Chemical Safety Data Sheet MSDS / SDS

Ethoprophos 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: Ethoprophos

CAS: 13194-48-4

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

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 3, Oral
Acute toxicity - Category 1, Dermal

Skin sensitization, Category 1
Acute toxicity - Category 2, Inhalation
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)

H301 Toxic if swallowed
H310 Fatal in contact with skin
H317 May cause an allergic skin reaction
H330 Fatal 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.
P262 Do not get in eyes, on skin, or on clothing.
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.
P260 Do not breathe dust/fume/gas/mist/vapours/spray.
P271 Use only outdoors or in a well-ventilated area.
P284 [In case of inadequate ventilation] wear respiratory 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/...
P316 Get emergency medical help immediately.

P361+P364 Take off immediately all contaminated clothing and wash it before reuse.
P333+P317 If skin irritation or rash occurs: Get medical help.
P362+P364 Take off contaminated clothing and wash it before reuse.
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P320 Specific treatment is urgent (see ... on this label).
P391 Collect spillage.

Storage

P405 Store locked up.
P403+P233 Store in a well-ventilated place. Keep container tightly closed.

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:	Ethoprophos
Common names and synonyms:	Ethoprophos
CAS number:	13194-48-4
EC number:	236-152-1
Concentration:	100%

SECTION 4: First aid measures

Description of necessary first-aid measures

If inhaled

Fresh air, rest. Artificial respiration may be needed. 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. Wear protective gloves when administering first aid.

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 immediately for medical attention.

Most important symptoms/effects, acute and delayed

This material is extremely toxic; the probable oral lethal dose for humans is 5-50 mg/kg, or between 7 drops and 1 teaspoonful for a 150 lb. person. It is a cholinesterase inhibitor which affects the nervous system. (EPA, 1998)

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

Airway protection. Ensure 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: Firefighting measures

Suitable extinguishing media

If material on fire or involved in fire: Do not extinguish fire unless flow can be stopped. Use water in flooding quantities as fog. 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, dry chemical or carbon dioxide. Organophosphorus pesticides, liquid, flammable, toxic; Organophosphorus pesticides, liquid, toxic

Specific hazards arising from the chemical

Non-Specific -- Organophosphorus Pesticide, Liquid, n.o.s.) Container may explode in heat of fire. Fire and runoff from fire control water may produce irritating or poisonous gases. Stable in water. Hydrolyzed in alkali. (EPA, 1998)

Special protective actions for fire-fighters

Use water spray, dry powder, carbon dioxide, alcohol-resistant foam. In case of fire: keep drums, etc., cool by spraying with water. NO direct contact with water.

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

Personal protection: complete protective clothing including self-contained breathing apparatus. Collect leaking and spilled liquid in sealable containers as far as possible. Absorb remaining liquid in sand or inert absorbent. Then store and dispose of according to local regulations. Do NOT let this chemical enter the environment.

Environmental precautions

Personal protection: complete protective clothing including self-contained breathing apparatus. Collect leaking and spilled liquid in sealable containers as far as possible. Absorb remaining liquid in sand or inert absorbent. Then store and dispose of according to local regulations. Do NOT let this chemical enter the environment.

Methods and materials for containment and cleaning up

Environmental considerations: Air spill: Apply water spray or mist to knock down vapors. Organophosphorus pesticides, liquid, flammable, toxic; Organophosphorus pesticides, liquid, toxic; Organophosphorus pesticides, solid, toxic

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. Store in an area without drain or sewer access. Ventilation along the floor.

SECTION 8: Exposure controls/personal protection

Control parameters

Occupational Exposure limit values

TLV 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:	Ethorop is one of a family of organophosphorus pesticides. It is combustible though it may require some effort to ignite. It is very toxic by skin absorption and inhalation. It may or may not be water soluble.
Colour:	Pale yellow liquid
Odour:	no data available
Melting point/freezing point:	-13°C

Boiling point or initial boiling point and boiling range:	86-91°C
Flammability:	Combustible. 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:	100°C
Auto-ignition temperature:	no data available
Decomposition temperature:	no data available
pH:	no data available
Kinematic viscosity:	no data available
Solubility:	Readily sol in most organic solvents
Partition coefficient n-octanol/water:	log Kow = 3.59 @ 21 deg C
Vapour pressure:	0.00111mmHg at 25°C
Density and/or relative density:	1.106g/cm3
Relative vapour density:	(air = 1): 8.4
Particle characteristics:	no data available

SECTION 10: Stability and reactivity

Reactivity

Decomposes at room temperature. This produces flammable n-propylmercaptan (see ICSC 1492). Decomposes on heating. This produces toxic fumes including phosphorus oxides and sulfur oxides.

