Chemical Safety Data Sheet MSDS / SDS

Captafol 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: Captafol

CAS: 2425-06-1

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

Skin sensitization, Category 1
Carcinogenicity, Category 1B

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)

H317 May cause an allergic skin reaction
H350 May cause cancer
H410 Very toxic to aquatic life with long lasting effects

Precautionary statement(s)

Prevention

P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
P272 Contaminated work clothing should not be allowed out of the workplace.
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

P302+P352 IF ON SKIN: Wash with plenty of water/...
P333+P317 If skin irritation or rash occurs: 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:	Captafol
Common names and synonyms:	Captafol
CAS number:	2425-06-1
EC number:	219-363-3
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. Refer for medical attention .

Following eye contact

Rinse with plenty of water (remove contact lenses if easily possible). Refer for medical attention.

Following ingestion

Rinse mouth. Refer for medical attention .

Most important symptoms/effects, acute and delayed

Exposure Routes: inhalation, skin absorption, ingestion, skin and/or eye contact Symptoms: Irritation eyes, skin, respiratory system; dermatitis, skin sensitization; conjunctivitis; bronchitis, wheezing; diarrhea, vomiting; liver, kidney injury; high blood pressure

Target Organs: Eyes, skin, respiratory system, central nervous system, liver, kidneys, cardiovascular system (NIOSH, 2016)

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

1. Wash contaminated skin with soap & water. 2. Flush contaminated eyes with copious amounts of fresh water for 15 minutes. 3. Ingestions of small amounts (less than 10 mg/kg body weight) occurring less than an hour before treatment, are probably best treated by: a. Syrup of ipecac, followed by 1-2 glasses of water. B. Activated charcoal: ... after vomiting stops. C. Sodium or magnesium sulfate, as a cathartic. pesticides of low or moderate toxicity

SECTION 5: Firefighting measures

Suitable extinguishing media

Use water spray, foam, powder, carbon dioxide.

Specific hazards arising from the chemical

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

Special protective actions for fire-fighters

Use water spray, foam, powder, carbon dioxide.

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. Do NOT let this chemical enter the environment. 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.

Environmental precautions

Personal protection: particulate filter respirator adapted to the airborne concentration of the substance. Do NOT let this chemical enter the environment. 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.

Methods and materials for containment and cleaning up

Do NOT wash away into sewer. Sweep spilled substance into containers; if appropriate, moisten first to prevent dusting. Carefully collect remainder, then remove to safe place. (Extra personal protection: P3 filter respirator for toxic particles).

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 strong bases and food and feedstuffs. Store in an area without drain or sewer access.Provision to contain effluent from fire extinguishing. Separated from strong bases, food and feedstuffs.

SECTION 8: Exposure controls/personal protection

Control parameters

Occupational Exposure limit values

TLV: 0.1 mg/m3, as TWA; (skin); (SEN); A3 (confirmed animal carcinogen with unknown relevance to humans)

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 ventilation (not if powder), local exhaust or breathing protection.

Thermal hazards

no data available

SECTION 9: Physical and chemical properties and safety characteristics

Physical state:	Captafol is a white crystalline solid with a slight, but pungent odor. Mp: 162°C. Practically insoluble in water. Only slightly soluble in organic solvents. Technical captafol is a wettable light tan powder that is used as a fungicide. Inhaled dust irritates the respiratory tract. Irritates skin and damages eyes. Acute oral toxicity in humans is low. Not persistent in the environment (decomposes with a half-life of 11 days in the soil). Highly toxic to fish and other aquatic organisms.
Colour:	White, solid
Odour:	Slight, characteristic pungent odor.
Melting point/freezing point:	321° F (Decomposes) (NIOSH, 2016)
Boiling point or initial boiling point and boiling range:	365.7°C at 760 mmHg
Flammability:	Noncombustible Solid, but may be dissolved in flammable liquids.
Lower and upper explosion limit/flammability limit:	no data available
Flash point:	>100°C
Auto-ignition temperature:	no data available
Decomposition temperature:	no data available

pH:	no data available
Kinematic viscosity:	no data available
Solubility:	0.0001 % (NIOSH, 2016)
Partition coefficient n-octanol/water:	log Kow = 3.8
Vapour pressure:	1.54E-05mmHg at 25°C
Density and/or relative density:	1.64g/cm3
Relative vapour density:	(air = 1): 12
Particle characteristics:	no data available

SECTION 10: Stability and reactivity

Reactivity

NIOSH considers captafol to be a potential occupational carcinogen.
Decomposes on heating. This produces toxic and corrosive fumes including hydrogen chloride (see ICSC 0163), nitrogen oxides and sulfur oxides. Attacks metals.

