

Material Safety Data Sheet

HAZARD WARNINGS	RISK PHRASES	PROTECTIVE CLOTHING
  	<p>Flammable material; avoid heat and sources of ignition. Corrosive to eyes and skin on contact. Toxic compound, do not ingest or inhale. Avoid all contact with this material. This material is harmful to aquatic organisms and may cause long term adverse effects to the aquatic environment. POSSIBLE CARCINOGEN. MINIMIZE EXPOSURE.</p>	

Section I. Chemical Product and Company Identification

Chemical Name	n-Butylamine		
Catalog Number	B0707	Supplier	TCI America 9211 N. Harborsgate St. Portland OR 1-800-423-8616
Synonym	1-Aminobutane		
Chemical Formula	CH ₃ (CH ₂) ₃ NH ₂		
CAS Number	109-73-9	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
n-Butylamine	109-73-9	Min. 99.0 (GC)	This chemical is classified as a possible carcinogen. There is no acceptable exposure limit for a carcinogen.	Rat LD ₅₀ (oral) 366 mg/kg Rabbit LD ₅₀ (dermal) 850 uL/kg Mouse LC ₅₀ (inhalation) 800 mg/m ³ /2H

Section III. Hazards Identification

Acute Health Effects	<p>Corrosive to skin, eyes, and respiratory system. Liquid or spray mist may produce tissue damage, particularly in mucous membranes of the eyes, mouth and respiratory tract. Skin contact may produce burns. Eye contact can result in corneal damage or blindness. Inhalation of the spray mist may produce severe irritation of respiratory tract, characterized by coughing, choking, or shortness of breath. Corrosive materials may cause serious injury if ingested. 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.</p>
Chronic Health Effects	<p>CARCINOGENIC EFFECTS : Not available. MUTAGENIC EFFECTS : Not available. TERATOGENIC EFFECTS : Tumorigenic Effects. Mouse TDLo Intraperitoneal 800 mg/kg. TOXIC Effects: Tumorigenic - Equivocal tumorigenic agent by RTECS criteria. Lung, Thorax, or Respiration - Tumors. Skin and Appendages - Tumors. DEVELOPMENTAL TOXICITY: Reproductive Effects. Rat TDLo Oral 2.4 gm/kg female 1-6 days of pregnancy. TOXIC Effects: Specific Developmental Abnormalities - Cardiovascular (circulatory) system. Specific Developmental Abnormalities - Other developmental abnormalities. Rat TDLo Oral 6 gm/kg female 1-6 days of pregnancy. TOXIC Effects: Effects on Fertility - Post-implantation mortality. Effects on Embryo or Fetus - Fetotoxicity. Specific Developmental Abnormalities - Cardiovascular (circulatory) system. Repeated or prolonged contact with spray mist may produce chronic eye irritation and severe skin irritation. Repeated or prolonged exposure to spray mist may produce respiratory tract irritation leading to frequent attacks of bronchial infection. Repeated exposure to an highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.</p>

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 for at least 15 minutes while removing contaminated clothing and shoes. Cover the irritated skin with an emollient. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.
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.

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Emergency phone number (800) 424-9300

Ingestion

DO NOT INDUCE VOMITING. 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	312 °C (593.6 °F)
Flash Points	-4 °C (24.8 °F).	Flammable Limits	LOWER: 1.7% UPPER: 9.8%
Combustion Products	These products are toxic carbon oxides (CO, CO ₂), nitrogen oxides (NO, NO ₂).		
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. Consult with local fire authorities before attempting large scale fire-fighting operations.		

Section VI. Accidental Release Measures

Spill Cleanup Instructions	Flammable material. Corrosive material. Toxic material. Possible 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 get water inside container. DO NOT touch spilled material. Use water spray curtain to divert vapor drift. Use water spray to reduce vapors. 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. CORROSIVE. TOXIC. POSSIBLE CARCINOGEN. Keep locked up. Keep container dry. Keep away from heat. Mechanical exhaust required. Avoid excessive heat and light. DO NOT ingest. Do not breathe gas/fumes/ vapor/spray. Never add water to this product. 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, acids.
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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	Face shield. 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 possible carcinogen. There is no acceptable exposure limit for a carcinogen.

Section IX. Physical and Chemical Properties

Physical state @ 20°C	Liquid. (Colorless Clear.)	Solubility	Miscible with water, alcohol, ether.
Specific Gravity	0.74 (water=1)		
Molecular Weight	73.14	Partition Coefficient	Log K _{ow} : 0.97
Boiling Point	77°C (170.6°F)	Vapor Pressure	10.9 kPa (@ 20°C)
Melting Point	-49°C (-56.2°F)	Vapor Density	2.5 (Air = 1)
Refractive Index	1.4040	Volatility	Not available.
Critical Temperature	Not available.	Odor	Ammoniacal.
Viscosity	0.578 Pas @ 25°C	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 acids, copper, copper alloys, aluminium.

