

## SAFETY DATA SHEET

Creation Date 10-Dec-2009

Revision Date 24-Dec-2021

Revision Number 6

### 1. Identification

**Product Name** Tetrachloroethylene

**Cat No. :** C182-20; C182-4

**CAS No** 127-18-4  
**Synonyms** Perchloroethylene

**Recommended Use** Laboratory chemicals.  
**Uses advised against** Food, drug, pesticide or biocidal product use.

#### Details of the supplier of the safety data sheet

**Company**

Fisher Scientific Company  
One Reagent Lane  
Fair Lawn, NJ 07410  
Tel: (201) 796-7100

**Emergency Telephone Number** CHEMTREC®, Inside the USA: 800-424-9300  
CHEMTREC®, Outside the USA: 001-703-527-3887

### 2. Hazard(s) identification

**Classification**

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

|  |             |
|--|-------------|
| Skin Corrosion/Irritation                            | Category 2  |
| Serious Eye Damage/Eye Irritation                    | Category 2  |
| Skin Sensitization                                   | Category 1  |
| Carcinogenicity                                      | Category 1B |
| Specific target organ toxicity (single exposure)     | Category 3  |
| Target Organs - Central nervous system (CNS).        |             |
| Specific target organ toxicity - (repeated exposure) | Category 2  |
| Target Organs - Kidney, Liver, Blood.                |             |

**Label Elements**

**Signal Word**  
Danger

**Hazard Statements**

Causes skin irritation  
Causes serious eye irritation  
May cause an allergic skin reaction  
May cause drowsiness or dizziness  
May cause cancer  
May cause damage to organs through prolonged or repeated exposure

**Precautionary Statements****Prevention**

Obtain special instructions before use  
Do not handle until all safety precautions have been read and understood  
Use personal protective equipment as required  
Wash face, hands and any exposed skin thoroughly after handling  
Contaminated work clothing should not be allowed out of the workplace  
Do not breathe dust/fume/gas/mist/vapors/spray  
Use only outdoors or in a well-ventilated area  
Wear protective gloves/protective clothing/eye protection/face protection

**Response**

IF exposed or concerned: Get medical attention/advice

**Inhalation**

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing

**Skin**

IF ON SKIN: Wash with plenty of soap and water  
Take off contaminated clothing and wash before reuse  
If skin irritation or rash occurs: Get medical advice/attention

**Eyes**

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing  
If eye irritation persists: Get medical advice/attention

**Storage**

Store locked up  
Store in a well-ventilated place. Keep container tightly closed

**Disposal**

Dispose of contents/container to an approved waste disposal plant

**Hazards not otherwise classified (HNOC)**

Toxic to aquatic life with long lasting effects  
WARNING. Cancer - <https://www.p65warnings.ca.gov/>.

### 3. Composition/Information on Ingredients

| Component           | CAS No   | Weight % |
|---------------------|----------|----------|
| Tetrachloroethylene | 127-18-4 | >95      |

### 4. First-aid measures

**General Advice**

If symptoms persist, call a physician.

**Eye Contact**

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.

|  |   |
|--|---|
| <b>Skin Contact</b>                        | Wash off immediately with plenty of water for at least 15 minutes. If skin irritation persists, call a physician.   |
| <b>Inhalation</b>                          | Remove to fresh air. If not breathing, give artificial respiration. Get medical attention if symptoms occur.  |
| <b>Ingestion</b>                           | Clean mouth with water and drink afterwards plenty of water.  |
| <b>Most important symptoms and effects</b> | None reasonably foreseeable. May cause allergic skin reaction. Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting: Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing |
| <b>Notes to Physician</b>                  | Treat symptomatically   |