Chemical stability

Slowly hydrolyzed in aqueous emulsion or suspension. Rapidly hydrolyzed in acidic and alkaline media. Decomposes slowly at the melting point.

Possibility of hazardous reactions

CAPTAFOL is non-flammable but, on heating, may decompose to generate toxic fumes, such as sulfur oxides, hydrogen sulfide, hydrochloric acid, and phosgene. Stable at room temperature when dry but readily hydrolysed, especially in an alkaline environment. Captafol and mixtures containing high concentrations of captafol may react violently with alkali. Incompatible with acids, acid chlorides, acid anhydrides, and strong oxidizing agents. Sulfhydryl compounds such as glutathione and cysteine cause a rapid chemical decomposition.

Conditions to avoid

no data available

Incompatible materials

Incompatible with highly alkaline materials.

Hazardous decomposition products

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

SECTION 11: Toxicological information

Acute toxicity

Oral: LD50 Rat oral 5,000-6,200 mg ai/kg

Inhalation: no data available

Dermal: LD50 Rabbit percutaneous >15,400 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

Evaluation: No data were available from studies in humans. There is sufficient evidence in experimental animals for the

carcinogenicity of captafol. In making the overall evaluation, the working group took into consideration the following supporting evidence: Captafol is active in a wide range of tests for genetic and related effects, including the generally insensitive in vivo assay for dominant lethal mutation. Overall evaluation: Captafol is probably carcinogenic to humans (2A).

Reproductive toxicity

no data available

STOT-single exposure

The substance is irritating to the eyes, skin and respiratory tract.

STOT-repeated exposure

Repeated or prolonged contact with skin may cause dermatitis. Repeated or prolonged contact may cause skin sensitization and allergic conjunctivities. Repeated or prolonged inhalation may cause asthma. The substance may have effects on the liver and kidneys. This substance is probably carcinogenic to humans.

Aspiration hazard

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

SECTION 12: Ecological information

Toxicity

Toxicity to fish: LC50 Rainbow trout 0.5 mg/l/96 hr /Conditions of bioassay not specified

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

In a laboratory incubation study with three kinds of soils under two moisture levels (field capacity and submergence) the biodegradation half-lives of difolatan ranged 23-55 days(1). The overall half-life of difolatan in soil is about 11 days, independent of soil type or initial concn(2). In soil, difolatan may be initially inhibitive to certain bacterial and microbial populations, but may be stimulative to certain bacterial populations(3,4). The inhibitory effect disappears in 7 days at a treatment level of 10 ppm(4). The rate of biodegradation was slowest in soil containing the highest organic carbon content(1,5).

Bioaccumulative potential

An estimated BCF of 170 was calculated for difolatan(SRC), using a log Kow of 3.80(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 altered physically or chemically after being released to the environment.

Mobility in soil

The adsorption coefficient, logKom, for difolatan based on soil organic matter has been reported as 3.08(1) and 3.09(2). Based on a relationship Kom = Koc/1.724(3), the Koc for difolatan would be 2073 and 2120, respectively. According to a classification scheme(4), these Koc values suggests that difolatan is expected to be slightly mobile 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: UN3077 (For reference only, please check.)
IMDG: UN3077 (For reference only, please check.)
IATA: UN3077 (For reference only, please check.)

UN Proper Shipping Name

ADR/RID: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (For reference only, please check.)
IMDG: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (For reference only, please check.)
IATA: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (For reference only, please check.)

Transport hazard class(es)

ADR/RID: 9 (For reference only, please check.)
IMDG: 9 (For reference only, please check.)
IATA: 9 (For reference only, please check.)

Packing group, if applicable

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

Not 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

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. The symptoms of asthma often do not become manifest until a few hours have passed and they are aggravated by physical effort. Rest and medical observation are therefore essential. Anyone who has shown symptoms of asthma due to this substance should avoid all further contact. Carrier solvents used in commercial formulations may change physical and toxicological properties. Do NOT take working clothes home.