Chemical stability

Very stable in neutral and weakly acidic media. Rapidly hydrolysed in alkaline media. Stable in water up to 100 deg C at pH 7.

Possibility of hazardous reactions

Organothiophosphates, such as ETHOPROPHOS, 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.

Conditions to avoid

no data available

Incompatible materials

Incompatible with alkaline materials.

Hazardous decomposition products

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

SECTION 11: Toxicological information

Acute toxicity

Oral: LD50 Rat oral (male) 61 mg/kg

Inhalation: no data available

Dermal: LD50 Rabbit percutaneous 26 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: 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. Exposure could cause death. 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.

SECTION 12: Ecological information

Toxicity

Toxicity to fish: LC50 Lepomis macrochirus (Bluegill) 2.07 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

During ethoprop metabolism studies, it was observed that ethoprop did not metabolize in sterilized soils, but did in nonsterile soils(1). Soil from ethoprop treated plots in the Midwestern US were studied to determine ethoprop persistence(1); half-lives of 5-12 days were observed at application rates of 1-2 lb/acre granular formulation(1); when applied as a liquid formulation to VA soil, half-lives of 3-4 days were observed(1). Addition of ethoprop to soil has been observed to stimulate microbial oxygen consumption(2). During 4-week soil incubation studies using 1-ethyl-14C-labeled ethoprop, (14)CO2 evolution ranged from 23.4 to 50.9% in soils having no previous organophosphorus exposure and soils having prior exposure to isofenphos and fonophos(3); (14)CO2 from ethoprop was greater in soil having no prior exposure to the other pesticides(3). Mineralization of ethoprop was found to occur faster in soils that had been treated previously with ethoprop as compared to no prior treatment indicating microbial adaptation(4); during a 1 wk incubation, 32.7% mineralized in previously treated soil and 19.9% mineralized in untreated soil(4). Faster biodegradation in previously ethoprop treated soils was also noted in another study(5); sterilization of soils drastically reduced disappearance rates of ethoprop(5). The soil half-life of ethoprop can range from 3 to 56 days(6). In various field studies, soil half-lives of 2-12 weeks were determined(7). In soil column studies, ethoprop had the following half-lives(8): in silty loam (12 days at 20 deg C to 89 days at 2 deg C), in sandy loam (16 days at 20 deg C to 144 days at 2 deg C), in humous loamy sand (73 days at 20 deg C to 347 days at 6 deg C)(8). The half-lives of ethoprop in sterile and non-sterile soil from a banana plantation in Jamaica, with heavy ethoprop use, were 28.8 and 10.9 days, respectively(9).

Bioaccumulative potential

Using an intermittent flow-through system, an ethoprop BCF range of 4 to 17 was measured in juvenile sheepshead minnow over a 28 day exposure period(1). According to a classification scheme(2), this BCF suggests the potential for bioconcentration in aquatic organisms is low(SRC).

Mobility in soil

In adsorption studies using silty clay loam, silt loam and two sandy loam soils, ethoprop adsorption was found to increase as soil organic matter increased(1); adsorption was to a great extent reversible indicating that the major interaction between ethoprop and the adsorptive surfaces was hydrophobic bonding(1); experimentally determined Koc values (values not reported) place ethoprop in the medium soil mobility class(1). The US Dept Agric's Pesticide Properties Database lists a Koc value of 70 for ethoprop(2). Koc values of 120.6 and 76.0 have been reported for Riverhead and Rhinebeck soils, respectively(3). According to a classification scheme(4), these Koc values suggest that ethoprop is expected to have high mobility 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: UN3018 (For reference only, please check.)
IMDG: UN3018 (For reference only, please check.)
IATA: UN3018 (For reference only, please check.)

UN Proper Shipping Name

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

Not Listed.

(PICCS)

Not Listed.

Vietnam National Chemical Inventory

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

Do NOT take working clothes home.The substance is combustible but no flash point is available in literature.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.Carrier solvents used in commercial formulations may change physical and toxicological properties.