## 5. Fire-fighting measures

|   |   |
|---|---|
| <b>Suitable Extinguishing Media</b>     | Water spray, carbon dioxide (CO <sub>2</sub> ), dry chemical, alcohol-resistant foam. |
| <b>Unsuitable Extinguishing Media</b>   | No information available  |
| <b>Flash Point</b>                      | No information available  |
| <b>Method -</b>                         | No information available  |
| <b>Autoignition Temperature</b>         | No information available  |
| <b>Explosion Limits</b>                 |   |
| <b>Upper</b>                            | No data available   |
| <b>Lower</b>                            | No data available   |
| <b>Sensitivity to Mechanical Impact</b> | No information available  |
| <b>Sensitivity to Static Discharge</b>  | No information available  |

### Specific Hazards Arising from the Chemical

Thermal decomposition can lead to release of irritating gases and vapors. Containers may explode when heated.

### Hazardous Combustion Products

Chlorine. Phosgene. Hydrogen chloride gas.

### Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

### NFPA

|               |                     |                    |                         |
|---------------|---------------------|--------------------|-------------------------|
| <b>Health</b> | <b>Flammability</b> | <b>Instability</b> | <b>Physical hazards</b> |
| 2             | 0                   | 0                  | N/A                     |

## 6. Accidental release measures

|                                  |   |
|----------------------------------|---|
| <b>Personal Precautions</b>      | Use personal protective equipment as required. Ensure adequate ventilation. |
| <b>Environmental Precautions</b> | Do not flush into surface water or sanitary sewer system.                   |

**Methods for Containment and Clean Up** Soak up with inert absorbent material. Keep in suitable, closed containers for disposal.

## 7. Handling and storage

|                 |   |
|-----------------|---|
| <b>Handling</b> | Wear personal protective equipment/face protection. Do not get in eyes, on skin, or on clothing. Ensure adequate ventilation. Avoid ingestion and inhalation.   |
| <b>Storage.</b> | Keep containers tightly closed in a dry, cool and well-ventilated place. Protect from sunlight. Incompatible Materials. Strong acids. Strong oxidizing agents. Strong bases. Metals. Zinc. Amines. Aluminium. |

## 8. Exposure controls / personal protection

### Exposure Guidelines

| Component           | ACGIH TLV                    | OSHA PEL  | NIOSH IDLH    | Mexico OEL (TWA)             |
|---------------------|------------------------------|---|---------------|------------------------------|
| Tetrachloroethylene | TWA: 25 ppm<br>STEL: 100 ppm | (Vacated) TWA: 25 ppm<br>(Vacated) TWA: 170 mg/m <sup>3</sup><br>Ceiling: 200 ppm<br>TWA: 100 ppm | IDLH: 150 ppm | TWA: 25 ppm<br>STEL: 100 ppm |

### Legend

ACGIH - American Conference of Governmental Industrial Hygienists

OSHA - Occupational Safety and Health Administration

NIOSH IDLH: NIOSH - National Institute for Occupational Safety and Health

### Engineering Measures

Use only under a chemical fume hood. Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location.

### Personal Protective Equipment

#### Eye/face Protection

Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

#### Skin and body protection

Wear appropriate protective gloves and clothing to prevent skin exposure.

#### Respiratory Protection

Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

#### Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice.

## 9. Physical and chemical properties

|  |  |
|--|--|
| Physical State                         | Liquid                                   |
| Appearance                             | Colorless                                |
| Odor                                   | Characteristic, sweet                    |
| Odor Threshold                         | No information available                 |
| pH                                     | No information available                 |
| Melting Point/Range                    | -22 °C / -7.6 °F                         |
| Boiling Point/Range                    | 120 - 122 °C / 248 - 251.6 °F @ 760 mmHg |
| Flash Point                            | No information available                 |
| Evaporation Rate                       | 6.0 (Ether = 1.0)                        |
| Flammability (solid,gas)               | Not applicable                           |
| Flammability or explosive limits       |  |
| Upper                                  | No data available                        |
| Lower                                  | No data available                        |
| Vapor Pressure                         | 18 mbar @ 20 °C                          |
| Vapor Density                          | No information available                 |
| Density                                | 1.619                                    |
| Specific Gravity                       | 1.625                                    |
| Solubility                             | 0.15 g/L water (20°C)                    |
| Partition coefficient; n-octanol/water | No data available                        |
| Autoignition Temperature               | No information available                 |
| Decomposition Temperature              | > 150°C                                  |
| Viscosity                              | 0.89 mPa s at 20 °C                      |
| Molecular Formula                      | C <sub>2</sub> Cl <sub>4</sub>           |
| Molecular Weight                       | 165.83                                   |

