

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 Fenamiphos

1.2 Other means of identification

Product number CCPD100391

Other names Fenamiphos PESTANAL(R),analytical standard; Caswell No. 453A; Nemacur P

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 2, Oral

Acute toxicity - Category 2, Dermal

Eye irritation, Category 2

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

2.2 GHS label elements, including precautionary statements

Pictogram(s)



Signal word

Danger

Hazard statement(s)

H300 Fatal if swallowed

H310 Fatal in contact with skin

H319 Causes serious eye irritation

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/...

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. P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. 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.

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
Fenamiphos	Fenamiphos	22224-92-6	244-848-1	100%

SECTION 4: First-aid measures

4.1 Description of necessary first-aid measures

If inhaled

Fresh air, rest. Artificial respiration may be needed. 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

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.

4.2 Most important symptoms/effects, acute and delayed

This material is highly toxic orally, by inhalation, and by absorption through the skin. (Non-Specific -- Parathion) Death may occur from respiratory failure. (EPA, 1998)

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

A comatose patient who is diaphoretic, has pinpoint pupils and the odor of an insecticide on clothing or breath, and is noted to have muscle fasciculations represents the classic presentation of organophosphate poisoning. ... Specific steps in management include the following. 1. Decontamination. ... 2. Airway. Establish an airway if necessary. ... 3. Respiratory Status. Respiratory distress, in fact, is commonly found in these patients from multiple causes. ... 4. Cardiac Monitoring. ... 5. Cholinesterase Level. ... 6. Pralidoxime. Pralidoxime is the treatment of choice for organophosphate poisoning and should be used for nearly all patients with clinically significant organophosphate poisoning, particularly those patients with muscular fasciculations and weakness. ... 7. Atropine. Atropine is the physiologic antidote for organophosphate poisoning. A trial dose of atropine should be instituted on clinical ground when one suspects organophosphate intoxication. Organophosphate poisoning

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. 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

5.2 Specific hazards arising from the chemical

Non-Specific -- Organophosphorus Pesticide, n.o.s.) Container may explode in heat of fire. Fire and runoff from fire control water may produce irritating or poisonous gases. Emits toxic fumes of nitrogen oxides, phosphorus oxides, and sulfur oxides when heated to decomposition. (EPA, 1998)

5.3 Special protective actions for fire-fighters

Use powder, foam, carbon dioxide.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal protection: chemical protection suit including self-contained breathing apparatus. Do NOT wash away into sewer. 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.

6.2 Environmental precautions

Personal protection: chemical protection suit including self-contained breathing apparatus. Do NOT wash away into sewer. 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.

6.3 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

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

Provision to contain effluent from fire extinguishing. Separated from food and feedstuffs. Well closed. Provision to contain effluent from fire extinguishing. Separated from food and feedstuffs. Well closed.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure limit values

TLV: 0.05 mg/m³, as TWA; (skin); A4 (not classifiable as a human carcinogen); BEI issued

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.

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	Fenamiphos is a brown waxy solid or colorless solid. Used as a nematocide. (EPA, 1998)
Colour	Colorless crystals
Odour	no data available
Melting point/freezing point	49°C
Boiling point or initial boiling point and boiling range	375.6°C at 760 mmHg
Flammability	Combustible. Liquid formulations containing organic solvents may be flammable.
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	less than 1 mg/mL at 69° F (NTP, 1992)
Partition coefficient n-octanol/water	log Kow = 3.23
Vapour pressure	7.67E-06mmHg at 25°C
Density and/or relative density	1.14
Relative vapour density	no data available
Particle characteristics	no data available

SECTION 10: Stability and reactivity

10.1 Reactivity

On combustion, forms toxic and corrosive gases.

10.2 Chemical stability

In laboratory conditions, fenamiphos is stable at pH 5-7.

10.3 Possibility of hazardous reactions

Flash point data for this compound are not available, however, it is probably combustible. Organothiophosphates, such as FENAMIPHOS, 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.

10.4 Conditions to avoid

no data available

10.5 Incompatible materials

May hydrolyze under alkaline conditions.

10.6 Hazardous decomposition products

When heated to decomposition it emits very toxic fumes of /phosphorous, nitric and sulfur oxides/.

