

# Tetrachloroethylene

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

### 1.1 Product identifier

Substance name: Tetrachloroethylene  
CAS No.: 127-18-4  
Molecular Formula.: C<sub>2</sub>Cl<sub>4</sub>

### 1.2 Details of the supplier of the SDS

Company name (Manufacturer): Tianjin Yuanlong Chemical Industry Co., Ltd  
Address: Room 605, Kangning Tower B, Xikang Ave., Heping District, Tianjin, China  
Postcode: 300070  
E-mail: info@yuanlongchem.com  
Telephone: +86-22-23528561  
Fax: +86-22-23523959  
Emergency telephone number: +86-22-23528561

## Section 2: Hazards identification

### Physical State

Liquid

### Appearance

Colorless

### Odor

Characteristic, sweet

### Emergency Overview

May cause cancer. Toxic to aquatic life with long lasting effects. May be harmful if swallowed. Causes skin irritation. May cause an allergic skin reaction. Causes serious eye irritation. May cause drowsiness and dizziness.

### 2.1 Classification of the substance or mixture

Acute Oral Toxicity: Category 5  
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

Acute aquatic toxicity Category 2

Chronic aquatic toxicity Category 2

## 2.2 Label elements



Signal word: Danger.

Hazard statements: H350 - May cause cancer  
H411 - Toxic to aquatic life with long lasting effects  
H303 - May be harmful if swallowed  
H315 - Causes skin irritation  
H317 - May cause an allergic skin reaction  
H319 - Causes serious eye irritation  
H336 - May cause drowsiness or dizziness

Precautionary statements:

Prevention P201 - Obtain special instructions before use  
P202 - Do not handle until all safety precautions have been read and understood  
P264 - Wash face, hands and any exposed skin thoroughly after handling  
P270 - Do not eat, drink or smoke when using this product  
P271 - Use only outdoors or in a well-ventilated area  
P272 - Contaminated work clothing should not be allowed out of the workplace  
P280 - Wear protective gloves/protective clothing/eye protection/face protection

Response: P301 + P312 - IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell  
P302 + P352 - IF ON SKIN: Wash with plenty of soap and water  
P304 + P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing  
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing  
P308 + P313 - IF exposed or concerned: Get medical advice/attention  
P362 - Take off contaminated clothing and wash before reuse

Storage P403 + P233 - Store in a well-ventilated place. Keep container tightly closed

Disposal: P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

### 2.3 Physical and Chemical Hazards

None identified.

### 2.4 Health Hazards

May cause cancer. May be harmful if swallowed. Causes skin irritation. May cause an allergic skin reaction. Causes serious eye irritation. May cause drowsiness or dizziness.

### 2.5 Environmental hazards

Toxic to aquatic life with long lasting effects. . Is not likely mobile in the environment due its low water solubility. Will likely be mobile in the environment due to its volatility. Spillage unlikely to penetrate soil. The product is insoluble and sinks in water. The product contains volatile organic compounds (VOC) which will evaporate easily from all surfaces.

### 2.6 Other Hazards

Toxicity to Soil Dwelling Organisms. Toxic to terrestrial vertebrates.

## Section 3: Composition/information on ingredients

### 3.1 Substance information

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

## Section 4: First aid measures

### 4.1 Description of 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.

#### Skin Contact

Wash off immediately with plenty of water for at least 15 minutes. If skin irritation persists, call a physician.

#### Inhalation

Remove to fresh air. If not breathing, give artificial respiration. Get medical attention if symptoms occur.

#### Ingestion

Clean mouth with water and drink afterwards plenty of water.

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**Most important symptoms and effects**

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

**Self-Protection of the First Aider**

Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination.

**Notes to Physician**

Treat symptomatically. Symptoms may be delayed.

## Section 5: Fire-fighting measures

**5.1 Extinguishing media**

Suitable extinguishing media: Water spray, carbon dioxide (CO<sub>2</sub>), dry chemical, alcohol-resistant foam.  
Unsuitable extinguishing media: No data available.

