

# Material Safety Data Sheet

## Carbon disulfide

ACC# 04280

### Section 1 - Chemical Product and Company Identification

**MSDS Name:** Carbon disulfide

**Catalog Numbers:** AC167710000, AC167710250, AC167715000, AC177280000, AC177280010, AC177280250, AC177285000, S71926MF, S71927, C183-212, C184-212, C184-500, C185-500, C573-500

**Synonyms:** Carbon bisulfide; Dithiocarbonic anhydride; Sulphocarbonic anhydride.

**Company Identification:**

Fisher Scientific  
1 Reagent Lane  
Fair Lawn, NJ 07410

**For information, call:** 201-796-7100

**Emergency Number:** 201-796-7100

**For CHEMTREC assistance, call:** 800-424-9300

**For International CHEMTREC assistance, call:** 703-527-3887

### Section 2 - Composition, Information on Ingredients

CAS#	Chemical Name	Percent	EINECS/ELINCS
75-15-0	Carbon disulfide	>99	200-843-6

### Section 3 - Hazards Identification

#### EMERGENCY OVERVIEW

Appearance: clear, colorless to pale yellow liquid. Flash Point: -30 deg C.

**Danger!** Extremely flammable liquid and vapor. Vapor may cause flash fire. Harmful if swallowed, inhaled, or absorbed through the skin. Causes eye, skin, and respiratory tract irritation. Stench. Aspiration hazard if swallowed. Can enter lungs and cause damage. May cause nervous system effects. May increase risk of cardiovascular disease. This substance has caused adverse reproductive and fetal effects in animals.

**Target Organs:** Cardiovascular system, nervous system, reproductive system.

#### Potential Health Effects

**Eye:** May cause severe eye irritation.

**Skin:** Causes skin irritation. May be absorbed through the skin in harmful amounts. Prolonged and/or repeated contact may cause defatting of the skin and dermatitis. Dermatitis and vesiculation may result from skin contact with the vapor or liquid. Dermal contact with concentrated solutions may cause burning pain, erythema, exfoliation. (Merck Index)

**Ingestion:** May cause digestive tract disturbances. May cause effects similar to those for inhalation exposure. Aspiration of material into the lungs may cause chemical pneumonitis, which may be fatal. Can cause nervous system damage. Ingestion may cause convulsions, seizures and possible coma.

**Inhalation:** Intoxication can involve all parts of the central and peripheral nervous systems including damage to the nerves with paresthesias, muscle weakness, unsteady gait, and tremors. Exposure may accelerate the development or worsen, coronary heart disease.

**Chronic:** Prolonged or repeated exposure can cause psychic abnormalities such as anxiety, depression and excitability. May cause reproductive and fetal effects. Chronic exposure may

cause visual disturbances. Repeated exposure may cause central and peripheral nervous system damage and digestive tract disturbances. Chronic exposure may cause coronary heart disease. Chronic toxicity of carbon disulfide includes marked psychic disturbances ranging from extreme irritability to mania with hallucinations, tremors, auditory and visual disturbances, weight loss, blood dyscrasias. (Merck Index)

## Section 4 - First Aid Measures

**Eyes:** Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid immediately. Do NOT allow victim to rub eyes or keep eyes closed.

**Skin:** Get medical aid. Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Destroy contaminated shoes.

**Ingestion:** Potential for aspiration if swallowed. Get medical aid immediately. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If vomiting occurs naturally, have victim lean forward.

**Inhalation:** Remove from exposure and move to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid. Do NOT use mouth-to-mouth resuscitation. If breathing has ceased apply artificial respiration using oxygen and a suitable mechanical device such as a bag and a mask.

**Notes to Physician:** Effects may be delayed. Observe patient.

## Section 5 - Fire Fighting Measures

**General Information:** As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Vapors may form an explosive mixture with air. Combustion generates toxic fumes. Use water spray to keep fire-exposed containers cool. Containers may explode in the heat of a fire. May be ignited by friction, heat, sparks, or flame. Extremely flammable liquid and vapor. Vapor may cause flash fire. Vapors are heavier than air and may travel to a source of ignition and flash back. Vapors can spread along the ground and collect in low or confined areas. May accumulate static electricity. Because of the very low autoignition temperature, ignition is easily accomplished by contact with hot surfaces such as light bulbs, steam pipes, or engine exhaust pipes.

**Extinguishing Media:** Use water spray, dry chemical, carbon dioxide, or appropriate foam.

**Flash Point:** -30 deg C ( -22.00 deg F)

**Autoignition Temperature:** 90 deg C ( 194.00 deg F)

**Explosion Limits, Lower:**1.3%

**Upper:** 50.0%

**NFPA Rating:** (estimated) Health: 3; Flammability: 4; Instability: 0

## Section 6 - Accidental Release Measures

**General Information:** Use proper personal protective equipment as indicated in Section 8.

**Spills/Leaks:** Absorb spill with inert material (e.g. vermiculite, sand or earth), then place in suitable container. Clean up spills immediately, observing precautions in the Protective Equipment section. Remove all sources of ignition. Provide ventilation. Evacuate unnecessary personnel. Approach spill from upwind. Use only non-sparking tools and equipment. Control runoff and isolate discharged material for proper disposal. Use water spray to cool and disperse vapors and protect personnel.

