

Otto Chemie Pvt Ltd

101, Aarkay Ruby Industrial Estate(1B), Opp Shree Narayan Industrial Estate,
Chinchpada, Vasai East, Waliv, Maharashtra 401208.

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MATERIAL SAFETY DATA SHEET

1. Identification

1.1 GHS Product identifier
Carbon disulphide, 99%
Code: C 1616

2. Hazard identification

2.1 Classification of the substance or mixture
Flammable liquids, Category 2
Skin irritation, Category 2
Eye irritation, Category 2
Specific target organ toxicity \u2013 repeated exposure, Category 1
Reproductive toxicity, Category 2
2.2 GHS label elements, including precautionary statements
Pictogram(s)



Signal word

Danger

Hazard statement(s)

H225 Highly flammable liquid and vapour
H315 Causes skin irritation
H319 Causes serious eye irritation
H372 Causes damage to organs through prolonged or repeated exposure
H361fd

Precautionary statement(s)

Prevention

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P233 Keep container tightly closed.
P240 Ground and bond container and receiving equipment.
P241 Use explosion-proof [electrical/ventilating/lighting/...] equipment.
P242 Use non-sparking tools.
P243 Take action to prevent static discharges.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P264 Wash ... thoroughly after handling.
P260 Do not breathe dust/fume/gas/mist/vapours/spray.
P270 Do not eat, drink or smoke when using this product.
P201 Obtain special instructions before use.

Response

P202 Do not handle until all safety precautions have been read and understood.
P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].
P370+P378 In case of fire: Use ... to extinguish.
P302+P352 IF ON SKIN: Wash with plenty of water/...
P321 Specific treatment (see ... on this label).
P332+P313 If skin irritation occurs: Get medical advice/attention.
P362+P364 Take off contaminated clothing and wash it before reuse.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337+P313 If eye irritation persists: Get medical advice/attention.
P314 Get medical advice/attention if you feel unwell.
P308+P313 IF exposed or concerned: Get medical advice/ attention.
P403+P235 Store in a well-ventilated place. Keep cool.
P405 Store locked up.
P501 Dispose of contents/container to ...

Storage

Disposal

2.3 Other hazards which do not result in classification
none

3. Composition/information on ingredients

3.1 Substances

Chemical name	Common names and synonyms	CAS number	EC number	Concentration
carbon disulfide	carbon disulfide	75-15-0	none	100%

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4. First-aid measures

4.1 Description of necessary first-aid measures

General advice

Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled

Fresh air, rest. Refer for medical attention.

In case of skin contact

First rinse with plenty of water for at least 15 minutes, then remove contaminated clothes and rinse again. Refer for medical attention .

In case of eye contact

First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then refer for medical attention.

If swallowed

Give nothing to drink. Refer for medical attention .

4.2 Most important symptoms/effects, acute and delayed

The material affects the central nervous system, cardiovascular system, eyes, kidneys, liver, and skin. It may be absorbed through the skin as a vapor or liquid, inhaled or ingested. The probable oral lethal dose for a human is between 0.5 and 5 g/kg or between 1 ounce and 1 pint (or 1 pound) for a 70 kg (150 lb.) person. In chronic exposures, the central nervous system is damaged and results in the disturbance of vision and sensory changes as the most common early symptoms. Lowest lethal dose for humans has been reported at 14 mg/kg or 0.98 grams for a 70 kg person. Alcoholics and those suffering from neuropsychic trouble are at special risk. (EPA, 1998)

4.3 Indication of immediate medical attention and special treatment needed, if necessary

Basic treatment: Establish a patent airway (oropharyngeal or nasopharyngeal airway, if needed). Suction if necessary. Watch for signs of respiratory insufficiency and assist ventilations if necessary. Administer oxygen by nonrebreather mask at 10 to 15 L/min. Anticipate seizures and treat if necessary Monitor for shock and treat if necessary For eye contamination, flush eyes immediately with water. Irrigate each eye continuously with 0.9% saline (NS) during transport Do not use emetics. For ingestion, rinse mouth and administer 5 ml/kg up to 200 ml of water for dilution if the patient can swallow, has a strong gag reflex, and does not drool. Administer activated charcoal Cover skin burns with sterile dressings after decontamination /Carbon Disulfide and Related Compounds/

5. Fire-fighting measures

5.1 Extinguishing media

Suitable extinguishing media

To fight fire, use water, carbon dioxide, dry chemical, fog, mist.