## 10. Stability and reactivity

|   |  |
|---|--|
| <b>Reactive Hazard</b>                  | None known, based on information available   |
| <b>Stability</b>                        | Stable under normal conditions.  |
| <b>Conditions to Avoid</b>              | Incompatible products. Excess heat. Exposure to moist air or water.                  |
| <b>Incompatible Materials</b>           | Strong acids, Strong oxidizing agents, Strong bases, Metals, Zinc, Amines, Aluminium |
| <b>Hazardous Decomposition Products</b> | Chlorine, Phosgene, Hydrogen chloride gas  |
| <b>Hazardous Polymerization</b>         | Hazardous polymerization does not occur.   |
| <b>Hazardous Reactions</b>              | None under normal processing.  |

## 11. Toxicological information

### Acute Toxicity

#### Product Information Component Information

| Component           | LD50 Oral                 | LD50 Dermal              | LC50 Inhalation              |
|---------------------|---------------------------|--------------------------|------------------------------|
| Tetrachloroethylene | LD50 = 2629 mg/kg ( Rat ) | LD50 > 10000 mg/kg (Rat) | LC50 = 27.8 mg/L ( Rat ) 4 h |

**Toxicologically Synergistic Products** No information available

#### Delayed and immediate effects as well as chronic effects from short and long-term exposure

|                        |  |
|------------------------|--|
| <b>Irritation</b>      | Irritating to eyes and skin  |
| <b>Sensitization</b>   | No information available   |
| <b>Carcinogenicity</b> | The table below indicates whether each agency has listed any ingredient as a carcinogen. |

| Component           | CAS No   | IARC     | NTP                    | ACGIH | OSHA | Mexico |
|---------------------|----------|----------|------------------------|-------|------|--------|
| Tetrachloroethylene | 127-18-4 | Group 2A | Reasonably Anticipated | A3    | X    | A3     |

*IARC (International Agency for Research on Cancer)*

*NTP: (National Toxicity Program)*

*ACGIH: (American Conference of Governmental Industrial Hygienists)*

*Mexico - Occupational Exposure Limits - Carcinogens*

*IARC (International Agency for Research on Cancer)*

*Group 1 - Carcinogenic to Humans*

*Group 2A - Probably Carcinogenic to Humans*

*Group 2B - Possibly Carcinogenic to Humans*

*NTP: (National Toxicity Program)*

*Known - Known Carcinogen*

*Reasonably Anticipated - Reasonably Anticipated to be a Human Carcinogen*

*A1 - Known Human Carcinogen*

*A2 - Suspected Human Carcinogen*

*A3 - Animal Carcinogen*

*ACGIH: (American Conference of Governmental Industrial Hygienists)*

*Mexico - Occupational Exposure Limits - Carcinogens*

*A1 - Confirmed Human Carcinogen*

*A2 - Suspected Human Carcinogen*

*A3 - Confirmed Animal Carcinogen*

*A4 - Not Classifiable as a Human Carcinogen*

*A5 - Not Suspected as a Human Carcinogen*

**Mutagenic Effects** No information available

**Reproductive Effects** No information available.

**Developmental Effects** No information available.

**Teratogenicity** No information available.

**STOT - single exposure** Central nervous system (CNS)  
**STOT - repeated exposure** Kidney Liver Blood

**Aspiration hazard** No information available

**Symptoms / effects, both acute and delayed** Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting: Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing

