Chemical Safety Data Sheet MSDS / SDS

Dicofol 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: Dicofol

CAS: 115-32-2

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
Acute toxicity - Category 4, Dermal

Skin irritation, Category 2
Skin sensitization, Category 1
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
H315 Causes skin irritation
H317 May cause an allergic skin reaction
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.
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.
P332+P317 If skin irritation occurs: Get medical help.
P333+P317 If skin irritation or rash occurs: Get medical help.
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:	Dicofol
Common names and synonyms:	Dicofol
CAS number:	115-32-2
EC number:	204-082-0
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

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

Most important symptoms/effects, acute and delayed

Inhalation or ingestion causes nausea, headache, weight loss, convulsions, possible kidney and liver damage. Contact with eyes causes irritation. (USCG, 1999)

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

Observation. Persons exposed to high levels of organochlorine pesticides by any route should be observed for sensory disturbances, incoordination, speech slurring, mental aberrations, and involuntary motor activity that would warn of imminent convulsions. Solid organochlorine insecticides

SECTION 5: Firefighting measures

Suitable extinguishing media

If material involved in fire: Extinguish fire using agent suitable for type of surrounding fire. (Material itself does not burn or burns with difficulty.)

Specific hazards arising from the chemical

Special Hazards of Combustion Products: Irritating hydrogen chloride fumes may form in fire. Behavior in Fire: Xylene solvent vapors may travel to source of ignition and flash back. (USCG, 1999)

Special protective actions for fire-fighters

Use water spray, powder, foam, carbon dioxide. In case of fire: keep drums, etc., cool by spraying with water.

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

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

Environmental precautions

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

Methods and materials for containment and cleaning up

SRP: Wastewater from contaminant suppression, cleaning of protective clothing/equipment, or contaminated sites should be contained and evaluated for subject chemical or decomposition product concentrations. Concentrations shall be lower than applicable environmental discharge or disposal criteria. Alternatively, pretreatment and/or discharge to a POTW is acceptable only after review by the governing authority. Due consideration shall be given to remediation worker exposure (inhalation, dermal and ingestion) as well as fate during treatment, transfer and disposal. If it is not practicable to manage the chemical in this fashion, it must meet Hazardous Material Criteria 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

Separated from acids. Keep in a well-ventilated room.Store above 40 deg F, away from feed, foodstuffs, or any body of water.

SECTION 8: Exposure controls/personal protection

Control parameters

Occupational Exposure limit values

no data available

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 spectacles.

Skin protection

Protective gloves.

Respiratory protection

Use local exhaust or breathing protection.

Thermal hazards

no data available

SECTION 9: Physical and chemical properties and safety characteristics

Physical state:	Dicofol or kelthane is a white crystalline, wettable powder dissolved in a liquid carrier, (water). The primary hazard is the threat to the environment. Immediate steps should be taken to limit its spread to the environment. Since it is a liquid it can easily penetrate the soil and contaminate groundwater and nearby streams. It can cause illness by inhalation, skin absorption, and/or ingestion. It is used as a pesticide.
Colour:	Colorless solid
Odour:	Solids have slight characteristic odor
Melting point/freezing point:	78.5°C
Boiling point or initial boiling point and boiling range:	225°C
Flammability:	Combustible. Liquid formulations containing organic solvents may be flammable. Gives off irritating or toxic fumes (or gases) in a fire.

Lower and upper explosion limit/flammability limit:	no data available
Flash point:	228.8°C
Auto-ignition temperature:	986° F (USCG, 1999)
Decomposition temperature:	no data available
pH:	no data available
Kinematic viscosity:	no data available
Solubility:	less than 0.1 mg/mL at 72° F (NTP, 1992)
Partition coefficient n-octanol/water:	log Kow = 5.02
Vapour pressure:	4.64E-09mmHg at 25°C
Density and/or relative density:	1.45
Relative vapour density:	no data available
Particle characteristics:	no data available

SECTION 10: Stability and reactivity

Reactivity

Decomposes on burning. Decomposes on contact with acids. This produces toxic and corrosive fumes including hydrogen chloride.

Chemical stability

no data available

Possibility of hazardous reactions

Liquid solvent may be flammable.DICOFOL is an organochlorine bridged diphenyl. Halogenated aliphatic compounds are moderately or very reactive. Halogenated organics generally become less reactive as more of their hydrogen atoms are replaced with halogen atoms. Halogenated aliphatics are incompatible with strong oxidizing and reducing agents. Also, they are incompatible with many amines, nitrides, azo/diazo compounds, alkali metals, and epoxides. DICOFOL hydrolyzes in alkali. It is slightly corrosive to metals. Contact with steel at elevated temperatures causes formation of toxic gases. (NTP, 1992).

Conditions to avoid

no data available

Incompatible materials

Contact with steel at elevated temp causes formation of toxic chlorine & hydrogen chloride gases.