Section XI. Toxicological Information

RTECS Number	EO2975000
Routes of Exposure	Eye Contact. Ingestion. Inhalation. Skin contact.
Toxicity Data	Rat LD ₅₀ (oral) 366 mg/kg Rabbit LD ₅₀ (dermal) 850 uL/kg Mouse LC ₅₀ (inhalation) 800 mg/m ³ /2H
Chronic Toxic Effects	CARCINOGENIC EFFECTS : Not available. MUTAGENIC EFFECTS : Not available. TERATOGENIC EFFECTS : Tumorigenic Effects. Mouse TDLo Intraperitoneal 800 mg/kg. TOXIC Effects: Tumorigenic - Equivocal tumorigenic agent by RTECS criteria. Lung, Thorax, or Respiration - Tumors. Skin and Appendages - Tumors. DEVELOPMENTAL TOXICITY : Reproductive Effects. Rat TDLo Oral 2.4 gm/kg female 1-6 days of pregnancy. TOXIC Effects: Specific Developmental Abnormalities - Cardiovascular (circulatory) system. Specific Developmental Abnormalities - Other developmental abnormalities. Rat TDLo Oral 6 gm/kg female 1-6 days of pregnancy. TOXIC Effects: Effects on Fertility - Post-implantation mortality. Effects on Embryo or Fetus - Fetotoxicity. Specific Developmental Abnormalities - Cardiovascular (circulatory) system. Repeated or prolonged contact with spray mist may produce chronic eye irritation and severe skin irritation. Repeated or prolonged exposure to spray mist may produce respiratory tract irritation leading to frequent attacks of bronchial infection. Repeated exposure to an highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.
Acute Toxic Effects	Corrosive to skin, eyes, and respiratory system. Liquid or spray mist may produce tissue damage, particularly in mucous membranes of the eyes, mouth and respiratory tract. Skin contact may produce burns. Eye contact can result in corneal damage or blindness. Inhalation of the spray mist may produce severe irritation of respiratory tract, characterized by coughing, choking, or shortness of breath. Corrosive materials may cause serious injury if ingested. 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	n-Butylamine's production and use as a chemical intermediate, as well as its presence in animal waste may result in its release to the environment through various waste streams. If released to air, a vapor pressure of 92.9 mm Hg at 25 deg C indicates n-butylamine will exist solely as a vapor in the ambient atmosphere. Vapor-phase n-butylamine 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 11 hours. If released to soil, n-butylamine is expected to have high mobility based upon Koc values ranging from 15 to 107; however, a pKa of 10.78 indicates that the protonated form will be the dominant species in moist soil surfaces and therefore, it might adsorb because cations generally tend to adsorb strongly to soils. Volatilization from moist soil surfaces is not expected to be an important fate process since the protonated form of the molecule is not expected to volatilize. n-Butylamine may potentially volatilize from dry soil surfaces based upon its vapor pressure. If released into water, the protonated form of n-butylamine will be the dominant species. The neutral form of n-butylamine is not expected to adsorb to suspended solids and sediment in the water column based on the Koc values; however, the cation is expected to adsorb to suspended solids and sediment. Volatilization from water surfaces is not expected to be an important fate process because the protonated form of n-butylamine is not expected to volatilize. Screening studies indicate that biodegradation of n-butylamine will occur; 67% BODT was reached after 12 days using an activated sludge inoculum. An estimated BCF of 3 suggests the potential for bioconcentration in aquatic organisms is low. Hydrolysis is not expected to occur due to the lack of hydrolyzable functional groups. Occupational exposure to n-butylamine may occur through inhalation and dermal contact with this compound at workplaces where n-butylamine is produced or used. The general population may be exposed to n-butylamine from various foods, from water, and from inhalation of ambient air.

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 3: Flammable liquid. DOT Class 8: Corrosive material.
PIN Number	UN1125
Proper Shipping Name	n-Butylamine
Packing Group (PG)	II

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Emergency phone number (800) 424-9300

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). CLASS E: Corrosive liquid. On DSL.
EINECS Number (EEC)	203-699-2
EEC Risk Statements	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. R34- Causes burns. R45- May cause cancer. R52- Harmful to aquatic organisms. R53- May cause long-term adverse effects in the aquatic environment.
Japanese Regulatory Data	ENCS No. (2)-132

Section XVI. Other Information

Version 1.0
Validated on 7/17/2007.
Printed 7/17/2007.

Notice to Reader

TCI 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.

Printed 7/17/2007.