#### Endocrine Disruptor Information

| Component           | EU - Endocrine Disruptors Candidate List | EU - Endocrine Disruptors - Evaluated Substances | Japan - Endocrine Disruptor Information |
|---------------------|--|--|---|
| Tetrachloroethylene | Group II Chemical                        | Not applicable                                   | Not applicable                          |

**Other Adverse Effects** Tumorigenic effects have been reported in experimental animals.

## 12. Ecological information

### Ecotoxicity

Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. The product contains following substances which are hazardous for the environment.

| Component           | Freshwater Algae   | Freshwater Fish   | Microtox   | Water Flea  |
|---------------------|--|---|--|---|
| Tetrachloroethylene | EC50: > 500 mg/L, 96h<br>(Pseudokirchneriella subcapitata) | LC50: 12.4 - 14.4 mg/L, 96h<br>flow-through (Pimephales promelas)<br>LC50: 8.6 - 13.5 mg/L, 96h<br>static (Pimephales promelas)<br>LC50: 11.0 - 15.0 mg/L, 96h<br>static (Lepomis macrochirus)<br>LC50: 4.73 - 5.27 mg/L, 96h<br>flow-through (Oncorhynchus mykiss) | EC50 = 100 mg/L 24 h<br>EC50 = 112 mg/L 24 h<br>EC50 = 120.0 mg/L 30 min | EC50: 6.1 - 9.0 mg/L, 48h<br>Static (Daphnia magna) |

**Persistence and Degradability** Insoluble in water Persistence is unlikely based on information available.

**Bioaccumulation/ Accumulation** No information available.

**Mobility** . Is not likely mobile in the environment due its low water solubility. Will likely be mobile in the environment due to its volatility.

| Component           | log Pow |
|---------------------|---------|
| Tetrachloroethylene | 2.88    |

## 13. Disposal considerations

**Waste Disposal Methods** Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

| Component                      | RCRA - U Series Wastes | RCRA - P Series Wastes |
|--------------------------------|------------------------|------------------------|
| Tetrachloroethylene - 127-18-4 | U210                   | -                      |

## 14. Transport information

### DOT

**UN-No** UN1897  
**Proper Shipping Name** TETRACHLOROETHYLENE  
**Hazard Class** 6.1

|                             |                     |
|-----------------------------|---------------------|
| <b>Packing Group</b>        | III                 |
| <b>TDG</b>                  |                     |
| <b>UN-No</b>                | UN1897              |
| <b>Proper Shipping Name</b> | TETRACHLOROETHYLENE |
| <b>Hazard Class</b>         | 6.1                 |
| <b>Packing Group</b>        | III                 |
| <b>IATA</b>                 |                     |
| <b>UN-No</b>                | UN1897              |
| <b>Proper Shipping Name</b> | TETRACHLOROETHYLENE |
| <b>Hazard Class</b>         | 6.1                 |
| <b>Packing Group</b>        | III                 |
| <b>IMDG/IMO</b>             |                     |
| <b>UN-No</b>                | UN1897              |
| <b>Proper Shipping Name</b> | TETRACHLOROETHYLENE |
| <b>Hazard Class</b>         | 6.1                 |
| <b>Packing Group</b>        | III                 |

## 15. Regulatory information

### United States of America Inventory

| Component           | CAS No   | TSCA | TSCA Inventory notification - Active-Inactive | TSCA - EPA Regulatory Flags |
|---------------------|----------|------|---|-----------------------------|
| Tetrachloroethylene | 127-18-4 | X    | ACTIVE  | -                           |

#### Legend:

**TSCA** US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)

X - Listed

- - Not Listed

**TSCA 12(b)** - Notices of Export Not applicable

### International Inventories

Canada (DSL/NDL), Europe (EINECS/ELINCS/NLP), Philippines (PICCS), Japan (ENCS), Japan (ISHL), Australia (AICS), China (IECSC), Korea (KECL).

