

# SAFETY DATA SHEETS

According to the UN GHS revision 9

Version: 1.0  
Creation Date: July 15, 2019  
Revision Date: July 15, 2019

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## SECTION 1: Identification

### 1.1 GHS Product identifier

**Product name** 2,4,6-trichlorophenol

### 1.2 Other means of identification

**Product number** -  
**Other names** Phenaclor; 2,4,6-TCP; 2,3-DIHYDROBENZO[B]FURAN-5-SULPHONYL CHLORIDE

### 1.3 Recommended use of the chemical and restrictions on use

**Identified uses** Industrial and scientific research use.  
**Uses advised against** no data available

### 1.4 Supplier's details

**Company** Shanghai Yien Chemical Technology Co., Ltd  
**Address** Building 6, 28 Yingong Road, Fengxian District, Shanghai  
Chemical Industry Zone, Shanghai, 201400, China  
**Telephone** +86-400-133-2688

### 1.5 Emergency phone number

**Emergency phone number** +86-400-133-2688  
**Service hours** Monday to Friday, 9am-5pm (Standard time zone: UTC/GMT +8 hours).

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## SECTION 2: Hazard identification

### 2.1 Classification of the substance or mixture

Acute toxicity - Category 4, Oral  
Skin irritation, Category 2  
Eye irritation, Category 2  
Carcinogenicity, Category 2  
Hazardous to the aquatic environment, short-term (Acute) - Category Acute 1  
Hazardous to the aquatic environment, long-term (Chronic) - Category Chronic 1

### 2.2 GHS label elements, including precautionary statements

**Pictogram(s)**



**Signal word**

Warning

<b>Hazard statement(s)</b>	H302 Harmful if swallowed H315 Causes skin irritation H319 Causes serious eye irritation H351 Suspected of causing cancer H410 Very toxic to aquatic life with long lasting effects
<b>Precautionary statement(s)</b>	
<b>Prevention</b>	P264 Wash ... thoroughly after handling. P270 Do not eat, drink or smoke when using this product. P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/...
	P203 Obtain, read and follow all safety instructions before use. P273 Avoid release to the environment.
<b>Response</b>	P301+P317 IF SWALLOWED: Get medical help. P330 Rinse mouth. P302+P352 IF ON SKIN: Wash with plenty of water/... P321 Specific treatment (see ... on this label). P332+P317 If skin irritation occurs: Get medical help. P362+P364 Take off contaminated clothing and wash it before reuse. P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P318 IF exposed or concerned, get medical advice. P391 Collect spillage.
<b>Storage</b>	P405 Store locked up.
<b>Disposal</b>	P501 Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

### 2.3 Other hazards which do not result in classification

no data available

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## SECTION 3: Composition/information on ingredients

### 3.1 Substances

Chemical name	Common names and synonyms	CAS number	EC number	Concentration
2,4,6-trichlorophenol	2,4,6-trichlorophenol	88-06-2	201-795-9	100%

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## SECTION 4: First-aid measures

### 4.1 Description of necessary first-aid measures

#### If inhaled

Fresh air, rest.

#### Following skin contact

Remove contaminated clothes. To remove substance use polyethylene glycol 300 or vegetable oil. Rinse and then wash skin with water and soap.

#### Following eye contact

First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then refer for medical attention.

#### Following ingestion

Rinse mouth. Do NOT induce vomiting. Refer for medical attention .

### 4.2 Most important symptoms/effects, acute and delayed

SYMPTOMS: Symptoms of exposure to this compound may include irritation of the skin, eyes, nose, throat, mucous membranes and upper respiratory tract. Contact with the skin may result in redness, edema, dermatitis and chemical burns. Contact with the eyes may result in corneal injury and iritis. It may also cause lacrimation. Other symptoms may

