

Chemical Safety Data Sheet MSDS / SDS

Coumaphos 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: Coumaphos

CAS: 56-72-4

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

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

Acute toxicity - Category 2, Oral

Acute toxicity - Category 4, Dermal

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

Danger

Hazard statement(s)

H300 Fatal if swallowed
H312 Harmful in contact with skin
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+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/...
P317 Get medical help.
P362+P364 Take off contaminated clothing and wash it before reuse.
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:	Coumaphos
Common names and synonyms:	Coumaphos
CAS number:	56-72-4
EC number:	200-285-3
Concentration:	100%

SECTION 4: First aid measures

Description of necessary first-aid measures

If inhaled

Fresh air, rest. Artificial respiration may be needed. No mouth-to-mouth artificial respiration. Refer immediately for medical attention.

Following skin contact

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

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. NO mouth-to-mouth artificial respiration. Refer immediately for medical attention.

Most important symptoms/effects, acute and delayed

Very toxic, probable oral lethal dose is 50-500 mg/kg, or between 1 teaspoonful and 1 oz. for a 70 kg (150 lb.) person. May be fatal if inhaled, swallowed, or absorbed through skin. Contact may cause burns to skin and eyes. (EPA, 1998)

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

A 32 yr old male with acute coumaphos poisoning ... the organophosphate poisoning was successfully managed by artificial ventilation, an infusion of pralidoxime and intermittent atropine. ...[Moore PG, James OF; Postgrad Med J 57 (672): 660-62 (1981)]
Full text: PMC2426093

SECTION 5: Firefighting measures

Suitable extinguishing media

Extinguish with water, foam, carbon dioxide, or dry chemical.

Specific hazards arising from the chemical

When heated to decomposition, it emits very toxic fumes of sulfur oxides, phosphorus oxides, and chlorides. Incompatible with piperonyl butoxide. Stable in water. (EPA, 1998)

Special protective actions for fire-fighters

In case of fire in the surroundings, use appropriate extinguishing media. In case of fire: keep drums, etc., cool by spraying with water.

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 and protective clothing. Do NOT wash away into sewer. Collect the spilled substance into containers. If appropriate, moisten first to prevent dusting. Then store and dispose of according to local regulations.

Environmental precautions

Personal protection: particulate filter respirator adapted to the airborne concentration of the substance and protective clothing. Do NOT wash away into sewer. Collect the spilled substance into containers. If appropriate, moisten first to prevent dusting. Then store and dispose of according to local regulations.

Methods and materials for containment and cleaning up

Hydrolysis: This compound can be decomposed on heating with concentrated alkali. It is oxidized with nitric acid or other oxidizing agents to the phosphate analogue, coroxon. Dilute alkali (pH 8-12) causes an opening of the pyrone ring, which can be closed again by acidification to yield the original compound.

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

Separated from food and feedstuffs. Well closed. Keep in a well-ventilated room. Store in an area without drain or sewer access. Storage temperature: Ambient

SECTION 8: Exposure controls/personal protection

Control parameters

Occupational Exposure limit values

TLV: 0.05 mg/m³, as TWA; (skin); A4 (not classifiable as a human carcinogen); BEI issued

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 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 and safety characteristics

Physical state:	Coumaphos is a slightly brownish crystals with a slight sulfurous odor. Used for the control of a wide variety of livestock insects including cattle grubs, lice, scabies, flies, and ticks; the common ectoparasites of sheep, goats, horse, swine, and poultry as well as for screwworms in all these animals. (EPA, 1998)
Colour:	Colorless crystals
Odour:	Slight sulfur-like odor
Melting point/freezing point:	91°C
Boiling point or initial boiling point and boiling range:	449.9°C at 760 mmHg
Flammability:	Not combustible. Liquid formulations containing organic solvents may be flammable. Gives off irritating or toxic fumes (or gases) in a fire. Heating will cause rise in pressure with risk of bursting.
Lower and upper explosion limit/flammability limit:	no data available
Flash point:	225.9°C
Auto-ignition temperature:	no data available

Decomposition temperature:	no data available
pH:	no data available
Kinematic viscosity:	no data available
Solubility:	less than 1 mg/mL at 72° F (NTP, 1992)
Partition coefficient n-octanol/water:	log Kow = 4.13
Vapour pressure:	1e-07 mm Hg at 68° F (EPA, 1998)
Density and/or relative density:	1.38 g/cm ³
Relative vapour density:	no data available
Particle characteristics:	no data available

SECTION 10: Stability and reactivity

Reactivity

Decomposes on heating. This produces toxic fumes including sulfur oxides, phosphorus oxides and hydrogen chloride.

