

## Chemical Safety Data Sheet MSDS / SDS

**2,4-Dichlorophenol**

Revision Date:2024-08-24 Revision Number:1

**SECTION 1: Identification of the substance/mixture and of the company/undertaking****Product identifier**

Product name : 2,4-Dichlorophenol  
CBnumber : CB4458696  
CAS : 120-83-2  
EINECS Number : 204-429-6  
Synonyms : 2,4-dichlorophenol,2,4-DCP

**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 : 400-158-6606

**SECTION 2: Hazards identification****Classification of the substance or mixture**

Acute toxicity - Category 4, Oral  
Acute toxicity - Category 3, Dermal  
Skin corrosion, Sub-category 1B  
Hazardous to the aquatic environment, long-term (Chronic) - Category Chronic 2

**Label elements****Pictogram(s)**

Signal word : Danger

**Hazard statement(s)**

H225 Highly Flammable liquid and vapour  
H300 Fatal if swallowed  
H301 Toxic if swallowed  
H302 Harmful if swallowed  
H311 Toxic in contact with skin

H314 Causes severe skin burns and eye damage

H318 Causes serious eye damage

H331 Toxic if inhaled

H335 May cause respiratory irritation

H351 Suspected of causing cancer

H370 Causes damage to organs

H401 Toxic to aquatic life

H411 Toxic to aquatic life with long lasting effects

#### **Precautionary statement(s)**

P201 Obtain special instructions before use.

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

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

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

P264 Wash hands thoroughly after handling.

P264 Wash 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.

P273 Avoid release to the environment.

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

P309 IF exposed or if you feel unwell:

P310 Immediately call a POISON CENTER or doctor/physician.

P311 Call a POISON CENTER or doctor/physician.

P391 Collect spillage. Hazardous to the aquatic environment

P301+P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.

P303+P361+P353 IF ON SKIN (or hair): Remove/Take off Immediately all contaminated clothing. Rinse SKIN with water/shower.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.

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P307+P311 IF exposed: call a POISON CENTER or doctor/physician.

P405 Store locked up.

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

P501 Dispose of contents/container to.....

#### **Prevention**

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/...

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

P273 Avoid release to the environment.

#### **Response**

P301+P317 IF SWALLOWED: Get medical help.

P330 Rinse mouth.

P302+P352 IF ON SKIN: Wash with plenty of water/...

P316 Get emergency medical help immediately.

P321 Specific treatment (see ... on this label).

P361+P364 Take off immediately all contaminated clothing and wash it before reuse.

P301+P330+P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

P363 Wash contaminated clothing before reuse.

P304+P340 IF INHALED: Remove person to fresh air and keep 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.

P391 Collect spillage.

#### **Storage**

P405 Store locked up.

#### **Disposal**

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.

#### **Other hazards**

no data available

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## SECTION 3: Composition/information on ingredients

### **Substance**

Product name	: 2,4-Dichlorophenol
Synonyms	: 2,4-dichlorophenol,2,4-DCP
CAS	: 120-83-2
EC number	: 204-429-6
MF	: C <sub>6</sub> H <sub>4</sub> Cl <sub>2</sub> O
MW	: 163

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## SECTION 4: First aid measures

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

#### **If inhaled**

Fresh air, rest. Half-upright position. Refer immediately for medical attention.

#### **Following skin contact**

Wear protective gloves when administering first aid. Remove contaminated clothes. See Notes. To remove substance use polyethylene glycol 400 or vegetable oil. Rinse skin with plenty of water or shower. Refer immediately for medical attention.

#### **Following eye contact**

Rinse with plenty of water (remove contact lenses if easily possible). Refer immediately for medical attention.

#### **Following ingestion**

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

### **Most important symptoms and effects, both acute and delayed**

Tremors, convulsions, shortness of breath, inhibition of respiratory system. (USCG, 1999)

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

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: Firefighting measures

### Extinguishing media

Alcohol foam, foam, carbon dioxide, dry chemical.

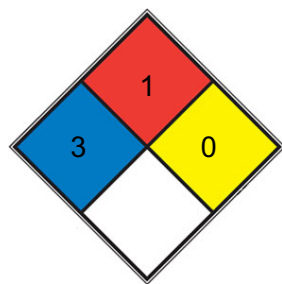
### Specific Hazards Arising from the Chemical

Special Hazards of Combustion Products: Toxic gases can be evolved. Behavior in Fire: Solid melts and burns. (USCG, 1999)

### Advice for firefighters

Use water spray, foam, powder, carbon dioxide.

### NFPA 704



■ HEALTH 3 Short exposure could cause serious temporary or moderate residual injury (e.g. [liquid hydrogen](#), [sulfuric acid](#), [calcium hypochlorite](#), hexafluorosilicic acid)

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■ FIRE 1 Materials that require considerable preheating, under all ambient temperature conditions, before ignition and combustion can occur. Includes some finely divided suspended solids that do not require heating before ignition can occur. Flash point at or above 93.3 °C (200 °F). (e.g. [mineral oil](#), ammonia)

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■ REACT 0 Normally stable, even under fire exposure conditions, and is not reactive with water (e.g. helium, [N2](#))

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□ SPEC.  
□ HAZ.

