

MATERIAL SAFETY DATA SHEET

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

MATHESON TRI-GAS, INC.
150 Allen Road Suite 302
Basking Ridge, New Jersey 07920
Information: 1-800-416-2505

Emergency Contact:
CHEMTREC 1-800-424-9300
Calls Originating Outside the US:
703-527-3887 (Collect Calls Accepted)

SUBSTANCE: CARBON DISULFIDE

TRADE NAMES/SYNONYMS:

MTG MSDS 94; CARBON BISULFIDE; CARBON BISULPHIDE; CARBON DISULPHIDE; CARBON SULFIDE; DITHIOCARBONIC ANHYDRIDE; SULPHOCARBONIC ANHYDRIDE; CARBON SULFIDE (CS₂); CARBON SULPHIDE; UN 1131; RCRA P022; CS₂; MAT04280; RTECS FF6650000

CHEMICAL FAMILY: organic sulfur compounds

PRODUCT USE: analytical chemical/laboratory chemical

CREATION DATE: Jan 24 1989

REVISION DATE: Dec 11 2008

2. COMPOSITION, INFORMATION ON INGREDIENTS

COMPONENT: CARBON DISULFIDE

CAS NUMBER: 75-15-0

PERCENTAGE: 100.0

3. HAZARDS IDENTIFICATION

NFPA RATINGS (SCALE 0-4): HEALTH=3 FIRE=3 REACTIVITY=0



EMERGENCY OVERVIEW:

COLOR: colorless to yellow

PHYSICAL FORM: liquid

MAJOR HEALTH HAZARDS: respiratory tract irritation, skin irritation, eye irritation, central nervous system depression, nerve damage

PHYSICAL HAZARDS: Flammable liquid and vapor. Vapor may cause flash fire.

POTENTIAL HEALTH EFFECTS:

INHALATION:

SHORT TERM EXPOSURE: irritation, chest pain, headache, symptoms of drunkenness, disorientation, tingling sensation, dilated pupils, coma

LONG TERM EXPOSURE: irregular heartbeat, drowsiness, visual disturbances, impotence, liver damage, nerve damage, paralysis, effects on the brain

SKIN CONTACT:

SHORT TERM EXPOSURE: same as effects reported in short term inhalation, irritation (possibly severe), absorption may occur, symptoms of drunkenness

LONG TERM EXPOSURE: kidney damage, liver damage, nerve damage

EYE CONTACT:

SHORT TERM EXPOSURE: irritation (possibly severe), blurred vision

LONG TERM EXPOSURE: same as effects reported in short term exposure

INGESTION:

SHORT TERM EXPOSURE: low body temperature, vomiting, digestive disorders, difficulty breathing, irregular heartbeat, symptoms of drunkenness, disorientation, dilated pupils, bluish skin color, convulsions, coma

LONG TERM EXPOSURE: kidney damage, liver damage, nerve damage

4. FIRST AID MEASURES

INHALATION: If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. Get immediate medical attention.

SKIN CONTACT: Wash skin with soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention, if needed. Thoroughly clean and dry contaminated clothing and shoes before reuse.

EYE CONTACT: Flush eyes with plenty of water for at least 15 minutes. Then get immediate medical attention.

INGESTION: If swallowed, drink plenty of water, do NOT induce vomiting. Get immediate medical attention. Induce vomiting only at the instructions of a physician. Do not give anything by mouth to unconscious or convulsive person.

ANTIDOTE: amyl nitrite, inhalation; sodium nitrite, intravenous; pyridoxine, intravenous; urea, intravenous.
CAUTION! Get medical attention immediately.

NOTE TO PHYSICIAN: For ingestion, consider gastric lavage.

5. FIRE FIGHTING MEASURES

FIRE AND EXPLOSION HAZARDS: Severe fire hazard. Severe explosion hazard. The vapor is heavier than air. Vapors or gases may ignite at distant ignition sources and flash back. Vapor/air mixtures are explosive. Electrostatic discharges may be generated by flow or agitation resulting in ignition or explosion.

