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

1.1 Product identifiers

Product name: Carbon tetrachloride
Product Number: 319961
Brand: SIGALD
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

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**

<table>
<thead>
<tr>
<th>Signal Word</th>
<th>Danger</th>
</tr>
</thead>
</table>

**Hazard statement(s)**
- 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 statement(s)**
- 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.
- 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.
- P502: Refer to manufacturer/ supplier for information on recovery/ recycling.

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

<table>
<thead>
<tr>
<th>Component</th>
<th>Classification</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbon tetrachloride</td>
<td>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: &gt;= 1 %: STOT RE 1, H372; 0.2 - &lt; 1 %: STOT RE 2, H373;</td>
<td>&lt;= 100 %</td>
</tr>
</tbody>
</table>

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): 6.1B: Non-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

<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 tetrachloride</td>
<td>56-23-5</td>
<td>TWA</td>
<td>5 ppm</td>
<td>USA. ACGIH Threshold Limit Values (TLV)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Remarks</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>Suspected human carcinogen</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Danger of cutaneous absorption</td>
</tr>
<tr>
<td></td>
<td></td>
<td>STEL</td>
<td>10 ppm</td>
<td>USA. ACGIH Threshold Limit Values (TLV)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Suspected human carcinogen</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Danger of cutaneous absorption</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ST</td>
<td>2 ppm</td>
<td>USA. NIOSH Recommended Exposure Limits</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>12.6 mg/m³</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Potential Occupational Carcinogen</td>
</tr>
<tr>
<td></td>
<td>TWA</td>
<td>10 ppm</td>
<td>USA. Occupational Exposure Limits (OSHA) - Table Z-2</td>
<td></td>
</tr>
<tr>
<td>----------------</td>
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<td>--------</td>
<td>--------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>CEIL</td>
<td>25 ppm</td>
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<td>USA. Occupational Exposure Limits (OSHA) - Table Z-2</td>
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<tr>
<td>Peak</td>
<td>200 ppm</td>
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<td>USA. Occupational Exposure Limits (OSHA) - Table Z-2</td>
<td></td>
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<tr>
<td>C</td>
<td>200 ppm</td>
<td></td>
<td>California permissible exposure limits for chemical contaminants (Title 8, Article 107)</td>
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</tr>
<tr>
<td></td>
<td>Skin</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PEL</td>
<td>2 ppm</td>
<td>12.6 mg/m³</td>
<td>California permissible exposure limits for chemical contaminants (Title 8, Article 107)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Skin</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>STEL</td>
<td>10 ppm</td>
<td>63 mg/m³</td>
<td>California permissible exposure limits for chemical contaminants (Title 8, Article 107)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Skin</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 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)

- **Splash contact**
  - Material: Nitrile rubber
  - Minimum layer thickness: 0.4 mm
  - Break through time: 240 min
Body Protection
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.

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) - lit.

f) Initial boiling point and boiling range
   76 - 77 °C 169 - 171 °F - lit.

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
   1.594 g/cm3 at 25 °C (77 °F) - lit.
   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
   No data available
r) Viscosity No data available
s) Explosive properties No data available
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: FG49000000
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  
- Marine pollutant: yes  
- Poison Inhalation Hazard: No

**IMDG**
- UN number: 1846  
- Class: 6.1  
- Packing group: II  
- Proper shipping name: CARBON TETRACHLORIDE  
- Marine pollutant: yes

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

SECTION 15: Regulatory information

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

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

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No.</th>
<th>Revision Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbon tetrachloride</td>
<td>56-23-5</td>
<td>2007-07-01</td>
</tr>
</tbody>
</table>

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

**Reportable Quantity**
- D019 lbs
- F001 lbs
Massachusetts Right To Know Components
Carbon tetrachloride
CAS-No. 56-23-5
Revision Date 2007-07-01

Pennsylvania Right To Know Components
Carbon tetrachloride
CAS-No. 56-23-5
Revision Date 2007-07-01

California Prop. 65 Components
Carbon tetrachloride
CAS-No. 56-23-5
Revision Date 2007-09-28

, which is/are known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov.

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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Print Date: 08/12/2023