

SAFETY DATA SHEET

Version 8.8
Revision Date 10/22/2024
Print Date 10/23/2024

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

1.1 Product identifiers

Product name : Carbon tetrachloride
Product Number : 571016
Brand : Aldrich
Index-No. : 602-008-00-5
CAS-No. : 56-23-5

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

Identified uses : Laboratory chemicals, Synthesis of substances
Uses advised against : The product is being supplied under the TSCA R&D Exemption (40 CFR Section 720.36). It is the recipient's responsibility to comply with the requirements of the R&D exemption. The product may not be used for a non-exempt commercial purpose under TSCA unless appropriate consent is granted in writing by MilliporeSigma.

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)

Acute toxicity, Oral (Category 3), H301
Acute toxicity, Inhalation (Category 3), H331

Acute toxicity, Dermal (Category 3), H311
 Skin sensitization (Sub-category 1B), H317
 Carcinogenicity (Category 2), H351
 Specific target organ toxicity - repeated exposure, Inhalation (Category 1), Liver, Kidney, H372
 Short-term (acute) aquatic hazard (Category 3), H402
 Long-term (chronic) aquatic hazard (Category 3), H412
 Hazardous to the ozone layer (Category 1), H420

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

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal Word

Danger

Hazard Statements

| | |
|--------------------|--|
| H301 + H311 + H331 | Toxic if swallowed, in contact with skin or if inhaled. |
| H317 | May cause an allergic skin reaction. |
| H351 | Suspected of causing cancer. |
| H372 | Causes damage to organs (Liver, Kidney) through prolonged or repeated exposure if inhaled. |
| H412 | Harmful to aquatic life with long lasting effects. |
| H420 | Harms public health and the environment by destroying ozone in the upper atmosphere. |

Precautionary Statements

| | |
|--------------------|--|
| P201 | Obtain special instructions before use. |
| P202 | Do not handle until all safety precautions have been read and understood. |
| P260 | Do not breathe mist or vapors. |
| P264 | Wash skin thoroughly after handling. |
| P270 | Do not eat, drink or smoke when using this product. |
| P271 | Use only outdoors or in a well-ventilated area. |
| P272 | Contaminated work clothing must not be allowed out of the workplace. |
| P273 | Avoid release to the environment. |
| P280 | Wear protective gloves/ protective clothing/ eye protection/ face protection. |
| P301 + P310 + P330 | IF SWALLOWED: Immediately call a POISON CENTER/ doctor. Rinse mouth. |
| P302 + P352 + P312 | IF ON SKIN: Wash with plenty of water. Call a POISON CENTER/ doctor if you feel unwell. |
| P304 + P340 + P311 | IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor. |
| P308 + P313 | IF exposed or concerned: Get medical advice/ attention. |
| P333 + P313 | If skin irritation or rash occurs: Get medical advice/ attention. |
| P362 | Take off contaminated clothing and wash before reuse. |
| P403 + P233 | Store in a well-ventilated place. Keep container tightly closed. |
| P405 | Store locked up. |
| P501 | Dispose of contents/ container to an approved waste disposal plant. |

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS

Rapidly absorbed through skin.

SECTION 3: Composition/information on ingredients**3.1 Substances**

Synonyms : Tetrachloromethane

Formula : CCl₄
 Molecular weight : 153.82 g/mol
 CAS-No. : 56-23-5
 EC-No. : 200-262-8
 Index-No. : 602-008-00-5

| Component | Classification | Concentration |
|-----------------------------|---|---------------|
| Carbon tetrachloride | | |
| | Acute Tox. 3; Skin Sens. 1B; Carc. 2; STOT RE 1; Aquatic Acute 3; Aquatic Chronic 3; Ozone 1; H301, H331, H311, H317, H351, H372, H402, H412, H420 Concentration limits: >= 1 %: STOT RE 1, H372; 0.2 - < 1 %: STOT RE 2, H373; | <= 100 % |

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**

First aiders need to protect themselves. 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. Call a physician immediately.