EXTINGUISHING MEDIA: alcohol-resistant foam, carbon dioxide, regular dry chemical, water

Large fires: Use alcohol-resistant foam or flood with fine water spray.

FIRE FIGHTING: Move container from fire area if it can be done without risk. Dike for later disposal. Do not scatter spilled material with high-pressure water streams. Cool containers with water spray until well after the fire is out. Stay away from the ends of tanks. Withdraw immediately in case of rising sound from venting safety device or any discoloration of tanks due to fire. For tank, rail car or tank truck, evacuation radius: 800 meters (1/2 mile). Water may be ineffective.

FLASH POINT: -22 F (-30 C) (CC)

LOWER FLAMMABLE LIMIT: 1.0%

UPPER FLAMMABLE LIMIT: 50.0%

AUTOIGNITION: 194 F (90 C)

FLAMMABILITY CLASS (OSHA): IB

HAZARDOUS COMBUSTION PRODUCTS:

Thermal decomposition or combustion products: oxides of carbon, oxides of sulfur

6. ACCIDENTAL RELEASE MEASURES

AIR RELEASE:

Reduce vapors with water spray. Stay upwind and keep out of low areas.

SOIL RELEASE:

Dig holding area such as lagoon, pond or pit for containment. Dike for later disposal. Absorb with sand or other non-combustible material.

WATER RELEASE:

Add an alkaline material (lime, crushed limestone, sodium bicarbonate, or soda ash). Absorb with activated carbon. Collect spilled material using mechanical equipment. Subject to California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65). Keep out of water supplies and sewers.

OCCUPATIONAL RELEASE:

Avoid heat, flames, sparks and other sources of ignition. Do not touch spilled material. Stop leak if possible without personal risk. Reduce vapors with water spray. Small spills: Absorb with sand or other non-combustible material. Collect spilled material in appropriate container for disposal. Large spills: Dike for later disposal. Remove sources of ignition. Keep unnecessary people away, isolate hazard area and deny entry. Notify Local Emergency Planning Committee and State Emergency Response Commission for release greater than or equal to RQ (U.S. SARA Section 304). If release occurs in the U.S. and is reportable under CERCLA Section 103, notify the National Response Center at (800)424-8802 (USA) or (202)426-2675 (USA).

7. HANDLING AND STORAGE

STORAGE: Store and handle in accordance with all current regulations and standards. Subject to storage regulations: U.S. OSHA 29 CFR 1910.106. Protect from physical damage. Store outside or in a detached building. Avoid contact with light. Store at room temperature. Use diking sufficient to contain total contents plus 10%. Store under an inert atmosphere. Avoid heat, flames, sparks and other sources of ignition. Grounding and bonding required. Keep separated from incompatible substances. Notify State Emergency Response Commission for storage or use at amounts greater than or equal to the TPQ (U.S. EPA SARA Section 302). SARA Section 303 requires facilities storing a material with a TPQ to participate in local emergency response planning (U.S. EPA 40 CFR 355 Part B).

8. EXPOSURE CONTROLS, PERSONAL PROTECTION

EXPOSURE LIMITS:

CARBON DISULFIDE:

20 ppm OSHA TWA

30 ppm OSHA ceiling

100 ppm OSHA peak 30 minute(s)

4 ppm (12 mg/m³) OSHA TWA (skin) (vacated by 58 FR 35338, June 30, 1993)

12 ppm (36 mg/m³) OSHA STEL (vacated by 58 FR 35338, June 30, 1993)

1 ppm ACGIH TWA (skin)

1 ppm (3 mg/m³) NIOSH recommended TWA 10 hour(s) (skin)

10 ppm (30 mg/m³) NIOSH recommended STEL (skin)

VENTILATION: Ventilation equipment should be explosion-resistant if explosive concentrations of material are present. Provide local exhaust or process enclosure ventilation system. Ensure compliance with applicable exposure limits.