**5.2 Special hazards arising from the substance or mixture**

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

**5.3 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.

## Section 6: Accidental release measures

**6.1 Personal precautions**

Use personal protective equipment as required. Ensure adequate ventilation.

**6.2 Environmental precautions**

Do not flush into surface water or sanitary sewer system.

**6.3 Methods and material for containment and cleaning up**

Soak up with inert absorbent material. Keep in suitable, closed containers for disposal.

## 6.4 Reference to other sections

Refer to protective measures listed in Sections 8 and 13.

## Section 7: Handling and storage

### 7.1 Handling

Wear personal protective equipment/face protection. Do not get in eyes, on skin, or on clothing. Ensure adequate ventilation. Avoid ingestion and inhalation.

### 7.2 Storage

Keep containers tightly closed in a dry, cool and well-ventilated place. Protect from sunlight.

### 7.3 Specific end use(s)

Use in laboratories

## Section 8 : Exposure controls/personal protection

### 8.1 Control parameters

Component	China	Taiwan	Hong Kong	The United Kingdom
Tetrachloroethylene	TWA: 200 mg/CBM	TWA: 50 ppm TWA: 339 mg/CBM	TWA: 25 ppm TWA: 170 mg/CBM STEL: 100 ppm STEL: 685 mg/CBM	STEL: 40 ppm (15min) STEL: 275 mg/CBM (15min) TWA: 20 ppm (8hr) TWA: 138 mg/m (8hr) Skin

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH	European Union
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Tetrachloroethylene	TWA: 25 ppm STEL: 100 ppm	(Vacated) TWA: 25 ppm (Vacated) TWA: 170 mg/CBM Ceiling: 200 ppm TWA: 100 ppm	IDLH: 150 ppm	TWA: 138 mg/CBM (15min) TWA: 20 ppm (15min) STEL: 275 mg/CBM, (8hr) STEL: 40 ppm (8hr) Skin
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## 8.2 Monitoring methods

BS EN 14042:2003 Title Identifier: Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents. MDHS70 General methods for sampling airborne gases and vapours MDHS 96

Volatile organic compounds in air - Laboratory method using pumped solid sorbent tubes, solvent desorption and gas chromatography

## 8.2 Exposure controls

Engineering Measures:

Eye Protection Goggles (European standard - EN 166)

Hand Protection Protective Gloves

Glove material	Breakthrough time	Glove thickness	EU standard	Glove comments
Nitrile rubber	> 480 minutes	0.38 mm	Level 6	As tested under
Viton (R)	> 480 minutes	0.3 mm	EN 374	EN374-3 Determination of Resistance to Permeation by Chemicals

Inspect gloves before use.

Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves.

(Refer to manufacturer/supplier for information)

Ensure gloves are suitable for the task: Chemical compatability, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion.

Remove gloves with care avoiding skin contamination.

Skin and body protection : Long sleeved clothing

Respiratory Protection :	When workers are facing concentrations above the exposure limit they must use appropriate certified respirators. To protect the wearer, respiratory protective equipment must be the correct fit and be used and maintained properly.
Large scale/emergency use :	Use a NIOSH/MSHA or European Standard EN 136 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced <b>Recommended Filter type:</b> Organic gases and vapours filter Type A Brown conforming to EN14387

### 8.3 Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice.

### 8.4 Environmental exposure controls

Prevent product from entering drains. Do not allow material to contaminate ground water system.

## Section 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

Appearance	Colorless	
Physical State	Liquid	
Odour:	Characteristic, sweet	
Odor Threshold	No data available	
pH	No information available	
Melting Point/Range	-22 °C / -7.6 °F	
Softening Point	No data available	
Boiling Point/Range	120 - 122 °C / 248 - 251.6 °F	@ 760 mmHg
Flash Point	No information available	Method - No information available
Evaporation Rate	6.0 (Ether = 1.0)	
Flammability (solid,gas)	Not applicable	Liquid
Explosion Limits	No data available	
Vapor Pressure	18 mbar @ 20 °C	
Vapor Density	No data available	(Air = 1.0)
Specific Gravity / Density	1.625 1.619	