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## SECTION 6: Accidental release measures

### Personal precautions, protective equipment and emergency procedures

Personal protection: chemical protection suit including self-contained breathing apparatus. Do NOT let this chemical enter the environment. Sweep spilled substance into covered containers. If appropriate, moisten first to prevent dusting. Carefully collect remainder. Then store and dispose of according to local regulations.

## Environmental precautions

Personal protection: chemical protection suit including self-contained breathing apparatus. Do NOT let this chemical enter the environment. Sweep spilled substance into covered containers. If appropriate, moisten first to prevent dusting. Carefully collect remainder. Then store and dispose of according to local regulations.

## 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

## Precautions for safe handling

NO open flames. Prevent build-up of electrostatic charges (e.g., by grounding). 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.

## Conditions for safe storage, including any incompatibilities

Fireproof. Store in an area without drain or sewer access. Provision to contain effluent from fire extinguishing. Separated from strong oxidants and food and feedstuffs. Ventilation along the floor.SRP: Local exhaust ventilation should be applied wherever there is an incidence of point source emissions or dispersion of regulated contaminants in the work area. Ventilation control of the contaminant as close to its point of generation is both the most economical and safest method to minimize personnel exposure to airborne contaminants.

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# SECTION 8: Exposure controls/personal protection

## Control parameters

### Occupational Exposure limit values

no data available

### Biological limit values

no data available

## Exposure controls

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

## Individual protection measures

### Eye/face protection

Wear face shield or eye protection in combination with breathing protection.

### Skin protection

Protective gloves. Protective clothing.

### Respiratory protection

Use local exhaust or breathing protection.

### Thermal hazards

no data available

## SECTION 9: Physical and chemical properties

### Information on basic physicochemical properties

Physical state	melt
Colour	White to beige
Odour	Strong medicinal
Melting point/freezing point	45 °C. Atm. press.:KPa. Remarks:The pressure at which the melting point is measured is not stated.
Boiling point or initial boiling point and boiling range	210 °C. Remarks:Boiling point at atmospheric pressure assumed although not confirmed.
Flammability	Combustible. Gives off irritating or toxic fumes (or gases) in a fire.
Lower and upper explosion limit/flammability limit	no data available
Flash point	Ca. 110.6 °C.
Auto-ignition temperature	Remarks:Not applicable.
Decomposition temperature	no data available
pH	no data available
Kinematic viscosity	no data available
Solubility	methanol: soluble1g in 10ml
Partition coefficient n-octanol/water	log Pow = >= 3.21 - <= 3.25. Temperature:20 °C. Remarks:OECD Guideline 107, Rhodia reported value, 1984. Assigned reliability 2, valid with restrictions. Critical study for SIDS endpoint.;log Pow = 3. Remarks:OECD Guideline 117, Rhodia reported value, 1988. The temperature is not indicated. Assigned reliability 2, valid with restrictions.;log Pow = 2.92. Remarks:Rhodia reported value from peer reviewed handbook, 1982. The temperature is not indicated. Assigned reliability 2, valid with restrictions.
Vapour pressure	1.3 hPa (50 °C)
Density and/or relative density	1.4 g/cm3. Temperature:49 °C.
Relative vapour density	5.62 (NTP, 1992) (Relative to Air)
Particle characteristics	no data available

## SECTION 10: Stability and reactivity

### Reactivity

Decomposes on heating. This produces toxic fumes including chlorine and hydrogen chloride. Decomposes on burning. This produces toxic fumes including phosgene and dioxins. Reacts violently with acids and strong oxidants.

### Chemical stability

no data available

### Possibility of hazardous reactions

Combustible when exposed to heat or flame.Dust explosion possible if in powder or granular form, mixed with air. If dry, it can be charged

electrostatically by swirling, pneumatic transport, pouring, etc. 2,4-DICHLOROPHENOL can react vigorously with oxidizing agents. Can also react with acids or acid fumes. Incompatible with acid chlorides and acid anhydrides. (NTP, 1992)

### Conditions to avoid

no data available

### Incompatible materials

Can react vigorously with oxidizing materials.

### Hazardous decomposition products

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

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## SECTION 11: Toxicological information

### Acute toxicity

- Oral: LD50 Rat oral 580 mg/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

Evaluation: There is limited evidence in humans for the carcinogenicity of combined exposures to polychlorophenols or to their sodium salts. There is evidence suggesting lack of carcinogenicity of 2,4-dichlorophenol in experimental animals. ... Overall evaluation: Combined exposures to polychlorophenols or to their sodium salts are possibly carcinogenic to humans (Group 2B). Polychlorophenols and their sodium salts

### Reproductive toxicity

no data available

### STOT-single exposure

The substance is corrosive to the eyes, skin and respiratory tract. Corrosive on ingestion. The hot liquid may cause severe skin burns. Exposure to the molten substance may result in extensive skin absorption and rapid death. Inhalation of the vapour may cause lung oedema. See Notes. Medical observation is indicated. The substance may cause effects on the central nervous system.

