

Material Safety Data Sheet

HAZARD WARNINGS	RISK PHRASES	PROTECTIVE CLOTHING
  	<p>Toxic compound, do not ingest or inhale. Avoid all contact with this material.</p> <p>Environmental hazard.</p> <p>This material is toxic to aquatic organisms and may cause long term adverse effects to the aquatic environment.</p> <p>Reproductive effector; may damage fertility or the unborn child.</p> <p>Irritating to skin, eyes, and the respiratory system.</p> <p>Lachrymator.</p> <p>May develop pressure.</p>	   

Section I. Chemical Product and Company Identification

Chemical Name	Trichloroacetonitrile		
Catalog Number	T0372	Supplier	TCI America 9211 N. Harborsgate St. Portland OR 1-800-423-8616
Synonym	Not available.		
Chemical Formula	C ₂ Cl ₃ N		
CAS Number	545-06-2	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
Trichloroacetonitrile	545-06-2	Min. 98.0 (GC)	Not available.	Rat LD ₅₀ (oral) 250 mg/kg Mouse LD ₅₀ (intravenous) 56 mg/kg Rabbit LD ₅₀ (dermal) 900 uL/kg

Section III. Hazards Identification

Acute Health Effects	<p>Toxic if ingested or inhaled. Avoid prolonged contact with this material. Overexposure may result in serious illness or death. Irritating to eyes and skin on contact. Inhalation causes irritation of the lungs and respiratory system. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.</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.</p> <p>MUTAGENIC EFFECTS : Not available.</p> <p>TERATOGENIC EFFECTS : Not available.</p> <p>DEVELOPMENTAL TOXICITY: Reproductive Effects Rat TDLo (Oral) 97500 ug/kg. Female 6-18 days of pregnancy. Toxic Effects: Effects on Fertility - Post implantation mortality Effects on Embryo or Fetus - Fetal death Rat TDLo (Oral) 455 mg/kg. Female 6-18 days of pregnancy. Toxic Effects: Effects on Embryo or Fetus - Fetotoxicity Rat TDLo (Oral) 825 mg/kg. Female 7-21 days of pregnancy. Toxic Effects: Effects on Newborn - Weaning or lactation index. Effects on Newborn - Growth statistics 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	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.

Section V. Fire and Explosion Data

Flammability	May be combustible at high temperature.	Auto-Ignition	Not available.
Flash Points	195°C (383°F).	Flammable Limits	Not available.
Combustion Products	These products include toxic carbon oxides (CO,CO ₂), nitrogen oxides (NO _x), halogenated compounds. WARNING: Highly toxic HCl gas is produced during combustion.		
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	SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray, fog or foam. DO NOT use water jet. Consult with local fire authorities before attempting large scale fire-fighting operations.		

Section VI. Accidental Release Measures

Spill Cleanup Instructions	Toxic material. Environmentally toxic material. Reproductive effecting material. Irritating material. Lachrymatory material. May be pressure developing material. Absorb with an inert material and put the spilled material in an appropriate waste disposal. Stop leak if without risk. DO NOT get water inside container. DO NOT touch spilled material. Use water spray to reduce vapors. 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.
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Section VII. Handling and Storage

Handling and Storage Information	TOXIC. ENVIRONMENTAL HAZARD. REPRODUCTIVE EFFECTOR. IRRITANT. LACHRYMATOR. MAY DEVELOP PRESSURE. Keep locked up. Keep away from heat. 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/spray. 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, reducing agents, acids, alkalis (bases).
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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	Splash goggles. 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. (Clear. Colorless - very pale yellow.)	Solubility	Insoluble in water (715 mg/L 25°C).
Specific Gravity	1.43 (water=1)		
Molecular Weight	144.39	Partition Coefficient	LOG P _{ow} : 2.09
Boiling Point	85°C (185°F)	Vapor Pressure	9.9 kPa (@ 25°C)
Melting Point	-42°C (-43.6°F)	Vapor Density	Not available.
Refractive Index	1.44	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 reducing agents, strong acids, strong alkalis (bases).