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Bulk Density	Not applicable	Liquid
Water Solubility	0.15 g/L (20°C)	practically insoluble
Solubility in other solvents	No information available	
Partition Coefficient (n-octanol/water)	log Pow	
Component		
Tetrachloroethylene	2.88	
Autoignition Temperature	No data available	
Decomposition Temperature	> 150°C	
Viscosity	0.89 mPa s at 20 °C	
Explosive Properties	No information available	
Oxidizing Properties	No information available	
Molecular Formula	C2 Cl4	
Molecular Weight	165.83	

**9.2 Other information**

No data available.

**Section 10: Stability and reactivity****10.1 Stability**

Material is stable under normal conditions.

**10.2 Hazardous reactions**

None under normal processing.

**10.3 Hazardous Polymerization**

Hazardous polymerization does not occur.

**10.4 Conditions to Avoid**

Incompatible products. Excess heat. Exposure to moist air or water

**10.5 Materials to avoid**

Strong acids. Strong oxidizing agents. Strong bases. Metals. Zinc. Amines. Aluminium.



## 10.6 Hazardous Decomposition Products

Chlorine. Phosgene. Hydrogen chloride gas.

## Section 11: Toxicological information

### 11.1 Product Information

(a) acute toxicity;

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

(b) skin corrosion/irritation;

Category 2

(c) serious eye damage/irritation;

Category 2

(d) respiratory or skin sensitization;

Respiratory

Based on available data, the classification criteria are not met

Skin

Category 1

No information available

(e) germ cell mutagenicity;

Based on available data, the classification criteria are not met

(f) carcinogenicity;

Category 2

The table below indicates whether each agency has listed any ingredient as a carcinogen

Component	CN	EU	Germany	IARC
Tetrachloroethylene	Category 2		Cat.2	Group 2A

(g) reproductive toxicity;

Based on available data, the classification criteria are not met

(h) STOT-single exposure;

Category 3

Results / Target organs

Central nervous system (CNS)

(i) STOT-repeated exposure;

Based on available data, the classification criteria are not met

Target Organs

None known.

(j) aspiration hazard;

Based on available data, the classification criteria are not met

### 11.2 Other Adverse Effects

Tumorigenic effects have been reported in experimental animals.

### 11.3 Symptoms / effects, both acute and

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

## Section 12: Ecological information

### 12.1 Ecotoxicity effects

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

### 12.2 Persistence and degradability

Persistence	Insoluble in water, Persistence is unlikely, based on information available.
Degradation in sewage treatment plant	Contains substances known to be hazardous to the environment or not degradable in waste water treatment plants.

### 12.4 Bioaccumulative Potential

May have some potential to bioaccumulate

Component	log Pow	Bioconcentration factor (BCF)
Tetrachloroethylene	2.88	25.8 - 77.1 OECD 305C

### 12.5 Mobility in soil

Spillage unlikely to penetrate soil The product is insoluble and sinks in water The product contains volatile organic compounds (VOC) which will evaporate easily from all surfaces Is not likely mobile in the environment due its low water solubility Will likely be mobile in the environment due to its volatility

## 12.6 Endocrine Disruptor Information

Component	EU - Endocrine Disruptors Candidate List	EU - Endocrine Disruptors - Evaluated Substances	Japan - Endocrine Disruptor Information
Tetrachloroethylene	Group II Chemical		

## 12.7 Persistent Organic Pollutant

This product does not contain any known or suspected substance

## 12.8 Ozone Depletion Potential

This product does not contain any known or suspected substance

## Section 13: Disposal considerations

### 13.1 Waste from Residues/Unused Products

Waste is classified as hazardous. Dispose of in accordance with the European Directives on waste and hazardous waste. Dispose of in accordance with local regulations.

### 13.2 Contaminated Packaging

Dispose of this container to hazardous or special waste collection point.

### 13.3 Other Information

Do not flush to sewer. Waste codes should be assigned by the user based on the application for which the product was used. Do not empty into drains. Do not let this chemical enter the environment.