include an increase followed by a decrease in respiratory rate and urinary output, fever, increased bowel action, weakness of movement, collapse, convulsions, lung damage, liver damage and kidney damage. Additional symptoms caused by this type of compound include painless blanching or erythema of the skin, corrosion, profuse sweating, intense thirst, nausea and vomiting, diarrhea, cyanosis from methemoglobinemia, hyperactivity, hyperthermia, skin rashes (sometimes chloracne), neurological and immunological effects, stupor, blood pressure fall, hyperpnea, abdominal pain, hemolysis, coma, and pulmonary edema followed by pneumonia. Rapid death has been reported. If death from respiratory failure is not immediate, jaundice and oliguria or anuria may occur. Skin sensitivity reactions occur occasionally. Prolonged eye contact may cause eye damage. Depending on the intensity and duration of exposure, effects may include severe destruction of tissue. ACUTE/CHRONIC HAZARDS: This compound is harmful by ingestion, inhalation and skin absorption. It is an irritant of the skin, eyes, nose, throat, mucous membranes and upper respiratory tract. When heated to decomposition it emits toxic fumes of carbon monoxide, carbon dioxide and hydrogen chloride gas. It may also emit toxic fumes of chloride ion. (NTP, 1992)

### **4.3 Indication of immediate medical attention and special treatment needed, if necessary**

Immediate first aid: Ensure that adequate decontamination has been carried out. If patient is not breathing, start artificial respiration, preferably with a demand-valve resuscitator, bag-valve-mask device, or pocket mask, as trained. Perform CPR as necessary. Immediately flush contaminated eyes with gently flowing water. Do not induce vomiting. If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain an open airway and prevent aspiration. Keep patient quiet and maintain normal body temperature. Obtain medical attention. Phenols and related compounds

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## **SECTION 5: Fire-fighting measures**

### **5.1 Suitable extinguishing media**

If material /is/ involved in /a/ fire, extinguish fire using agent suitable for type of surrounding fire. Material itself does not burn or burns with difficulty. Trichlorophenol

### **5.2 Specific hazards arising from the chemical**

Literature sources indicate that this chemical is nonflammable. (NTP, 1992)

### **5.3 Special protective actions for fire-fighters**

Use foam, dry powder, carbon dioxide.

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## **SECTION 6: Accidental release measures**

### **6.1 Personal precautions, protective equipment and emergency procedures**

Personal protection: filter respirator for organic gases and particulates adapted to the airborne concentration of the substance. Do NOT let this chemical enter the environment. Sweep spilled substance into covered sealable containers. If appropriate, moisten first to prevent dusting. Carefully collect remainder. Then store and dispose of according to local regulations.

### **6.2 Environmental precautions**

Personal protection: filter respirator for organic gases and particulates adapted to the airborne concentration of the substance. Do NOT let this chemical enter the environment. Sweep spilled substance into covered sealable containers. If appropriate, moisten first to prevent dusting. Carefully collect remainder. Then store and dispose of according to local regulations.

### **6.3 Methods and materials for containment and cleaning up**

Activated carbon is a good method for removing chlorophenols from water. Competitive adsorption occurs between chlorophenols & humic substances present in nearly all municipal water supplies. This competition decr the capacity of carbon for chlorophenols. Chlorophenols

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## SECTION 7: Handling and storage

### 7.1 Precautions for safe handling

Handling in a well ventilated place. Wear suitable protective clothing. Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Use non-sparking tools. Prevent fire caused by electrostatic discharge steam.

### 7.2 Conditions for safe storage, including any incompatibilities

Provision to contain effluent from fire extinguishing. Separated from strong oxidants and food and feedstuffs. Well closed. Store in an area without drain or sewer access. PRECAUTIONS FOR "CARCINOGENS": Storage site should be as close as practical to lab in which carcinogens are to be used, so that only small quantities required for ... expt need to be carried. Carcinogens should be kept in only one section of cupboard, an explosion-proof refrigerator or freezer (depending on chemico-physical properties ...) that bears appropriate label. An inventory ... should be kept, showing quantity of carcinogen & date it was acquired ... Facilities for dispensing ... should be contiguous to storage area. Chemical Carcinogens

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## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

#### Occupational Exposure limit values

<b>Component</b>	2,4,6-trichlorophenol			
<b>CAS No.</b>	88-06-2			
	<b>Limit value - Eight hours</b>		<b>Limit value - Short term</b>	
	<b>ppm</b>	<b>mg/m<sup>3</sup></b>	<b>ppm</b>	<b>mg/m<sup>3</sup></b>
<b>Denmark</b>		0,5		1
<b>Sweden</b>		0,5		1,5 (1)
	<b>Remarks</b>			
<b>Sweden</b>	(1) 15 minutes average value			

#### Biological limit values

no data available

### 8.2 Appropriate engineering controls

Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Set up emergency exits and the risk-elimination area.

