

## Chemical Safety Data Sheet MSDS / SDS

## Tetrachloroethylene

Revision Date:2025-06-14 Revision Number:1

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

## Product identifier

Product name : Tetrachloroethylene  
CBnumber : CB7325193  
CAS : 127-18-4  
EINECS Number : 204-825-9  
Synonyms : Perchloroethylene,TETRACHLOROETHYLENE

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

Relevant identified uses : For R&D use only. Not for medicinal, household or other use.  
Uses advised against : none

## Company Identification

Company : Chemicalbook  
Address : Building 1, Huihuang International, Shangdi 10th Street, Haidian District, Beijing  
Telephone : 010-86108875

## SECTION 2: Hazards identification

## GHS Label elements, including precautionary statements

Symbol(GHS)



Signal word

Danger

## Precautionary statements

P405 Store locked up.  
P391 Collect spillage. Hazardous to the aquatic environment  
P337+P313 IF eye irritation persists: Get medical advice/attention.  
P333+P313 IF SKIN irritation or rash occurs: Get medical advice/attention.  
P311 Call a POISON CENTER or doctor/physician.  
P308+P313 IF exposed or concerned: Get medical advice/attention.  
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.  
Continuerinsing.  
P301+P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.  
P281 Use personal protective equipment as required.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P273 Avoid release to the environment.

P260 Do not breathe dust/fume/gas/mist/vapours/spray.

P210 Keep away from heat/sparks/open flames/hot surfaces. — No smoking.

P202 Do not handle until all safety precautions have been read and understood.

P201 Obtain special instructions before use.

#### **Hazard statements**

H411 Toxic to aquatic life with long lasting effects

H370 Causes damage to organs

H351 Suspected of causing cancer

H336 May cause drowsiness or dizziness

H319 Causes serious eye irritation

H317 May cause an allergic skin reaction

H315 Causes skin irritation

H225 Highly Flammable liquid and vapour

#### **Disposal**

WARNING.Cancer - <https://oehha.ca.gov/proposition-65/chemicals/tetrachloroethylene-perchloroethylene>

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## SECTION 3: Composition/information on ingredients

### **Substance**

Product name	: Tetrachloroethylene
Synonyms	: Perchloroethylene,TETRACHLOROETHYLENE
CAS	: 127-18-4
EC number	: 204-825-9
MF	: C2Cl4
MW	: 165.83

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## SECTION 4: First aid measures

### **Description of first aid measures**

#### **General advice**

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

#### **If inhaled**

After inhalation: fresh air. Call in physician.

#### **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.

## 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

## Indication of any immediate medical attention and special treatment needed

No data available

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## SECTION 5: Firefighting measures

### Extinguishing media

#### Suitable extinguishing media

Water Foam Carbon dioxide (CO<sub>2</sub>) Dry powder

#### Unsuitable extinguishing media

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

### Special hazards arising from the substance or mixture

Carbon oxides Hydrogen chloride gas Combustible.

Development of hazardous combustion gases or vapours possible in the event of fire.

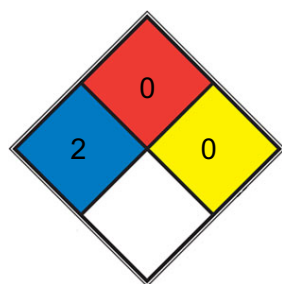
### Advice for firefighters

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

### 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.

### NFPA 704



**HEALTH 2** Intense or continued but not chronic exposure could cause temporary incapacitation or possible residual injury (e.g. [diethyl ether](#), ammonium phosphate, iodine)

**FIRE 0** Materials that will not burn under typical fire conditions, including intrinsically noncombustible materials such as concrete, stone, and sand. Materials that will not burn in air when exposed to a temperature of 820 °C (1,500 °F) for a period of 5 minutes.(e.g. Carbon tetrachloride)

**REACT 0** Normally stable, even under fire exposure conditions, and is not reactive with water (e.g. helium,[N<sub>2</sub>](#))

**SPEC.**  
**HAZ.**

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## SECTION 6: Accidental release measures

### **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.

### **Environmental precautions**

Do not let product enter drains.

### **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 with liquid-absorbent material (e.g. Chemizorb? ). Dispose of properly. Clean up affected area.

### **Reference to other sections**

For disposal see section 13.

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## SECTION 7: Handling and storage

### **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.

### **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.

#### **Specific end use(s)**

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

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## SECTION 8: Exposure controls/personal protection

### **control parameter**

#### **Hazard composition and occupational exposure limits**

Does not contain substances with occupational exposure limits.

## Exposure controls

### 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](http://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](http://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.

#### Control of environmental exposure

Do not let product enter drains.

### Exposure limits

TLV-TWA 50 ppm ( $\sim 325 \text{ mg/m}^3$ ) (ACGIH), 100 ppm (MSHA and OSHA); TLV-STEL 200 ppm (ACGIH); carcinogenicity: Animal Limited Evidence.

