

SAFETY DATA SHEETS

According to the UN GHS revision 9

Version: 1.2
Creation Date: July 15, 2019
Revision Date: August 08, 2025

SECTION 1: Identification

1.1 GHS Product identifier

Product name Phosalone

1.2 Other means of identification

Product number CCPD100662

Other names S-6-chloro-2,3-dihydro-2-oxobenzoxazol-3-ylmethyl O,O-diethyl phosphorodithioate; S-[(6-chloro-2-oxo-3(2H)-benzoxazolyl)methyl] O,O-diethyl phosphorodithioate; p-974

1.3 Recommended use of the chemical and restrictions on use

Identified uses For laboratory and Industrial use only.
Uses advised against no data available

1.4 Supplier's details

Company CATO Research Chemicals Inc.
Address 3/F,Building B,No.179 BASIGO, Guangpu Rd East,Huangpu Dist,Guangzhou
Telephone +86-20-81960175

1.5 Emergency phone number

Emergency phone number +86-20-81960175
Service hours 'Monday to Friday, 9am-5pm (Standard time zone: UTC/GMT +8 hours).

SECTION 2: Hazard identification

2.1 Classification of the substance or mixture

Acute toxicity - Category 3, Oral
Acute toxicity - Category 4, Dermal
Skin sensitization, Category 1
Acute toxicity - Category 4, Inhalation
Hazardous to the aquatic environment, short-term (Acute) - Category Acute 1
Hazardous to the aquatic environment, long-term (Chronic) - Category Chronic 1

2.2 GHS label elements, including precautionary statements

Pictogram(s)



Signal word

Danger

Hazard statement(s)

H301 Toxic if swallowed
H312 Harmful in contact with skin
H317 May cause an allergic skin reaction
H332 Harmful if inhaled
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/...
P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
P272 Contaminated work clothing should not be allowed out of the workplace.
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/... P317 Get medical help. P362+P364 Take off contaminated clothing and wash it before reuse. P333+P317 If skin irritation or rash occurs: Get medical help. P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing. 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.

2.3 Other hazards which do not result in classification

no data available

SECTION 3: Composition/information on ingredients

3.1 Substances

Chemical name	Common names and synonyms	CAS number	EC number	Concentration
Phosalone	Phosalone	2310-17-0	218-996-2	100%

SECTION 4: First-aid measures

4.1 Description of necessary first-aid measures

If inhaled

Refer immediately for medical attention.

Following skin contact

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

4.2 Most important symptoms/effects, acute and delayed

no data available

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

Airway protection. Insure that a clear airway exists. Intubate the patients and aspirate the secretions with a large-bore suction device if necessary. Administer oxygen by mechanically assisted pulmonary ventilation if respiration is depressed. Improve tissue oxygenation as much as possible before administering atropine, so as to minimize the risk of ventricular fibrillation. In severe poisonings, it may be necessary to support pulmonary ventilation mechanically for several days. Organophosphate pesticides

SECTION 5: Fire-fighting measures

5.1 Suitable extinguishing media

If material on fire or involved in fire: Do not extinguish fire unless flow can be stopped. Solid streams of water may be ineffective. Cool all affected containers with flooding quantities of water. Apply water from as far a distance as possible. Use "alcohol" foam, carbon dioxide or dry chemical. Organophosphorus pesticides, liquid, NOS

5.2 Specific hazards arising from the chemical

Combustible. Liquid formulations containing organic solvents may be flammable. Gives off corrosive and toxic fumes (or gases) in a fire.

5.3 Special protective actions for fire-fighters

Use water spray, powder.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal protection: complete protective clothing including self-contained breathing apparatus. 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.

6.2 Environmental precautions

Personal protection: complete protective clothing including self-contained breathing apparatus. 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.

6.3 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

7.1 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.

7.2 Conditions for safe storage, including any incompatibilities

Separated from food and feedstuffs. Well closed. Keep in a well-ventilated room. Provision to contain effluent from fire extinguishing. Store in an area without drain or sewer access. Do not store below 32 deg F. Do not ... store with plants, seeds or foodstuffs.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure limit values

no data available

Biological limit values

no data available

8.2 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.

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

Eye/face protection

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

Skin protection

Protective gloves. Protective clothing.

Respiratory protection

Avoid inhalation of dust and mist. Use local exhaust or breathing protection.

Thermal hazards

no data available

SECTION 9: Physical and chemical properties and safety characteristics

Physical state	Solid
Colour	Crystals
Odour	Garlic
Melting point/freezing point	45-48°C
Boiling point or initial boiling point and boiling range	446.7°C at 760 mmHg
Flammability	Combustible. Liquid formulations containing organic solvents may be flammable. Gives off corrosive and toxic fumes (or gases) in a fire.
Lower and upper explosion limit/flammability limit	no data available
Flash point	223.9°C
Auto-ignition temperature	no data available
Decomposition temperature	no data available
pH	no data available
Kinematic viscosity	no data available
Solubility	Sol in ketones, alcohols and most aromatic solvents; practically insol in aliphatic hydrocarbons
Partition coefficient n-octanol/water	log Kow = 4.38
Vapour pressure	3.57E-08mmHg at 25°C
Density and/or relative density	1.443 g/cm3
Relative vapour density	no data available
Particle characteristics	no data available

SECTION 10: Stability and reactivity

10.1 Reactivity

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

10.2 Chemical stability

Stable under normal laboratory conditions for a period of 2 years.

