

Safety Data Sheet

Product name: Tetrachloroethylene

CAS No.: 127-18-4

Prepared in accordance with GB/T 16483, GB/T 17519

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: Linyi Tuohui New Materials Co., Ltd.
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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. Continue rinsing.

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>

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

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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.

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 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 (~ 325 mg/m³) (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

- Appearancecolorless liquid, clear
- OdourNo data available
- Odour Threshold0.77ppm
- pHNo data available
- Melting point/freezing pointMelting point/range: -22 °C - lit.
- Initial boiling point and boiling range121 °C - lit.
- Flash point120-121°C
- Evaporation rateNo data available
- Flammability (solid, gas)No data available
- Upper/lower flammability or explosive limitsNo 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 density1,623 g/cm³ at 25 °C - lit. No data available
- Water solubility0,15 g/l at 25 °C
- Partition coefficient: n-octanol/waterlog Pow: 2,53 at 23 °C
- Autoignition temperatureNo data available
- Decomposition temperatureNo data available
- ViscosityViscosity, kinematic: No data available Viscosity, dynamic: 0,844 mPa.s at 25 °C
- Explosive propertiesNo 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_{max} : 290 nm A_{max} : 1.00
 λ : 295 nm A_{max} : 0.30
 λ : 300 nm A_{max} : ≤ 0.20
 λ : 305 nm A_{max} : 0.10
 λ : 350 nm A_{max} : 0.05
 λ : 400 nm A_{max} : 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

Specific target organ toxicity - single exposure

May cause drowsiness or dizziness.

Specific target organ toxicity - repeated exposure

Aspiration hazard

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 TETRACHLOROETHYLENE	IMDG:	
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

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

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

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

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

EC Inventory:Listed.

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

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

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

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.