TCI AMERICA

Material Safety Data Sheet

HAZARD WARNINGS	RISK PHRASES	PROTECTIVE CLOTHING
	Toxic compound, do not ingest or inhale. **Irritating to skin, eyes, and the respiratory system.** **Lachrymator.** **May cause nausea, headache, and vomiting upon exposure.** **DANGEROUS MAY CAUSE CANCER.**	

Section I. Chemical Product and Company Identification

Chemical Name **1,1,2,2-Tetrachloroethane**

Catalog Number	T0063
Synonym	Acetylene Tetrachoride
Chemical Formula	$Cl_2CHCHCl_2$
CAS Number	79-34-5

Supplier: TCI America, 9211 N. Harborgate St., Portland OR, 1-800-423-8616

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
1,1,2,2-Tetrachloroethane	79-34-5	98% (GC)	TWA: 1 STEL: 5 (ppm) from OSHA/NIOSH This chemical is classified as a possible carcinogen. There is no acceptible exposure limit for a carcinogen.	Rat LD_{50} (oral) 250 mg/kg Rat LC_{50} (inhalation) 1000 ppm/4H Mouse LD_{50} (intraperitoneal) 821 mg/kg

Section III. Hazards Identification

Acute Health Effects

Toxic if ingested or inhaled. Ingestion causes coma, ineffective breathing, decreased reflexes. Avoid prolonged contact with this material. Overexposure may result in serious illness or death. Irritating to eyes (lachrymator) and skin on contact. Inhalation causes irritation of the lungs and respiratory system and drowsiness. 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.

Chronic Health Effects

CARCINOGENIC EFFECTS : Suspected carcinogen by IARC and NTP.
MUTAGENIC EFFECTS : Suspected mutagen.
TERATOGENIC EFFECTS : Not available.
Toxicity to the reproductive system: Suspected reproductive hazard.
Repeated exposure to this compound may cause dermatitis, and sustained damage to the liver, kidneys, lungs, and nerves.

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. Cover the irritated skin with an emollient. 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

Remove dentures if any. Watch for an obstruction in the victim's mouth. Remove if possible what is causing the obstruction but do not force fingers or a hard object between the victim's teeth. Have conscious person drink several glasses of water or milk. INDUCE VOMITING by sticking finger in throat. Seek immediate medical attention and, if possible, show the chemical label. Treat symptomatically and supportively.

Continued on Next Page *Emergency phone number (800) 424-9300*

Section V. Fire and Explosion Data

Flammability	Combustible.	Auto-Ignition	Not available.
Flash Points	Not available.	Flammable Limits	Not available.

Combustion Products
These products include toxic carbon oxides (CO,CO_2), halogenated combustion products.
WARNING: Highly toxic HCl gas is produced during combustion.

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.
Explosion may occur when the solvent symmetrical tetrachloroethane is almost removed in the chorinolysis of 2,4-Dinitrophenyl Disulfide. May explode with potassium or sodium.

Fire Fighting Media and Instructions
SMALL FIRE: Use DRY chemicals, CO_2, 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
Combustible material. Toxic liquid.
Keep away from heat and sources of ignition. Mechanical exhaust required. 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.

Section VII. Handling and Storage

Handling and Storage Information
TOXIC. IRRITANT. POSSIBLE CARCINOGEN. Handle with caution and minimize exposure. 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. 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, reducing agents, metals, alkalis (bases), and potassium..

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
TWA: 1 STEL: 5 (ppm) from OSHA/NIOSH

This chemical is classified as a possible carcinogen. There is no acceptible exposure limit for a carcinogen.

Section IX. Physical and Chemical Properties

Physical state @ 20°C	Colorless to pale yellow liquid.	Solubility	Very slightly soluble in cold water, hot water.
Specific Gravity	1.6		
Molecular Weight	167.85	Partition Coefficient	Not available.
Boiling Point	146-147°C (295-297°F)	Vapor Pressure	10 mm of Hg (@ 20°C)
Melting Point	-44°C (-47.2°F)	Vapor Density	5.7 (Air = 1)
Refractive Index	Not available.	Volatility	100% (v/v).
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, reducing agents, metals, alkalis (bases), and potassium.

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Section XI. Toxicological Information

RTECS Number	KI8575000
Routes of Exposure	Eye contact. Ingestion. Inhalation. Skin contact.
Toxicity Data	Rat LD_{50} (oral) 250 mg/kg Rat LC_{50} (inhalation) 1000 ppm/4H Mouse LD_{50} (intraperitoneal) 821 mg/kg
Chronic Toxic Effects	**CARCINOGENIC EFFECTS** : Suspected carcinogen by IARC and NTP. **MUTAGENIC EFFECTS** : Suspected mutagen. **TERATOGENIC EFFECTS** : Not available. Toxicity to the reproductive system: Suspected reproductive hazard. Repeated exposure to this compound may cause dermatitis, and sustained damage to the liver, kidneys, lungs, and nerves.
Acute Toxic Effects	Toxic if ingested or inhaled. Ingestion causes coma, ineffective breathing, decreased reflexes. Avoid prolonged contact with this material. Overexposure may result in serious illness or death. Irritating to eyes (lachrymator) and skin on contact. Inhalation causes irritation of the lungs and respiratory system and drowsiness. 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	Most of the released 1,1,2,2-tetrachloroethane enters the atmosphere where it is extremely stable (half-life >2 years). Some of the chemical will eventually diffuse into the stratosphere where it will rapidly photodegrade. 1,1,2,2-Tetrachloroethane which is released into water will primarily be lost by volatilization in a matter of days to weeks. The volatilization half-lives from a model river and a model pond have been estimated to be 6.3 hr and 3.5 days, respectively. 1,1,2,2-Tetrachloroethane is not expected to partition from the water column to organic matter contained in sediments and suspended solids. A measured Koc of 79 in a silt loam indicates 1,1,2,2-tetrachloroethane will be highly mobile in soil. When disposed of on soil, part of the 1,1,2,2-tetrachloroethane may leach into groundwater. There is evidence that 1,1,2,2-tetrachloroethane slowly biodegrades. A product of biodegradation under anaerobic conditions is 1,1,2-trichloroethane, a chemical which is resistant to further biodegradation. Under alkaline conditions, 1,1,2,2-tetrachloroethane may be expected to hydrolyze. A measured aqueous hydrolysis rate constant, KB of 2.3X10+7 L/moles-yr, corresponds to hydrolytic half-lives of 1.1,11.1, and and 111 days at pH 9, 8, and 7, respectively. 1,1,2,2-Tetrachloroethane will not be expected to bioconcentrate into the food chain. The major source of human exposure is from ambient air near industrial sources. (SRC) (Excerpted from Hazardous Substances Data Bank, 1997)

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 6.1: Toxic material.
PIN Number	UN1702
Proper Shipping Name	Tetrachloroethane
Packing Group (PG)	II
DOT Pictograms	

Section XV. Other Regulatory Information and Pictograms

TSCA Chemical Inventory (EPA)	This product is **ON** the EPA Toxic Substances Control Act (TSCA) inventory.
WHMIS Classification (Canada)	WHMIS CLASS D-2B: Material causing other toxic effects (TOXIC).
EINECS Number (EEC)	201-197-8
EEC Risk Statements	R39- Danger of very serious irreversible effects. R41- Risk of serious damage to eyes. R26/27/28- Very toxic by inhalation, in contact with skin and if swallowed.
Japanese Regulatory Data	Not available.

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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.