10.3 Possibility of hazardous reactions

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

10.4 Conditions to avoid

no data available

10.5 Incompatible materials

no data available

10.6 Hazardous decomposition products

When heated to decomposition it emits very toxic fumes of /hydrogen chloride/, oxides of nitrogen, oxides of phosphorus and oxides of sulfur.

SECTION 11: Toxicological information

Acute toxicity

- Oral: LD50 Rat male oral 120-170 mg/kg
- Inhalation: no data available
- Dermal: LD50 Rat percutaneous 1500 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

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 the nervous system. This may result in convulsions and respiratory depression. The effects may be delayed. Medical observation is indicated. Exposure could cause death. The substance is mildly irritating to the eyes and skin.

STOT-repeated exposure

Cholinesterase inhibition. Cumulative effects are possible. See Acute Hazards/Symptoms. Repeated or prolonged contact may cause skin sensitization.

Aspiration hazard

A harmful concentration of airborne particles can be reached quickly.

SECTION 12: Ecological information

12.1 Toxicity

- Toxicity to fish: LC50; Species: *Lepomis macrochirus* (Bluegill, weight 0.8 g); Conditions: freshwater, static, 18 deg C, pH 7.5, hardness 44 mg/L CaCO₃; Concentration: 350 ug/L for 24 hr (95% confidence interval: 240-500 ug/L) /25% purity
- Toxicity to daphnia and other aquatic invertebrates: no data available
- Toxicity to algae: no data available
- Toxicity to microorganisms: no data available

12.2 Persistence and degradability

ANAEROBIC: When incubated in moist or flooded soil, phosalone slowly mineralizes, with 0.5-2.5% of 14-CO₂ released in 84 days(1). The reactions involve hydrolysis and the subsequent formation of a dimer 2-amino-7-chloro-3H-phenoxazin-3-one(2) which strongly binds to soil(2). Biologically mediated condensation reactions of amines and phenols are well known(1). The same dimer is formed by 4-chloroaniline in soil(1).

12.3 Bioaccumulative potential

An estimated BCF of 470 was calculated in fish for phosalone(SRC), using a log K_{ow} of 4.38(1) and a regression-derived equation(2). According to a classification scheme(3), this BCF suggests the potential for bioconcentration in aquatic organisms is high(SRC), provided the compound is not metabolized by the organism(SRC).

12.4 Mobility in soil

A K_{oc} value for phosalone of 1,800 has been reported(1). Values arrived at using various soils from Australia ranged from 2,587 (pH 7.6, OC 10.2 g/kg, clay 210 g/kg) to 6,078 (pH 5.1, OC 20.0 g/kg, clay 40 g/kg) to 12,608 (pH 7.2, OC 23.2 g/kg, clay 879 g/kg) with one outlier at 85,528. This latter soil is characterized as being rich in proteinaceous material and containing abundant alkyl and methoxy groups(2). According to a classification scheme(3), these K_{oc} values suggest that phosalone is expected to have low mobility or be immobile in soil. In thin layer chromatography experiments, phosalone was practically immobile in 4 soils (R_f was 0.02-0.07)(4). It was more mobile in a fifth soil, a Lakeland sandy loam (R_f = 0.26)(4). The Freundlich K values for phosalone adsorbed to two pond sediments were 12.05 and 28.90, respectively(3). The Freundlich 1/n values were 0.54 and 0.66, respectively(3). The non-linear nature of the isotherms suggests that the sorption process is complex and there are different types of binding sites(3). A possible explanation for this behavior is phosalone's hydrolysis and subsequent formation of strongly bound condensation products(6).

12.5 Other adverse effects

no data available

SECTION 13: Disposal considerations

13.1 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

14.1 UN Number

ADR/RID: UN2783 (For reference only, please check.) IMDG: UN2783 (For reference only, please check.) IATA: UN2783 (For reference only, please check.)

14.2 UN Proper Shipping Name

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

14.3 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.)

14.4 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.)

14.5 Environmental hazards

ADR/RID: Yes IMDG: Yes IATA: Yes

14.6 Special precautions for user

no data available

14.7 Transport in bulk according to IMO instruments

no data available

SECTION 15: Regulatory information

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

Chemical name	Common names and synonyms	CAS number	EC number
Phosalone	Phosalone	2310-17-0	218-996-2
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)	Not Listed.
Philippines Inventory of Chemicals and Chemical Substances (PICCS)	Not Listed.
Vietnam National Chemical Inventory	Listed.
Chinese Chemical Inventory of Existing Chemical Substances (China IECSC)	Not Listed.
Korea Existing Chemicals List (KECL)	Listed.

SECTION 16: Other information

Information on revision

Creation Date July 15, 2019
Revision Date August 08, 2025

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

Carrier solvents used in commercial formulations may change physical and toxicological properties. Do NOT take working clothes home. Depending on the degree of exposure, periodic medical examination is suggested. Specific treatment is necessary in case of poisoning with this substance; the appropriate means with instructions must be available. If the substance is formulated with solvents also consult the ICSCs of these materials.

Any questions regarding this SDS, Please send your inquiry to info@cato-chem.com

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 damage resulting from handling or from contact with the above product.