

Material Safety Data Sheet

Date Printed: 15/DEC/2004

Date Updated: 13/MAR/2004

Version 1.6

According to 91/155/EEC

1 - Product and Company Information

Product Name	CARBON DISULFIDE, 99.9%, A.C.S. REAGENT
Product Number	180173
Company	Sigma-Aldrich Pte Ltd #08-01 Citilink Warehouse Singapore 118529 Singapore
Technical Phone #	65 271 1089
Fax	65 271 1571

2 - Composition/Information on Ingredients

Product Name	CAS #	EC no	Annex I Index Number
CARBON DISULFIDE	75-15-0	200-843-6	006-003-00-3
Formula	CS ₂		
Molecular Weight	76.14 AMU		

3 - Hazards Identification

SPECIAL INDICATION OF HAZARDS TO HUMANS AND THE ENVIRONMENT

Highly flammable. Irritating to eyes and skin. Toxic: danger of serious damage to health by prolonged exposure through inhalation. Possible risk of impaired fertility. Possible risk of harm to the unborn child.
Repr. Cat.3

4 - First Aid Measures

AFTER INHALATION

If inhaled, remove to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen.

AFTER SKIN CONTACT

In case of skin contact, flush with copious amounts of water for at least 15 minutes. Remove contaminated clothing and shoes.
Call a physician.

AFTER EYE CONTACT

In case of contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.

AFTER INGESTION

If swallowed, wash out mouth with water provided person is conscious. Call a physician immediately.

5 - Fire Fighting Measures

EXTINGUISHING MEDIA

Suitable: Water spray. Carbon dioxide, dry chemical powder, or appropriate foam.

SPECIAL RISKS

Specific Hazard(s): Flammable liquid. Emits toxic fumes under fire conditions.

Explosion Hazards: Vapor may travel considerable distance to source of ignition and flash back. Container explosion may occur under fire conditions. Forms explosive mixtures in air. May explode when heated.

SPECIAL PROTECTIVE EQUIPMENT FOR FIREFIGHTERS

Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

6 - Accidental Release Measures

PERSONAL PRECAUTION PROCEDURES TO BE FOLLOWED IN CASE OF LEAK OR SPILL
Evacuate area. Shut off all sources of ignition.

PROCEDURE(S) OF PERSONAL PRECAUTION(S)

Wear self-contained breathing apparatus, rubber boots, and heavy rubber gloves.

METHODS FOR CLEANING UP

Cover with dry-lime, sand, or soda ash. Place in covered containers using non-sparking tools and transport outdoors. Ventilate area and wash spill site after material pickup is complete.

7 - Handling and Storage

HANDLING

Directions for Safe Handling: Do not breathe vapor. Avoid contact with eyes, skin, and clothing. Avoid prolonged or repeated exposure.

STORAGE

Conditions of Storage: Keep container closed. Keep away from heat, sparks, and open flame.

Incompatible Materials: Caution: contact with azides or active metals such as sodium, potassium, zinc, etc., May cause fires and explosions.

SPECIAL REQUIREMENTS: May develop pressure. Refrigerate before opening.

8 - Exposure Controls / Personal Protection

ENGINEERING CONTROLS

Safety shower and eye bath. Use nonsparking tools. Use only in a chemical fume hood.

GENERAL HYGIENE MEASURES

Wash contaminated clothing before reuse. Wash thoroughly after handling.

EXPOSURE LIMITS

Country	Source	Type	Value
Poland		NDS	18 MG/M3
Poland		NDSCh	30 MG/M3

Poland	NDSP	-
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EXPOSURE LIMITS - DENMARK		
Source	Type	Value
OEL	TWA	15 mg/m3
		5 ppm

Remarks: H

EXPOSURE LIMITS - GERMANY		
Source	Type	Value
TRGS 900	OEL	30 mg/m3
		10 ppm

Remarks: 4

Remarks: H

EXPOSURE LIMITS - NORWAY		
Source	Type	Value
	OEL	15 mg/m3
		5 ppm

Remarks: H

EXPOSURE LIMITS - SWEDEN		
Source	Type	Value
	LLV (Level)	16 mg/m3
		5 ppm

Remarks: H, R

EXPOSURE LIMITS - SWITZERLAND		
Source	Type	Value
OEL	OEL	15mg/m3* 5ppm*

Remarks: H B M

EXPOSURE LIMITS - UNITED KINGDOM		
Source	Type	Value
OEL	OEL	32 mg/m3
		10 ppm

PERSONAL PROTECTIVE EQUIPMENT

Respiratory Protection: Government approved respirator.

