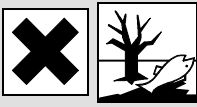



Material Safety Data Sheet

HAZARD WARNINGS	RISK PHRASES	PROTECTIVE CLOTHING
	<p>Combustible material; avoid heat and sources of ignition. Harmful compound, minimize exposure. Irritating to skin, eyes, and the respiratory system. Environmental hazard. This material is toxic to aquatic organisms and may cause long term adverse effects to the aquatic environment.</p>	

Section I. Chemical Product and Company Identification

Chemical Name	Bromobenzene		
Catalog Number	B0439	Supplier	TCl America 9211 N. Harborgate St. Portland OR 1-800-423-8616
Synonym	Phenyl bromide		
Chemical Formula	C ₆ H ₅ Br		
CAS Number	108-86-1	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
Bromobenzene	108-86-1	Min. 99.0 (GC)	Not available.	Rat LD ₅₀ (oral) 2383 mg/kg Rat LC ₅₀ (inhalation) 20411 mg/m ³ Rat LD ₅₀ (intraperitoneal) 3882 mg/kg

Section III. Hazards Identification

Acute Health Effects	Harmful if ingested or inhaled. Minimize exposure to this material. Severe overexposure can result in injury or death. 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. 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 : Not available. 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	Combustible.	Auto-Ignition	565°C (1049°F)
Flash Points	58°C (136.4°F).	Flammable Limits	LOWER: 6% UPPER: 36.5%
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			

Continued on Next Page

Emergency phone number (800) 424-9300

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
 Combustible material. Harmful material. Irritating material. Environmentally hazardous 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.

Section VII. Handling and Storage

Handling and Storage Information
 COMBUSTIBLE LIQUID. HARMFUL. IRRITANT. ENVIRONMENTAL HAZARD. Keep away from heat. Mechanical exhaust required. Avoid excessive heat and light. Do not breathe gas/fumes/ vapor/spray. Always store away from incompatible compounds such as oxidizing agents, acids.

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. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product. Be sure to use a MSHA/NIOSH approved respirator or equivalent.



Exposure Limits
 Not available.

Section IX. Physical and Chemical Properties

Physical state @ 20°C	Liquid. (Colorless Clear.)	Solubility	Very soluble in ethanol, ethyl ether. Soluble in diethyl ether, alcohol, carbon tetrachloride. Miscible with chloroform, benzene, petroleum hydrocarbons. Insoluble in water.
Specific Gravity	1.5 (water=1)	Partition Coefficient	Log K _{ow} : 2.99
Molecular Weight	157.01	Vapor Pressure	4.18 mmHg (@ 25 °C)
Boiling Point	156 °C (312.8 °F)	Vapor Density	5.41 (Air = 1)
Melting Point	-31 °C (-23.8 °F)	Volatility	Not available.
Refractive Index	1.5610	Odor	Aromatic.
Critical Temperature	Not available.	Taste	Not available.
Viscosity	1.124 cp @ 20 °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, acids.

Section XI. Toxicological Information

RTECS Number
 CY9000000

Routes of Exposure
 Eye Contact. Ingestion. Inhalation.

Toxicity Data
 Rat LD₅₀ (oral) 2383 mg/kg
 Rat LC₅₀ (inhalation) 20411 mg/m³
 Rat LD₅₀ (intraperitoneal) 3882 mg/kg

Chronic Toxic Effects
CARCINOGENIC EFFECTS : Not available.
MUTAGENIC EFFECTS : Not available.
TERATOGENIC EFFECTS : Not available.
DEVELOPMENTAL TOXICITY: Not available.
 Repeated or prolonged exposure to this compound is not known to aggravate existing medical conditions.

Acute Toxic Effects
 Harmful if ingested or inhaled. Minimize exposure to this material. Severe overexposure can result in injury or death. 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.
 Follow safe industrial hygiene practices and always wear proper protective equipment when handling this compound.

Section XII. Ecological Information

Ecotoxicity Not available.

Environmental Fate Bromobenzene's production and use as an additive to motor oil, in organic synthesis to make phenyl magnesium bromide, as a solvent for crystallization on a large scale, and where a heavy liquid is desirable may result in its release to the environment through various waste streams. If released to the atmosphere, bromobenzene will exist in the vapor phase in the ambient atmosphere, based on a measured vapor pressure of 4.18 mm Hg at 25 deg C. Vapor-phase bromobenzene is degraded in the atmosphere by reaction with photochemically-produced hydroxyl radicals with a half-life of about 21 days. An estimated Koc value of 268 suggests that bromobenzene will have moderate mobility in soil. Volatilization from moist soil surfaces should occur based upon an experimental Henry's Law constant of 2.08X10⁻³ atm-cu m/mole. Volatilization from dry soil surfaces should be important given the vapor pressure of this compound. Bromobenzene is not biodegraded in screening studies using an activated sludge as inoculum; 0% degradation was reported after four weeks. In water, bromobenzene may adsorb to sediment or particulate matter based on its estimated Koc value of 268. This compound will volatilize from water surfaces given its experimental Henry's Law constant. Estimated half-lives for a model river and model lake are 4 hours and 5 days, respectively. Bioconcentration in aquatic organisms should be low to moderately high based on measured BCF values ranging from 8.8 to 190. Given the commercial uses of bromobenzene, human exposure appears to be likely from occupational situations through dermal and inhalation routes and consumer exposure to motor oil. Due to the compound's presence in food, ambient air, and finished water, general population exposure may be possible by ingestion and inhalation routes.

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.

Section XIV. Transport Information

DOT Classification DOT Class 3: Flammable liquid.

PIN Number UN2514

Proper Shipping Name Bromobenzene

Packing Group (PG) III Marine Pollutant

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-3: Combustible liquid with a flash point between 37.8 °C (100 °F) and 93.3 °C (200 °F).
On DSL.

EINECS Number (EEC) 203-623-8

EEC Risk Statements
R10- Flammable.
R18- In use, may form flammable/explosive vapor-air mixture.
R20/21/22- Harmful by inhalation, in contact with skin and if swallowed.
R36/37/38- Irritating to eyes, respiratory system and skin.
R51- Toxic to aquatic organisms.
R53- May cause long-term adverse effects in the aquatic environment.

Japanese Regulatory Data ENCS No. (3)-32

Section XVI. Other Information

Version 1.0
Validated on 7/16/2007.
Printed 7/16/2007.

Notice to Reader

TCI laboratory chemicals are for research purposes only and are NOT intended for use as drugs, food additives, household, 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.