Section XI. Toxicological Information

RTECS Number	AM2450000
Routes of Exposure	Eye Contact. Ingestion. Inhalation.
Toxicity Data	Rat LD ₅₀ (oral) 250 mg/kg Mouse LD ₅₀ (intravenous) 56 mg/kg Rabbit LD ₅₀ (dermal) 900 uL/kg
Chronic Toxic Effects	CARCINOGENIC EFFECTS : Not available. MUTAGENIC EFFECTS : Not available. TERATOGENIC EFFECTS : Not available. DEVELOPMENTAL TOXICITY : Reproductive Effects Rat TDLo (Oral) 97500 ug/kg. Female 6-18 days of pregnancy. Toxic Effects: Effects on Fertility - Post implantation mortality Effects on Embryo or Fetus - Fetal death Rat TDLo (Oral) 455 mg/kg. Female 6-18 days of pregnancy. Toxic Effects: Effects on Embryo or Fetus - Fetotoxicity Rat TDLo (Oral) 825 mg/kg. Female 7-21 days of pregnancy. Toxic Effects: Effects on Newborn - Weaning or lactation index. Effects on Newborn - Growth statistics 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	Toxic if ingested or inhaled. Avoid prolonged contact with this material. Overexposure may result in serious illness or death. Irritating to eyes and skin on contact. Inhalation causes irritation of the lungs and respiratory system. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering. Follow safe industrial hygiene practices and always wear proper protective equipment when handling this compound.

Section XII. Ecological Information

Ecotoxicity	Not available.
Environmental Fate	Trichloroacetonitrile's production and use as a chemical intermediate may result in its release to the environment through various waste streams. Trichloroacetonitrile formation in small amounts during the chlorination of water will result in its release to the environment through various waste streams. Its former use as an insecticide resulted in its direct release to the environment. If released to air, a vapor pressure of 74.1 mm Hg at 25 deg C indicates trichloroacetonitrile will exist solely as a vapor in the atmosphere. There is no mechanistic process by which trichloroacetonitrile can be degraded in the atmosphere by reaction with photochemically-produced hydroxyl radicals. Trichloroacetonitrile does not contain chromophores that absorb at wavelengths >290 nm and therefore is not expected to be susceptible to direct photolysis by sunlight. If released to soil, trichloroacetonitrile is expected to have moderate mobility based upon an estimated Koc of 330. Volatilization from moist soil surfaces is expected to be an important fate process based upon an estimated Henry's Law constant of 1.3X10 ⁻⁶ atm-cu m/mole. Trichloroacetonitrile may volatilize from dry soil surfaces based upon its vapor pressure. Trichloroacetonitrile is a by-product of water chlorination and hydrolyzes quickly, therefore biodegradation is not expected to be an important fate in the environment. If released into water, trichloroacetonitrile is expected to adsorb to suspended solids and sediment based upon the estimated Koc. Volatilization from water surfaces is expected to be an important fate process based upon this compound's estimated Henry's Law constant. Estimated volatilization half-lives for a model river and model lake are 33 and 240, respectively. An estimated BCF of 8 suggests the potential for bioconcentration in aquatic organisms is low. Trichloroacetonitrile has a hydrolysis rate constant of 2.0X10 ⁻⁶ /sec, 1.5X10 ⁻⁴ /sec and 3.9X10 ⁻⁴ /sec at pH of 5.4, 7.2 and 8.7, respectively, corresponding to half-lives of 4 days, 1.3 hours, and 29 minutes, respectively. Occupational exposure to trichloroacetonitrile may occur through inhalation and dermal contact with this compound at workplaces where trichloroacetonitrile is produced. Monitoring data indicate that the general population may be exposed to small amounts of trichloroacetonitrile via ingestion of and dermal contact with 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.
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Section XIV. Transport Information

DOT Classification	DOT CLASS 6.1: Toxic material.
PIN Number	UN3276
Proper Shipping Name	Nitriles, toxic, liquid, n.o.s.
Packing Group (PG)	III
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 D-1B: Material causing immediate and serious toxic effects (TOXIC). On DSL.
EINECS Number (EEC)	208-885-7
EEC Risk Statements	R23/24/25- Toxic by inhalation, in contact with skin and if swallowed. R51- Toxic to aquatic organisms. R53- May cause long-term adverse effects in the aquatic environment. R36/37/38- Irritating to eyes, respiratory system and skin.
Japanese Regulatory Data	ENCS no.: 2-3608

Section XVI. Other Information

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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.