1. PRODUCT AND COMPANY IDENTIFICATION

Product name: 1,1,2,2-Tetrachloroethane
Product Number: 185434
Brand: Sigma-Aldrich
Supplier: Sigma-Aldrich
Supplier Address: 3050 Spruce Street, SAINT LOUIS MO 63103, USA
Telephone: +1 800-325-5832
Fax: +1 800-325-5052
Emergency Phone #: (314) 776-6555
Preparation Information: Sigma-Aldrich Corporation
Preparation Information Address: Product Safety - Americas Region
Preparation Information Phone: 1-800-521-8956

2. HAZARDS IDENTIFICATION

Emergency Overview

OSHA Hazards
Highly toxic by inhalation, Highly toxic by skin absorption, Carcinogen

Target Organs
Nerves., Liver, Blood

Other hazards which do not result in classification
Rapidly absorbed through skin.

GHS Classification
Acute toxicity, Oral (Category 3)
Acute toxicity, Inhalation (Category 2)
Acute toxicity, Dermal (Category 1)
Acute aquatic toxicity (Category 2)

GHS Label elements, including precautionary statements

Pictogram

Signal word: Danger

Hazard statement(s)
H301 Toxic if swallowed.
H310 + H330 Fatal in contact with skin or if inhaled
H401 Toxic to aquatic life.

Precautionary statement(s)
P260 Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
P280 Wear protective gloves/ protective clothing.
P284 Wear respiratory protection.
P302 + P350 IF ON SKIN: Gently wash with plenty of soap and water.
P310 Immediately call a POISON CENTER or doctor/ physician.

HMIS Classification
Health hazard: 4
Chronic Health Hazard: *
Flammability: 0
Physical hazards: 0

NFPA Rating
Health hazard: 4
Fire: 0
Reactivity Hazard: 0

Potential Health Effects
Inhalation May be fatal if inhaled. May cause respiratory tract irritation.
Skin May be fatal if absorbed through skin. May cause skin irritation.
Eyes May cause eye irritation.
Ingestion Toxic if swallowed.

3. COMPOSITION/INFORMATION ON INGREDIENTS
Synonyms: Acetylene tetrachloride
Formula: C₂H₂Cl₄
Molecular Weight: 167.85 g/mol

<table>
<thead>
<tr>
<th>Component</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,1,2,2-Tetrachloroethane</td>
<td></td>
</tr>
<tr>
<td>CAS-No.</td>
<td>79-34-5</td>
</tr>
<tr>
<td>EC-No.</td>
<td>201-197-8</td>
</tr>
<tr>
<td>Index-No.</td>
<td>602-015-00-3</td>
</tr>
</tbody>
</table>

4. FIRST AID MEASURES
General advice
Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

5. FIREFIGHTING MEASURES
Conditions of flammability
Not flammable or combustible.

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Special protective equipment for firefighters
Wear self-contained breathing apparatus for fire fighting if necessary.

Hazardous combustion products
Hazardous decomposition products formed under fire conditions. - Carbon oxides, Hydrogen chloride gas

6. ACCIDENTAL RELEASE MEASURES
Personal precautions
Wear respiratory protection. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas.
**Environmental precautions**
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

**Methods and materials for containment and cleaning up**
Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

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**7. HANDLING AND STORAGE**

**Precautions for safe handling**
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.

**Conditions for safe storage**
Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

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**8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

**Components with workplace control parameters**

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Value</th>
<th>Control parameters</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,1,2,2-Tetrachloroethane</td>
<td>79-34-5</td>
<td>TWA</td>
<td>1 ppm</td>
<td>USA. ACGIH Threshold Limit Values (TLV)</td>
</tr>
</tbody>
</table>

**Remarks**
Liver damage Confirmed animal carcinogen with unknown relevance to humans Danger of cutaneous absorption

| TWA                        | 1 ppm     | 7 mg/m³ | USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000 |
|-----------------            |           |         |                                                            |

**Skin notation**

| TWA                        | 5 ppm     | 35 mg/m³ | USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants |
|-----------------            |           |         |                                                            |

**Skin designation**
The value in mg/m³ is approximate.

| TWA                        | 1 ppm     | 7 mg/m³ | USA. NIOSH Recommended Exposure Limits |
|-----------------            |           |         |                                                            |

**Potential Occupational Carcinogen** See Appendix C See Appendix A Potential for dermal absorption

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**Personal protective equipment**

**Respiratory protection**
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

**Hand protection**
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.

**Full contact**
Material: Fluorinated rubber
Minimum layer thickness: 0.7 mm
Break through time: > 480 min
Material tested: Vitoject® (KCL 890 / Aldrich Z677698, Size M)