5.2 Specific hazards arising from the chemical

Ignition temperature dangerously low: 212F. Vapors may be ignited by contact with ordinary light bulb, when heated to decomposition, it emits highly toxic fumes of oxides of sulfur. When heated to decomposition, emits highly toxic fumes of sulfur oxides and can react vigorously with oxidizing materials. Avoid air, rust, halogens, metal azides, metals, oxidants; when exposed to heat or flame reacts violently with aluminum, chlorine, azides, hypochlorite, ethylamine diamine, ethylene imine, fluorine, metallic azides of lithium, potassium, cesium, rubidium and sodium, nitrogen oxides, potassium, zinc and (sulfuric acid plus permanganate). Decomposes on standing for a long time. (EPA, 1998)

5.3 Special protective actions for fire-fighters

Wear self-contained breathing apparatus for firefighting if necessary.

6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation.

Evacuate personnel to safe areas. Avoid breathing dust. For personal protection see section 8.

6.2 Environmental precautions

Evacuate danger area! Consult an expert! Personal protection: complete protective clothing including self-contained breathing apparatus. Remove all ignition sources. Absorb remaining liquid in sand or inert absorbent. Then store and dispose of according to local regulations. Do NOT wash away into sewer.

6.3 Methods and materials for containment and cleaning up

1. REMOVE ALL IGNITION SOURCES. 2. VENTILATE AREA OF SPILL OR LEAK. 3. FOR SMALL QUANTITIES, ABSORB ON PAPER TOWELS. EVAPORATE IN A SAFE PLACE (SUCH AS A FUME HOOD). ALLOW SUFFICIENT TIME FOR EVAPORATING VAPORS TO COMPLETELY CLEAR THE HOOD DUCTWORK. BURN THE PAPER IN A SUITABLE LOCATION AWAY FROM COMBUSTIBLE MATERIALS. LARGE QUANTITIES CAN BE RECLAIMED OR COLLECTED AND ATOMIZED IN A SUITABLE COMBUSTION CHAMBER EQUIPPED WITH AN APPROPRIATE EFFLUENT GAS CLEANING DEVICE. CARBON DISULFIDE SHOULD NOT BE ALLOWED TO ENTER A CONFINED SPACE, SUCH AS A SEWER, BECAUSE OF THE POSSIBILITY OF AN EXPLOSION.

7. Handling and storage

7.1 Precautions for safe handling

Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Avoid exposure - obtain special instructions before use. Provide appropriate exhaust ventilation at places where dust is formed. For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

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Fireproof. Separated from oxidants and food and feedstuffs. Cool. Store in an area without drain or sewer access.... MUST BE STORED IN AIRTIGHT DRUMS, HANDLED WITH PRECAUTIONS, & IN SUMMER KEPT IN SHADE & SPRAYED WITH WATER TO PREVENT PRESSURE DEVELOPING. LARGE QUANTITIES ... MUST BE STORED UNDER WATER.

8.Exposure controls/personal protection

8.1Control parameters

Occupational Exposure limit values

Recommended Exposure Limit: 10 Hr Time-Weighted Avg: 1 ppm (3 mg/cu m). Skin.

Recommended Exposure Limit: 15 Min Short-Term Exposure Limit: 10 ppm (30 mg/cu m). Skin.

Biological limit values

no data available

8.2Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

8.3Individual protection measures, such as personal protective equipment (PPE)

Eye/face protection

Safety glasses with side-shields conforming to EN166. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection

Wear impervious clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace. Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique(without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands. The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

Respiratory protection

Wear dust mask when handling large quantities.

