

## Chemical Safety Data Sheet MSDS / SDS

## Chlordane , pur 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: Chlordane , pur

CAS: 57-74-9

**Relevant identified uses of the substance or mixture and uses advised against**

Relevant identified uses: For R&amp;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 4, Oral

Acute toxicity - Category 4, Dermal

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

### GHS label elements, including precautionary statements

Pictogram(s)



Signal word

Warning

### Hazard statement(s)

H302 Harmful if swallowed

H312 Harmful in contact with skin

H351 Suspected of causing cancer

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/...

P203 Obtain, read and follow all safety instructions before use.

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/...

P317 Get medical help.

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

P362+P364 Take off contaminated clothing and wash it before reuse.

P318 IF exposed or concerned, get medical advice.

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 which do not result in classification

no data available

## SECTION 3: Composition/information on ingredients

### Substance

Chemical name: Chlordane , pur

Common names and synonyms: Chlordane , pur

CAS number: 57-74-9

EC number: 200-349-0

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.

#### 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

Rest. Refer for medical attention .

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

**SYMPTOMS:** Symptoms of exposure to this compound include blurred vision, confusion, ataxia, delirium, coughing, abdominal pain, nausea, irritability and anuria. Other symptoms may include nervousness, loss of coordination, unconsciousness and dry red skin. It may also cause neuroblastoma. It is moderately irritating to the skin and can cause deep depression and liver changes. Symptoms of acute poisoning with this type of compound include vomiting, diarrhea, paraesthesia, excitement, giddiness, fatigue, tremors, convulsions, coma, possibly pulmonary edema; liver, kidney and myocardial toxicity and hypothermia. Also, respiration may be accelerated initially and later depressed. Symptoms of chronic poisoning with this type of compound may include headache, loss of appetite, muscular weakness, fine tremors, apprehensive mental state, aplastic anemia and acute leukemia. **ACUTE/CHRONIC HAZARDS:** This compound is readily absorbed through the skin as well as through other portals. It is toxic by skin absorption and orally. When heated to decomposition it emits toxic fumes of organo chloride products, carbon monoxide and carbon dioxide. (NTP, 1992)

Fatal oral dose to adult humans is between 6 and 60 g with onset of symptoms within 45 minutes to several hours after ingestion, although symptoms have occurred following very small doses either orally or by skin exposure. Some reports of delayed development of liver disease, blood disorders and upset stomach. Chlordane is considered to be borderline between a moderately and highly toxic substance. (EPA, 1998)

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

Treatment is symptomatic and supportive. Oils should not be used as either cathartics or dermal cleansing agents, as they increase absorption. Gastric lavage and use of activated charcoal and sodium sulfate are indicated for ingestion. If dermal exposure occurred, contaminated clothes should be removed, and the skin should be thoroughly cleansed with soap and water. Management of seizures in both children and adults is with Valium or phenobarbital. Respiratory depression and even respiratory arrest, especially with concomitant use of Valium and phenobarbital in children, may occur. These drugs preferably should be used only in critical care areas where emergency endotracheal intubation can be performed. /It is recommended/ that epinephrine not be utilized in patients with organochlorine poisoning, as the organochlorines induce myocardial irritability and ventricular arrhythmias may occur. However, dopamine may be necessary in the event of hypotension unresponsive to fluid administration, and epinephrine may be necessary in the event of cardiopulmonary arrest. ... Organochlorine insecticides

## **SECTION 5: Firefighting measures**

### **Suitable extinguishing media**

Fire fighting: Self-contained breathing apparatus with a full facepiece, operated in pressure-demand or other positive-pressure mode. ...

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

This chemical is combustible. (NTP, 1992)

Flammable/combustible material; may be ignited by heat, sparks or flames. Vapors may travel to a source of ignition and flash

back. Run-off to sewers may create fire or explosion hazard. Containers may explode in heat of fire. Vapors are toxic indoors and outdoors. Chlordane degrades under natural environmental conditions to photoisomers, such as photo-cis- chlordane, which are more toxic to certain animals than chlordane and also showed higher bioaccumulation. Loses chlorine in presence of alkaline reagents; should not be formulated with any solvent, carrier, diluent or emulsifier which has alkaline reaction. (EPA, 1998)

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

Use alcohol-resistant foam, powder, carbon dioxide, water spray.

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

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

Personal protection: chemical protection suit including self-contained breathing apparatus. Collect leaking and spilled liquid in sealable containers as far as possible. Absorb remaining liquid in sand or inert absorbent. Then store and dispose of according to local regulations. Do NOT let this chemical enter the environment.

#### **Environmental precautions**

Collect leaking and spilled liquid in sealable containers as far as possible. Absorb remaining liquid in sand or inert absorbent. Then store and dispose of according to local regulations. Do NOT wash away into sewer. Personal protection: chemical protection suit including self-contained breathing apparatus.

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

A process for removing pollutants from Du pont's chambers works plant in Deepwater, NJ is described. Process involves neutralization of wastes & settling, followed by combined powdered carbon-biological process. Among pesticides listed as priority pollutants are heptachlor and chlordane.

### **SECTION 7: Handling and storage**

#### **Precautions for safe handling**

NO open flames. 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 food and feedstuffs, bases and incompatible materials. See

Chemical Dangers. Well closed. Keep in a well-ventilated room. Ambient temperature for storage.

## SECTION 8: Exposure controls/personal protection

### Control parameters

### Occupational Exposure limit values

TLV: 0.5 mg/m<sup>3</sup>, as TWA; (skin); A3 (confirmed animal carcinogen with unknown relevance to humans). MAK: (inhalable fraction): 0.5 mg/m<sup>3</sup>; peak limitation category: II(8); skin absorption (H); carcinogen category: 3B

### 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.

#### Skin protection

Protective gloves. Protective clothing.

