









Material Safety Data Sheet

HAZARD WARNINGS	RISK PHRASES	PROTECTIVE CLOTHING
   	<p>Flammable material; avoid heat and sources of ignition.</p> <p>Toxic compound, do not ingest or inhale. Avoid all contact with this material.</p> <p>Irritating to skin, eyes, and the respiratory system.</p> <p>Aspiration hazard; may be harmful if swallowed and enters airways.</p> <p>POSSIBLE MUTAGEN. MINIMIZE EXPOSURE.</p> <p>Reproductive effects; may damage fertility or the unborn child.</p> <p>Environmental hazard. This material is toxic to aquatic organisms and may cause long term adverse effects to the aquatic environment.</p> <p>Heat sensitive material.</p> <p>May develop pressure.</p>	   

Section I. Chemical Product and Company Identification

Chemical Name	Carbon Disulfide		
Catalog Number	C1955	Supplier	TCI America 9211 N. Harborside St. Portland OR 1-800-423-8616
Synonym	Not available.		
Chemical Formula	CS ₂		
CAS Number	75-15-0	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
Carbon Disulfide	75-15-0	Min. 98.0 (GC)	This compound is classified as a possible mutagen. There is no acceptable exposure limit for a mutagen.	Rat LD ₅₀ (oral) 1200 mg/kg Mouse LD ₅₀ (oral) 2780 mg/kg Rat LD ₅₀ (inhalation) 25 gm/m ³ /2H

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.</p> <p>Man TCLO Inhalation 40 mg/m³, male 91 weeks prior to mating</p> <p>Toxic Effects:</p> <p>Paternal Effects - Spermatogenesis</p> <p>Rat TCLO Inhalation 100/mg³ for 8 hours, female 1- 21 days of pregnancy</p> <p>Toxic Effects:</p> <p>Effects on Embryo or Fetus - Fetal death</p> <p>Specific Developmental Abnormalities - Craniofacial</p> <p>Specific Developmental Abnormalities - Homeostasis</p> <p>Mouse TCLO Inhalation 2000 mg/m³ for 2 hours, female 1-21 days of pregnancy</p> <p>Toxic Effects:</p> <p>Effects on Fertility - Pre-implantation mortality</p> <p>Effects on Fertility - Litter size</p> <p>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.

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Emergency phone number (800) 424-9300

Section V. Fire and Explosion Data

Flammability	Flammable.	Auto-Ignition	90 to 100 °C (194 to 212 °F)
Flash Points	-30 °C (-22 °F)	Flammable Limits	LOWER: 1% UPPER: 50%
Combustion Products	These products include toxic carbon oxides (CO,CO ₂), sulfur oxides (SO _x).		
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	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. Toxic material. Irritating material. Aspiration hazard. Possibly mutagenic material. Reproductive effector. Environmentally hazardous material. Heat 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 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.
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Section VII. Handling and Storage

Handling and Storage Information	FLAMMABLE. TOXIC. IRRITANT. ASPIRATION HAZARD. POSSIBLE MUTAGEN. REPRODUCTIVE EFFECTOR. ENVIRONMENTAL HAZARD. HEAT SENSITIVE MATERIAL. MAY DEVELOP PRESSURE. Keep locked up. Keep away from heat. Mechanical exhaust required. 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, metals.
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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	This compound is classified as a possible mutagen. There is no acceptable exposure limit for a mutagen.

Section IX. Physical and Chemical Properties

Physical state @ 20°C	Liquid. (Clear, colorless ~ very pale yellow.)	Solubility	Miscible with ethanol, ether, benzene, chloroform, carbon tetrachloride, anhydrous methanol, oils. Very slightly soluble in water (0.2g/100mL 20°C).
Specific Gravity	1.26 (water=1)		
Molecular Weight	76.14	Partition Coefficient	LOG P _{ow} : 2.11
Boiling Point	46 °C (114.8 °F)	Vapor Pressure	48 kPa (@ 25°C)
Melting Point	-111 °C (-167.8 °F)	Vapor Density	2.63 (Air = 1)
Refractive Index	1.63	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. Heat sensitive.
Incompatibilities	Reactive with oxidizing agents, metals, amines, azides.

