SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name: Carbon disulfide
Product Number: 335266
Brand: Sigma-Aldrich
Index-No.: 006-003-00-3
CAS-No.: 75-15-0

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses: Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company: Sigma-Aldrich Inc.
3050 SPRUCE ST
ST. LOUIS MO 63103
UNITED STATES
Telephone: +1 314 771-5765
Fax: +1 800 325-5052

1.4 Emergency telephone

Emergency Phone #: 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

- Flammable liquids (Category 2), H225
- Acute toxicity, Inhalation (Category 4), H332
- Skin irritation (Category 2), H315
- Eye irritation (Category 2A), H319
- Reproductive toxicity (Category 2), H361
- Specific target organ toxicity - repeated exposure (Category 1), Peripheral nervous system, Central nervous system, Cardio-vascular system, Eyes, H372
- Short-term (acute) aquatic hazard (Category 2), H401

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements
2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none
SECTION 3: Composition/information on ingredients

3.1 Substances

Formula: CS₂
Molecular weight: 76.14 g/mol
CAS-No.: 75-15-0
EC-No.: 200-843-6
Index-No.: 006-003-00-3

<table>
<thead>
<tr>
<th>Component</th>
<th>Classification</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbon Disulfide</td>
<td>Flam. Liq. 2; Acute Tox. 4; Skin Irrit. 2; Eye Irrit. 2A; Repr. 2; STOT RE 1; Aquatic Acute 2; H225, H332, H315, H319, H361, H372, H401</td>
<td>&lt;= 100 %</td>
</tr>
</tbody>
</table>

Concentration limits:
- >= 1 %: Repr. 2, H361fd;
- >= 1 %: STOT RE 1, H372;
- 0.2 - < 1 %: STOT RE 2, H373;

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice
Show this material safety data sheet to the doctor in attendance.

If inhaled
After inhalation: fresh air. Immediately call in physician. If breathing stops: immediately apply artificial respiration, if necessary also oxygen.

In case of skin contact
In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Consult a physician.

In case of eye contact
After eye contact: rinse out with plenty of water. Call in ophthalmologist. Remove contact lenses.

If swallowed
After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available
SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Water Foam Carbon dioxide (CO2) Dry powder

Unsuitable extinguishing media
For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture
Carbon oxides
Sulfur oxides
Flash back possible over considerable distance. Container explosion may occur under fire conditions. Vapors may form explosive mixture with air. May explode when heated. Combustible.
Pay attention to flashback.
Vapors are heavier than air and may spread along floors.
Development of hazardous combustion gases or vapours possible in the event of fire.
Forms explosive mixtures with air at ambient temperatures.

5.3 Advice for firefighters
Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

5.4 Further information
Remove container from danger zone and cool with water. Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Advice for non-emergency personnel: Do not breathe vapors, aerosols. Avoid substance contact. Ensure adequate ventilation. Keep away from heat and sources of ignition. Evacuate the danger area, observe emergency procedures, consult an expert.
For personal protection see section 8.

6.2 Environmental precautions
Do not let product enter drains. Risk of explosion.

6.3 Methods and materials for containment and cleaning up
Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up carefully with liquid-absorbent material (e.g. Chemizorb®). Dispose of properly. Clean up affected area.

6.4 Reference to other sections
For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling
Advice on safe handling
Work under hood. Do not inhale substance/mixture. Avoid generation of vapours/aerosols.
**Advice on protection against fire and explosion**
Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharge.

**Hygiene measures**
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.
For precautions see section 2.2.

7.2 **Conditions for safe storage, including any incompatibilities**

**Storage conditions**
Keep container tightly closed in a dry and well-ventilated place. Keep away from heat and sources of ignition. Keep locked up or in an area accessible only to qualified or authorized persons.
Refrigerate before opening.

**Storage class**
Storage class (TRGS 510): 3: Flammable liquids

7.3 **Specific end use(s)**
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

---

**SECTION 8: Exposure controls/personal protection**

8.1 **Control parameters**

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No.</th>
<th>Value</th>
<th>Control parameters</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbon Disulfide</td>
<td>75-15-0</td>
<td>TWA</td>
<td>1 ppm</td>
<td>USA. ACGIH Threshold Limit Values (TLV)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Remarks</td>
<td>Not classifiable as a human carcinogen</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>TWA 1 ppm</td>
<td>USA. NIOSH Recommended Exposure Limits</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>3 mg/m³</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Remarks</td>
<td>Danger of cutaneous absorption</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ST 10 ppm</td>
<td>USA. NIOSH Recommended Exposure Limits</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>30 mg/m³</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Remarks</td>
<td>Potential for dermal absorption</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>TWA 20 ppm</td>
<td>USA. Occupational Exposure Limits (OSHA) - Table Z-2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>CEIL 30 ppm</td>
<td>USA. Occupational Exposure Limits (OSHA) - Table Z-2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Peak 100 ppm</td>
<td>USA. Occupational Exposure Limits (OSHA) - Table Z-2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>PEL 1 ppm</td>
<td>California permissible exposure limits for chemical contaminants (Title 8, Article 107)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>3 mg/m³</td>
<td></td>
</tr>
</tbody>
</table>

