Chemical Safety Data Sheet MSDS / SDS

2,4,5-trichlorophenol SDS

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

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

Product identifier

Product name: 2,4,5-trichlorophenol

CAS: 95-95-4

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

Address: 5 vasavi Layout Basaveswara Nilayam Pragathi Nagar Hyderabad, India -500090

Telephone: +91 9550333722

SECTION 2: Hazards identification

Classification of the substance or mixture

Acute toxicity - Category 4, Oral
Skin irritation, Category 2

Eye irritation, Category 2
Hazardous to the aquatic environment, short-term (Acute) - Category Acute 1
Hazardous to the aquatic environment, long-term (Chronic) - Category Chronic 1

GHS label elements, including precautionary statements

Pictogram(s)

Signal word Warning

Hazard statement(s)

H302 Harmful if swallowed
H315 Causes skin irritation
H319 Causes serious eye irritation
H410 Very toxic to aquatic life with long lasting effects

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/...
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/...
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.
P391 Collect spillage.

Storage

none

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:	2,4,5-trichlorophenol
Common names and synonyms:	2,4,5-trichlorophenol
CAS number:	95-95-4
EC number:	202-467-8
Concentration:	100%

SECTION 4: First aid measures

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. Refer for medical attention .

Most important symptoms/effects, acute and delayed

SYMPTOMS: Symptoms of exposure to large amounts of this compound may include irritation of the skin, eyes, nose and throat. The dust may cause swelling and injury to the eyes. Eye contact may also result in conjunctivitis and slight to moderate corneal injuries. Other toxic effects include decrease of activity, motor weakness and convulsive seizures. It also causes lung, kidney and liver damage; an increase and then a decrease in respiratory rate, decrease in urine output, fever, increased bowel action and collapse. ACUTE/CHRONIC HAZARDS: This compound is an irritant of the skin, eyes, nose and throat. When heated to decomposition it emits toxic fumes of chloride ion; decomposition may be violent. There is limited evidence that this compound is a human carcinogen. (NTP, 1992)

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

SECTION 5: Firefighting measures

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

Specific hazards arising from the chemical

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

Special protective actions for fire-fighters

Use foam, powder, carbon dioxide.

SECTION 6: Accidental release measures

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.

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.

Methods and materials for containment and cleaning up

Land Spill Dig a pit, pond, lagoon, or holding area to contain liquid or solid material. /SRP: If time permits, pits, ponds, lagoons, soak holes, or holding areas should be sealed with an impermeable flexible membrane liner./ Cover solids with plastic sheet to prevent dissolving in rain or fire fighting water. Trichlorophenol

SECTION 7: Handling and storage

Precautions for safe handling

NO open flames. NO contact with strong oxidizing agents. 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

Separated from strong oxidants and food and feedstuffs. Store in an area without drain or sewer access. Provision to contain effluent from fire extinguishing.Storage temp: ambient

SECTION 8: Exposure controls/personal protection

Control parameters

Occupational Exposure limit values

Component	2,4,5-trichlorophenol			
CAS No.	95-95-4			
	Limit value - Eight hours		Limit value - Short term	
	ppm	mg/m^3	ppm	mg/m^3
Austria	0,012	0,1	0,048	0,4
Denmark	?	0,5	?	1

Sweden	?	0,5	?	1,5 (1)
	Remarks			
Sweden	(1) 15 minutes average value			

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, face shield 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: Colorless needles, gray flakes or off-white lumpy solid. Phenolic odor. Formerly used as a fungicide and bactericide.
Colour:	Needles from alcohol, petroleum ether
Odour:	Strong phenolic odor
Melting point/freezing point:	19°C(lit.)

Boiling point or initial boiling point and boiling range:	115°C/10mmHg(lit.)
Flammability:	Combustible under specific conditions. Gives off irritating or toxic fumes (or gases) in a fire.
Lower and upper explosion limit/flammability limit:	no data available
Flash point:	95°C(lit.)
Auto-ignition temperature:	no data available
Decomposition temperature:	no data available
pH:	Weak monobasic acid
Kinematic viscosity:	no data available
Solubility:	less than 1 mg/mL at 70° F (NTP, 1992)
Partition coefficient n-octanol/water:	log Kow = 3.72
Vapour pressure:	1 mm Hg at 162° F ; 5 mm Hg at 215.8° F (NTP, 1992)
Density and/or relative density:	1,678 g/cm3
Relative vapour density:	greater than 1 (NTP, 1992) (Relative to Air)
Particle characteristics:	no data available

SECTION 10: Stability and reactivity

Reactivity

May explode on heating to decomposition. Decomposes on heating and on contact with strong oxidants. This produces toxic and irritating fumes (chlorine, hydrochloric acid). The substance is a weak acid. Reacts in an alkaline medium at high temperatures producing highly toxic chlorinated dioxins.

