

# MATERIAL SAFETY DATA SHEET

GENIUM PUBLISHING CORPORATION  
1145 CATALYN STREET  
SCHENECTADY, NY 12303-1836 USA  
(518) 377-8855



NO. \_\_\_\_\_ 350 \_\_\_\_\_

CARBON DISULFIDE  
Revision B  
DATE September 1982

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| <b>SECTION I. MATERIAL IDENTIFICATION</b>  |                    |   |
| MATERIAL NAME: CARBON DISULFIDE<br>OTHER DESIGNATIONS: CS <sub>2</sub> , Carbon Bisulfide, Carbon sulfide, Dithiocarbonic anhydride<br>CAS #000 075 150<br>MANUFACTURER: Available from several suppliers, including:<br>Stauffer Chemical Co.<br>Industrial Chemical Div.<br>Westport, Conn 06880 Tel: (203) 222-3000   |                    |   |
| <b>SECTION II. INGREDIENTS AND HAZARDS</b>   |                    | <b>HAZARD DATA</b>  |
| Carbon disulfide -----   | >99.9              | 8-hr TWA 10 <sub>3</sub> ppm*<br>or 30 mg/m <sup>3</sup> (skin) |
| *ACGIH(1982) TLV. Current OSHA PEL is 20 ppm for an 8-hr exposure, 30 ppm ceiling value, and 100 ppm peak value/30 min.<br>NIOSH (1977) has recommended a TLV of 1 ppm with a ceiling of 10 ppm (15 minute sample).<br>(Skin) notation indicates absorption through skin will significantly contribute to total exposure. <u>This material must be used with caution!</u>  |                    | Human, Oral<br>LDLo 14 mg/kg                                    |
| <b>SECTION III. PHYSICAL DATA</b>  |                    |   |
| Boiling point at 1 atm, deg F -----  | 115                | Specific gravity at 20/4C ----- 1.26                            |
| Vapor pressure at -5C, mm Hg -----   | 100                | Evaporation rate (BuAc=1) ----- 22.6                            |
| at 20C, mm Hg -----  | 300                | Molecular weight ----- 76.14                                    |
| at 28C, mm Hg -----  | 400                | Melting point, deg F ----- -169                                 |
| Vapor density, 0C, (Air=1) -----   | 2.67               | Viscosity, 73F, cp ----- 0.36                                   |
| Solubility in water @ 25C, g/100g --   | 0.22               |   |
| Appearance & Odor: Clear, colorless to yellow, mobile liquid; unpleasant odor (sulfurous) with an odor threshold of about 7 ppm. <u>NOTE: May be very low in odor when very pure.</u>  |                    |   |
| <b>SECTION IV. FIRE AND EXPLOSION DATA</b>   |                    | <b>Lower</b> <b>Upper</b>                                       |
| Flash Point and Method   | Autoignition Temp. | Flammability Limits in Air                                      |
| -30°C (closed up)  | 100°C              | % by vol.<br>1.0    50.0  |
| Extinguishing media: Water fog or spray, high expansion or film forming foam; CO <sub>2</sub> for small fires. Contact of vapors with heat and rust (catalyst), a hot light bulb, or impact (hammer blow) may produce a fire.<br>Firefighters should maintain cooling streams of water on fire area after fire is out to cool area and prevent CS <sub>2</sub> reignition. CS <sub>2</sub> fires are more difficult to control and extinguish than hexane fires. CS <sub>2</sub> vapor collects in sumps and low lying areas; it can flow along surfaces to a source of ignition and flashback.<br>Firefighters need self-contained breathing apparatus. |                    |   |
| <b>SECTION V. REACTIVITY DATA</b>  |                    |   |
| Carbon disulfide is stable in closed containers at room temperature (yellows in sunlight). It does not polymerize. It is not considered a highly reactive substance; however, chemically active metals such as zinc, sodium, potassium plus CS <sub>2</sub> react with incandescence, and CS <sub>2</sub> with azides or organic amines can be explosive. The flammability danger of carbon disulfide is high as an autoignition of 100°C is easily achieved. It is an OSHA Class IB Flammable Liquid.<br>It is incompatible with strong oxidizing agents.<br>Combustion can release sulfur dioxide and carbon monoxide.                                 |                    |   |