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## SECTION 9: Physical and chemical properties

### Information on basic physicochemical properties

Appearance	colorless liquid, clear
Odour	No data available
Odour Threshold	0.77ppm
pH	No data available
Melting point/freezing point	Melting point/range: -22 °C - lit.
Initial boiling point and boiling range	121 °C - lit.
Flash point	120-121°C
Evaporation rate	No data available

Flammability (solid, gas)	No data available
Upper/lower flammability or explosive limits	No data available
Vapour pressure	25,3 hPa at 25,0 °C 17,3 hPa at 20,0 °C
Vapour density	5.83 (vs air)
Relative density	1,623 g/cm <sup>3</sup> at 25 °C - lit. No data available
Water solubility	0,15 g/l at 25 °C
Partition coefficient: n-octanol/water	log Pow: 2,53 at 23 °C
Autoignition temperature	No data available
Decomposition temperature	No data available
Viscosity	Viscosity, kinematic: No data available Viscosity, dynamic: 0,844 mPa.s at 25 °C
Explosive properties	No data available
Oxidizing properties	No data available
Henry's Law Constant	4.97 at 1.8 °C, 15.5 at 21.6 °C, 34.2 at 40.0 °C, 47.0 at 50 °C, 68.9 at 60 °C, 117.0 at 70 °C (EPICS-GC, Shimotori and Arnold, 2003)
λ <sub>max</sub>	λ: 290 nm A <sub>max</sub> : 1.00 λ: 295 nm A <sub>max</sub> : 0.30 λ: 300 nm A <sub>max</sub> : ≤0.20 λ: 305 nm A <sub>max</sub> : 0.10 λ: 350 nm A <sub>max</sub> : 0.05 λ: 400 nm A <sub>max</sub> : 0.03

### Other safety information

Surface tension 32,1 mN/m at 20 °C

## SECTION 10: Stability and reactivity

### Reactivity

No data available

### Chemical stability

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

### Possibility of hazardous reactions

Risk of explosion with:

Alkali metals Aluminum sodium amide Barium

nitrogen dioxide Oxygen

with

alkali hydroxides Exothermic reaction with:

strong alkalis Alkaline earth metals strong alkalis

Light metals Powdered metals Oxidizing agents Strong acids Strong bases nitrous gases

Risk of ignition or formation of inflammable gases or vapours with: zinc oxide

with Aluminum

### Conditions to avoid

no information available

### Incompatible materials

various plastics

### Hazardous decomposition products

In the event of fire: see section 5

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## SECTION 11: Toxicological information

### Information on toxicological effects

#### Acute toxicity

LD50 Oral - Rat - male and female - 3.420 mg/kg

(OECD Test Guideline 401) Remarks: (ECHA) Inhalation

#### Skin corrosion/irritation

Skin - Rabbit

Result: Skin irritation - 4 h (OECD Test Guideline 404) Remarks: (ECHA)

#### Serious eye damage/eye irritation

Eyes - Rabbit

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

Remarks: (RTECS)

#### Respiratory or skin sensitization

Local lymph node assay (LLNA) - Mouse Result: May cause sensitization by skin contact. (OECD Test Guideline 429)

Remarks: (ECHA)

#### Germ cell mutagenicity

Test Type: Chromosome aberration test in vitro Test system: Chinese hamster ovary cells

Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 473

Result: negative Remarks: (ECHA) Test Type: Ames test

Test system: Salmonella typhimurium

Metabolic activation: without metabolic activation Method: OECD Test Guideline 471

Result: negative Remarks: (ECHA)

Test Type: Micronucleus test Species: Mouse

Application Route: Intraperitoneal Method: OECD Test Guideline 474 Result: negative

Remarks: (ECHA)

#### Carcinogenicity

No data available

#### Reproductive toxicity

No data available

#### Specific target organ toxicity - single exposure

May cause drowsiness or dizziness.

**Specific target organ toxicity - repeated exposure**

No data available

**Aspiration hazard**

No data available

**Toxicity**

LD50 orally in mice: 8.85 g/kg (Dybing); LC for mice in air: 5925 ppm (Lazarew)

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## SECTION 12: Ecological information

**Toxicity****Toxicity to fish**

flow-through test LC50 - *Oncorhynchus mykiss* (rainbow trout) - 5 mg/l - 96 h

Remarks: (ECHA)

**Toxicity to daphnia and other aquatic invertebrates**

EC50 - *Daphnia magna* (Water flea) - 7,50 mg/l - 48 h

**Toxicity to algae**

ErC50 - *Chlamydomonas reinhardtii* (green algae) - 3,64 mg/l - 72 h Remarks: (ECHA)

**Persistence and degradability**

Biodegradability aerobic - Exposure time 28 d

Result: 11 % - Not readily biodegradable. (OECD Test Guideline 301C)

**Bioaccumulative potential**

Bioaccumulation *Lepomis macrochirus* (Bluegill) - 21 d

- 0,00343 mg/l (Tetrachlorethylene)

Bioconcentration factor (BCF): 49

**Mobility in soil**

No data available

**Results of PBT and vPvB assessment**

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

**Toxics Screening Level**

The acute initial threshold screening level (ITSL) for tetrachloroethylene is 1400 µg/m<sup>3</sup> (24-hr averaging time). The averaging time for the chronic ITSL of 40 µg/m<sup>3</sup> (based on an EPA RfC) is being changed from 24-hr to annual.