In case of eye contact

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

If swallowed

If swallowed: give water to drink (two glasses at most). Seek medical advice immediately. In exceptional cases only, if medical care is not available within one hour, induce vomiting (only in persons who are wide awake and fully conscious), administer activated charcoal (20 - 40 g in a 10% slurry) and consult a doctor as quickly as possible.

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**

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

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

Hydrogen chloride gas

Not combustible.

Ambient fire may liberate hazardous vapours.

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

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. 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.

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.

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

Tightly closed. Keep in a well-ventilated place. Keep locked up or in an area accessible only to qualified or authorized persons.

Storage class

Storage class (TRGS 510): 6.1A: Combustible, acute toxic Cat. 1 and 2 / very toxic hazardous materials

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

Ingredients with workplace control parameters

| Component | CAS-No. | Value | Control parameters | Basis |
|----------------------|---------|--|--------------------|---|
| Carbon tetrachloride | 56-23-5 | TWA | 5 ppm | USA. ACGIH Threshold Limit Values (TLV) |
| | Remarks | Suspected human carcinogen Danger of cutaneous absorption | | |
| | | STEL | 10 ppm | USA. ACGIH Threshold Limit Values (TLV) |
| | | Suspected human carcinogen Danger of cutaneous absorption | | |

| | | | | |
|--|--|-----------------------------------|---------------------------------|---|
| | | ST | 2 ppm 12.6 mg/m ³ | USA. NIOSH Recommended Exposure Limits |
| | | Potential Occupational Carcinogen | | |
| | | TWA | 10 ppm | USA. Occupational Exposure Limits (OSHA) - Table Z-2 |
| | | CEIL | 25 ppm | USA. Occupational Exposure Limits (OSHA) - Table Z-2 |
| | | Peak | 200 ppm | USA. Occupational Exposure Limits (OSHA) - Table Z-2 |
| | | C | 200 ppm | California permissible exposure limits for chemical contaminants (Title 8, Article 107) |
| | | Skin | | |
| | | PEL | 2 ppm 12.6 mg/m ³ | California permissible exposure limits for chemical contaminants (Title 8, Article 107) |
| | | Skin | | |
| | | STEL | 10 ppm 63 mg/m ³ | California permissible exposure limits for chemical contaminants (Title 8, Article 107) |
| | | Skin | | |

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 EN 16523-1 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 EN 16523-1 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.4 mm
Break through time: 240 min
Material tested: Camatril® (KCL 730 / Aldrich Z677442, Size M)

Body Protection

protective clothing

Respiratory protection

Recommended Filter type: Filter A (acc. to DIN 3181) for vapours of organic compounds

The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer.

These measures have to be properly documented.

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.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

- | | |
|---|---|
| a) Appearance | Form: liquid Color: colorless |
| b) Odor | sweet |
| c) Odor Threshold | No data available |
| d) pH | No data available |
| e) Melting point/freezing point | Melting point/ range: -23 °C (-9 °F) |
| f) Initial boiling point and boiling range | 77 °C 171 °F at 1,013 hPa |
| g) Flash point | ()No data available |
| h) Evaporation rate | No data available |
| i) Flammability (solid, gas) | No data available |
| j) Upper/lower flammability or explosive limits | No data available |
| k) Vapor pressure | 45 hPa at 0.3 °C (32.5 °F) 120 hPa at 19.8 °C(67.6 °F) 14,549 hPa at 24 °C(75 °F) |
| l) Vapor density | No data available |

- | | |
|--|---|
| m) Density | 1.59 g/cm ³ at 20 °C (68 °F) |
| Relative density | No data available |
| n) Water solubility | 0.8461 g/l at 20 °C (68 °F) |
| o) Partition coefficient: n-octanol/water | log Pow: 2.83 at 25 °C (77 °F) |
| p) Autoignition temperature | No data available |
| q) Decomposition temperature | No data available |
| r) Viscosity | No data available |
| s) Explosive properties | Not classified as explosive. |
| t) Oxidizing properties | none |