## Section 7 - Handling and Storage

**Handling:** Wash thoroughly after handling. Ground and bond containers when transferring material. Use spark-proof tools and explosion proof equipment. Avoid contact with eyes, skin, and clothing. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Keep container tightly closed. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose empty containers to heat, sparks or open flames. Do not breathe vapor. Use only with adequate ventilation. Keep away from heat, sparks and flame.

**Storage:** Keep away from heat, sparks, and flame. Keep away from sources of ignition. Store in a tightly closed container. Keep under a nitrogen blanket. Flammables-area. Store protected from heat and direct sunlight.

## Section 8 - Exposure Controls, Personal Protection

**Engineering Controls:** Use explosion-proof ventilation equipment. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

**Exposure Limits**

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Carbon disulfide	10 ppm TWA; Skin - potential significant contribution to overall exposure by the cutaneous route	1 ppm TWA; 3 mg/m <sup>3</sup> TWA 500 ppm IDLH	20 ppm TWA; 30 ppm Ceiling

**OSHA Vacated PELs:** Carbon disulfide: 4 ppm TWA; 12 mg/m<sup>3</sup> TWA

**Personal Protective Equipment**

**Eyes:** Wear chemical splash goggles.

**Skin:** Wear appropriate protective gloves to prevent skin exposure.

**Clothing:** Wear appropriate protective clothing to prevent skin exposure.

**Respirators:** Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

## Section 9 - Physical and Chemical Properties

**Physical State:** Liquid

**Appearance:** clear, colorless to pale yellow

**Odor:** strong odor - rotten egg-like - stench

**pH:** Not available.

**Vapor Pressure:** 297.5 mm Hg @ 20 deg C

**Vapor Density:** 2.67 (Air=1)

**Evaporation Rate:**22.6 (Butyl acetate=1)

**Viscosity:** 0.363 cps @ 20 deg C

**Boiling Point:** 46 deg C

**Freezing/Melting Point:**-111 deg C

**Decomposition Temperature:**Not available.

**Solubility:** 0.294% @ 20癸

**Specific Gravity/Density:**1.262 (Water=1)

**Molecular Formula:**CS<sub>2</sub>

**Molecular Weight:**76.13

## Section 10 - Stability and Reactivity

**Chemical Stability:** Stable under normal temperatures and pressures. Exposure to ultraviolet radiation from sunlight may cause carbon disulfide vapor to ignite and explode.

**Conditions to Avoid:** Ignition sources, friction, heat, extreme temperatures, confined spaces, direct sunlight.

**Incompatibilities with Other Materials:** Strong oxidizing agents, strong reducing agents, alkali metals, amines, halogens, azides, chemically active metals, air and rust.

**Hazardous Decomposition Products:** Carbon monoxide, oxides of sulfur, carbon dioxide.

**Hazardous Polymerization:** Will not occur.

## Section 11 - Toxicological Information

**RTECS#:**

**CAS#** 75-15-0: FF6650000

**LD50/LC50:**

CAS# 75-15-0:

Inhalation, mouse: LC50 = 10 gm/m<sup>3</sup>/2H;

Inhalation, mouse: LC50 = 10000 mg/m<sup>3</sup>;

Inhalation, rat: LC50 = 25 gm/m<sup>3</sup>/2H;

Inhalation, rat: LC50 = 25000 mg/m<sup>3</sup>;

Inhalation, rat: LC50 = 1000 mg/m<sup>3</sup>;

Oral, mouse: LD50 = 2780 mg/kg;

Oral, rabbit: LD50 = 2550 mg/kg;

Oral, rat: LD50 = 1200 mg/kg;

**Carcinogenicity:**

CAS# 75-15-0: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

**Epidemiology:** Based on the results of studies of workers exposed to carbon disulfide & supporting data from animal studies, the nervous system appears to be the critical target for carbon disulfide-induced toxicity, manifested most often as reduced conduction velocity in the peripheral nerves & impaired performance in psychomotor testing. Other effects for which there is considerable weight of evidence in humans exposed to CS<sub>2</sub> include alterations in serum lipids & blood pressure that are associated with increased risk of cardiovascular disease, systemic ophthalmological effects, including those on color vision and damage to the blood vessels of the retina, and (with higher exposures) increased mortality from heart disease.

**Teratogenicity:** Animal studies have indicated behavioral effects and reduced weight gain by rat inhalation. Premature fetal death and stunted fetus' were shown by rat inhalation and the oral route. Specific developmental abnormalities included craniofacial abnormalities including the nose and tongue by rat inhalation, effects on the eyes, ears and homeostasis by rat inhalation, and other unspecified abnormalities by the oral route in rabbits.