Skin
### California permissible exposure limits for chemical contaminants (Title 8, Article 107)

<table>
<thead>
<tr>
<th>Component</th>
<th>Parameters</th>
<th>Value</th>
<th>Biological specimen</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>STEL</td>
<td>12 ppm</td>
<td>36 mg/m³</td>
<td>Skin</td>
<td></td>
</tr>
<tr>
<td>STEL</td>
<td>C</td>
<td>30 ppm</td>
<td>Skin</td>
<td></td>
</tr>
</tbody>
</table>

### Biological occupational exposure limits

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No.</th>
<th>Parameters</th>
<th>Value</th>
<th>Biological specimen</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbon Disulfide</td>
<td>75-15-0</td>
<td>2-Thiothiazolidine-4-carboxylic acid (TTCA)</td>
<td>0.5mg/g Creatinine</td>
<td>Urine</td>
<td>ACGIH - Biological Exposure Indices (BEI)</td>
</tr>
</tbody>
</table>

### Remarks

End of shift (As soon as possible after exposure ceases)

#### 8.2 Exposure controls

**Appropriate engineering controls**

Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

**Personal protective equipment**

**Eye/face protection**

Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses

**Skin protection**

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Full contact

Material: Viton®

Minimum layer thickness: 0.7 mm

Break through time: 480 min

Material tested: Vitoject® (KCL 890 / Aldrich Z677698, Size M)

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Splash contact

Material: butyl-rubber

Minimum layer thickness: 0.7 mm

Break through time: 30 min

Material tested: Butoject® (KCL 898)

**Body Protection**

Flame retardant antistatic protective clothing.
Respiratory protection
required when vapours/aerosols are generated. Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Control of environmental exposure
Do not let product enter drains. Risk of explosion.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a) Appearance  
   Form: clear, liquid  
   Color: colorless

b) Odor  
   odorless

c) Odor Threshold  
   Not applicable

d) pH  
   No data available

e) Melting point/freezing point  
   Melting point/range: -112 - -111 °C (-170 - -168 °F)

f) Initial boiling point and boiling range  
   46 °C 115 °F

g) Flash point  
   -30 °C (-22 °F) - c.c.

h) Evaporation rate  
   No data available

i) Flammability (solid, gas)  
   No data available

j) Upper/lower flammability or explosive limits  
   Upper explosion limit: 60 % (V)  
   Lower explosion limit: 1 % (V)

k) Vapor pressure  
   274 hPa at 25 °C (77 °F) - OECD Test Guideline 104

l) Vapor density  
   No data available

m) Density  
   1.266 g/mL at 25 °C (77 °F)

   Relative density  
   No data available

n) Water solubility  
   2.9 g/l at 20 °C (68 °F) - OECD Test Guideline 105 - soluble

o) Partition coefficient: n-octanol/water  
   log Pow: 2.7 at 25 °C (77 °F) - OECD Test Guideline 117 -  
   Bioaccumulation is not expected.

p) Autoignition temperature  
   No data available

q) Decomposition temperature  
   415 °C (779 °F), 89.7 kJ/mol -

r) Viscosity  
   No data available

s) Explosive properties  
   No data available

t) Oxidizing properties  
   none

9.2 Other safety information

Surface tension  
   71.9 mN/m at 1g/l at 19.5 °C (67.1 °F) - OECD Test Guideline

Sigma-Aldrich - 335266
SECTION 10: Stability and reactivity

10.1 Reactivity
Vapors may form explosive mixture with air.

10.2 Chemical stability
The product is chemically stable under standard ambient conditions (room temperature).

10.3 Possibility of hazardous reactions
Risk of explosion with:
- nitrogen oxides
- permanganic acid
- Oxidizing agents
- halogen-halogen compounds
- halogen oxides
- Iron
- ferric oxide
- Chlorine
- hydrazines
- powdered aluminium
- chlorine oxides
- Potassium
- potassium permanganate
- Lithium
- sodium
- nitrogen dioxide
- azides
Risk of ignition or formation of inflammable gases or vapours with:
- Fluorine
- phosphorus
- sulfur
- Activated charcoal
- Powdered metals
- Reducing agents
- Exothermic reaction with:
- Zinc
- Acids

10.4 Conditions to avoid
Warming.

10.5 Incompatible materials
rubber, various plastics

10.6 Hazardous decomposition products
In the event of fire: see section 5
SECTION 11: Toxicological information

11.1 Information on toxicological effects

**Acute toxicity**
LD50 Oral - Rat - female - > 2,000 mg/kg
(OECD Test Guideline 423)
LC50 Inhalation - Rat - male and female - 4 h - 10.35 mg/l - vapor
(OECD Test Guideline 403)
Dermal: No data available

**Skin corrosion/irritation**
Skin - Rabbit
Result: Severe irritations
(IUCLID)

**Serious eye damage/eye irritation**
Eyes - Human
Result: Severe irritations
(IUCLID)

**Respiratory or skin sensitization**
Local lymph node assay (LLNA) - Mouse
Result: negative
(OECD Test Guideline 429)

**Germ cell mutagenicity**
Test Type: In vitro mammalian cell gene mutation test
Test system: mouse lymphoma cells
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 476
Result: negative

Test Type: Micronucleus test
Species: Mouse
Cell type: Red blood cells (erythrocytes)
Application Route: inhalation (vapor)
Method: OECD Test Guideline 474
Result: negative

**Carcinogenicity**
IARC: No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
NTP: No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA’s list of regulated carcinogens.

