





Material Safety Data Sheet

HAZARD WARNINGS	RISK PHRASES	PROTECTIVE CLOTHING
  	<p>THIS MATERIAL IS TOXIC BY INHALATION. Highly toxic compound, do not ingest or inhale. Avoid all contact with this material. Corrosive to eyes and skin on contact. Water-reactive. May ignite or generate flammable gas in the presence of moisture. Lachrymator.</p>	

Section I. Chemical Product and Company Identification

Chemical Name	Trichloroacetyl Chloride		
Catalog Number	T0373	Supplier	TCI America 9211 N. Harborage St. Portland OR 1-800-423-8616
Synonym	Acetyl chloride, trichloro- (9 Cl)		
Chemical Formula	Cl ₃ CCOCl		
CAS Number	76-02-8	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
Trichloroacetyl Chloride	76-02-8	Min. 98.0 (GC,T)	Not available.	Rat LC ₅₀ (inhalation) 475mg/m ³ /4H Rat LD ₅₀ (oral) 600mg/kg Mouse LC ₅₀ (inhalation) 445mg/m ³

Section III. Hazards Identification

Acute Health Effects	<p>Highly toxic if ingested or inhaled. Avoid prolonged contact with this material. Overexposure may result in serious illness or death.</p> <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.</p> <p>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 : Not available. DEVELOPMENTAL TOXICITY: Not available.</p> <p>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. 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.
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	Not available.	Auto-Ignition	Not available.
Flash Points	Not available.	Flammable Limits	Not available.
Combustion Products	<p>These products include toxic carbon oxides (CO,CO₂), halogenated compounds.</p> <p>WARNING: Highly toxic HCl gas is produced during combustion.</p>		
Fire Hazards	Not available.		
Explosion Hazards	<p>Risks of explosion of the product in presence of mechanical impact: Not available.</p> <p>Risks of explosion of the product in presence of static discharge: Not available.</p>		

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Emergency phone number (800) 424-9300

Fire Fighting Media
and Instructions

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

This material is toxic by inhalation. Highly toxic material. Corrosive material. Water-reactive material. Lachrymatory 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.

Section VII. Handling and StorageHandling and Storage
Information

THIS MATERIAL IS TOXIC BY INHALATION. HIGHLY TOXIC. CORROSIVE. WATER-REACTIVE. LACHRYMATOR. Keep locked up. Keep under inert atmosphere. Keep container dry. 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.

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. (Colorless.)

Solubility

Soluble in ether, alcohol.

Specific Gravity

1.629 (water=1)

Molecular Weight

181.83

Partition Coefficient

Not available.

Boiling Point

114 to 116 °C (237.2 to 240.8 °F)

Vapor Pressure

2.1 kPa (@ 20 °C)

Melting Point

-31.8 °C (-25.2 °F)

Vapor Density

Not available.

Refractive Index

Not available.

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

Reacts violently with water especially when water is added to the product. Avoid excessive heat and light.

Incompatibilities

Reactive with strong oxidizing agents, moisture.
The product REACTS violently with water to emit FLAMMABLE BUT NON TOXIC GASES.

Section XI. Toxicological Information

RTECS Number

AO7140000

Routes of Exposure

Eye Contact. Ingestion. Inhalation. Skin contact.

Toxicity Data

Rat LC₅₀ (inhalation) 475mg/m³/4H
Rat LD₅₀ (oral) 600mg/kg
Mouse LC₅₀ (inhalation) 445mg/m³

Chronic Toxic Effects

CARCINOGENIC EFFECTS : Not available.
MUTAGENIC EFFECTS : Not available.
TERATOGENIC EFFECTS : Not available.
DEVELOPMENTAL TOXICITY: Not available.
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	Highly toxic if ingested or inhaled. Avoid prolonged contact with this material. Overexposure may result in serious illness or death. 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. Follow safe industrial hygiene practices and always wear proper protective equipment when handling this compound.
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Section XII. Ecological Information

Ecotoxicity	Not available.
Environmental Fate	Trichloroacetyl chloride's production and subsequent use as an intermediate in the manufacture of esters and anhydrides of trichloroacetic acid and in the manufacture of the antibiotic, cephacetrile, may result in its release to the environment through various waste streams. If released to the atmosphere, trichloroacetyl chloride will exist solely in the vapor-phase where it is expected that this compound will not degrade appreciably via hydroxyl radicals. A hydrolysis half-life of 455 years for trichloroacetyl chloride in the atmosphere has been estimated. Based on an estimated Koc of 72, trichloroacetyl chloride should be highly mobile in soil. Hydrolysis of trichloroacetyl chloride is, however, expected to be a major fate process for this compound and should preclude leaching processes in the environment. Data on the hydrolysis of trichloroacetyl chloride are not available; however, acetyl chloride at 25 deg C has a half-life of 0.8 sec and dichloroacetyl chloride at -20 deg C has a hydrolysis rate of 0.004/min. In water, trichloroacetyl chloride is expected to hydrolyze very quickly. Trichloroacetyl chloride is not expected to bioconcentrate in aquatic organisms based on an estimated BCF value of 3. Exposure to trichloroacetyl chloride may occur occupationally during its production or during its use as a chemical intermediate.

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	Forbidden to ship by air CLASS 8: Corrosive material CLASS 6.1: Toxic material.
PIN Number	UN2442
Proper Shipping Name	Trichloroacetyl chloride
Packing Group (PG)	II (Zone: B)
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. This product is subject to SARA Section 313 reporting requirements.
WHMIS Classification (Canada)	CLASS D-1A: Material causing immediate and serious toxic effects (VERY TOXIC). CLASS E: Corrosive liquid. On DSL.
EINECS Number (EEC)	200-926-7
EEC Risk Statements	R14- Reacts violently with water. R23/24/25- Toxic by inhalation, in contact with skin and if swallowed. R34- Causes burns.
Japanese Regulatory Data	ENCS No. 9-918

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, 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.