

# Material Safety Data Sheet

HAZARD WARNINGS	RISK PHRASES	PROTECTIVE CLOTHING
  	<b>Flammable material; avoid heat and sources of ignition.</b> <b>Corrosive to eyes and skin on contact.</b> <b>Toxic compound, do not ingest or inhale. Avoid all contact with this material.</b>	

## Section I. Chemical Product and Company Identification

Chemical Name	<b>Tetra-n-butylammonium Hydroxide</b> (10% in Methanol)		
Catalog Number	T0717	Supplier	TCl America 9211 N. Harborgate St. Portland OR 1-800-423-8616
Synonym	Not available.		
Chemical Formula	[CH <sub>3</sub> (CH <sub>2</sub> ) <sub>3</sub> ] <sub>4</sub> N•OH		
CAS Number	2052-49-5 67-56-1	In case of Emergency Call	<b>Chemtrec®</b> <b>(800) 424-9300 (U.S.)</b> <b>(703) 527-3887 (International)</b>

## Section II. Composition and Information on Ingredients

Chemical Name	CAS Number	Percent (%)	TLV/PEL	Toxicology Data
Tetra-n-butylammonium Hydroxide <small>(10% in Methanol)</small>	2052-49-5 67-56-1	Min. 10% (T) 90%	Not available.	Mouse LD <sub>50</sub> (subcutaneous) 19mg/kg Rat LD <sub>50</sub> (inhalation) 64000ppm/4H Rat LD <sub>50</sub> (oral) 5628mg/kg Rabbit LD <sub>50</sub> (dermal) 15800mg/kg

## Section III. Hazards Identification

Acute Health 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.
Chronic Health Effects	<b>CARCINOGENIC EFFECTS</b> : Not available. <b>MUTAGENIC EFFECTS</b> : Not available. <b>TERATOGENIC EFFECTS</b> : Not available. <b>DEVELOPMENTAL TOXICITY</b> Reproductive: rat (oral) 200ppm/20H. Duration: male 78 weeks prior to mating. Paternal effects- Testes, epididymis, sperm duct. rat (oral) 35295mg/kg. Duration: female 1-15 days of pregnancy. Effects on fertility- Female fertility index. 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.

## Section IV. First Aid Measures

Eye Contact	Check for and remove any contact lenses. IMMEDIATELY flush eyes with running water for at least 15 minutes, keeping eyelids open. COLD water may be used. DO NOT use an eye ointment. Flush eyes with running water for a minimum of 15 minutes, occasionally lifting the upper and lower eyelids. Seek medical attention. Treat symptomatically and supportively.
Skin Contact	If the chemical gets spilled on a clothed portion of the body, remove the contaminated clothes as quickly as possible, protecting your own hands and body. Place the victim under a deluge shower. If the chemical touches the victim's exposed skin, such as the hands: Gently and thoroughly wash the contaminated skin with running water and non-abrasive soap. Be particularly careful to clean folds, crevices, creases and groin. COLD water may be used. Seek medical attention. Treat symptomatically and supportively. Wash any contaminated clothing before reusing.
Inhalation	Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform artificial respiration. WARNING: It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek immediate medical attention and, if possible, show the chemical label. Treat symptomatically and supportively.
Ingestion	DO NOT induce vomiting. Loosen tight clothing such as a collar, tie, belt, or waistband. If the victim is not breathing, administer artificial respiration. 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 and, if possible, show the chemical label. Treat symptomatically and supportively.

**Section V. Fire and Explosion Data**

Flammability	Flammable.	Auto-Ignition	Not available.
Flash Points	11°C (Methanol)	Flammable Limits	Not available.
Combustion Products	These products are toxic carbon oxides (CO, CO <sub>2</sub> ), toxic nitrogen oxides (NO, NO <sub>2</sub> ).		
Fire Hazards	No specific information is available regarding the flammability of this compound in the presence of various materials.		
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. No additional information is available regarding the risks of explosion.		
Fire Fighting Media and Instructions	SMALL FIRE: Use DRY chemicals, CO <sub>2</sub> , water spray or foam. LARGE FIRE: Use water spray, fog or foam. DO NOT use water jet.		