Hand Protection: Compatible chemical-resistant gloves.

Eye Protection: Chemical safety goggles.

9 - Physical and Chemical Properties

Appearance	Physical State: Liquid	
	Color: Colorless	
	Odor: Stench.	
Property	Value	At Temperature or Pressure
pH	N/A	
BP/BP Range	46 °C	
MP/MP Range	-112 - -111 °C	
Flash Point	-30 °C	Method: closed cup
Flammability	N/A	
Autoignition Temp	100 °C	
Oxidizing Properties	N/A	
Explosive Properties	N/A	
Explosion Limits	Lower: 1.3 %	
	Upper: 50 %	
Vapor Pressure	296.241 mmHg	20 °C
SG/Density	1.26 g/cm3	

Partition Coefficient	Log Kow: 2.16
Viscosity	N/A
Vapor Density	2.67 g/l
Saturated Vapor Conc.	N/A
Evaporation Rate	N/A
Bulk Density	N/A
Decomposition Temp.	N/A
Solvent Content	N/A
Water Content	N/A
Surface Tension	N/A
Conductivity	N/A
Miscellaneous Data	N/A
Solubility	N/A

10 - Stability and Reactivity

STABILITY

Stable: Stable.

Materials to Avoid: Alkali metals, Zinc, Amines, Azides, Oxidizing agents.

HAZARDOUS DECOMPOSITION PRODUCTS

Hazardous Decomposition Products: Carbon monoxide, Carbon dioxide, Sulfur oxides.

HAZARDOUS POLYMERIZATION

Hazardous Polymerization: Will not occur

11 - Toxicological Information

ACUTE TOXICITY

LCLO
Inhalation
Human
4,000 ppm
30M

LCLO
Inhalation
Human
2,000 ppm
5M

LD50
Oral
Rat
1200 mg/kg

LC50
Inhalation
Rat
25,000 mg/m3
2H

LD50
Oral
Mouse
2780 mg/kg

LC50
Inhalation

Mouse
10,000 mg/m³
2H

LD50
Oral
Rabbit
2550 mg/kg

LD50
Oral
Guinea pig
2125 mg/kg

SIGNS AND SYMPTOMS OF EXPOSURE

Exposure can cause: Damage to the kidneys. Damage to the liver.
Damage to the heart. May cause convulsions.

ROUTE OF EXPOSURE

Skin Contact: Causes skin irritation.
Skin Absorption: Readily absorbed through skin. May be harmful if absorbed through the skin. May be harmful if absorbed through the skin.
Eye Contact: Causes eye irritation.
Inhalation: Toxic if inhaled. Material may be irritating to mucous membranes and upper respiratory tract.
Ingestion: Harmful if swallowed.

TARGET ORGAN INFORMATION

Eyes. Nerves. Liver. Kidneys. Heart. Cardiovascular system. Male reproductive system. Female reproductive system.

CONDITIONS AGGRAVATED BY EXPOSURE

May cause nervous system disturbances.

CHRONIC EXPOSURE - MUTAGEN

Result: Laboratory experiments have shown mutagenic effects.

Human
8 MG/L
Cell Type: lymphocyte
Sister chromatid exchange

Human
10200 UG/L
Cell Type: lymphocyte
Sister chromatid exchange

CHRONIC EXPOSURE - TERATOGEN

Result: Possible risk of congenital malformation in the fetus.

Species: Rat
Dose: 2 GM/KG
Route of Application: Oral
Exposure Time: (6-15D PREG)
Result: Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus).

Species: Rat
Dose: 10 MG/M³/8H
Route of Application: Inhalation
Exposure Time: (1-22D PREG)

Result: Specific Developmental Abnormalities: Eye, ear. Effects on Newborn: Viability index (e.g., # alive at day 4 per # born alive).

