

MATERIAL SAFETY DATA SHEET

SECTION I : MATERIAL IDENTIFICATION & USE : CARBON DISULFIDE - used in Rayon, Dyes & Pesticides.

Material : CARBON DISULFIDE
Name/Identifier : CS₂ Molecular Weight - 76.1



Manufacturer's Name : CENTURY RAYON

Supplier's Name : CENTURY RAYON

Street Address : MURBAD ROAD
City : SHAHAD (Dist Thane)
State : Maharashtra
Postal Code : 421 103.

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Emergency Telephone No 0251-2733670-79, Ulhasnagar

Emergency Tel.No 0251-2733670-79, Ulhasnagar

Chemical Name : CARBON DISULFIDE

Chemical identity : CS₂

Trade name & Synonyms
 CARBON DISULFIDE

Product Use : In Rayon manufacture, Dyes & Pesticides.

SECTION : HAZARDOUS INGREDIENTS OF MATERIAL

| Hazardous Ingredients | Approximate Conc. % | C.A.S. or UN Number | L.D.50 (Specify Species & Route) | LC 50 (Specify Species & (Routes). |
|-----------------------|---------------------|---------------------|--|---|
| Nil | 100 | UN number 1131 | By inhalation Skin contact, ingestion. | By inhalation, Skin, contact Ingestion. |

SECTION III - PHYSICAL DATA FOR MATERIAL

| | | |
|--|---|---|
| Physical State - Gas Liquid-Solid LIQUID | Odour and Appearance Offensive Smell colourless | Odour Threshold (PPM) 10 ppm (TWA) |
| Specific Gravity 1.26 (Water = 1) | Vapour Pressure (mm) At 28°C, 400 mm Mercury | Vapour density (Air=1) 2.64 at 400 mm mercury and 28°C temperture. |
| Evaporation rate | Boiling Point (°C) 46.5 | Freezing Point (°C) - 115 |
| Solubility in water (20°C) : Insolub | PH Nil | Density (g/ml) 1.26 |
| Coefficient of water/Oil Distribution Nil | Melting Point (- 110.8°C) | |

(2)

SECTION IV : FIRE AND EXPLOSION HAZARD OF MATERIAL

| | | |
|---|---|---|
| Flammability - Yes/No Yes - Lower 1.3, Upper - 44 | Means of Extinction Water, CO ₂ Extinguishers, D.C.P. | Special Procedures: However, Prevent Contamination of municipal drain by containing the spillage by means of sand, soil etc but thin layer of water above the spillage will prevent evaporation & fire hazard. |
| Flash Point (°C) and Method - 30 CLOSED UP | Upper Explosive limit (% by volume) 44% by volume | Lower Explosive limit (% by volume) 1.3% by volume. |
| Auto-ignition temp (°C) - 100 | TDG flammability Class 3 | Hazardous combustion Product - SO ₂ and CO ₂ . |
| Explosion Data Sensitivity to Chemical Impact:- | | Sensitivity to static discharge - Effective earthing required for storage tank and when filling road tanker. |

SECTION V : REACTIVITY DATA

| | |
|---|--|
| Chemical stability - Yes/No If no, under what condition | No - Stored under water - Vapourises in atmosphere at 46.3°C |
| Incompatibility with other substances - Yes/No If yes, which ones. | Refer to UEL & LEL of flammability in air |
| Reactivity and under what conditions | Reacts with alcohol, chlorine, bromine with iron catalyst. |
| Hazardous Decomposition Products. | Solid residue of sulfur if it evaporates. |
| Material - Name/Identifier | CARBON DISULFIDE - CS ₂ |

SECTION VI : TOXICOLOGICAL PROPERTIES OF MATERIAL (Route of Entry).

| | | |
|-------------------------------------|---|---|
| Skin contact BURNS | Skin Absorption BURNS | Eye Contact Needs flushing with water for 15 Mts - Irritation. |
| Inhalation Acute UNCONSCIOUSNESS | Inhalation Chronic Toxic for LUNG TISSUE & BLOOD | Ingestion By Mouth |

EFFECTS OF ACUTE EXPOSURE TO MATERIAL

It acts on nervous system, acute poisoning, unconsciousness, death due to blockage of respiratory system.

