MATERIAL SAFETY DATA SHEET

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NO. 350

CARBON DISULFIDE
Revision B
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SECTION I. MATERIAL IDENTIFICATION

MATERIAL NAME: CARBON DISULFIDE
OTHER DESIGNATIONS: CS_2, Carbon Bisulfide, Carbon sulfide, Dithiocarbonic anhydride
CAS #000 075 150

MANUFACTURER: Available from several suppliers, including:
Stauffer Chemical Co.
Industrial Chemical Div.
Westport, Conn 06880 Tel: (203) 222-3000

SECTION II. INGREDIENTS AND HAZARDS	%	HAZARD DATA
Carbon disulfide ----------	>99.9	8-hr TWA 10_3ppm* or 30 mg/m^3 (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. NIOSH (1977) has recommended a TLV of 1 ppm with a ceiling of 10 ppm (15 minute sample). (Skin) notation indicates absorption through skin will significantly contribute to total exposure. This material must be used with caution!		Human, Oral LDLo 14 mg/kg

SECTION III. PHYSICAL DATA

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. NOTE: May be very low in odor when very pure.

SECTION IV. FIRE AND EXPLOSION DATA

Flash Point and Method	Autoignition Temp.	Flammability Limits in Air	Lower	Upper
-30°C (closed up)	100°C	% by vol.	1.0	50.0

Extinguishing media: Water fog or spray, high expansion or film forming foam; CO_2 for small fires. Contact of vapors with heat and rust (catalyst), a hot light bulb, or impact (hammer blow) may produce a fire.
Firefighters should maintain cooling streams of water on fire area after fire is out to cool area and prevent CS_2 reignition. CS_2 fires are more difficult to control and extinguish then hexane fires. CS_2 vapor collects in sumps and low lying areas; it can flow along surfaces to a source of ignition and flashback.
Firefighters need self-contained breathing apparatus.

SECTION V. REACTIVITY DATA

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_2 react with incandescence, and CS_2 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.
It is incompatible with strong oxidizing agents.
Combustion can release sulfur dioxide and carbon monoxide.

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SECTION VI. HEALTH HAZARD INFORMATION

TLV 10 ppm (skin) See Sect II

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_2 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 & cause vision problems, liver and kidney damage, anemia, fatigue and debility. 1-2 oz has been estimated as oral LD_{50} for adult.

FIRST AID: Respiration is of prime importance! Contact a physician for overexposures.

Eye Contact: Flush with water for 15 min., including under eyelids.

Skin Contact: Wash contaminated areas with soap and water. Remove soiled clothing.

Inhalation: Remove to fresh air. Restore and/or support breathing as needed.

Ingestion: Gastric lavage is needed. NIOSH (1978) recommended inducing vomiting. ASTM E752 states "do not induce vomiting". Get medical help promptly.

Get medical help for observation, support and treatment after first aid.

SECTION VII. SPILL, LEAK, AND DISPOSAL PROCEDURES

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.

A. Evaporate small spill under good ventilation with fire apparatus ready.

B. Flush spill with water to special retention basin where CS_2 is collected below a water layer for disposal. (Do not flush to sewer!)

C. Absorb in sand or ash and cover with water for pick up (non-sparking tools).

DISPOSAL: Destroy scrap by controlled combustion in approved facility (with scrubber), or recover by distillation. Follow Federal, State and Local regulations.

EPA(RCRA) HW No. P022; EPA(CWA) RQ 5000 lb.

SECTION VIII. SPECIAL PROTECTION INFORMATION

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 facepeice for emergency or non-routine use below 500 ppm.

Use PVA gloves, aprons or other impervious protective clothing to prevent skin contact. (Avoid immersing gloved hands in CS_2 for extended periods.) Use chemical safety goggles if splashing is possible.

An eyewash station and safety shower should be available in the area of use. Provide suitable training to those working with CS_2. Keep pertinent medical records.

Provide preplacement and periodic medical exams for those regularly exposed to CS_2, with emphasis on the nervous, cardiovascular & reproductive systems, eyes, liver, kidneys, and skin. (CS_2 can be a reproductive hazard at high exposures.)

SECTION IX. SPECIAL PRECAUTIONS AND COMMENTS

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_2 with water or nitrogen as the tank is emptied. Avoid exposure to direct sunlight. Prevent physical damage to containers.

Electrical services must meet code requirements. Store as OSHA Class IB Flammable Liquid. No smoking near CS_2. 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!

DOT Classification: FLAMMABLE LIQUID I.D. UN No. 1131

DATA SOURCE(S) CODE: 1-12,16,18,23,25,27,34,37, 47-49, ASTM E752

APPROVALS: MIS/CRD J. M. Nielsen

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