### 8.3 Individual protection measures, such as personal protective equipment (PPE)

#### Eye/face protection

Wear safety goggles or face shield.

#### Skin protection

Protective gloves. Protective clothing.

#### Respiratory protection

Use ventilation (not if powder), local exhaust or breathing protection.

#### Thermal hazards

no data available

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## SECTION 9: Physical and chemical properties and safety characteristics

#### Physical state

PHYSICAL DESCRIPTION: Yellow to pinkish-orange needles or orange fluffy solid. Strong phenolic odor. (NTP,

	1992)
<b>Colour</b>	Crystals from ligroin
<b>Odour</b>	Strong phenolic odor
<b>Melting point/freezing point</b>	277°C(lit.)
<b>Boiling point or initial boiling point and boiling range</b>	120°C/39mmHg(lit.)
<b>Flammability</b>	Combustible. Gives off irritating or toxic fumes (or gases) in a fire.
<b>Lower and upper explosion limit/flammability limit</b>	no data available
<b>Flash point</b>	82°C(lit.)
<b>Auto-ignition temperature</b>	no data available
<b>Decomposition temperature</b>	no data available
<b>pH</b>	Moderately acidic substance
<b>Kinematic viscosity</b>	no data available
<b>Solubility</b>	less than 0.1 mg/mL at 64° F (NTP, 1992)
<b>Partition coefficient n-octanol/water</b>	log Kow = 3.69
<b>Vapour pressure</b>	1 mm Hg ( 76.5 °C)
<b>Density and/or relative density</b>	1.49
<b>Relative vapour density</b>	no data available
<b>Particle characteristics</b>	no data available

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## SECTION 10: Stability and reactivity

### 10.1 Reactivity

Decomposes on heating. This produces toxic and corrosive fumes including hydrogen chloride and chlorine. Reacts with strong oxidants.

### 10.2 Chemical stability

Stable up to its melting point

### 10.3 Possibility of hazardous reactions

Non-combustible /Trichlorophenol/2,4,6-TRICHLOROPHENOL is incompatible with acid chlorides, acid anhydrides and oxidizing agents. It can be converted to the sodium salt by reaction with sodium carbonate. Forms ethers, esters and salts by reaction with metals and amines. Undergoes substitution reactions such as nitration, alkylation, acetylation and halogenation. Can be hydrolyzed by reaction with bases at elevated temperatures and pressures. Reacts with alkalis at high temperatures (NTP, 1992).

### 10.4 Conditions to avoid

no data available

### 10.5 Incompatible materials

Incompatible materials: Strong oxidizing agents.

### 10.6 Hazardous decomposition products

When heated to decomposition it emits toxic fumes of /hydrogen chloride/.

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## SECTION 11: Toxicological information

### Acute toxicity

- Oral: LD50 Rat oral 2.8 g/kg
- Inhalation: no data available

- Dermal: no data available

#### **Skin corrosion/irritation**

no data available

#### **Serious eye damage/irritation**

no data available

#### **Respiratory or skin sensitization**

no data available

#### **Germ cell mutagenicity**

no data available

#### **Carcinogenicity**

CLASSIFICATION: B2; probable human carcinogen. BASIS FOR CLASSIFICATION: Based on no human data and sufficient evidence in animals; namely, increased incidence of lymphomas or leukemia in male rats and hepatocellular adenomas or carcinomas in male and female mice. HUMAN CARCINOGENICITY DATA: None. ANIMAL CARCINOGENICITY DATA: Sufficient.

#### **Reproductive toxicity**

No studies are available on the developmental or reproductive effects of 2,4,6-trichlorophenol in humans from inhalation or oral exposure. Animal studies have reported a transient reduction in the body weight of the offspring of rats exposed to 2,4,6-trichlorophenol orally, while no other developmental effects have been noted in animal studies. Reduced mean litter size was observed in rats following maternal exposure to 2,4,6-trichlorophenol in the drinking water, while no reproductive effects were observed in other animal studies via gavage (placing the chemical experimentally in the stomach).

