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

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.

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.

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

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

SECTION 5: Firefighting measures

Extinguishing media

Suitable extinguishing media

Water Foam Carbon dioxide (CO2) 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.

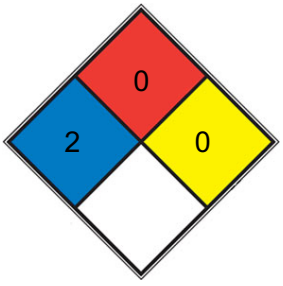
Advice for firefighters

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,N2)
SPEC. HAZ.		

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.

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

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).

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).

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 entrepeneur 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 (～325 mg/m^3) (ACGIH), 100 ppm (MSHA and OSHA); TLV-STEL 200 ppm (ACGIH); carcinogenicity: Animal Limited Evidence.

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/cm3 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)
λmax	λ: 290 nm Amax: 1.00 λ: 295 nm Amax: 0.30 λ: 300 nm Amax: ≤0.20 λ: 305 nm Amax: 0.10 λ: 350 nm Amax: 0.05 λ: 400 nm Amax: 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

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)

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/m3 (24-hr averaging time). The averaging time for the chronic ITSL of 40 µg/m3 (based on an EPA RfC) is being changed from 24-hr to annual.

Other adverse effects

No data available

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 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.

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

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

EC Inventory:Listed.

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

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

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

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

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

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/

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

【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.

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