Chemical Safety Data Sheet MSDS / SDS

Diphacinone 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: Diphacinone

CAS: 82-66-6

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 2, Oral
Specific target organ toxicity – repeated exposure, Category 1

GHS label elements, including precautionary statements

Pictogram(s)

Signal word Danger

Hazard statement(s)

H300 Fatal if swallowed
H372 Causes damage to organs through prolonged or repeated exposure

Precautionary statement(s)

Prevention

P264 Wash ... thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P260 Do not breathe dust/fume/gas/mist/vapours/spray.

Response

P301+P316 IF SWALLOWED: Get emergency medical help immediately.
P321 Specific treatment (see ... on this label).
P330 Rinse mouth.
P319 Get medical help if you feel unwell.

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:	Diphacinone
Common names and synonyms:	Diphacinone
CAS number:	82-66-6
EC number:	201-434-5
Concentration:	100%

SECTION 4: First aid measures

Description of necessary first-aid measures

If inhaled

Refer immediately for medical attention.

Following skin contact

Wear protective gloves when administering first aid. Remove contaminated clothes. See Notes. Rinse and then wash skin with water and soap. Refer immediately for medical attention.

Following eye contact

Rinse with plenty of water (remove contact lenses if easily possible).

Following ingestion

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

Most important symptoms/effects, acute and delayed

This material is extremely toxic; probable oral lethal dose in humans is 5-50 mg/kg, or between 7 drops and 1 teaspoonful for a 150-lb. person. Many medical conditions will be aggravated by this material. (EPA, 1998)

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

Administration of vitamin K1, SC, to anticoagulant-poisoned (diphenadione) dogs provided diagnostic information within 4 hours, when vitamin K1 and its epoxide were measured in canine sera. Twelve dogs (2 groups of 6) were given 2.5 mg of diphenadione/kg of body weight for 3 days. Dogs were treated with vitamin K1, 2.5 (n = 6) or 5 mg/kg/day (n = 6) SC for 21 days,

and their responses were compared. Four nonexposed control dogs were given 5 mg of vitamin K1/kg/day. Serum concentration of vitamin K epoxide was significantly (P less than 0.02) higher in diphenadione-exposed dogs than in control dogs 1 to 4 hours after the initial vitamin K1 treatment on day 4. Vitamin K epoxide/vitamin K1 ratios were similarly higher and became more distinct. Cessation of vitamin K1 therapy on day 24 resulted in prolongation of one-stage prothrombin times in diphenadione-exposed dogs, becoming clearly evident on day 27. Serum vitamin K1 concentrations were not detectable on day 27 in diphenadione-exposed dogs, whereas serum vitamin K1 concentrations were readily detectable in control dogs. One-stage prothrombin time changes, during days 24 to 32, indicated 5 mg of vitamin K1/kg provided better protection than did 2.5 mg of vitamin K1/kg. Coagulopathy in the dogs was resolved by day 32.

SECTION 5: Firefighting measures

Suitable extinguishing media

Wear self contained breathing apparatus for fire fighting if necessary.

Specific hazards arising from the chemical

When heated to decomposition it emits acrid smoke and fumes. Sensitive to light. (EPA, 1998)

Special protective actions for fire-fighters

Use water spray, foam, carbon dioxide.

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

Personal protection: chemical protection suit including self-contained breathing apparatus. Do NOT let this chemical enter the environment. Sweep spilled substance into containers. If appropriate, moisten first to prevent dusting. Carefully collect remainder. Store and dispose of according to local regulations.

Environmental precautions

Personal protection: chemical protection suit including self-contained breathing apparatus. Do NOT let this chemical enter the environment. Sweep spilled substance into containers. If appropriate, moisten first to prevent dusting. Carefully collect remainder. Store and dispose of according to local regulations.

Methods and materials for containment and cleaning up

Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

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. Well closed. Store in an area without drain or sewer access.

SECTION 8: Exposure controls/personal protection

Control parameters

Occupational Exposure limit values

Component	Diphacinone			
CAS No.	82-66-6			
	Limit value - Eight hours		Limit value - Short term	
	ppm	mg/m^3	ppm	mg/m^3
Latvia	?	0,01	?	?
	Remarks			

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 if powder.

Skin protection

Protective gloves. Protective clothing.

Respiratory protection

Use closed system.

Thermal hazards

no data available

SECTION 9: Physical and chemical properties and safety characteristics

Physical state:	Diphacinone is an odorless pale yellow crystals. Used as a rodenticide and anticoagulant medication. (EPA, 1998)
Colour:	Yellow crystals
Odour:	Odorless
Melting point/freezing point:	145-147°C
Boiling point or initial boiling point and boiling range:	528.7°C at 760 mmHg
Flammability:	Combustible.
Lower and upper explosion limit/flammability limit:	no data available
Flash point:	no data available
Auto-ignition temperature:	no data available
Decomposition temperature:	338°C
pH:	no data available

Kinematic viscosity:	no data available
Solubility:	In water, 0.3 mg/L, temp not specified
Partition coefficient n-octanol/water:	log Kow = 4.27
Vapour pressure:	1.03X10-10 mm Hg at 25 deg C
Density and/or relative density:	1.281(25°C)
Relative vapour density:	no data available
Particle characteristics:	no data available

SECTION 10: Stability and reactivity

Reactivity

Decomposes on heating. This produces irritating fumes.

