

Chemical Safety Data Sheet MSDS / SDS

2,3,5,6-tetrachlorophenol SDS

Revision Date:2024-04-25 Revision Number:1

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

Product name: 2,3,5,6-tetrachlorophenol

CAS: 935-95-5

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.in

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SECTION 2: Hazards identification**Classification of the substance or mixture**Acute toxicity - Category 3, Oral
Skin irritation, Category 2

Serious eye damage, Category 1
Specific target organ toxicity - single exposure, Category 3
Hazardous to the aquatic environment, long-term (Chronic) - Category Chronic 4

GHS label elements, including precautionary statements

Pictogram(s)



Signal word

Danger

Hazard statement(s)

H301 Toxic if swallowed
H315 Causes skin irritation
H318 Causes serious eye damage
H335 May cause respiratory irritation
H413 May cause long lasting harmful effects to aquatic life

Precautionary statement(s)

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/...
P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
P271 Use only outdoors or in a well-ventilated area.
P273 Avoid release to the environment.

Response

P301+P316 IF SWALLOWED: Get emergency medical help immediately.
P321 Specific treatment (see ... on this label).
P330 Rinse mouth.
P302+P352 IF ON SKIN: Wash with plenty of water/...
P332+P317 If skin irritation occurs: Get medical help.
P362+P364 Take off contaminated clothing and wash it before reuse.
P305+P354+P338 IF IN EYES: Immediately rinse with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P317 Get medical help.
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P319 Get medical help if you feel unwell.

Storage

P405 Store locked up.

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

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 which do not result in classification

no data available

SECTION 3: Composition/information on ingredients

Substance

Chemical name: 2,3,5,6-tetrachlorophenol

Common names and synonyms: 2,3,5,6-tetrachlorophenol

CAS number: 935-95-5

EC number: 213-310-8

Concentration: 100%

SECTION 4: First aid measures

Description of necessary first-aid measures

If inhaled

Fresh air, rest. Refer for medical attention.

Following skin contact

Remove contaminated clothes. Rinse and then wash skin with water and soap. Refer for medical attention .

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. Give a slurry of activated charcoal in water to drink. Refer for medical attention .

Most important symptoms/effects, acute and delayed

SYMPTOMS: Symptoms of exposure to this compound may include irritation of the skin, eyes, mucous membranes and upper respiratory tract. Depending on the intensity and duration of exposure, effects may vary from mild irritation to severe destruction of tissue. Prolonged contact can cause eye damage. It can also cause irritation of the nose and throat. Exposure to this type of compound may cause profuse sweating, intense thirst, abdominal pain, nausea, vomiting, diarrhea, cyanosis from methemoglobinemia, hyperactivity, stupor, blood pressure fall, hyperpnea, hemolysis, convulsions, collapse, coma and pulmonary edema followed by pneumonia. If death from respiratory failure is not immediate, jaundice and oliguria or anuria may occur. Other symptoms of exposure to this type of compound may include headache, dizziness, rapid and difficult breathing, weakness, severe burns and internal damage. Chronic exposure may result in digestive disturbances, nervous disorders, skin eruptions and liver and kidney damage. Skin contact with this type of compound may result in softening and whitening of the skin, followed by the development of painful burns. Prolonged contact may lead to dermatitis. Local contact may also result in painless blanching or erythema and corrosion of the skin. Skin sensitivity reactions occur occasionally. **ACUTE/CHRONIC HAZARDS:** This compound is highly toxic by inhalation, ingestion and skin absorption. It is an irritant of the skin, eyes, mucous membranes and upper respiratory tract; and prolonged contact may result in severe irritation or destruction of tissue. It is also an irritant of the nose and throat. When heated to decomposition it emits toxic fumes of carbon monoxide, carbon dioxide and hydrogen chloride gas. (NTP, 1992)

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

Absorption, Distribution and Excretion

The compounds are readily absorbed from the gastrointestinal tract and from parenteral sites of injection. Chlorophenols

SECTION 5: Firefighting measures

Suitable extinguishing media

Fires involving this material can be controlled with a dry chemical, carbon dioxide or Halon extinguisher. (NTP, 1992)

Specific hazards arising from the chemical

Flash point data for this chemical are not available. It is probably combustible. (NTP, 1992)

Special protective actions for fire-fighters

In case of fire in the surroundings, use appropriate extinguishing media.

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

Personal protection: particulate filter respirator adapted to the airborne concentration of the substance. 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: particulate filter respirator adapted to the airborne concentration of the substance. 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

Collect and arrange disposal. Keep the chemical in suitable and closed containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment. Adhered or collected material should be promptly disposed of, in accordance with appropriate laws and regulations.

SECTION 7: Handling and storage

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.

Conditions for safe storage, including any incompatibilities

Provision to contain effluent from fire extinguishing. Separated from strong oxidants and food and feedstuffs.

SECTION 8: Exposure controls/personal protection

Control parameters

Occupational Exposure limit values

no data available

Biological limit values

no data available

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.

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

Eye/face protection

Wear safety goggles or eye protection in combination with breathing protection if powder.

