

Material Safety Data Sheet

HAZARD WARNINGS	RISK PHRASES	PROTECTIVE CLOTHING
	Harmful compound, minimize exposure. Irritating to skin, eyes, and the respiratory system.	

Section I. Chemical Product and Company Identification

Chemical Name	1,2,4,5-Tetrachlorobenzene		
Catalog Number	T0060	Supplier	TCl America 9211 N. Harborgate St. Portland OR 1-800-423-8616
Synonym	Benzene Tetrachloride		
Chemical Formula	C ₆ H ₂ Cl ₄		
CAS Number	95-94-3	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
1,2,4,5-Tetrachlorobenzene	95-94-3	Min. 99.0 (GC)	Not available.	Rat LD ₅₀ (oral) 1500mg/kg Mouse LD ₅₀ (oral) 1035mg/kg Rabbit LD ₅₀ (oral) 1500mg/kg

Section III. Hazards Identification

Acute Health Effects	Harmful if ingested or inhaled. Minimize exposure to this material. Severe overexposure can result in injury 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.
Chronic Health Effects	CARCINOGENIC EFFECTS : Not available. MUTAGENIC EFFECTS : Not available. TERATOGENIC EFFECTS : Not available. DEVELOPMENTAL TOXICITY Not available. 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 eyelids. Seek medical attention. Treat symptomatically and supportively.
Skin Contact	After contact with skin, wash immediately with plenty of water. Gently and thorough 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. Cover the irritated skin with an emollient. Seek medical attention. Treat symptomatically and supportively. Wash any contaminated clothing before reusing.
Inhalation	If the victim is not breathing, perform artificial respiration. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, oxygen can be administered. Seek medical attention. Treat symptomatically and supportively.
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, 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	May be combustible at high temperature.	Auto-Ignition	Not available.
Flash Points	>109°C (228.2°F).	Flammable Limits	Not available.
Combustion Products	These products are toxic carbon oxides (CO, CO ₂), halogenated compounds. 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. No additional information is available regarding the risks of explosion.		

Continued on Next Page

Emergency phone number (800) 424-9300

Fire Fighting Media
and Instructions

SMALL FIRE: Use DRY chemicals, CO₂, 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

Harmful material. Irritating material.
In case of a spill and/or a leak, always shut off any sources of ignition, ventilate the area, and exercise caution. Use a shovel to put the material into a convenient waste disposal container. Finish cleaning the spill by rinsing any contaminated surfaces with copious amounts of water. Consult federal, state, and/or local authorities for assistance on disposal.

Section VII. Handling and Storage

Handling and Storage
Information

HARMFUL. IRRITANT. 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 dust. 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, alkalis (bases).

Section VIII. Exposure Controls/Personal Protection

Engineering Controls

Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Personal Protection

Splash goggles. Lab coat. Dust respirator. Boots. Gloves. Be sure to use a MSHA/NIOSH approved respirator or equivalent. 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	White chips.	Solubility	>10% in benzene, >10% in ether, >10% in chloroform, 0.3ppm in water @ 22°C.
Specific Gravity	Not available.		
Molecular Weight	215.89	Partition Coefficient	Not available.
Boiling Point	240 to 246°C (464 to 474.8°F)	Vapor Pressure	Not available.
Melting Point	139 to 142°C (282.2 to 287.6°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	Avoid excessive heat and light.
Incompatibilities	Reactive with strong oxidizing agents, strong alkalis (bases).

Section XI. Toxicological Information

RTECS Number	DB9450000
Routes of Exposure	Eye contact. Ingestion. Inhalation. Skin contact.
Toxicity Data	Rat LD ₅₀ (oral) 1500mg/kg Mouse LD ₅₀ (oral) 1035mg/kg Rabbit LD ₅₀ (oral) 1500mg/kg
Chronic Toxic Effects	CARCINOGENIC EFFECTS : Not available. MUTAGENIC EFFECTS : Not available. TERATOGENIC EFFECTS : Not available. DEVELOPMENTAL TOXICITY Not available. 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	Harmful if ingested or inhaled. Minimize exposure to this material. Severe overexposure can result in injury 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.

Continued on Next Page

Emergency phone number (800) 424-9300

Section XII. Ecological Information

Ecotoxicity Not available.

Environmental Fate Chemical waste dump leachates and direct manufacturing effluents are reported to be the major source of pollution of the chlorobenzenes in general (including 1,2,4,5-tetrachlorobenzene) to Lake Ontario. Since 1,2,4,5-tetrachlorobenzene is not currently manufactured on a commercial scale, manufacturing effluents will not be a major pollution source. If released to soil, 1,2,4,5-tetrachlorobenzene will become tightly adsorbed to the organic fraction of the soil based on Koc values of 5192-9980. Leaching from hazardous waste disposal areas has occurred however, possibly due to saturation of adsorption sites in the soil by the numerous compounds being leached, very low organic content of the surrounding soil and/or a porous soil. Data are insufficient to suggest biodegradation occurs in soil. Direct photolysis on soil surfaces may occur. If released to water, adsorption to sediment will be a major environment fate process based upon extensive monitoring data in the Great Lakes area and Koc values. Analysis of Lake Ontario sediment cores has indicated the presence and persistence of 1,2,4,5-tetrachlorobenzene since before 1940 and indicate insufficient evidence of any anaerobic microbial degradation. 1,2,4,5-Tetrachlorobenzene is volatile from water with an estimated half-life of 4.8 hours from a river one meter deep flowing 1m/sec with a wind velocity of 3 m/sec and susceptible to photodegradation. However, adsorption to sediment in water will attenuate volatilization and potential photolysis. The volatilization half-life from a model pond, which considers the effect of adsorption, can be estimated to be about 59.3 days. Bioconcentration occurs significantly as evidenced by experimental BCF values of 4000 to 13000 and monitoring of rainbow trout in Lake Ontario. If released to air, direct photolysis may be a rapid transformation process as suggested by a photolysis half-life of less than 8 hours in a water-acetonitrile solution irradiated with wavelengths above 285 nm. The half-life for the vapor-phase reaction with photochemically produced hydroxyl radicals in the atmosphere has been estimated to be 190 days. General population exposure to 1,2,4,5-tetrachlorobenzene may occur through consumption of contaminated drinking water and food (particularly fish), especially in certain areas of the Great Lakes.

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 the substance.

Section XIV. Transport Information

DOT Classification Not a DOT controlled material (United States).

PIN Number Not applicable.

Proper Shipping Name Not applicable.

Packing Group (PG) Not applicable.

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) Not available.

EINECS Number (EEC) 202-466-2

EEC Risk Statements R20/21/22- Harmful by inhalation, in contact with skin and if swallowed.
R36/37/38- Irritating to eyes, respiratory system and skin.

Japanese Regulatory Data Not available.

Section XVI. Other Information

Version 1.0
Validated on 7/30/1999.
Printed 3/11/2005.

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.