EYE PROTECTION: Wear splash resistant safety goggles with a faceshield. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

CLOTHING: Wear appropriate chemical resistant clothing.

GLOVES: Wear appropriate chemical resistant gloves.

PROTECTIVE MATERIAL TYPES: nitrile butadiene rubber (NBR), polyvinyl alcohol (PVA)

RESPIRATOR: The following respirators and maximum use concentrations are drawn from NIOSH and/or OSHA.

10 ppm

Any air-purifying half-mask respirator equipped with organic vapor cartridge(s).

Any supplied-air respirator.

25 ppm

Any supplied-air respirator operated in a continuous-flow mode.

Any powered, air-purifying respirator with organic vapor cartridge(s).

50 ppm

Any air-purifying respirator with a full facepiece and an organic vapor canister.

Any air-purifying full-facepiece respirator (gas mask) with a chin-style, front-mounted or back-mounted organic vapor canister.

Any powered, air-purifying respirator with a tight-fitting facepiece and organic vapor cartridge(s).

Any self-contained breathing apparatus with a full facepiece.

Any supplied-air respirator with a full facepiece.

500 ppm

Any supplied-air respirator operated in a pressure-demand or other positive-pressure mode.

Emergency or planned entry into unknown concentrations or IDLH conditions -

Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode.

Any supplied-air respirator with a full facepiece that is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained breathing apparatus operated in pressure-demand or other positive-pressure mode.

Escape -

Any air-purifying full-facepiece respirator (gas mask) with a chin-style, front-mounted or back-mounted organic vapor canister.

Any appropriate escape-type, self-contained breathing apparatus.

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE: liquid

APPEARANCE: clear

COLOR: colorless to yellow

ODOR: Not available

MOLECULAR WEIGHT: 76.13

MOLECULAR FORMULA: C-S2

BOILING POINT: 115 F (46 C)

FREEZING POINT: -168 F (-111 C)

VAPOR PRESSURE: 300 mmHg @ 20 C

VAPOR DENSITY (air=1): 2.6

SPECIFIC GRAVITY (water=1): 1.261 @ 22 C

WATER SOLUBILITY: 0.22% @ 22 C

PH: Not available

VOLATILITY: 100%

ODOR THRESHOLD: Not available

EVAPORATION RATE: 22.6 (butyl acetate=1)

VISCOSITY: 0.367 cP @ 20 C

COEFFICIENT OF WATER/OIL DISTRIBUTION: Not available

SOLVENT SOLUBILITY:

Soluble: ethanol, methanol, ether, benzene, chloroform, carbon tetrachloride, oils

10. STABILITY AND REACTIVITY

REACTIVITY: Stable at normal temperatures and pressure.

CONDITIONS TO AVOID: Avoid heat, flames, sparks and other sources of ignition. Minimize contact with material. Avoid inhalation of material or combustion by-products. Keep out of water supplies and sewers.

INCOMPATIBILITIES: metals, combustible materials, oxidizing materials, amines, halogens, metal oxides

HAZARDOUS DECOMPOSITION:

Thermal decomposition or combustion products: oxides of carbon, oxides of sulfur

POLYMERIZATION: Will not polymerize.

11. TOXICOLOGICAL INFORMATION

CARBON DISULFIDE:

TOXICITY DATA: 1000 mg/m³ inhalation-rat LC₅₀; 1200 mg/kg oral-rat LD₅₀

LOCAL EFFECTS:

Irritant: inhalation, skin, eye

ACUTE TOXICITY LEVEL:

Highly Toxic: inhalation

Moderately Toxic: ingestion

TARGET ORGANS: nervous system

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: central nervous system disorders, eye disorders, heart or cardiovascular disorders, kidney disorders, liver disorders, nervous system disorders

MUTAGENIC DATA: Available.