Chemical stability

Stable under recommended storage conditions.

Possibility of hazardous reactions

It is combustible ...Organothiophosphates, such as COUNAPHOS, are susceptible to formation of highly toxic and flammable phosphine gas in the presence of strong reducing agents such as hydrides. Partial oxidation by oxidizing agents may result in the release of toxic phosphorus oxides. It reacts with strong oxidizing agents and alkaline materials. (NTP, 1992)

Conditions to avoid

no data available

Incompatible materials

Strong oxidizing agents

Hazardous decomposition products

Toxic & irritating oxides of sulfur & phosphorus may form in fire.

SECTION 11: Toxicological information**Acute toxicity**

Oral: LD50 Rabbit oral 80 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

Cancer Classification: Not Likely to be Carcinogenic to Humans

Reproductive toxicity

no data available

STOT-single exposure

Cholinesterase inhibition. The substance may cause effects on nervous system. The effects may be delayed. Medical observation is indicated.

STOT-repeated exposure

Cholinesterase inhibition. Cumulative effects are possible. See Acute Hazards/Symptoms.

Aspiration hazard

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

SECTION 12: Ecological information

Toxicity

Toxicity to fish: LC50; Species: *Salvelinus namaycush* (lake trout) weight 2.1 g; Conditions: static lab bioassay, 12 deg C; Concentration: 593 ug/L for 96 hr (95% confidence limit: 416-846 ug/L) /Technical material, 95-97%

Toxicity to daphnia and other aquatic invertebrates: LC50; Species: *Daphnia magna* / (Water flea)/; Concentration: 1.0 ug/L for 48 hr /Conditions of bioassay not specified

Toxicity to algae: no data available

Toxicity to microorganisms: no data available

Persistence and degradability

AEROBIC: In a biodegradability screening test using an activated sludge inoculum and 50 ug/L of radio-labeled test compound, only 0.9% of coumaphos was mineralized in 5 days(1). Coumaphos in dipping solutions can be effectively biodegraded by specially grown pure cultures(2). Degradation was slow in a sandy loam soil, half-life approximately 300 days(2). The half-life in a field test in which 300 ppm of coumaphos was incorporated into the upper 15 cm of silty loam soil was about 200 days(2). The major degradation products were chlorferon (3-chloro-4-methyl-7-hydroxycoumarin) and the oxygen analog(2). No degradation was noted in a microbially-active Drummer silty clay loam soil in 22 days(2). Coumaphos was degraded in 7 days in soil slurries using soil from six vat waste disposal pits in Texas(4). In similar experiments using (14)C ring-labeled coumaphos, 61% of the (14)C was recovered as (14)CO₂ when radiolabeled coumaphos was added to soil slurries containing 1200 mg/L coumaphos; no loss of coumaphos nor production of (14)CO₂ was observed when sodium azide was added to the soil slurries(3).

Bioaccumulative potential

A BCF of 110 was determined in Golden ide (*Leuciscus idus melanotus*) in a 3-day test(1). A BCF of 540 was determined in bluegill (*Lepomis macrochirus*) exposed for 28 days(2). According to a classification scheme(3), these BCFs suggest bioconcentration in aquatic organisms is high. The 24 hr bioaccumulation factor in algae (*Chlorella fusca*) is 470(1).

Mobility in soil

Koc values of 5778 to 21,120 were reported in 4 soil types(1). According to a classification scheme(2), this Koc value range suggests that coumaphos is expected to be immobile in soil.

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: UN3027 (For reference only, please check.)

IMDG: UN3027 (For reference only, please check.)

IATA: UN3027 (For reference only, please check.)

UN Proper Shipping Name

ADR/RID: COUMARIN DERIVATIVE PESTICIDE, SOLID, TOXIC (For reference only, please check.)
IMDG: COUMARIN DERIVATIVE PESTICIDE, SOLID, TOXIC (For reference only, please check.)
IATA: COUMARIN DERIVATIVE PESTICIDE, SOLID, TOXIC (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)

Listed.

(PICCS)

Listed.

Vietnam National Chemical Inventory

Listed.

IECSC)

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

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

Specific treatment is necessary in case of poisoning with this substance; the appropriate means with instructions must be available. Carrier solvents used in commercial formulations may change physical and toxicological properties. Isolate contaminated clothing by sealing in a bag or other container.

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