9.2 Other safety information

- | | |
|-----------------|---|
| Surface tension | 26.7 mN/m at 20 °C (68 °F) 19.5 mN/m at 80 °C (176 °F) |
|-----------------|---|

SECTION 10: Stability and reactivity

10.1 Reactivity

No data available

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:

Alkali metals
powdered aluminium
Barium
Boranes
calcium silicide
halogen-halogen compounds
peroxi compounds
Fluorine
powdered magnesium
Powdered metals
sodium amide
silanes
silver perchlorate
nitrogen dioxide
alkenes
Oxygen
(as liquefied gas)
Oxygen
with

alkali hydroxides
calcium hypochlorite
with
heat
Violent reactions possible with:
Alkaline earth metals
Dimethylformamide
aluminium chloride
with
triethylaluminium

10.4 Conditions to avoid

no information available

10.5 Incompatible materials

various plastics, Light metals, metal alloys, Metals

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 - 2,350 mg/kg

Remarks: (RTECS)

LC50 Inhalation - Rat - 4 h - 8000 ppm - vapor

LD50 Dermal - Rabbit - > 20,000 mg/kg

No data available

Skin corrosion/irritation

Skin - Rabbit

Result: Mild skin irritation - 24 h
(Draize Test)

Serious eye damage/eye irritation

Eyes - Rabbit

Result: Mild eye irritation - 24 h
(Draize Test)

Respiratory or skin sensitization

- Mouse

Result: The product is a skin sensitizer, sub-category 1B.
(OECD Test Guideline 429)

Germ cell mutagenicity

No data available

Carcinogenicity

Suspected of causing cancer.

IARC: 2B - Group 2B: Possibly carcinogenic to humans (Carbon tetrachloride)

NTP: RAHC - Reasonably anticipated to be a human carcinogen (Carbon tetrachloride)

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

No data available

Specific target organ toxicity - single exposure

No data available

Specific target organ toxicity - repeated exposure

Inhalation - Causes damage to organs through prolonged or repeated exposure.

- Liver, Kidney

Aspiration hazard

No data available

11.2 Additional Information

RTECS: FG4900000

Vomiting, Diarrhea, Abdominal pain, Nausea, Dizziness, Headache, Damage to the eyes., Liver injury may occur., Kidney injury may occur., Exposure to and/or consumption of alcohol may increase toxic effects., Contact with skin can cause:, Pain, Erythema, hyperemia

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

SECTION 12: Ecological information

12.1 Toxicity

| | |
|---|---|
| Toxicity to fish | mortality LC50 - Danio rerio (zebra fish) - 24.3 mg/l - 96 h |
| Toxicity to daphnia and other aquatic invertebrates | Immobilization EC50 - Daphnia magna (Water flea) - 35 mg/l - 48 h (OECD Test Guideline 202) |
| Toxicity to algae | Growth inhibition EC50 - Algae - 20 mg/l - 72 h (OECD Test Guideline 201) |
| Toxicity to fish(Chronic toxicity) | NOEC - Danio rerio (zebra fish) - 2.5 mg/l - 14 d |
| Toxicity to daphnia and other aquatic invertebrates(Chronic toxicity) | NOEC - Daphnia magna (Water flea) - 3.1 mg/l - 21 d |

12.2 Persistence and degradability

No data available

12.3 Bioaccumulative potential

| | |
|-----------------|--|
| Bioaccumulation | Lepomis macrochirus (Bluegill) - 21 d - 52.3 µg/l(Carbon tetrachloride) |
|-----------------|--|

Bioconcentration factor (BCF): 30

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

No data available

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.

