

Material Safety Data Sheet

HAZARD WARNINGS		RISK PHRASES	PROTECTIVE CLOTHING
  		Flammable material; avoid heat and sources of ignition. Harmful compound, minimize exposure. DANGER, MAY CAUSE CANCER. POSSIBLE CARCINOGEN. MINIMIZE EXPOSURE.	   

Section I. Chemical Product and Company Identification

Chemical Name	tert-Butyl Bromide		
Catalog Number	B0617	Supplier	TCI America 9211 N. Harbortgate St. Portland OR 1-800-423-8616
Synonym	2-Bromo-2-methylpropane		
Chemical Formula	(CH ₃) ₃ CBr		
CAS Number	507-19-7	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
tert-Butyl Bromide	507-19-7	Min. 98.0 (GC)	This chemical is classified as a possible carcinogen. There is no acceptable exposure limit for a carcinogen. This compound is classified as a possible mutagen. There is no acceptable exposure limit for a mutagen.	Rat LD ₅₀ (intraperitoneal) 1250mg/kg Mouse LD ₅₀ (intraperitoneal) 4400mg/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. 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: Mouse TDLo (intraperitoneal) 3000 mg/kg/8 weeks intermittent. Toxic Effects: Tumorigenic - Neoplastic by RTECS criteria. Lung, Thorax, or Respiration - 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. SEEK IMMEDIATE MEDICAL ATTENTION in case of ingestion of a radioactive material.

Section V. Fire and Explosion Data

Flammability	Flammable.	Auto-Ignition	Not available.
Flash Points	18.33°C (65°F).	Flammable Limits	Not available.
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.		

Continued on Next Page

Emergency phone number (800) 424-9300

Fire Fighting Media
and Instructions

Flammable liquid.
SMALL FIRE: Use DRY chemical powder.
LARGE FIRE: Use alcohol foam, water spray or fog.
 Consult with local fire authorities before attempting large scale fire-fighting operations.

Section VI. Accidental Release MeasuresSpill Cleanup
Instructions

Flammable material. Harmful material. Possible carcinogenic material. Possible mutagenic 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 StorageHandling and Storage
Information

FLAMMABLE. HARMFUL. POSSIBLE CARCINOGEN. POSSIBLE MUTAGEN. 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, alkalis (bases).

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

This chemical is classified as a possible carcinogen. There is no acceptable exposure limit for a carcinogen. This compound is classified as a possible mutagen. There is no acceptable exposure limit for a mutagen.

Section IX. Physical and Chemical Properties

Physical state @ 20°C

Liquid. (Colorless to light-brown.)

Solubility

Insoluble in water.
 Miscible with organic solvents.

Specific Gravity

1.22 (water=1)

Molecular Weight

137.02

Partition Coefficient

Not available.

Boiling Point

72 to 74 °C (161.6 to 165.2 °F)

Vapor Pressure

18 kPa (@ 25 °C)

Melting Point

-20 °C (-4 °F)

Vapor Density

Not available.

Refractive Index

1.4249 @ 25 °C

Volatility

Not available.

Critical Temperature

Not available.

Odor

Not available.

Viscosity

Not available.

Taste

Not available.

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).

Section XI. Toxicological Information

RTECS Number

TX4150000

Routes of Exposure

Eye Contact. Ingestion. Inhalation.

Toxicity Data

Rat LD₅₀ (intraperitoneal) 1250mg/kg
 Mouse LD₅₀ (intraperitoneal) 4400mg/kg

Chronic Toxic Effects

CARCINOGENIC EFFECTS : Not available.
MUTAGENIC EFFECTS : Not available.
TERATOGENIC EFFECTS : Tumorigenic Effects:
 Mouse TDLo (intraperitoneal) 3000 mg/kg/8 weeks intermittent.
 Toxic Effects:
 Tumorigenic - Neoplastic by RTECS criteria.
 Lung, Thorax, or Respiration - Tumors.
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. Follow safe industrial hygiene practices and always wear proper protective equipment when handling this compound.

Section XII. Ecological Information

Ecotoxicity Not available.

Environmental Fate t-Butyl bromide's production and subsequent use as a laboratory reagent may result in its release to the environment through various waste streams. If released to the atmosphere, t-butyl bromide will exist solely in the vapor-phase based on an experimental vapor pressure of 135.3 mm Hg. In the vapor-phase, it will react slowly with hydroxyl radicals with an estimated half-life of 39 days. Based on an estimated Koc of 566, t-butyl bromide has low mobility in soil. In moist soils, hydrolysis should occur based on results from similar compounds; t-butyl chloride, isopropyl bromide, and n-propyl bromide have hydrolysis half-lives of 23 seconds, 2.1 days, and 26 days, respectively. t-Butyl bromide is expected to volatilize from moist soil surfaces, based on an estimated Henry's Law constant of 4.07×10^{-2} atm-cu m/mole. From dry soil surfaces, t-butyl bromide should quickly volatilize due to its high vapor pressure. t-Butyl bromide is expected to volatilize rapidly from water surfaces based on its Henry's Law constant. The volatilization half-life from a model river was calculated as 3.4 hours, from a model lake, 4.6 days. Hydrolysis is also expected to be a major fate process for this compound in water. t-Butyl bromide should not bioconcentrate in aquatic organisms based on a BCF of 49.

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 CLASS 3: Flammable liquid.

PIN Number UN2342

Proper Shipping Name Bromomethylpropanes

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).

EINECS Number (EEC) 208-065-9

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.
 R45- May cause cancer.
 R46- May cause heritable genetic damage.
 R47- May cause birth defects.

Japanese Regulatory Data Not available.

Section XVI. Other Information

Version 1.0
 Validated on 5/27/2009.
 Printed 5/27/2009.

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.