**Reproductive toxicity**
Suspected of damaging the unborn child. Suspected of damaging fertility.

**Specific target organ toxicity - single exposure**
No data available
Specific target organ toxicity - repeated exposure
Causes damage to organs through prolonged or repeated exposure.
- Peripheral nervous system, Central nervous system, Cardio-vascular system, Eyes
Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

Aspiration hazard
No data available

11.2 Additional Information
RTECS: FF6650000
May cause convulsions.
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

After uptake of large quantities:

- Inebriation
- Agitation, spasms
- Unconsciousness
- Narcosis
- Cyanosis
- Drop in blood pressure

After long-term exposure to the chemical:

- Tiredness
- Muscular symptoms

After a latency period:

- Stomach/intestinal disorders
- Psychoses
- Changes in the blood count
- Cardiac irregularities

Damage to:

- Liver
- Kidney

This substance should be handled with particular care.

Liver - Irregularities - Based on Human Evidence

SECTION 12: Ecological information

12.1 Toxicity

Toxicity to fish
semi-static test LC50 - Danio rerio (zebra fish) - 3 mg/l - 96 h
(OECD Test Guideline 203)

Toxicity to daphnia and other aquatic invertebrates
EC50 - Daphnia magna (Water flea) - 2.1 mg/l - 48 h
(OECD Test Guideline 202)
The life science business of Merck KGaA, Darmstadt, Germany operates as MilliporeSigma in the US and Canada

<table>
<thead>
<tr>
<th>Property</th>
<th>Static test</th>
<th>EC50</th>
<th>Units</th>
<th>Duration</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toxicity to algae</td>
<td>EC50</td>
<td>21 mg/l</td>
<td>-</td>
<td>96 h</td>
<td>(OECD Test Guideline 201)</td>
</tr>
<tr>
<td>Toxicity to bacteria</td>
<td>EC50</td>
<td>13 mg/l</td>
<td>-</td>
<td>24 h</td>
<td>(OECD Test Guideline 201)</td>
</tr>
</tbody>
</table>

**12.2 Persistence and degradability**
- **Biodegradability**
  - **aerobic** - Exposure time 28 d
  - Result: > 80 % - Readily biodegradable.
  - (OECD Test Guideline 301D)
- **Chemical Oxygen Demand (COD)**
  - 1.47 mg/g
  - Remarks: (IUCLID)

**12.3 Bioaccumulative potential**
- No data available

**12.4 Mobility in soil**
- No data available

**12.5 Results of PBT and vPvB assessment**
- PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

**12.6 Endocrine disrupting properties**
- No data available

**12.7 Other adverse effects**
- **Additional ecological information**
  - Hazard for drinking water supplies.
  - Discharge into the environment must be avoided.
- **Stability in water**
  - > 1 yr
  - Remarks: (IUCLID)

**SECTION 13: Disposal considerations**

**13.1 Waste treatment methods**

**Product**
- Waste material must be disposed of in accordance with the national and local regulations.
- Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself. See www.retrologistik.com for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

**SECTION 14: Transport information**

**DOT (US)**
- UN number: 1131
- Class: 3 (6.1)
- Packing group: I
- Proper shipping name: Carbon disulfide
- Reportable Quantity (RQ): 100 lbs
- Poison Inhalation Hazard: No
IMDG
UN number: 1131  Class: 3 (6.1)  Packing group: I  EMS-No: F-E, S-D
Proper shipping name: CARBON DISULPHIDE

IATA
UN number: 1131  Class: 3 (6.1)
Proper shipping name: Carbon disulphide
IATA Passenger: Not permitted for transport
IATA Cargo: Not permitted for transport

SECTION 15: Regulatory information

SARA 302 Components
Carbon Disulfide  CAS-No.  Revision Date
75-15-0  2008-11-03

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:
Carbon Disulfide  CAS-No.  Revision Date
75-15-0  2008-11-03

SARA 311/312 Hazards
Fire Hazard, Acute Health Hazard, Chronic Health Hazard

Reportable Quantity  F005 lbs

Massachusetts Right To Know Components
Carbon Disulfide  CAS-No.  Revision Date
75-15-0  2008-11-03

Pennsylvania Right To Know Components
Carbon Disulfide  CAS-No.  Revision Date
75-15-0  2008-11-03

California Prop. 65 Components
which is/are known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov Carbon Disulfide

CAS-No.  Revision Date
75-15-0  2008-06-17

SECTION 16: Other information

Further information
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 Corporation and its Affiliates shall not be held liable for any
damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

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