#### **STOT-single exposure**

The substance is severely irritating to the eyes, skin and respiratory tract.

#### **STOT-repeated exposure**

Repeated or prolonged contact with skin may cause dermatitis including chloracne. The substance may have effects on the liver. This may result in impaired functions.

#### **Aspiration hazard**

No indication can be given about the rate at which a harmful concentration of this substance in the air is reached when dispersed.

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## **SECTION 12: Ecological information**

### **12.1 Toxicity**

- Toxicity to fish: LC50; Species: *Lepomis macrochirus* (Bluegill) 1st yr class; Concentration: 0.72 mg/L for 24 hr /Conditions of bioassay not specified in source examined
- Toxicity to daphnia and other aquatic invertebrates: EC50; Species: *Daphnia magna* (Water Flea) age 0-24 hr; Conditions: freshwater, flow through, 17.2 (16.5-18.4) deg C, pH 7.39 (6.84-7.80), hardness 44.7 mg/L CaCO<sub>3</sub> (40.8-47.6 mg/L CaCO<sub>3</sub>), alkalinity 43.0 mg/L CaCO<sub>3</sub> (40.4-49.5 mg/L CaCO<sub>3</sub>), dissolved oxygen 8.7 (4.8-10.7) mg/L ; Concentration: 3340 ug/L for 48 hr (95% confidence interval: 2810-3970 ug/L); Effect: intoxication, immobilization
- Toxicity to algae: EC50; Species: *Scenedesmus subspicatus* (Green Algae); Conditions: freshwater, static; Concentration: 279000 ug/L for 49-79 min; Effect: population, decreased photosynthesis
- Toxicity to microorganisms: no data available

### **12.2 Persistence and degradability**

AEROBIC: 2,4,6-Trichlorophenol biodegraded 100% in 10-14 days with an 8 day lag time in filtered water and in 8-10 days with a 2 day lag time in water with sediment(1). 2,4,6-

Trichlorophenol is expected to biodegrade in aerobic soils with a biodegradation half-life of about 5 days(2). Total degradation of 2,4,6-trichlorophenol in Dunkirk silt loam took 5 days and in Mardin silt loam took 13 days(3). In Labisch soil, 2,4,6-trichlorophenol biodegraded 67% in 60 days(4). 2,4,6-Trichlorophenol was aerobically degraded 95% in 3 days and 27% in 80 days in non-sterile and sterile clay loam, respectively(5). Microbial degradation, volatilization, and photodecomposition were ruled out in the sterile soil indicating that other mechanisms contribute to degradation(5). Activated sludge made from soil resulted in 100% removal of 2,4,6-trichlorophenol in 3 days(6); sewage seed resulted in complete removal in 7 days(7); 39% removal by activated sludge in 14 days was reported(8). 2,4,6-Trichlorophenol was readily degraded in an aerobic microcosm using soils from the saturated zone(9). A 2,4-dichlorophenol-acclimated soil inoculum completely degraded an unspecified initial concentration of 2,4,6-trichlorophenol in 28 days(10). 2,4,6-Trichlorophenol, present at 1.5 mg/L, was completely degraded in 8 days using an inoculum derived from river sediment obtained near a petrochemical plant(11). The compound was 92% degraded in 30 days using an activated sludge inoculum(12). 2,4,6-Trichlorophenol, present at 100 mg/L, reached 82.5-89.3% of its theoretical BOD in 2 weeks using an activated sludge inoculum at 30 mg/L in the Japanese MITI test(13).

### 12.3 Bioaccumulative potential

BCFs of 250-310 were reported for Golden Orfe fish (1,2). BCFs of 87 and 676 were reported for flagfish (*Jordanella floridae*)(3). A BCF of 270 was also reported(4). According to a classification scheme(5), these BCF values suggest that bioconcentration in aquatic organisms is moderate to high(SRC).