Chemical stability

Stable under recommended storage conditions.

Possibility of hazardous reactions

Non-combustible. /Trichlorophenol/2,4,5-TRICHLOROPHENOL is a weak monobasic acid. Incompatible with acid chlorides, acid anhydrides and oxidizing agents. Produces dioxin in alkaline medium at high temperatures (NTP, 1992)

Conditions to avoid

no data available

Incompatible materials

The reaction of 2,4,5-trichlorophenol in an alkaline medium at high temperatures ... /produces/ ... dioxin .

Hazardous decomposition products

When heated to decomp, it emits toxic fumes of /hydrogen chloride/ and explodes.

SECTION 11: Toxicological information

Acute toxicity

Oral: LD50 Rat oral 820 mg/kg; Solvent: fuel oil

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 inadequate evidence in experimental animals for the carcinogenicity of 2,4,5-trichlorophenol. ... Overall evaluation: Combined exposures to polychlorophenols or to their sodium salts are possibly carcinogenic to humans (Group 2B). Polychlorophenols

Reproductive toxicity

No information is available on the reproductive or developmental effects of 2,4,5-trichlorophenol in humans. In several studies of mice exposed to 2,4,5-trichlorophenol via gavage (experimentally placing the chemical in the stomach), no birth defects were observed. In one study, a reduction in litter size was reported. No changes in maternal or fetal parameters were noted in rats exposed to 2,4,5-trichlorophenol by injection. (4)

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. The substance may have effects on the liver and kidneys. See Notes.

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.

SECTION 12: Ecological information

Toxicity

Toxicity to fish: LC50; Species: Lepomis macrochirus (Bluegill) weight 1.16 g; Conditions: freshwater, static; Concentration: 1280 ug/L for 96 hr (95% confidence interval: 1160-1415 ug/L /32.7% purity

Toxicity to daphnia and other aquatic invertebrates: LC50; Species: Daphnia magna (Water Flea) age <24 hr neonate; Conditions: freshwater, static, 25 deg C, pH 8.0, hardness 150 mg/L CaCO3, alkalinity 121 mg/L CaCO3; Concentration: 2080 ug/L for 48 hr

Toxicity to algae: no data available

Toxicity to microorganisms: no data available

Persistence and degradability

AEROBIC: The rate of 2,4,5-trichlorophenol biodegradation (measured by CO2 evolution) in river water and sediment corresponded to half-lives of 690 and 23 days, respectively(1). Using the Japanese MITI test, 2,4,5-trichlorophenol present at 100 ppm underwent <30% degradation in 2 weeks using an activated sludge at 30 ppm(2). Mixed microbial cultures isolated from toluene and phenol activated sludge, resulted in 50% biodegradation of 2,4,5-trichlorophenol in 2 days(3). 2,4,5-Trichlorophenol, present at 50 mg/L, took >47 and >72 days for complete degradation when added to 2 different soil suspensions(4). 2,4,5-Trichlorophenol was aerobically degraded 72% and 9% 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). An aerobic biodegradation half-life of 23 days was determined for 2,4,5-trichlorophenol from a river die-away test(6). Biodegradation half-life (measured by loss of UV absorbance) for 10 ug/L 2,4,5-trichlorophenol added to a soil suspension was 15 days(7). Soil microbes metabolized 2,4,5-trichlorophenol to 3,5-dichlorocatechol, 4-chlorocatechol, succinate, cis,cis-2,4-dichloromuconate, 2-chloro-4-(carboxymethylene)but-2-enolide, and chlorosuccinate(7).

Bioaccumulative potential

Using carp (Cyprinus carpio) which were exposed over an 8-week period to 10 and 1 ug/L of 2,4,5-trichlorophenol, respective measured BCFs were 121-484 and 232-825(1). A log BCF of 3.28 was reported for fathead minnows exposed to 2,4,5-trichlorophenol for 28 days(2). According to a classification scheme(3), these BCF values suggest that bioconcentration in aquatic organisms is high to very high(SRC).

Mobility in soil

Koc values of 89(1), 2300(2), and 1700 in Pahokee peat(3) have been reported. According to a classification scheme(4), these Koc values suggest that 2,4,5-trichlorophenol is expected to have high to slight mobility in soil. The pKa of 2,4,5-trichlorophenol is 7.43(5), 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(6).

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: Yes
IMDG: Yes
IATA: Yes

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

Listed.

China Catalog of Hazardous chemicals 2015

Listed.

New Zealand Inventory of Chemicals (NZIoC)

Listed.

(PICCS)

Not Listed.

Vietnam National Chemical Inventory

Listed.

IECSC)

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

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 suggested. If the substance is formulated with solvents also consult the ICSCs of these materials. Carrier solvents used in commercial formulations may change physical and toxicological properties. See ICSCs 588, 589, 590 and 1122.