## STOT-repeated exposure

no data available

## Aspiration hazard

A harmful contamination of the air will not or will only very slowly be reached on evaporation of this substance at 20°C; when in molten form, however, evaporation will be much faster.

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# SECTION 12: Ecological information

## Toxicity

Toxicity to fish: LC50; Species: *Danio rerio* (Zebra danio); Conditions: static; Concentration: 3900 µg/L for 96 hr

Toxicity to daphnia and other aquatic invertebrates: EC50 - *Daphnia magna* - 2.8 mg/L - 48 h.

Toxicity to algae: EC50 - *Pseudokirchneriella subcapitata* (previous names: *Raphidocelis subcapitata*, *Selenastrum capricornutum*) - 1.13 mg/L - 72 h.

Toxicity to microorganisms: no data available

## Persistence and degradability

AEROBIC: Using a static-culture flask-screening procedure with a settled wastewater inoculum, 2,4-dichlorophenol was found to be degradable with rapid microbial adaptation as 99-100% of initial concentration were degraded within 7 days(1). Using a Warburg respirometer and phenol-adapted bacteria (bacteria isolated from garden soil, river mud, compost and waste lagoon sediment), 95% of initial 2,4-dichlorophenol (200 ppm) was degraded within 7-10 days(2). Based on COD determination, 98% of initial 2,4-dichlorophenol was degraded in a BOD system with an activated sludge inoculum during a 20-day inoculation period(3). When activated sludge was exposed to 2,4-dichlorophenol at levels of 100 mg/L of sludge, 75% of the chemical disappeared in two days, and essentially 100% was gone in five days(4). However, 2,4-dichlorophenol, present at 100 mg/L, reached 0% of its theoretical BOD in 4 weeks using an activated sludge inoculum in the Japanese MITI test(5).

## Bioaccumulative potential

A BCF range of 7.1 to 69 was calculated in fish for 2,4-dichlorophenol(SRC), using carp (*Cyprinus carpio*) which were exposed to 30 ppb test compound over an 8-week period(1). The BCF of 2,4-dichlorophenol in goldfish ranged from 34 to 100(3,4); the BCF in an unspecified fish specie was 100(3) and in trout was 10(4). According to a classification scheme(2), these BCF values suggest the potential for bioconcentration in aquatic organisms is low to moderate(SRC). The BCF of 2,4-dichlorophenol in algae ranged from 257 to 263(3,4).

## Mobility in soil

The Koc of 2,4-dichlorophenol ranged from approximately 200 to 5,000 in soil adsorption studies using five mineral soils(1); the most important factors controlling the degree of adsorption were pH and percentage of iron oxide in the soil(1). In batch soil adsorption experiments conducted at pH 10, 2,4-dichlorophenol exhibited a soil equilibrium partition coefficient (Kp) of 0.0+/-0.5 indicating that adsorption was not occurring(2); 2,4-dichlorophenol has a pKa of 7.8 at 20 deg C which indicates that it will exist predominantly in the ionized form at pH 10(2); ionized phenols will generally not sorb to neutral or negatively charged soil organic matter as well as the non-dissociated form(2). The adsorption of the dichlorophenol isomers (including 2,4-dichlorophenol) onto Wyoming bentonite clay was found to be pH dependent with maximum adsorption occurring when ionization of the isomers was less than 50% based on pKa values(3). A 2,4-dichlorophenol Koc of 126 was measured in a clay loam soil from Michigan State University(4).

## Other adverse effects



no data available

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## SECTION 13: Disposal considerations

### 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

### UN Number

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

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

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

### UN Proper Shipping Name

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

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

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

### 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.)

### 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.)

### Environmental hazards

ADR/RID: Yes

IMDG: Yes

IATA: Yes

### Special precautions for user

no data available

## Transport in bulk according to IMO instruments

no data available

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## SECTION 15: Regulatory information

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

#### 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.

#### PICCS

Listed.

#### Vietnam National Chemical Inventory

Listed.

#### IECSC

Listed.

#### Korea Existing Chemicals List (KECL)

Listed.

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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

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>  
Chemical Book

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

The symptoms of lung oedema often do not become manifest until a few hours have passed and they are aggravated by physical effort. Rest and medical observation are therefore essential. Isolate contaminated clothing by sealing in a bag or other container.

### Disclaimer:

The information in this MSDS is only applicable to the specified product, unless otherwise specified, it is not applicable to the mixture of this product and other substances. This MSDS only provides information on the safety of the product for those who have received the appropriate professional training for the user of the product. Users of this MSDS must make independent judgments on the applicability of this SDS. The authors of this MSDS will not be held responsible for any harm caused by the use of this MSDS.