SECTION 14: Transport information

DOT (US)

UN number: 1846 Class: 6.1 Packing group: II
Proper shipping name: Carbon tetrachloride
Reportable Quantity (RQ): 10 lbs
Reportable Quantity (RQ): 10 lbs
Reportable Quantity (RQ): 10 lbs
Marine pollutant: yes Poison Inhalation Hazard: No

IMDG

UN number: 1846 Class: 6.1 Packing group: II EMS-No: F-A, S-A
Proper shipping name: CARBON TETRACHLORIDE
Marine pollutant : yes
Marine pollutant : yes

IATA

UN number: 1846 Class: 6.1 Packing group: II
Proper shipping name: Carbon tetrachloride

SECTION 15: Regulatory information

CERCLA Reportable Quantity

| Components | CAS-No. | Component RQ (lbs) | Calculated product RQ (lbs) |
|----------------------|---------|--------------------|-----------------------------|
| Carbon tetrachloride | 56-23-5 | 10 | 10 |
| Carbon tetrachloride | 56-23-5 | 10 | 10 (D019) |
| Carbon tetrachloride | 56-23-5 | 10 | 10 (F001) |

SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

SARA 302 Extremely Hazardous Substances Threshold Planning Quantity

This material does not contain any components with a section 302 EHS TPQ.

SARA 311/312 Hazards : Acute Health Hazard
Chronic Health Hazard

SARA 313 : The following components are subject to reporting levels established by SARA Title III, Section 313:

Carbon tetrachloride 56-23-5 >= 90 - <= 100 %

Clean Air Act

Warning: Manufactured with Carbon tetrachloride, a substance which harms public health and environment by destroying ozone in the upper atmosphere.

UNEP - Handbook for the Montreal Protocol on Substances that Deplete the Ozone Layer
Ozone-Depletion Potential : carbon tetrachloride 56-23-5

40 CFR Protection of Environment; Part 82 : Carbon Tetrachloride 56-23-5
Protection of Stratospheric Ozone - CAA Section 602 Class I Substances
Ozone-Depletion Potential

The following chemical(s) are listed as HAP under the U.S. Clean Air Act, Section 112 (40 CFR 61):

Carbon tetrachloride 56-23-5 >= 90 - <= 100 %

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F).

The following chemical(s) are listed under the U.S. Clean Air Act Section 111 SOCM I Intermediate or Final VOC's (40 CFR 60.489):

Carbon tetrachloride 56-23-5 >= 90 - <= 100 %

Clean Water Act

The following Hazardous Substances are listed under the U.S. CleanWater Act, Section 311, Table 116.4A:

Carbon tetrachloride 56-23-5 >= 90 - <= 100 %

The following Hazardous Chemicals are listed under the U.S. CleanWater Act, Section 311, Table 117.3:

Carbon tetrachloride 56-23-5 >= 90 - <= 100 %

This product contains the following toxic pollutants listed under the U.S. Clean Water Act Section 307

Carbon tetrachloride 56-23-5 >= 90 - <= 100 %

This product contains the following priority pollutants related to the U.S. Clean Water Act:

Carbon tetrachloride 56-23-5 >= 90 - <= 100 %

US State Regulations

Massachusetts Right To Know

Carbon tetrachloride 56-23-5

Pennsylvania Right To Know

Carbon tetrachloride 56-23-5

Maine Chemicals of High Concern

Product does not contain any listed chemicals

Vermont Chemicals of High Concern

Product does not contain any listed chemicals

Washington Chemicals of High Concern

Product does not contain any listed chemicals

California Prop. 65

WARNING: This product can expose you to chemicals including Carbon tetrachloride, which is/are known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov.

International Regulations

Montreal Protocol : Carbon tetrachloride

The ingredients of this product are reported in the following inventories:

TSCA : All substances listed as active on the TSCA inventory

TSCA list

No substances are subject to a Significant New Use Rule.

The following substance(s) is/are subject to TSCA 12(b) export notification requirements:

Carbon tetrachloride 56-23-5

SECTION 16: Other information

Further information

The information is believed to be correct but is not exhaustive and will be used solely as a guideline, which is based on current knowledge of the chemical substance or mixture and is applicable to appropriate safety precautions for the product. 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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