| Effects of Chronic Exposure to Material | Exposure limit (s) | Irritancy of material |
|--|---|--|
| Unconsciousness, Blockage of Respiratory system, death | 10 ppm (TWA) | Mucos Membranes Poisoning of nervous system |
| Sensitization to material carcinogenically, reproductive effects, tetragenically, mutagenicity | CS ₂ effects nervous system. It is primarily a neurotoxic poison. Therefore it affects peripheral nervous system all the systems and damages it. It affects adversely almost all the systems and organs of the body. The effect of continuous exposure to low levels of CS ₂ are UNKNOWN. | |
| Synergistic Materials | Prolonged exposure to CS ₂ causes vasculopathy, affects in 2 forms (1) cerebral arteries causing encephalopathy (2) Renal arteries causing nephropathy and hypertension. Direct effects on heart causes Myocardium. | |

SECTION VII : PREVENTIVE MEASURES

1. Material to be stored under water.
2. CS₂ should be transferred by displacement with water.
3. While transferring, two vessels should be electrically bonded and one to be earthed OR both should be independently earthed.
4. No naked flames to be allowed in this area.
5. Plant to be open on all sides.
6. Fire extinguishers and water buckets to be kept in the plant.
7. Persons working on CS₂ lines should wear air breathing equipments.
8. Spillage should be attended immediately.
9. Work Permit System to be practised at all time.
10. Flame Proof electrical fittings to be used in refinery section only.
11. First aid box to be maintained.
12. Exhibit "NO SMOKING" signs.

PERSONAL PROTECTIVE EQUIPMENT

| | |
|-----------------------|--|
| Gloves (Specify) | Rubber for CS ₂ and asbestos gloves for hot jobs. |
| Respiratory (Specify) | Air hose line apparatus with mask. |
| Eyes (Specify) | Acrylic face shield, asbestos hood |
| Footwear (Specify) | Gumboots, PVC shoes, avoid nails to the shoe toe. |
| Clothing (Specify) | Asbestos suit, asbestos apron. |
| Others (Specify) | - |

ENGINEERING CONTROLS (e.g., Ventilation, enclosed process etc) Please specify.

| | |
|--|--|
| <u>Leak and Spill Procedures</u> 1. Wash with water & collect in catch pit. 2. Small spills evaporate before they are cleared. 3. However, prevent contamination of municipal drain by containing the spillage by means of sand, soil etc but thin layer of water above the spillage will prevent evaporation and fire hazard | <u>Waste Disposal</u> No solid waste |
| <u>Handling Procedure & Equipment</u> To be kept under water MS storage tanks and through MS pipe lines, cold lagging inside the plant. | <u>Storage requirements</u> Mild steel cylindrical tanks. CS ₂ is stored under water, 1/3rd of total vol me. |

Special Shipping Information

UN NO.1131

TDG Class 3 - Inflammable liquids

HAZCHEM Symbol : 3 WE (W = Contain and it includes

V = Can be violently or even explosively reactive.

E = Consider evacuation

SYMBOL (Flame) Black or White - Background : RED

SECTION VIII : FIRST AID MEASURES

FIRST AID MEASURES

1. Persons inhaling CS₂ should be removed immediately to FRESH AIR.
2. Patients should be kept warm and given artificial respiration.
3. Suitable gloves and aprons should be provided during handling of CS₂.
4. During spills, clothing should be removed and a shower taken.
5. Splashes in the eyes should be flushed with water for atleast 15 minutes.
6. Splashes on skin should be washed with water.

SOURCES USED

1. Fire Safety Data Sheet No. F5 05 LPA
2. Safety Code for Carbon Disulfide IS 5685-1970.
3. Industrial Toxicology By N Irving Sax.

ADDITIONAL INFORMATION

- Road transportation-by tankers and MS drums as per TDG
- Extinguishing Agent - FOAM not effective
- Flammable liquid, not acceptable along with passengers or any other cargo.

SECTION IX : DATE OF PREPARATION OF MATERIAL SAFETY DATA SHEET 0251-2733670-79

Prepared by Safety Deptt, Century Rayon, Shahad | : Tel: No. Ulhasnagar.
KALYAN

Date :

NOTES : (1) CAS or UN Number - Chemical Abstract Service or United Nations (UN) Number. (2) LD-50 - Lethal Dose-50 (LD-50 Specify Species and route). (3) LC-50 - Lethal concentration - 50% (LC-50 Specify species & route), (4) TDG flammability -