Section XI. Toxicological Information

RTECS Number	FF6650000
Routes of Exposure	Eye Contact. Ingestion. Inhalation.
Toxicity Data	Rat LD ₅₀ (oral) 1200 mg/kg Mouse LD ₅₀ (oral) 2780 mg/kg Rat LD ₅₀ (inhalation) 25 gm/m ³ /2H
Chronic Toxic Effects	CARCINOGENIC EFFECTS : Not available. MUTAGENIC EFFECTS : Not available. TERATOGENIC EFFECTS : Not available. DEVELOPMENTAL TOXICITY : Reproductive effects. Man TCLo Inhalation 40 mg/m ³ , male 91 weeks prior to mating Toxic Effects: Paternal Effects - Spermatogenesis Rat TCLo Inhalation 100/mg ³ for 8 hours, female 1- 21 days of pregnancy Toxic Effects: Effects on Embryo or Fetus - Fetal death Specific Developmental Abnormalities - Craniofacial Specific Developmental Abnormalities - Homeostasis Mouse TCLo Inhalation 2000 mg/m ³ for 2 hours, female 1-21 days of pregnancy Toxic Effects: Effects on Fertility - Pre-implantation mortality Effects on Fertility - Litter size 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	Carbon disulfide's production and use as a solvent and a chemical intermediate may result in its release to the environment through various waste streams. Its former production and use as an insecticide used for fumigation of nursery stock and soil treatment against insects and nematodes, resulted in its direct release to the environment. Carbon disulfide is a natural product of anaerobic biodegradation and is released to the atmosphere from oceans and landmasses as well as geothermal sources. The ocean appears to be a major source of carbon disulfide. Coastal and marshland areas of high biological activity are also a major source. If released to air, a vapor pressure of 359 mm Hg at 25 deg C indicates carbon disulfide will exist solely as a vapor in the ambient atmosphere. Vapor-phase carbon disulfide will be degraded in the atmosphere by reaction with photochemically-produced hydroxyl radicals; the half-life for this reaction in air is estimated to be 5.5 days. Carbon disulfide has a weak UV adsorption band at 317 nm, suggesting a potential for direct photolysis. However, photolysis is not considered to be a relevant loss mechanism for the chemical. If released to soil, carbon disulfide is expected to have moderate mobility based upon an estimated Koc of 270. Volatilization from moist soil surfaces is expected to occur based upon a Henry's Law constant of 1.44X10 ⁻² atm-cu m/mole at 24 deg C. Carbon disulfide may potentially volatilize from dry soil surfaces given its vapor pressure. If released into water, carbon disulfide is not expected to adsorb to suspended solids and sediment in the water column based upon the estimated Koc. Volatilization from water surfaces is expected to be an important fate process based upon carbon disulfide's Henry's Law constant. Estimated volatilization half-lives for a model river and model lake are 2.6 hours and 3.5 days, respectively. BCFs of <6.1 and <60 in carp suggest bioconcentration in aquatic organisms is low to moderate. Carbon disulfide hydrolyzes slowly to carbon dioxide and hydrogen disulfide in alkaline solutions. The half-life for hydrolysis at pH 9 is approximately 1.1 years. Occupational exposure to carbon disulfide may occur through inhalation and dermal contact with this compound at workplaces where carbon disulfide is produced or used. As carbon disulfide occurs ubiquitously in the environment, the general population is exposed to this compound. Primary routes of exposure to carbon disulfide are through inhalation of ambient air or ingestion of fruits, vegetables, and other food products containing this compound.

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 3: Flammable liquid DOT CLASS 6.1: Toxic material
PIN Number	UN1131
Proper Shipping Name	Carbon disulfide
Packing Group (PG)	I RQ = 100 (45.4)
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 B-2: Flammable liquid with a flash point lower than 37.8°C (100°F). CLASS D-1B: Material causing immediate and serious toxic effects (TOXIC). On DSL.
EINECS Number (EEC)	200-843-6
EEC Risk Statements	R11- Highly flammable. R18- In use, may form flammable/explosive vapor-air mixture. R23/24/25- Toxic by inhalation, in contact with skin and if swallowed. R36/37/38- Irritating to eyes, respiratory system and skin. R46- May cause heritable genetic damage. R47- May cause birth defects. R51- Toxic to aquatic organisms. R53- May cause long-term adverse effects in the aquatic environment. R62- Possible risk of impaired fertility. R63- Possible risk of harm to unborn child.
Japanese Regulatory Data	ENCS No. 1-172

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.

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