### 12.4 Mobility in soil

The Koc values of 2,4,6-trichlorophenol in soil at pH 6, 7 and 7.7 were measured as 2200, 600 and 150 respectively(1). Koc values of 1300 and 800 were determined in river and lake sediment at an unspecified pH(2). Koc values of 2000(3), 1050(4) and 1070(5) were also reported for 2,4,6-trichlorophenol. According to a classification scheme(6), these Koc values suggest that 2,4,6-trichlorophenol is expected to have moderate to slight mobility in soil. The pKa of 2,4,6-trichlorophenol is 6.23(7), indicating that this compound will exist partially in anion form in the environment and anions generally do not adsorb more strongly to soils containing organic carbon and clay than their neutral counterparts(8).

### 12.5 Other adverse effects

no data available

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## SECTION 13: Disposal considerations

### 13.1 Disposal methods

#### Product

The material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing. Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.

#### Contaminated packaging

Containers can be triply rinsed (or equivalent) and offered for recycling or reconditioning. Alternatively, the packaging can be punctured to make it unusable for other purposes and then be disposed of in a sanitary landfill. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.

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## SECTION 14: Transport information

### 14.1 UN Number

ADR/RID: UN2020 (For reference only, please check.)

IMDG: UN2020 (For reference only, please check.)

IATA: UN2020 (For reference only, please check.)

### 14.2 UN Proper Shipping Name

ADR/RID: CHLOROPHENOLS, SOLID  
IMDG: CHLOROPHENOLS,

IATA: CHLOROPHENOLS, SOLID (For reference only, please check.)

(For reference only, please check.) SOLID (For reference only, please check.)

### 14.3 Transport hazard class(es)

ADR/RID: 6.1 (For reference only, please check.) IMDG: 6.1 (For reference only, please check.) IATA: 6.1 (For reference only, please check.)

### 14.4 Packing group, if applicable

ADR/RID: III (For reference only, please check.) IMDG: III (For reference only, please check.) IATA: III (For reference only, please check.)

### 14.5 Environmental hazards

ADR/RID: Yes IMDG: Yes IATA: Yes

### 14.6 Special precautions for user

no data available

### 14.7 Transport in bulk according to IMO instruments

no data available

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## SECTION 15: Regulatory information

### 15.1 Safety, health and environmental regulations specific for the product in question

Chemical name	Common names and synonyms	CAS number	EC number
2,4,6-trichlorophenol	2,4,6-trichlorophenol	88-06-2	201-795-9
European Inventory of Existing Commercial Chemical Substances (EINECS)			Listed.
EC Inventory			Listed.
United States Toxic Substances Control Act (TSCA) Inventory			Listed.
China Catalog of Hazardous chemicals 2015			Listed.
New Zealand Inventory of Chemicals (NZIoC)			Listed.
Philippines Inventory of Chemicals and Chemical Substances (PICCS)			Listed.
Vietnam National Chemical Inventory			Listed.
Chinese Chemical Inventory of Existing Chemical Substances (China IECSC)			Listed.
Korea Existing Chemicals List (KECL)			Listed.

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## SECTION 16: Other information

### Information on revision

Creation Date July 15, 2019

Revision Date July 15, 2019

### 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

- IPCS - The International Chemical Safety Cards (ICSC), website: <http://www.ilo.org/dyn/icsc/showcard.home>
- HSDB - Hazardous Substances Data Bank, website: <https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm>
- IARC - International Agency for Research on Cancer, website: <http://www.iarc.fr/>
- 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)
- CAMEO Chemicals, website: <http://cameochemicals.noaa.gov/search/simple>
- ChemIDplus, website: <http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp>
- ERG - Emergency Response Guidebook by U.S. Department of Transportation, website: <http://www.phmsa.dot.gov/hazmat/library/erg>
- Germany GESTIS-database on hazard substance, website: <http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp>
- ECHA - European Chemicals Agency, website: <https://echa.europa.eu/>

### **Other Information**

Some technical products may contain highly toxic impurities including polychlorinated dibenzo-p-dioxins and furans. See ICSCs 0588, 0589, 0590 and 879.

**Any questions regarding this SDS, Please send your inquiry to [sds@xixisys.com](mailto:sds@xixisys.com)**

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*Disclaimer: The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. We as supplier shall not be held liable for any damage resulting from handling or from contact with the above product.*