REPRODUCTIVE EFFECTS DATA: Available.

ADDITIONAL DATA: May cross the placenta. Alcohol may enhance the toxic effects.

12. ECOLOGICAL INFORMATION

ECOTOXICITY DATA:

FISH TOXICITY: 65000 ug/L 96 hour(s) LC₅₀ (Mortality) Bleak (*Alburnus alburnus*)

INVERTEBRATE TOXICITY: 2100 ug/L 48 week(s) LC₅₀ (Mortality) Water flea (*Daphnia magna*)

ALGAL TOXICITY: 21000 ug/L 96 week(s) EC₅₀ (Growth) Green algae (*Chlorella pyrenoidosa*)

FATE AND TRANSPORT:

KOW: 16982.44 (log = 4.24) (estimated from water solubility)

KOC: 10023.05 (log = 4.00) (estimated from water solubility)

HENRY'S LAW CONSTANT: 1.4 E -2 atm-m³/mol

BIOCONCENTRATION: 7.96 (estimated from water solubility)

AQUATIC PROCESSES: 2.2637771 hours (River Model: 1 m deep, 1 m/s flow, 3 m/s wind)

ENVIRONMENTAL SUMMARY: Moderately toxic to aquatic life. Relatively non-persistent in the environment. Not expected to leach through the soil or the sediment. Accumulates very little in the bodies of living organisms. Highly volatile from water.

13. DISPOSAL CONSIDERATIONS

Dispose in accordance with all applicable regulations. Subject to disposal regulations: U.S. EPA 40 CFR 262. Hazardous Waste Number(s): P022.

14. TRANSPORT INFORMATION

U.S. DOT 49 CFR 172.101:

PROPER SHIPPING NAME: Carbon disulfide

ID NUMBER: UN1131

HAZARD CLASS OR DIVISION: 3

PACKING GROUP: I

LABELING REQUIREMENTS: 3; 6.1

QUANTITY LIMITATIONS:

PASSENGER AIRCRAFT OR RAILCAR: Forbidden

CARGO AIRCRAFT ONLY: Forbidden



CANADIAN TRANSPORTATION OF DANGEROUS GOODS:

SHIPPING NAME: Carbon disulphide

UN NUMBER: UN1131

CLASS: 3; 6.1

PACKING GROUP/CATEGORY: I

15. REGULATORY INFORMATION

U.S. REGULATIONS:

CERCLA SECTIONS 102a/103 HAZARDOUS SUBSTANCES (40 CFR 302.4):

Carbon disulfide: 100 LBS RQ

SARA TITLE III SECTION 302 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355 Subpart

B):

Carbon disulfide: 10000 LBS TPQ

SARA TITLE III SECTION 304 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355 Subpart C):

Carbon disulfide: 100 LBS RQ

SARA TITLE III SARA SECTIONS 311/312 HAZARDOUS CATEGORIES (40 CFR 370 Subparts B and C):

ACUTE: Yes

CHRONIC: Yes

FIRE: Yes

REACTIVE: No

SUDDEN RELEASE: No

SARA TITLE III SECTION 313 (40 CFR 372.65):

Carbon disulfide

OSHA PROCESS SAFETY (29 CFR 1910.119): Not regulated.

STATE REGULATIONS:

California Proposition 65:

Known to the state of California to cause the following:

Carbon disulfide

Developmental toxicity (Jul 01, 1989)

Male reproductive toxicity (Jul 01, 1989)

Female reproductive toxicity (Jul 01, 1989)

CANADIAN REGULATIONS:

WHMIS CLASSIFICATION: BD2

NATIONAL INVENTORY STATUS:

U.S. INVENTORY (TSCA): Listed on inventory.

TSCA 12(b) EXPORT NOTIFICATION:

CARBON DISULFIDE

CAS NUMBER: 75-15-0

SECTION 4

CANADA INVENTORY (DSL/NDL): Not determined.

16. OTHER INFORMATION

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