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| SECTION VI. HEALTH HAZARD INFORMATION   | TLV 10 ppm (skin) See Sect II            |
| <p>This material acts quickly on the central nervous system. Overexposure causes vomiting, headache, dizziness, depression, indigestion, irritability, narcosis. Loss of consciousness, convulsions, respiratory paralysis and death occur in severe cases. Eye contact with liquid causes immediate and severe irritation. CS<sub>2</sub> defats the skin. It can cause dermatitis, redness and blistering of the skin. It is absorbed through the skin where it can damage peripheral nerves and produce systemic effects. Chronic exposure can seriously damage the CNS &amp; cause vision problems, liver and kidney damage, anemia, fatigue and debility. 1-2 oz has been estimated as oral LD<sub>50</sub> for adult.</p> <p><b>FIRST AID:</b> <u>Respiration is of prime importance!</u> Contact a physician for overexposures.</p> <p><u>Eye Contact:</u> Flush with water for 15 min., including under eyelids.</p> <p><u>Skin Contact:</u> Wash contaminated areas with soap and water. Remove soiled clothing.</p> <p><u>Inhalation:</u> Remove to fresh air. Restore and/or support breathing as needed.</p> <p><u>Ingestion:</u> Gastric lavage is needed. NIOSH (1978) recommended inducing vomiting. ASTM E752 states "do not induce vomiting". Get medical help promptly.</p> <p>Get medical help for observation, support and treatment after first aid.</p> |  |
| SECTION VII. SPILL, LEAK, AND DISPOSAL PROCEDURES   |  |
| <p>Notify safety personnel. Evacuate area except for clean-up personnel with protection against liquid contact and vapor inhalation. Institute prior plan. Remove ignition sources. Provide optimum, explosion-proof ventilation. Contain spill.</p> <p>A. Evaporate small spill under good ventilation with fire apparatus ready.</p> <p>B. Flush spill with water to special retention basin where CS<sub>2</sub> is collected below a water layer for disposal. (Do not flush to sewer!)</p> <p>C. Absorb in sand or ash and cover with water for pick up (non-sparking tools).</p> <p><b>DISPOSAL:</b> Destroy scrap by controlled combustion in approved facility (with scrubber), or recover by distillation. Follow Federal, State and Local regulations.</p> <p>EPA(RCRA) HW No. P022; EPA(CWA) RQ 5000 lb.</p>   |  |
| SECTION VIII. SPECIAL PROTECTION INFORMATION  |  |
| <p>Provide efficient exhaust and floor level ventilation (explosion-proof) to keep work place vapor levels below TLV requirements. Provide approved positive pressure, self-contained breathing apparatus with full facepiece for emergency or non-routine use below 500 ppm.</p> <p>Use PVA gloves, aprons or other impervious protective clothing to prevent skin contact. (Avoid immersing gloved hands in CS<sub>2</sub> for extended periods.) Use chemical safety goggles if splashing is possible.</p> <p>An eyewash station and safety shower should be available in the area of use. Provide suitable training to those working with CS<sub>2</sub>. Keep pertinent medical records.</p> <p>Provide preplacement and periodic medical exams for those regularly exposed to CS<sub>2</sub>, with emphasis on the nervous, cardiovascular &amp; reproductive systems, eyes, liver, kidneys, and skin. (CS<sub>2</sub> can be a reproductive hazard at high exposures.)</p>   |  |
| SECTION IX. SPECIAL PRECAUTIONS AND COMMENTS  |  |
| <p>Store in cool, well-ventilated, fire-proof area protected with automatic sprinklers and away from ignition sources, oxidizing agents, and combustibles. In large tanks fill voids above CS<sub>2</sub> with water or nitrogen as the tank is emptied. Avoid exposure to direct sunlight. Prevent physical damage to containers.</p> <p>Electrical services must meet code requirements. Store as OSHA Class IB Flammable Liquid. No smoking near CS<sub>2</sub>. Ground and bond containers for transfer to prevent static sparks. Use non-sparking tools. Avoid breathing vapors! Avoid skin and eye contact. Be especially cautious in repetitive usage of this material!</p>  |  |
| <p>DOT Classification: FLAMMABLE LIQUID I.D. UN No. 1131<br/> DATA SOURCE(S) CODE: 1-12, 16, 18, 23, 25, 27, 34, 37,<br/> 47-49, ASTM E752</p>  |  |
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