





Material Safety Data Sheet

HAZARD WARNINGS	RISK PHRASES	PROTECTIVE CLOTHING
  	Flammable material; avoid heat and sources of ignition. Corrosive to eyes and skin on contact. Harmful compound, minimize exposure. Air, heat, and light sensitive material. Refrigerate.	

Section I. Chemical Product and Company Identification

Chemical Name	Hydrogen Chloride (ca. 1mol/L Diethyl Ether Soln.)		
Catalog Number	H1061	Supplier	TCl America 9211 N. Harbortgate St. Portland OR 1-800-423-8616
Synonym	Not available.		
Chemical Formula	HCl		
CAS Number	7647-01-0 (Hydrogen Chloride) 60-29-7 (Diethyl Ether)	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
Hydrogen Chloride (ca. 1mol/L Diethyl Ether Soln.)	7647-01-0 (Hydrogen Chloride) 60-29-7 (Diethyl Ether)	3.6 % 96.4 %	Not available.	Rat LCD ₅₀ (inhalation) 3124 ppm/1H Mouse LC ₅₀ (inhalation) 1108 ppm/1H Rabbit LD ₅₀ (oral) 900 mg/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. 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 : Not available. DEVELOPMENTAL TOXICITY : Reproductive Effects. Rat TCl ₀ Inhalation 450 mg/m ³ /1H, female 1 day prior to mating. TOXIC Effects : Effects on Embryo of Fetus - Fetotoxicity Specific Developmental Abnormalities - Homeostasis

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	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	Not available.
Flash Points	-40°C (-40°F).	Flammable Limits	Not available.
Combustion Products	These products include toxic carbon oxides (CO,CO ₂), halogenated compounds WARNING: Highly toxic HCl gas is produced during combustion.		
Fire Hazards	Not available.		

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Emergency phone number (800) 424-9300

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. Harmful material. Air, heat, and light sensitive 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. 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. CORROSIVE. HARMFUL. AIR, HEAT, AND LIGHT SENSITIVE. Keep container dry. Keep away from heat. Mechanical exhaust required. Avoid excessive heat and light. Do not breathe gas/fumes/ vapor/spray. Never add water to this product. Wear suitable protective clothing. If you feel unwell, seek medical attention and show the label when possible. 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. 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. (Clear, colorless.)	Solubility	Not available.
Specific Gravity	0.731 (water=1)		
Molecular Weight	36.46	Partition Coefficient	Not available.
Boiling Point	Not available.	Vapor Pressure	Not available.
Melting Point	Not available.	Vapor Density	Not available.
Refractive Index	Not available.	Volatility	Not available.
Critical Temperature	Not available.	Odor	Characteristic.
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 acids.

Section XI. Toxicological Information

RTECS Number	MW4025000 (Hydrogen Chloride) KI5775000 (Diethyl Ether)
Routes of Exposure	Eye Contact. Ingestion. Inhalation. Skin contact.
Toxicity Data	Rat LCD ₅₀ (inhalation) 3124 ppm/1H Mouse LC ₅₀ (inhalation) 1108 ppm/1H Rabbit LD ₅₀ (oral) 900 mg/kg
Chronic Toxic Effects	CARCINOGENIC EFFECTS : Not available. MUTAGENIC EFFECTS : Not available. TERATOGENIC EFFECTS : Not available. DEVELOPMENTAL TOXICITY : Reproductive Effects. Rat TCLo Inhalation 450 mg/m ³ /1H, female 1 day prior to mating. TOXIC Effects: Effects on Embryo of Fetus - Fetotoxicity Specific Developmental Abnormalities - Homeostasis

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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. 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

(Diethyl Ether)

Diethyl ether's production and use as a solvent, in the manufacture of gun powder, and as a primer for gasoline engines may result in its release to the environment through various waste streams. If released to air, a vapor pressure of 538 mm Hg at 25 deg C indicates diethyl ether will exist solely as a vapor in the ambient atmosphere. Vapor-phase diethyl ether will be degraded in the atmosphere by reaction with photochemically-produced hydroxyl radicals and nitrate radicals; half-lives for these reactions in air are estimated to be 1.2 and 5.8 days, respectively. Direct photolysis is not expected to be an important removal process since aliphatic ethers do not absorb light in the environmental spectrum. If released to soil, diethyl ether is expected to have high mobility based upon an estimated Koc of 73. Volatilization from moist soil surfaces is expected to be an important fate process based upon a Henry's Law constant of 1.23×10^{-3} atm-cu m/mole. Diethyl ether is expected to volatilize from dry soil surfaces based upon its vapor pressure. Aqueous screening studies indicate biodegradation is expected to be a slow fate process in both soil and water; 0 to 1.1% BODT was observed over a period of 5 days. If released into water, diethyl ether is not expected to adsorb to suspended solids and sediment in water 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 from a model river and model lake are 3.1 hours and 3.6 days, respectively. BCFs ranging from 0.9 to 9.1 in carp suggest bioconcentration in aquatic organisms is low. Hydrolysis is not expected to occur due to the lack of hydrolyzable functional groups. Occupational exposure to diethyl ether may occur through inhalation and dermal contact with this compound at workplaces where diethyl ether is produced or used. The general population may be exposed to diethyl ether from consumer products, inhalation of ambient air, and ingestion of contaminated drinking water.

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
DOT CLASS 8: Corrosive material

PIN Number

UN2924

Proper Shipping Name

Flammable liquid, corrosive, n.o.s.

Packing Group (PG)

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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)

On DSL

EINECS Number (EEC)

231-595-7

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.
R34- Causes burns.

Japanese Regulatory Data

ENCS No. 1-215

Section XVI. Other Information

Version 1.0

Validated on 3/8/2006.

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Notice to Reader

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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.