**Splash protection**
Material: Nitrile rubber
Minimum layer thickness: 0.4 mm
Break through time: > 30 min
Material tested: Camatril® (KCL 730 / Aldrich Z677442, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an Industrial Hygienist familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

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

Skin and body protection
Complete suit protecting against chemicals. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Hygiene measures
Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance
Form liquid, clear
Colour colourless

Safety data
pH no data available
Melting point/freezing point Melting point/range: -43 °C (-45 °F) - lit.
Boiling point 147 °C (297 °F) - lit.
Flash point no data available
Ignition temperature no data available
Auto-ignition temperature no data available
Lower explosion limit no data available
Upper explosion limit no data available
Vapour pressure 10.7 hPa (8.0 mmHg) at 20.0 °C (68.0 °F)
Density 1.586 g/cm³ at 25 °C (77 °F)
Water solubility no data available
Partition coefficient: n-octanol/water log Pow: 5
Relative vapor density no data available
Odour no data available
Odour Threshold no data available
Evaporation rate no data available

10. STABILITY AND REACTIVITY

Chemical stability
Stable under recommended storage conditions.
Possibility of hazardous reactions
no data available

Conditions to avoid
no data available

Materials to avoid
Strong oxidizing agents, Sodium/sodium oxides, Strong bases, Potassium, Nitrates, 2,4-dinitrophenyl disulfide

Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Carbon oxides, Hydrogen chloride gas
Other decomposition products - no data available

11. TOXICOLOGICAL INFORMATION

Acute toxicity

Oral LD50
LD50 Oral - rat - 200.0 mg/kg

Inhalation LC50
LC50 Inhalation - mouse - 2 h - 4,500 mg/m3

Dermal LD50
Other information on acute toxicity
no data available

Skin corrosion/irritation
no data available

Serious eye damage/eye irritation
no data available

Respiratory or skin sensitization
no data available

Germ cell mutagenicity
no data available

Carcinogenicity
This product is or contains a component that has been reported to be possibly carcinogenic based on its IARC, ACGIH, NTP, or EPA classification.

IARC: 3 - Group 3: Not classifiable as to its carcinogenicity to humans (1,1,2,2-Tetrachloroethane)

NTP: No component 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 identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity

no data available

Teratogenicity

no data available
Specific target organ toxicity - single exposure (Globally Harmonized System)  
no data available

Specific target organ toxicity - repeated exposure (Globally Harmonized System)  
no data available

Aspiration hazard  
no data available

Potential health effects

Inhalation  May be fatal if inhaled. May cause respiratory tract irritation.

Ingestion  Toxic if swallowed.

Skin  May be fatal if absorbed through skin. May cause skin irritation.

Eyes  May cause eye irritation.

Signs and Symptoms of Exposure

Headache, Nausea, Vomiting, Tremors, Incoordination., fatigue, Dizziness, Anorexia.

Synergistic effects  
no data available

Additional Information

RTECS: KI8575000

12. ECOLOGICAL INFORMATION

Toxicity

Toxicity to fish  LC50 - Pimephales promelas (fathead minnow) - 20 mg/l - 96.0 h

Toxicity to daphnia and other aquatic invertebrates  Immobilization EC50 - Daphnia magna (Water flea) - 23 mg/l - 48 h

Persistence and degradability

Bioaccumulative potential  
Bioaccumulation Lepomis macrochirus (Bluegill) - 14 d

Bioconcentration factor (BCF): 8

Mobility in soil  
no data available

PBT and vPvB assessment  
no data available

Other adverse effects

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Toxic to aquatic life.

13. DISPOSAL CONSIDERATIONS

Product  
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging  
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)  
UN number: 1702  Class: 6.1  Packing group: II

Proper shipping name: 1,1,2,2-Tetrachloroethane

Reportable Quantity (RQ): 100 lbs

Marine Pollutant: No
Poison Inhalation Hazard: No

IMDG
UN number: 1702  Class: 6.1  Packing group: II  EMS-No: F-A, S-A
Proper shipping name: 1,1,2,2-TETRACHLOROETHANE
Marine Pollutant: Marine pollutant

IATA
UN number: 1702  Class: 6.1  Packing group: II
Proper shipping name: 1,1,2,2-Tetrachloroethane

15. REGULATORY INFORMATION

OSHA Hazards
Highly toxic by inhalation, Highly toxic by skin absorption, Carcinogen

SARA 302 Components
SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

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

<table>
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<td>2007-07-01</td>
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SARA 311/312 Hazards
Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

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Pennsylvania Right To Know Components

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New Jersey Right To Know Components

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California Prop. 65 Components
WARNING! This product contains a chemical known to the State of California to cause cancer.

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<tbody>
<tr>
<td>79-34-5</td>
<td>2007-09-28</td>
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16. OTHER INFORMATION

Further information
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