Thermal hazards

no data available

9.Physical and chemical properties

Physical state

colourless to light yellow liquid with an unpleasant odour

Colour

Mobile ... liquid

Odour

Purest distillates have sweet, pleasing, and ethereal odor ... usual commercial and reagent grades are foul smelling

Melting point/ freezing point

-111\°C

Boiling point or initial boiling point and boiling range

46\°C(lit.)

Flammability

Class IB Flammable Liquid: F.I.P. below 22.78\°C and BP at or above 37.78\°C.Highly flammable. Many reactions may cause fire or explosion. Gives off irritating or toxic fumes (or gases) in a fire.

Lower and upper explosion limit / flammability limit

Lower Flammable Limit: 1.3% by volume; Upper Flammable Limit: 50.0% by volume

Flash point

-30\°C

Auto-ignition temperature

100\°C

Decomposition temperature

no data available

pH

no data available

Kinematic viscosity

Coefficient of viscosity = 0.363 at 20\°C

Solubility

In water:2.9 g/L (20 \°C)

Partition coefficient n-octanol/water (log value)

log Kow = 1.94

Vapour pressure

5.83 psi (20 \°C)

Density and/or relative density

1.266g/mL at 25\°C(lit.)

Relative vapour density

2.67 (vs air)

Particle characteristics

no data available

10.Stability and reactivity

10.1Reactivity

no data available

10.2Chemical stability

Stable under recommended storage conditions.

10.3Possibility of hazardous reactions

Carbon disulfide vapor is explosive, igniting spontaneously on contact with sparks or at temperatures above 147 degrees C.The vapour is heavier than air and may travel along the ground; distant ignition possible. As a result of flow, agitation, etc., electrostatic charges can be generated.CARBON DISULFIDE has an extremely low autoignition temperature (125\°C). May ignite or even explode when heated. The vapor or liquid has been known to ignite on contact with steam pipes, particularly if rusted [Anon., J. Roy. Inst. Chem., 1956, 80, p.664]. Explosion hazard when exposed to flame, heat, sparks or friction. Mixtures with lithium, sodium, potassium or dinitrogen tetraoxide may detonate when shocked. Potentially explosive reaction with nitrogen oxide, chlorine, permanganic acid(strong oxidizing agents). Vapor ignites in contact with aluminum powder or fluorine. Reacts violently with azides,

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ethylamine ethylenediamine, ethylene imine. Emits highly toxic fumes of oxides of sulfur when heated to decomposition [Bretherick, 5th ed., 1995, p. 663]. Sodium amide forms toxic and flammable H₂S gas with CS₂. (714)

10.4 Conditions to avoid

no data available

10.5 Incompatible materials

Incompatible with air, metals, and oxidants.

10.6 Hazardous decomposition products

Decomposes on standing for a long time.

11. Toxicological information

Acute toxicity

Oral: LD₅₀ Rat oral 3188 mg/kg

Inhalation: LC₅₀ Rat inhalation 25 g/cu m/2 hr

Dermal: no data available

Skin corrosion/irritation

no data available

Serious eye damage/irritation

no data available

Respiratory or skin sensitization

no data available

Germ cell mutagenicity

no data available

Carcinogenicity

TLV-A4

Reproductive toxicity

Reproductive effects, such as decreased sperm count and decreased libido in men and menstrual disturbances in women, have been reported from occupational settings involving inhalation exposure to carbon disulfide. (-) Developmental effects, including skeletal and visceral malformations, embryotoxicity, and functional and behavioral disturbances, have been observed in several animal studies across a wide exposure range. Pharmacokinetic studies indicate that carbon disulfide and its metabolites cross the placenta and localize in the target organs of the fetus (brain, blood, liver, and eyes).