Chemical stability

Sensitive to light

Possibility of hazardous reactions

Not flammable or combustible.DIPHACINONE is a ketone, and behaves as a weak acid. Forms water soluble alkali metal salts. Ketones are reactive with many acids and bases liberating heat and flammable gases (e.g., H2). The amount of heat may be sufficient to start a fire in the unreacted portion of the ketone. Ketones react with reducing agents such as hydrides, alkali metals, and nitrides to produce flammable gas (H2) and heat. Ketones are incompatible with isocyanates, aldehydes, cyanides, peroxides, and anhydrides. They react violently with aldehydes, HNO3, HNO3 + H2O2, and HClO4.

Conditions to avoid

no data available

Incompatible materials

no data available

Hazardous decomposition products

When heated to decomposition it emits acrid smoke and fumes.

SECTION 11: Toxicological information

Acute toxicity

Oral: LD50 Rat oral 0.3 to 2.3 mg/kg

Inhalation: LC50 Rat inhalation 2,000 mg/cu m/4hr

Dermal: LD50 Rat percutaneous <200 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

no data available

Reproductive toxicity

no data available

STOT-single exposure

The substance may cause effects on the blood. This may result in bleeding. The effects may be delayed. Medical observation is indicated. See Notes. Exposure could cause death.

STOT-repeated exposure

The substance may have effects on the blood. This may result in bleeding.

Aspiration hazard

A harmful concentration of airborne particles can be reached quickly when dispersed.

SECTION 12: Ecological information

Toxicity

Toxicity to fish: LC50; Species: /Lepomis macrochirus/ (Bluegill sunfish); Concentration: 7.6 mg/L for 96 hr /Conditions of bioassay not specified

Toxicity to daphnia and other aquatic invertebrates: EC50; Species: Daphnia magna (Water Flea) age <24 hr; Conditions: freshwater, flow through; Concentration: 1800 ug/L for 48 hr (95% confidence interval: 1600-2900 ug/L); Effect: intoxication, immobilization /98.7% purity

Toxicity to algae: no data available

Toxicity to microorganisms: no data available

Persistence and degradability

AEROBIC: Radio-labeled (benzyl ring or both phenyl rings)[14C]diphacinone was metabolized with a half-life of 28.3 to 31.7 days, respectively, in sandy loam soils incubated aerobically in the dark at 25 deg C for 3.5 months. The major degradate (defined as >10% of the applied) detected in the phenyl ring labeled study was identified as diphenylglycolic acid and was present at a maximum of 24.5% of the applied at one month after application. Diphenylglycolic acid was also detected in the benzyl ring labeled study at a very low concentration (<10% of the applied). By 3.5 months post-treatment, 42.5% of the applied radioactivity was accounted for as 14CO2 in benzyl ring labeled [14C]diphacinone, and 37.3% of the applied radioactivity was accounted for as 14CO2 in the phenyl ring labeled [14C]diphacinone(1).

Bioaccumulative potential

An estimated BCF of 79 was calculated in fish for diphacinone(SRC), using a log Kow of 4.27(1) and a regression-derived

equation(2). According to a classification scheme(3), this BCF suggests the potential for bioconcentration in aquatic organisms is moderate(SRC).

Mobility in soil

Kd values of 5.4-1000 have been measured for diphacinone(1). The compound was immobile in columns (60 cm in length) packed with sandy loam, silt loam, sand, and loamy sand soils to a depth of 30 cm. Diphacinone was detected in the 0-6 cm layer in the columns with sandy loam and silt loam soils. In the sand soil, diphacinone was detected in the 0-6 cm layer (at 117.1% of the applied) and in the 6-12 cm layer (at <3% of the applied). Diphacinone was present in the 0-6 cm layer of the loamy sand soil at 76.1% of the applied, and was also present in the 6-12 cm, 12-18 cm, and 18-24 cm layers at 3.4%, 4.8%, and 4.4% of the applied, respectively. Diphacinone was not detected in any of the leachates collected from the four soil columns(2).

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: UN2588 (For reference only, please check.)
IMDG: UN2588 (For reference only, please check.)
IATA: UN2588 (For reference only, please check.)

UN Proper Shipping Name

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

Listed.

New Zealand Inventory of Chemicals (NZIoC)

Listed.

(PICCS)

Not 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

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.Do NOT take working clothes home.Isolate contaminated clothing by sealing in a bag or other container.