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 and safety characteristics

Physical state:	PHYSICAL DESCRIPTION: Leaflets (from ligroin) or light beige powder. (NTP, 1992)
Colour:	Leaf, from ligroin
Odour:	no data available
Melting point/freezing point:	114-116°C
Boiling point or initial boiling point and boiling range:	261°C at 760mmHg

Flammability:	Not combustible. Gives off irritating or toxic fumes (or gases) in a fire.
Lower and upper explosion limit/flammability limit:	no data available
Flash point:	111.7°C
Auto-ignition temperature:	no data available
Decomposition temperature:	288°C
pH:	no data available
Kinematic viscosity:	no data available
Solubility:	less than 1 mg/mL at 68° F (NTP, 1992)
Partition coefficient n-octanol/water:	log Kow = 3.88
Vapour pressure:	Pa at 100°C: 130
Density and/or relative density:	1.709g/cm ³
Relative vapour density:	(air = 1): 8.0
Particle characteristics:	no data available

SECTION 10: Stability and reactivity

Reactivity

Decomposes on heating and on contact with strong oxidants. This produces toxic and corrosive fumes of hydrogen chloride. The substance is a weak acid.

Chemical stability

no data available

Possibility of hazardous reactions

2,3,5,6-TETRACHLOROPHENOL is incompatible with acid chlorides, acid anhydrides and oxidizing agents. (NTP, 1992).

Conditions to avoid

no data available

Incompatible materials

no data available

Hazardous decomposition products

When heated to decomposition it emits toxic fumes of hydrogen chloride

SECTION 11: Toxicological information

Acute toxicity

Oral: LD50 Mouse oral 109 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

no data available

Reproductive toxicity

no data available

STOT-single exposure

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

STOT-repeated exposure

Repeated or prolonged contact with skin may cause dermatitis.

Aspiration hazard

Evaporation at 20°C is negligible; a harmful concentration of airborne particles can, however, be reached quickly when dispersed.

SECTION 12: Ecological information**Toxicity**

Toxicity to fish: no data available

Toxicity to daphnia and other aquatic invertebrates: no data available

Toxicity to algae: no data available

Toxicity to microorganisms: no data available

Persistence and degradability

An inoculum, acclimated to pentachlorophenol for 10 days, was able to biodegrade 2,3,5,6-tetrachlorophenol, initially at 3.80 µM, by 62.1% in 1.5 days under methanogenic conditions(1). A lag period of 26 days was required before degradation of 2,3,5,6-tetrachlorophenol proceeded in an aerobic sediment:water system(2). Groundwater obtained from a contaminated aquifer(due to a coal tar distillation and wood treatment facility) containing 2,3,5,6-tetrachlorophenol, at 0.13 mg/l, was used in two anaerobic

digester experiments(3). No loss was seen in one digester run in semicontinuous mode over 84 hours; in the second digester, which had run continuously, only 0.05 mg/l 2,3,5,6-tetrachlorophenol was found after 8 weeks (61.5% biodegradation)(3).

Bioaccumulative potential

A BCF value of 142 was measured in whole fish samples (lipid-based BCF=1451) of juvenile American flagfish during a 28 day flow-through exposure experiment; 2,3,5,6-tetrachlorophenol was present at 4.1 ug/l(1). A depuration half-life of 0.40 days was measured for this compound in the same experiment(1). According to a classification scheme(2), this BCF value indicates that the potential for bioconcentration in aquatic organisms is high but as elimination is rapid only short-term bioaccumulation is expected(SRC).

Mobility in soil

The Koc of 2,3,5,6-tetrachlorophenol is estimated as approximately 3100(SRC), using a log Kow value of 3.88(1) and a regression-derived equation(2,SRC). According to a classification scheme(3), this estimated Koc value suggests that 2,3,5,6-tetrachlorophenol is expected to have slight mobility in soil(SRC). In an aqueous adsorption study, 1546 pg/g 2,3,5,6-/2,3,4,6-tetrachlorophenol was found in the sediment, 260 pg/g in suspended matter, and 41 pg/g in the water; the sediment to water ratio is 38 and suspended matter to water ratio is 6.3(4).

Other adverse effects

no data available

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.

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: No

IMDG: No

IATA: No

Special precautions for user

no data available

Transport in bulk according to IMO instruments

no data available

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

Not Listed.

China Catalog of Hazardous chemicals 2015

Not Listed.

New Zealand Inventory of Chemicals (NZIoC)

Listed.

(PICCS)

Not Listed.

Vietnam National Chemical Inventory

Listed.

IECSC)

Not Listed.

Korea Existing Chemicals List (KECL)

Not Listed.

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>
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
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

No data are available on this isomer but a mixture of tetrachlorophenols may cause irritation of the skin, eyes and respiratory tract. These substances may cause acute metabolic effects resulting in damage in several organs notably CNS. Some technical products may contain highly toxic impurities including polychlorinated dibenzo-p-dioxins and furans. Depending on the degree of exposure, periodic medical examination is indicated.

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