#### Respiratory protection

Use breathing protection.

#### Thermal hazards

no data available

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

Physical state:                      PHYSICAL DESCRIPTION: Brown or amber very viscous liquid. Insoluble in water.

Colour:	Viscous, amber-colored liquid
Odour:	PENETRATING; AROMATIC; SLIGHTLY PUNGENT, LIKE CHLORINE
Melting point/freezing point:	106 - 107°C
Boiling point or initial boiling point and boiling range:	449.2°C at 760mmHg
Flammability:	Noncombustible Liquid, but may be utilized in flammable solutions.
Lower and upper explosion limit/flammability limit:	0.7%-5% (in kerosene soln)
Flash point:	229.6°C
Auto-ignition temperature:	410° F (USCG, 1999)
Decomposition temperature:	no data available
pH:	no data available
Kinematic viscosity:	69 poises at 25 deg C (about that of 95% glycerol); viscosity reduced by heating to 120-140 deg F
Solubility:	0.0001 % (NIOSH, 2016)
Partition coefficient n-octanol/water:	log Kow= 6.16
Vapour pressure:	1e-05 mm Hg at 77° F (EPA, 1998)
Density and/or relative density:	1.75g/cm <sup>3</sup>
Relative vapour density:	14.3 (NTP, 1992) (Relative to Air)
Particle characteristics:	no data available

## SECTION 10: Stability and reactivity

### Reactivity

NIOSH considers chlordane to be a potential occupational carcinogen. Decomposes on burning. Decomposes on contact with bases. This produces toxic fumes including phosgene and hydrogen chloride. Attacks iron, zinc, plastics, rubber and coatings.

### Chemical stability

Dehydrohalogenates in presence of alkali

### Possibility of hazardous reactions

CHLORDANE, a mixture of related chlorinated cyclodienes, is decomposed by alkalis. Corrodes iron and zinc. Can react with strong oxidizing agents. Attacks some forms of plastics, rubber and coatings (NTP, 1992)

### Conditions to avoid

no data available

### Incompatible materials

Loses ...chlorine in presence of alkaline reagents and should not be formulated with any solvent, carrier, diluent or emulsifier, which has alkaline reaction.

### Hazardous decomposition products

Hazardous decomposition products: Toxic gases and vapors, such as hydrogen chloride, chlorine, phosgene, and carbon monoxide. ...

## SECTION 11: Toxicological information

### Acute toxicity

Oral: LD50 Rat oral 590 mg/kg

Inhalation: LC50 Cat inhalation 100 mg/cu m/4 hours

Dermal: LD50 Rat (female) percutaneous 690 mg/kg



**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**

EPA: Probable human carcinogen. IARC: Not classifiable as to carcinogenicity to humans. NTP: Not evaluated

**Reproductive toxicity**

A study of women living in homes repeatedly treated for termites with chlordane revealed an increased incidence of ovarian and uterine disease, compared with a reference population. However, it is not possible to state whether these effects were solely due to chlordane or to other chemicals as well. An animal study reported biochemical and behavioral alterations mimicking male sex steroids, while another study reported alterations in reproductive behavior, both in male rats exposed to chlordane.

**STOT-single exposure**

Exposure at high levels could cause disorientation, tremors, convulsions, respiratory failure and death. Medical observation is indicated.

**STOT-repeated exposure**

The substance may have effects on the liver and immune system. This may result in tissue lesions and liver impairment. This substance is possibly carcinogenic to humans.

**Aspiration hazard**

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

## SECTION 12: Ecological information

### Toxicity

Toxicity to fish: LC50 Rainbow trout 42 ug/l/96 hr (95% confidence limit 37-48 ug/l) @ 12 deg C, wt 1.0 g. Static bioassay without aeration, pH 7.2-7.5, water hardness 40-50 mg/l as calcium carbonate and alkalinity of 30-35 mg/l.

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

A pure culture of *Nocardiosis* sp. isolated from soil was able to degrade chlordane with dichlorochlordene, oxychlordane, heptachlor, heptachlor-endo-epoxide, chlordene, chlorohydrin, and 3-hydroxy-trans-chlordene produced as metabolites(1).

### Bioaccumulative potential

*Lagodon rhomboides* (pinfish) exposed to chlordane exhibited a bioconcentration factor of 6227. Duration of 96 hr.

### Mobility in soil

The extremely low mobility of chlordane within soil ... after 14 months and 72 inches (183 cm) of rainfall /was observed/. Chlordane was found not to have extensively penetrated below nine inches (23 cm). Most of the residues (85-90%) were found in the 0-3 inch (0-8 cm) cultivated layer. Nine to 15% and 1.2-1.6% were found in the 3-6 inch (8-15 cm) and 6-9 inch (15-23 cm) layers, respectively.

### 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: UN2995 (For reference only, please check.)

IMDG: UN2995 (For reference only, please check.)

IATA: UN2995 (For reference only, please check.)

### **UN Proper Shipping Name**

ADR/RID: ORGANOCHLORINE PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash point not less than 23 °C (For reference only, please check.)

IMDG: ORGANOCHLORINE PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash point not less than 23 °C (For reference only, please check.)

IATA: ORGANOCHLORINE PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash point not less than 23 °C (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: I (For reference only, please check.)

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

IATA: I (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

Not Listed.

China Catalog of Hazardous chemicals 2015

Listed.

New Zealand Inventory of Chemicals (NZIoC)

Not Listed.

(PICCS)

Listed.

Vietnam National Chemical Inventory

Not Listed.

IECSC)

Not Listed.

Korea Existing Chemicals List (KECL)

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](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**

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 ICSC 0743.

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