**Section VI. Accidental Release Measures**

Spill Cleanup Instructions	Corrosive liquid. Toxic material. 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. Prevent entry into sewers, basements or confined areas; dike if needed. Eliminate all sources of ignition. Consult federal, state, and/or local authorities for assistance on disposal.
----------------------------	---

**Section VII. Handling and Storage**

Handling and Storage Information	CORROSIVE. TOXIC. Handle with caution and minimize exposure. Keep container dry. Keep away from heat and sources of ignition. Mechanical exhaust required. When not in use, tightly seal the container and store in a dry, cool place. Avoid excessive heat and light. DO NOT ingest. Do not breathe gas, fumes, vapor or spray. Never add water to this product. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Treat symptomatically and supportively. Avoid contact with skin and eyes. Always store away from incompatible compounds such as oxidizing agents.
----------------------------------	--

**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	Not available.

**Section IX. Physical and Chemical Properties**

Physical state @ 20°C	Liquid.	Solubility	Miscible with ethanol, ether, benzene, most organic solvents and ketones.
Specific Gravity	0.79 (Methanol)		
Molecular Weight	259.47	Partition Coefficient	Not available.
Boiling Point	65°C (149°F) (Methanol)	Vapor Pressure	Not available.
Melting Point	Not available.	Vapor Density	Not available.
Refractive Index	1.3292 @ 20°C	Volatility	75% (v/v).
Critical Temperature	Not available.	Odor	Alcoholic odor.
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 heat, flame, or any other source of ignition.
Incompatibilities	Reactive with oxidizing agents, reducing agents, acids, acid chlorides, and acid anhydrides.

**Section XI. Toxicological Information**

RTECS Number	BS5425000 PC1400000 (Methanol)
Routes of Exposure	Eye contact. Ingestion. Inhalation. Skin contact.
Toxicity Data	Mouse LD <sub>50</sub> (subcutaneous) 19mg/kg Rat LD <sub>50</sub> (inhalation) 64000ppm/4H Rat LD <sub>50</sub> (oral) 5628mg/kg Rabbit LD <sub>50</sub> (dermal) 15800mg/kg
Chronic Toxic Effects	<b>CARCINOGENIC EFFECTS</b> : Not available. <b>MUTAGENIC EFFECTS</b> : Not available. <b>TERATOGENIC EFFECTS</b> : Not available. <b>DEVELOPMENTAL TOXICITY</b> Reproductive: rat (oral) 200ppm/20H. Duration: male 78 weeks prior to mating. Paternal effects- Testes, epididymis, sperm duct. rat (oral) 35295mg/kg. Duration: female 1-15 days of pregnancy. Effects on fertility- Female fertility index. 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.

**Section XII. Ecological Information**

Ecotoxicity	Not available.
Environmental Fate	Methanol has been identified as a natural emission product from various plants and as a biological decomposition product of biological wastes and sewage. The largest anthropogenic source of methanol release to the environment is evaporation from solvent uses (1.1 billion lb/yr). If released to the atmosphere, methanol degrades via reaction with photochemically produced hydroxyl radicals with an approximate half-life of 17.8 days. Physical removal from air can occur via rainfall. If released to water, decomposition via biodegradation is expected to occur. If released to soil, methanol is expected to degrade via biodegradation and be susceptible to significant leaching. Relatively rapid evaporation from dry surfaces is likely to occur. Occupational and general exposure occurs through inhalation and dermal contact. Exposure also occurs through consumption of various foods and waters.

**Section XIII. Disposal Considerations**

Waste Disposal	Recycle to process, if possible. Consult your local or 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 this substance.
----------------	--

**Section XIV. Transport Information**

DOT Classification	DOT CLASS 3: Flammable liquid. DOT CLASS 6.1: Toxic material. DOT CLASS 8: Corrosive liquid.
PIN Number	UN3286
Proper Shipping Name	Flammable liquid, toxic, corrosive, n.o.s.
Packing Group (PG)	II
DOT Pictograms	

**Section XV. Other Regulatory Information and Pictograms**

TSCA Chemical Inventory (EPA)	This product is <b>ON</b> the EPA Toxic Substances Control Act (TSCA) inventory.
WHMIS Classification (Canada)	WHMIS CLASS E: Corrosive liquid.
EINECS Number (EEC)	218-147-6
EEC Risk Statements	R34- Causes burns. R23/24/25- Toxic by inhalation, in contact with skin and if swallowed. R20/21/22- Harmful by inhalation, in contact with skin and if swallowed.
Japanese Regulatory Data	Not available.

**Section XVI. Other Information****Version 1.0****Validated on 10/16/1998.****Printed 3/12/2005.****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 3/12/2005.