## Section 14: Transport information

### 14.1 Road and Rail Transport

UN-No.	UN1897
Proper Shipping Name	TETRACHLOROETHYLENE
Hazard Class	6.1
Packing Group	III

### 14.2 IMDG/IMO

UN-No.	UN1897
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Proper Shipping Name	TETRACHLOROETHYLENE
Hazard Class	6.1
Packing Group	III

#### 14.3 IATA

UN-No.	UN1897
Proper Shipping Name	TETRACHLOROETHYLENE
Hazard Class	6.1
Packing Group	III

#### 14.4 Special Precautions for User

No special precautions required

### Section 15: Regulatory information

#### 15.1 International Inventories

X = listed, China (IECSC), Europe (EINECS/ELINCS/NLP), U.S.A. (TSCA), Canada (DSL/NDSL), Philippines (PICCS), Japan (ENCS), Australia (AICS), Korea (ECL).

Component	The Inventory of Hazardous Chemicals (2015 Edition)	List of dangerous goods GB 12268 - 2012	Taiwan Toxic Chemical Substances Inventory	IECSC	EINECS	TSCA	DSL	PICCS	ENCS	AICS	KECL
Tetrachloro ethylene					204-82						KE-332
					5-9						9
											4

#### 15.2 National Regulations

Component	Toxic Chemical Substances Control Act
Tetrachloroethylene	Class I (10 wt%)
127-18-4 (>95)	Class II (10 wt%)
	TRQ = 350 kg

### Section 16: Other information

**16.1 Revision Information:**

Prepared By Health, Safety and Environmental Department

Creation Date 01-Jan-2022

Revision Date 01-Jan-2023

Revision Summary SDS authoring systems update, replaces ChemGes SDS No. 127-18-4.

**16.2 Training Advice**

Chemical hazard awareness training, incorporating labelling, Safety Data Sheets (SDS), Personal Protective Equipment (PPE) and hygiene.

Use of personal protective equipment, covering appropriate selection, compatibility, breakthrough thresholds, care, maintenance, fit and standards.

First aid for chemical exposure, including the use of eye wash and safety showers.

Chemical incident response training.

**16.3 Legend**

CAS - Chemical Abstracts Service

EINECS/ELINCS - European Inventory of Existing

Commercial Chemical Substances/EU List of Notified  
Chemical Substances Substances List

PICCS - Philippines Inventory of Chemicals and Chemical  
Substances

IECSC - Chinese Inventory of Existing Chemical Substances

KECL - Korean Existing and Evaluated Chemical Substances

WEL - Workplace Exposure Limit

ACGIH - American Conference of Governmental Industrial

TSCA - United States Toxic Substances Control Act Section  
8(b) Inventory

DSL/NDSL - Canadian Domestic Substances  
List/Non-Domestic

ENCS - Japanese Existing and New Chemical Substances

AICS - Australian Inventory of Chemical Substances

NZIoC - New Zealand Inventory of Chemicals

TWA - Time Weighted Average

IARC - International Agency for Research on Cancer

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**Hygienists**

DNEL - Derived No Effect Level

RPE - Respiratory Protective Equipment

LC50 - Lethal Concentration 50%

NOEC - No Observed Effect Concentration

PBT - Persistent, Bioaccumulative, Toxic

Predicted No Effect Concentration (PNEC)

LD50 - Lethal Dose 50%

EC50 - Effective Concentration 50%

POW - Partition coefficient Octanol:Water

vPvB - very Persistent, very Bioaccumulative

ADR - European Agreement Concerning the International  
Carriage of Dangerous Goods by RoadIMO/IMDG - International Maritime Organization/International  
Maritime Dangerous Goods CodeOECD - Organisation for Economic Co-operation and  
Development

BCF - Bioconcentration factor

ICAO/IATA - International Civil Aviation  
Organization/International Air

Transport Association

MARPOL - International Convention for the Prevention of  
Pollution from Ships

ATE - Acute Toxicity Estimate

VOC (volatile organic compound)

**16.3 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.