STOT-single exposure

no data available

STOT-repeated exposure

no data available

Aspiration hazard

no data available

12. Ecological information

12.1 Toxicity

Toxicity to fish: no data available

Toxicity to daphnia and other aquatic invertebrates: EC₅₀; Species: Daphnia magna (water flea); Concentration: 10 mg/L/24 hr;

Condition: not specified; Effect: inhibition of the mobility

Toxicity to algae: no data available

Toxicity to microorganisms: no data available

12.2 Persistence and degradability

AEROBIC: It has been demonstrated that the adsorption of carbon disulfide by moist unsterilized soil increases sharply after approximately 3 hr and the time for complete sorption of the gas decreases with repeated dosing(1). This behavior does not occur with air-dried or sterilized soil and has been ascribed to microbial utilization of the chemical(1). Carbon disulfide is oxidized by some heterotrophs(2). Carbon disulfide, present at 100 mg/L, reached 2% of its theoretical BOD in 4 weeks using an activated sludge inoculum at 30 mg/L and the Japanese MITI test(3).

12.3 Bioaccumulative potential

BCFs of <6.1 and <60 were measured in carp for carbon disulfide at concentrations of 50 and 5 ug/L, respectively(1). According to a classification scheme(2), these BCFs suggest bioconcentration in aquatic organisms is low to moderate(SRC).

12.4 Mobility in soil

The Koc of carbon disulfide is estimated as approximately 270(SRC), using a log Kow of 1.94(1) and a regression-derived equation(2). According to a classification scheme(3), this estimated Koc value suggests that carbon disulfide is expected to have moderate mobility in soil(SRC). The avg adsorption of carbon disulfide after 10 minutes by 4 air-dried soils was 46% but only 12% by the same soils at 50% water-holding capacity(4). However, after 8 hr the rate of adsorption was greater by moist soil, but only when the soil was unsterilized(4). Further experiments suggest that this "adsorption" in moist soils is the result of microbial action(4).

12.5 Other adverse effects

no data available

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13. Disposal considerations

13.1 Disposal methods

Product

The material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing. Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.

Contaminated packaging

Containers can be triply rinsed (or equivalent) and offered for recycling or reconditioning. Alternatively, the packaging can be punctured to make it unusable for other purposes and then be disposed of in a sanitary landfill. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.

14. Transport information

14.1 UN Number

ADR/RID: UN1131

IMDG: UN1131

IATA: UN1131

14.2 UN Proper Shipping Name

ADR/RID: CARBON DISULPHIDE

IMDG: CARBON DISULPHIDE

IATA: CARBON DISULPHIDE

14.3 Transport hazard class(es)

ADR/RID: 3

IMDG: 3

IATA: 3

14.4 Packing group, if applicable

ADR/RID: I

IMDG: I

IATA: I

14.5 Environmental hazards

ADR/RID: no

IMDG: no

IATA: no

14.6 Special precautions for user

no data available

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

no data available

15. Regulatory information

15.1 Safety, health and environmental regulations specific for the product in question

Chemical name	Common names and synonyms	CAS number	EC number
carbon disulfide	carbon disulfide	75-15-0	none
European Inventory of Existing Commercial Chemical Substances (EINECS)			Listed.
EC Inventory			Listed.
United States Toxic Substances Control Act (TSCA) Inventory			Listed.
China Catalog of Hazardous chemicals 2015			Listed.
New Zealand Inventory of Chemicals (NZIoC)			Listed.
Philippines Inventory of Chemicals and Chemical Substances (PICCS)			Listed.
Vietnam National Chemical Inventory			Not Listed.
Chinese Chemical Inventory of Existing Chemical Substances (China IECSC)			Listed.

Section 16: Other Information

This safety data sheet should be used in conjunction with technical sheets. It does not replace them. The information given is based on our knowledge of this product, at the time of publication. It is given in good faith. The attention of the user is drawn to the possible risks incurred by using the product for any other purpose other than that for which it was intended. This does not in any way excuse the user from knowing and applying all the regulations governing his activity. It is the sole responsibility of the user to take all precautions required in handling the product. The aim of the mandatory regulations mentioned is to help the user to fulfill his obligations regarding the use of hazardous products.