Hazardous decomposition products

Dangerous: when heated to decomposition ... they evolve highly toxic /hydrogen/ chloride fumes. chlorides

SECTION 11: Toxicological information

Acute toxicity

Oral: LD50 Rat oral 684-809 mg/kg

Inhalation: LC50 Rat inhalation >5 mg/L over 4 hrs

Dermal: LD50 Rabbit percutaneous 2100 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: Group C Possible Human Carcinogen

Reproductive toxicity

no data available

STOT-single exposure

The substance is irritating to the eyes and skin (technical grade). The substance may cause effects on the central nervous system, liver and kidneys.

STOT-repeated exposure

Repeated or prolonged contact with skin may cause dermatitis.

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: Lepomis macrochirus (Bluegill, weight 1 g); Conditions: freshwater, static, 18 deg C, pH 7.1, hardness 44 mg/L CaCO3; Concentration: 1050 ug/L for 24 hr (95% confidence interval: 889-1241 ug/L) /100% purity technical material

Toxicity to daphnia and other aquatic invertebrates: EC50; Species: Daphnia magna (Water flea, age 2-26 hr, adult); Conditions: freshwater, static; 80 ug/L for 24 hr (95% confidence interval: 71-90 ug/L); Effect: intoxication, immobilization /formulated product

Toxicity to algae: no data available

Toxicity to microorganisms: no data available

Persistence and degradability

AEROBIC: Dicofol, present at 100 mg/L, reached 0% of its theoretical BOD in 2 weeks using an activated sludge inoculum at 30 mg/L in the Japanese MITI test(1). Dicofol degraded with a half-life of 43 days in a silt loam soil(2). The major metabolites were 1,1-(p-chlorophenyl)-2,2-dichloroethanol, p,p'-DCBP, and 3-hydroxy-4,4'-dichlorobenzophenone(2). Volatile residues were 21-22% of the applied, and unextractable residues were 10-15% of the applied after 12 months(2). In a different study, the aerobic biodegradation half-life of dicofol in soil is expected to range from 259 to 348 days based upon a 300 day open bottle experiment with mixed soil (conducted indoors) and a 300 day open bottle experiment with surface soil (conducted outdoors), respectively(3).

Bioaccumulative potential

BCFs of 8200 and 6100 were measured in carp (Coprinus carpio) exposed for a 60 day incubation period at concns of 1.0 and 0.1 ug/L of dicofol, respectively(1). The BCF of dicofol was measured as 15,000, 18,900, 9,500 and 14,500 in fathead minnow at dicofol concns of 12.38, 1.15, 14.95 and 1.33 ppb, respectively(2). Dicofol residues accumulated in bluegill sunfish with BCFs of 6,600, 17,000, and 10,000 in fillet, viscera, and whole fish, respectively, during 28 days of exposure(3). The estimated elimination half-life was 33 days(3). BCFs in fish were reported as 8050-13,500 based on whole body weight(4). According to a classification scheme(5), these BCF values suggest the potential for bioconcentration in aquatic organisms is very high. In crop areas, the highest mean concns of dicofol measured in the biotic matrices were 1.4 ppm for small mammals (FL), 3.9 ppm for terrestrial invertebrates (CA), and 3.8 ppm for reptiles/amphibians (FL)(3). In non-crop areas, highest mean concns were 0.3 ppm for small mammals (NY), 0.76 ppm for terrestrial invertebrates (FL), 0.38 ppm for reptiles/amphibians (FL), 0.9 ppm for birds (FL), and 0.26 ppm for fish (FL)(3).

Mobility in soil

The Koc for dicofol is 8,383 in sand, 8,073 in sandy loam, 5,868 in silty loam, and 5,917 in clay loam(1). Other reported Koc values for dicofol are 7,207 in sand (0.2% organic matter, pH 6.5), 6,945 in sandy loam (1.6% organic matter, pH 5.8), 5,017 in silty loam (2.4% organic matter, pH 7.1), and 5,086 in clay loam (2.8% organic matter, pH 7.0)(2). Dicofol shows moderate to low mobility in batch equilibrium and column leaching studies, with little potential to leach to groundwater(3). In batch equilibrium studies, mobility of dicofol was moderate in sand (Koc of 5,868), and clay loam (Koc of 5,917) soil slurries(3). According to a classification scheme(4), these Koc values suggest that dicofol 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: Not dangerous goods. (For reference only, please check.)
IMDG: Not dangerous goods. (For reference only, please check.)
IATA: Not dangerous goods. (For reference only, please check.)

UN Proper Shipping Name

ADR/RID: Not dangerous goods. (For reference only, please check.)
IMDG: Not dangerous goods. (For reference only, please check.)
IATA: Not dangerous goods. (For reference only, please check.)

Transport hazard class(es)

ADR/RID: Not dangerous goods. (For reference only, please check.)
IMDG: Not dangerous goods. (For reference only, please check.)
IATA: Not dangerous goods. (For reference only, please check.)

Packing group, if applicable

ADR/RID: Not dangerous goods. (For reference only, please check.)
IMDG: Not dangerous goods. (For reference only, please check.)
IATA: Not dangerous goods. (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

Not 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

The appearance and physical properties of technical products can differ from those of the pure substance.Carrier solvents used in commercial formulations may change physical and toxicological properties.