Species: Rat

Dose: 100 MG/M3/8H

Route of Application: Inhalation

Exposure Time: (1-21D PREG)

Result: Effects on Embryo or Fetus: Fetal death. Specific Developmental Abnormalities: Craniofacial (including nose and tongue). Specific Developmental Abnormalities: Homeostasis

Species: Rabbit

Dose: 2100 MG/KG

Route of Application: Oral

Exposure Time: (6-19D PREG)

Result: Specific Developmental Abnormalities: Other developmental abnormalities.

CHRONIC EXPOSURE - REPRODUCTIVE HAZARD

Result: May cause reproductive disorders.

Species: Man

Dose: 40 MG/M3

Route of Application: Inhalation

Exposure Time: (91W MALE)

Result: Paternal Effects: Spermatogenesis (including genetic material, sperm morphology, motility, and count).

Species: Rat

Dose: 200 MG/M3/24H

Route of Application: Inhalation

Exposure Time: (1-21D PREG)

Result: Effects on Fertility: Pre-implantation mortality (e.g., reduction in number of implants per female; total number of implants per corpora lutea).

Species: Rat

Dose: 100 MG/M3/8H

Route of Application: Inhalation

Exposure Time: (1-22D PREG)

Result: Effects on Newborn: Growth statistics (e.g., reduced weight gain).

Species: Rat

Dose: 30 UG/M3/8H

Route of Application: Inhalation

Exposure Time: (1-22D PREG)

Result: Effects on Newborn: Behavioral.

Species: Rat

Dose: 600 PPM/6H

Route of Application: Inhalation

Exposure Time: (50D MALE)

Result: Paternal Effects: Spermatogenesis (including genetic material, sperm morphology, motility, and count). Paternal Effects: Prostate, seminal vesicle, Cowper's gland, accessory glands.

Species: Mouse

Dose: 2000 MG/M3/2H

Route of Application: Inhalation

Exposure Time: (1-21D PREG)
Result: Effects on Fertility: Pre-implantation mortality (e.g., reduction in number of implants per female; total number of implants per corpora lutea). Effects on Fertility: Litter size (e.g.; # fetuses per litter; measured before birth).

Species: Rabbit
Dose: 350 MG/KG
Route of Application: Oral
Exposure Time: (6-19D PREG)
Result: Effects on Fertility: Post-implantation mortality (e.g., dead and/or resorbed implants per total number of implants).

12 - Ecological Information

No data available.

ECOTOXICOLOGICAL EFFECTS

Test Type: LC50 Fish
Species: other fish
Time: 96 h
Value: 162 mg/l

13 - Disposal Considerations

SUBSTANCE DISPOSAL

Contact a licensed professional waste disposal service to dispose of this material. Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Observe all federal, state, and local environmental regulations.

14 - Transport Information

RID/ADR

UN#: 1131
Class: 3
PG: I
Proper Shipping Name: Carbon disulphide

IMDG

UN#: 1131
Class: 3
PG: I
Subrisk: 6.1
Proper Shipping Name: Carbon disulphide
Marine Pollutant: No
Severe Marine Pollutant: No

IATA

UN#: 1131
Class: 3
PG: I
Subrisk: 6.1
Proper Shipping Name: Carbon disulphide
Inhalation Packing Group I: No

15 - Regulatory Information

CLASSIFICATION AND LABELING ACCORDING TO EU DIRECTIVES
ANNEX I INDEX NUMBER: 006-003-00-3
INDICATION OF DANGER: F T

Highly Flammable. Toxic.

R-PHRASES: 11 36/38 48/23 62 63

Highly flammable. Irritating to eyes and skin. Toxic: danger of serious damage to health by prolonged exposure through inhalation. Possible risk of impaired fertility. Possible risk of harm to the unborn child.

S-PHRASES: 16 33 36/37 45

Keep away from sources of ignition - no smoking. Take precautionary measures against static discharges. Wear suitable protective clothing and gloves. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

COUNTRY SPECIFIC INFORMATION

Germany

WGK: 2

SWITZERLAND

SWISS POISON CLASS: 1

NORWAY

Labelling for organic solvents where the package is 1liter or more.

YL-tall m3/l: 168000

YL-group: 5

Safety phrases: 38 42 210

In case of insufficient ventilation, wear suitable respiratory equipment. During fumigation/spraying wear suitable respiratory equipment. Use compressed air- or fresh air line breathing apparatus in confined spaces.

16 - Other Information

WARRANTY

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Inc., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale. Copyright 2004 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.

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