**Reproductive Effects:** Hypospermia, abnormal sperm morphology, menstrual cycle irregularities and pain have been reported in humans. Effects on fertility and paternal effects have been reported in animal studies by the oral and inhalation routes of entry. These included effects on the prostate, seminal vesicle, Cowpers gland, urethra and spermatogenesis. Other studies have not found adverse effects. Conflicting studies regarding the ability of carbon

**Mutagenicity:** Sister Chromatid Exchange: human lymphocyte 10200 ug/L.

**Neurotoxicity:** Neurotoxic effects have occurred in experimental animals. Neurotoxic effects have occurred in humans.

**Other Studies:**

## Section 12 - Ecological Information

**Ecotoxicity:** No data available. Mosquito fish (fresh water) TLm=35 ppm/48H Sunfish LC100=100 ug/L/H Trout LC100 500 ug/L/0.1H

**Environmental:** When released to soil, substance volatilizes, leaches, and may biodegrade. In water, substance volatilizes. In air, substance degrades by reaction with atomic oxygen and hydroxyl radicals. Substance does not have high potential to bioconcentrate. Soil mobility is predicted to be high.

**Physical:** Substance reacts with photochemically derived hydroxyl radicals and oxygen in the atmosphere.

**Other:** None.

## Section 13 - Disposal Considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

**RCRA P-Series:** CAS# 75-15-0: waste number P022.

**RCRA U-Series:** None listed.

## Section 14 - Transport Information

	US DOT	Canada TDG
<b>Shipping Name:</b>	CARBON DISULFIDE	CARBON DISULFIDE (FLASHPOINT -30C)
<b>Hazard Class:</b>	3	3(6.1)
<b>UN Number:</b>	UN1131	UN1131
<b>Packing Group:</b>	I	I

## Section 15 - Regulatory Information

### US FEDERAL

#### TSCA

CAS# 75-15-0 is listed on the TSCA inventory.

#### Health & Safety Reporting List

None of the chemicals are on the Health & Safety Reporting List.

#### Chemical Test Rules

CAS# 75-15-0: Testing required by manufacturers, processors

#### Section 12b

CAS# 75-15-0: Section 4

#### TSCA Significant New Use Rule

None of the chemicals in this material have a SNUR under TSCA.

#### CERCLA Hazardous Substances and corresponding RQs

CAS# 75-15-0: 100 lb final RQ; 45.4 kg final RQ

#### SARA Section 302 Extremely Hazardous Substances

CAS# 75-15-0: 10000 lb TPQ

#### SARA Codes

CAS # 75-15-0: immediate, delayed, fire.

#### Section 313

This material contains Carbon disulfide (CAS# 75-15-0, >99%), which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 373.

#### Clean Air Act:

CAS# 75-15-0 is listed as a hazardous air pollutant (HAP).

This material does not contain any Class 1 Ozone depletors.

This material does not contain any Class 2 Ozone depletors.

**Clean Water Act:**

CAS# 75-15-0 is listed as a Hazardous Substance under the CWA.

None of the chemicals in this product are listed as Priority Pollutants under the CWA.

None of the chemicals in this product are listed as Toxic Pollutants under the CWA.

**OSHA:**

None of the chemicals in this product are considered highly hazardous by OSHA.

**STATE**

CAS# 75-15-0 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, Massachusetts.

**California Prop 65**

**The following statement(s) is(are) made in order to comply with the California Safe Drinking Water Act:**

WARNING: This product contains Carbon disulfide, a chemical known to the state of California to cause male reproductive toxicity.

California No Significant Risk Level: None of the chemicals in this product are listed.

**European/International Regulations**

**European Labeling in Accordance with EC Directives**

**Hazard Symbols:**

T F

**Risk Phrases:**

R 11 Highly flammable.

R 36/38 Irritating to eyes and skin.

R 48/23 Toxic : danger of serious damage to health by prolonged exposure through inhalation.

R 62 Possible risk of impaired fertility.

R 63 Possible risk of harm to the unborn child.

**Safety Phrases:**

S 16 Keep away from sources of ignition - No smoking.

S 33 Take precautionary measures against static discharges.

S 36/37 Wear suitable protective clothing and gloves.

S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

**WGK (Water Danger/Protection)**

CAS# 75-15-0: 2

**Canada - DSL/NDSL**

CAS# 75-15-0 is listed on Canada's DSL List.

**Canada - WHMIS**

This product has a WHMIS classification of B2, D1B, D2A, D2B.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

**Canadian Ingredient Disclosure List**

CAS# 75-15-0 is listed on the Canadian Ingredient Disclosure List.

**Section 16 - Additional Information**

**MSDS Creation Date:** 4/28/1999

**Revision #4 Date:** 1/29/2004

*The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall Fisher be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if Fisher has been advised of the possibility of such damages.*