**Other adverse effects**

No data available

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## SECTION 13: Disposal considerations

### Waste treatment methods

#### Incompatibilities

Violent reaction with strong oxidizers; powdered, chemically active metals, such as aluminum, lithium, beryllium, and barium; caustic soda; sodium hydroxide; potash. Tetrachloroethylene is quite stable. However, it reacts violently with concentrated nitric acid to give carbon dioxide as a primary product.

#### Product

See [www.retrologistik.com](http://www.retrologistik.com) for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

#### Waste Disposal

Incineration, preferably after mixing with another combustible fuel. Care must be exercised to assure complete combustion to prevent the formation of phosgene. An acid scrubber is necessary to remove the halo acids produced. Alternatively, PCE may be recovered from waste gases and reused.

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## SECTION 14: Transport information

### UN number

ADR/RID: 1897 IMDG: 1897 IATA: 1897

### UN proper shipping name

ADR/RID: TETRACHLOROETHYLENE IMDG: TETRACHLOROETHYLENE

IATA: Tetrachloroethylene

14.3	Transport hazard class(es)	
	ADR/RID: 6.1 IMDG: 6.1	IATA: 6.1
14.4	Packaging group	
	ADR/RID: III IMDG: III	IATA: III

1.

### Environmental hazards

ADR/RID: yes IMDG Marine pollutant: yes IATA: no

### Special precautions for user

No data available

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## SECTION 15: Regulatory information

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

#### Regulations on the Safety Management of Hazardous Chemicals

China Catalog of Hazardous chemicals 2015: Listed. website: <https://www.mem.gov.cn/>

#### **Measures for Environmental Management of New Chemical Substances**

Korea Existing Chemicals List (KECL): Listed. website: <http://ncis.nier.go.kr>

European Inventory of Existing Commercial Chemical Substances (EINECS): Listed. website: <https://echa.europa.eu/>

Vietnam National Chemical Inventory: Listed. website: <https://chemicaldata.gov.vn/>

New Zealand Inventory of Chemicals (NZIoC): Listed. website: <https://www.epa.govt.nz/>

EC Inventory: Listed.

United States Toxic Substances Control Act (TSCA) Inventory: Listed. website: <https://www.epa.gov/>

Philippines Inventory of Chemicals and Chemical Substances (PICCS): Listed. website: <https://emb.gov.ph/>

Chinese Chemical Inventory of Existing Chemical Substances (China IECSC): Listed. website: <https://www.mee.gov.cn/>

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## **SECTION 16: Other information**

### **Abbreviations and acronyms**

CAS: Chemical Abstracts Service

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road

RID: Regulation concerning the International Carriage of Dangerous Goods by Rail

IMDG: International Maritime Dangerous Goods

IATA: International Air Transportation Association

TWA: Time Weighted Average

STEL: Short term exposure limit

LC50: Lethal Concentration 50%

LD50: Lethal Dose 50%

EC50: Effective Concentration 50%

### **References**

【1】CAMEO Chemicals, website: <http://cameochemicals.noaa.gov/search/simple>

【2】ChemIDplus, website: <http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp>

【3】ECHA - European Chemicals Agency, website: <https://echa.europa.eu/>

【4】eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website:

[http://www.echemportal.org/echemportal/index?pageID=0&request\\_locale=en](http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en)

【5】ERG - Emergency Response Guidebook by U.S. Department of Transportation, website: <http://www.phmsa.dot.gov/hazmat/library/erg>

【6】Germany GESTIS-database on hazard substance, website: <http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp>

【7】HSDB - Hazardous Substances Data Bank, website: <https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm>

【8】IARC - International Agency for Research on Cancer, website: <http://www.iarc.fr/>

【9】IPCS - The International Chemical Safety Cards (ICSC), website: <http://www.ilo.org/dyn/icsc/showcard.home>

【10】Sigma-Aldrich, website: <https://www.sigmaaldrich.com/>

### **Other Information**

Depending on the degree of exposure, periodic medical examination is suggested. The odour warning when the exposure limit value is exceeded is insufficient. Do NOT use in the vicinity of a fire or a hot surface, or during welding. Use of alcoholic beverages enhances the harmful effect.

**Disclaimer:**

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