1.0****Validated on 12/6/2006.****Printed 12/6/2006.****Notice to Reader**

TCl laboratory chemicals are for research purposes only and are NOT intended for use as drugs, food additives, households, or pesticides. The information herein is believed to be correct, but does not claim to be all inclusive and should be used only as a guide. Neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All chemical reagents must be handled with the recognition that their chemical, physiological, toxicological, and hazardous properties have not been fully investigated or determined. All chemical reagents should be handled only by individuals who are familiar with their potential hazards and who have been fully trained in proper safety, laboratory, and chemical handling procedures. Although certain hazards are described herein, we can not guarantee that these are the only hazards which exist. Our MSDS sheets are based only on data available at the time of shipping and are subject to change without notice as new information is obtained. Avoid long storage periods since the product is subject to degradation with age and may become more dangerous or hazardous. It is the responsibility of the user to request updated MSDS sheets for products that are stored for extended periods. Disposal of unused product must be undertaken by qualified personnel who are knowledgeable in all applicable regulations and follow all pertinent safety precautions including the use of appropriate protective equipment (e.g. protective goggles, protective clothing, breathing equipment, facial mask, fume hood). For proper handling and disposal, always comply with federal, state, and local regulations.

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