| Component           | CAS No   | DSL | NDL | EINECS    | PICCS | ENCS | ISHL | AICS | IECSC | KECL     |
|---------------------|----------|-----|-----|-----------|-------|------|------|------|-------|----------|
| Tetrachloroethylene | 127-18-4 | X   | -   | 204-825-9 | X     | X    | X    | X    | X     | KE-33294 |

**KECL** - NIER number or KE number (<http://ncis.nier.go.kr/en/main.do>)

### U.S. Federal Regulations

#### SARA 313

| Component           | CAS No   | Weight % | SARA 313 - Threshold Values % |
|---------------------|----------|----------|-------------------------------|
| Tetrachloroethylene | 127-18-4 | >95      | 0.1                           |

**SARA 311/312 Hazard Categories** See section 2 for more information

#### CWA (Clean Water Act)

| Component           | CWA - Hazardous Substances | CWA - Reportable Quantities | CWA - Toxic Pollutants | CWA - Priority Pollutants |
|---------------------|----------------------------|-----------------------------|------------------------|---------------------------|
| Tetrachloroethylene | -                          | -                           | X                      | X                         |

#### Clean Air Act

| Component           | HAPS Data | Class 1 Ozone Depletors | Class 2 Ozone Depletors |
|---------------------|-----------|-------------------------|-------------------------|
| Tetrachloroethylene | X         |                         | -                       |

**OSHA** - Occupational Safety and Not applicable

Health Administration

**CERCLA**

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

| Component           | Hazardous Substances RQs | CERCLA EHS RQs |
|---------------------|--------------------------|----------------|
| Tetrachloroethylene | 100 lb 1 lb              | -              |

**California Proposition 65**

This product contains the following Proposition 65 chemicals.

| Component           | CAS No   | California Prop. 65 | Prop 65 NSRL | Category   |
|---------------------|----------|---------------------|--------------|------------|
| Tetrachloroethylene | 127-18-4 | Carcinogen          | 14 µg/day    | Carcinogen |

**U.S. State Right-to-Know Regulations**

| Component           | Massachusetts | New Jersey | Pennsylvania | Illinois | Rhode Island |
|---------------------|---------------|------------|--------------|----------|--------------|
| Tetrachloroethylene | X             | X          | X            | X        | X            |

**U.S. Department of Transportation**

Reportable Quantity (RQ): Y  
 DOT Marine Pollutant Y  
 DOT Severe Marine Pollutant N

**U.S. Department of Homeland Security**

This product does not contain any DHS chemicals.

**Other International Regulations****Mexico - Grade**

No information available

**Authorisation/Restrictions according to EU REACH**

| Component           | REACH (1907/2006) - Annex XIV - Substances Subject to Authorization | REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances | REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC) |
|---------------------|---|---|---|
| Tetrachloroethylene | -   | Use restricted. See item 75. (see link for restriction details)               | -   |

<https://echa.europa.eu/substances-restricted-under-reach>

**Safety, health and environmental regulations/legislation specific for the substance or mixture**

| Component           | CAS No   | OECD HPV | Persistent Organic Pollutant | Ozone Depletion Potential | Restriction of Hazardous Substances (RoHS) |
|---------------------|----------|----------|------------------------------|---------------------------|--|
| Tetrachloroethylene | 127-18-4 | Listed   | Not applicable               | Not applicable            | Not applicable                             |

| Component           | CAS No   | Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification | Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements | Rotterdam Convention (PIC) | Basel Convention (Hazardous Waste) |
|---------------------|----------|---|--|----------------------------|------------------------------------|
| Tetrachloroethylene | 127-18-4 | Not applicable  | Not applicable   | Not applicable             | Annex I - Y45                      |

**16. Other information****Prepared By**

Regulatory Affairs  
 Thermo Fisher Scientific  
 Email: EMSDS.RA@thermofisher.com



**Creation Date** 10-Dec-2009**Revision Date** 24-Dec-2021**Print Date** 24-Dec-2021**Revision Summary** This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).**Disclaimer**

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

**End of SDS**