SECTION 11: Toxicological information

Acute toxicity

- Oral: LD50 Mouse oral 22.7 mg/kg
- Inhalation: LC50 Rat inhalation 91 mg/cu m/ 4hr
- Dermal: no data available

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 E Evidence of Non-carcinogenicity for Humans

Reproductive toxicity

no data available

STOT-single exposure

The substance may cause effects on the nervous system. This may result in convulsions and respiratory failure. Cholinesterase inhibition. Exposure could cause death. The effects may be delayed. Medical observation is indicated.

STOT-repeated exposure

no data available

Aspiration hazard

Evaporation at 20°C is negligible; a harmful concentration of airborne particles can, however, be reached quickly on spraying or when dispersed, especially if powdered.

SECTION 12: Ecological information

12.1 Toxicity

- Toxicity to fish: LC50; Species: *Lepomis macrochirus* (Bluegill) weight 2.5 g; Conditions: freshwater, flow through; Concentration: 4.5 ug/L for 96 hr (95% confidence interval: 3.8-5 ug/L) /36% purity
- Toxicity to daphnia and other aquatic invertebrates: EC50; Species: *Daphnia magna* (Water flea); Conditions: flow through; Concentration: 1.9 ppb for 48 hr; Effect: immobilization /88.7% ai
- Toxicity to algae: EC50; Species: *Pseudokirchneriella subcapitata* (Green Algae) exponential growth phase; Conditions: freshwater, static, 25 deg C; Concentration: 38490 ug/L for 96 hr; Effect: population biomass, growth inhibition /100% purity
- Toxicity to microorganisms: no data available

12.2 Persistence and degradability

AEROBIC: Fenamiphos is rapidly degraded in soil by microbial processes(SRC). Within 21 days of field application, 74% of the initially applied fenamiphos was transformed to fenamiphos sulfoxide(1). Only trace quantities of fenamiphos were present after this time period (degradation rate of 0.33/day, half-life 2.1 days)(1). 55 Days following application of 14C-fenamiphos to control soil, 5.4% was fenamiphos, 54.6% was fenamiphos sulfoxide, 15.9% was fenamiphos sulfone, 5% was present as other products, 10.6% was present as volatiles and 14C-CO₂, and 8.5% was unextractable(1). Degradation half-lives for fenamiphos in four surface soils ranged from 6 to 11 days and 4 to 10 days in the same soils with subsurface collection (60-80 cm)(2). In soils exposed to repeated applications of fenamiphos, observed increased rates of degradation of fenamiphos were 10 to 20 times higher than untreated soil(3). Degradation rates of up to 35 ug/mg microbial carbon per week were observed for fenamiphos after 4 applications while for untreated soil the rate was 2 ug/mg microbial carbon per week(3). Soil which had received annual applications of fenamiphos for 15 yrs was able to degrade fenamiphos in one day versus three days for non-treated soil(4). Fenamiphos mineralization was <9% over 63 days measured in soils which had no prior application of fenamiphos(5). During a 70 day incubation period, 67.2, 27.8, and 9.8% of applied 14C-fenamiphos was mineralized in soil samples collected 2, 3, and 4 yrs after a previous field application, while 10.8, 11.5, and 9.5% of applied 14C-fenamiphos in the respective corresponding control samples was mineralized(6). In a laboratory incubation study, fenamiphos was reported to biodegrade with half-lives of 24 and 72 days for surface and subsurface soils, respectively, while the metabolites of fenamiphos were reported to biodegrade with half-lives of 26 and 119 days for surface and subsurface soils, respectively(7). In a related study, field half-lives for fenamiphos and its metabolites were reported to be 43 and 98 days, respectively(7). In a laboratory study, the half-lives of fenamiphos and its metabolites (total residues) in soils from temperate and tropic/subtropic regions were 72 and 55 days, respectively(8).

12.3 Bioaccumulative potential

Fenamiphos does not bioaccumulate in fish (species non-specified) to any appreciable extent and any residues taken up by fish are quickly depurated when fish are no longer exposed to the residues(1). After 28 days of exposure, the avg measured BCF were 21 and 61 for fillet and whole fish, respectively(1). The maximum BCF measured for fenamiphos residues were 89 for whole fish and 24 for fillet tissue(1). During the 14-day depuration period, more than 95% of the accumulated 14C-fenamiphos residues depurated(1). According to a classification scheme(2), BCFs ranging from 21 to 89(1) suggest that for bioconcentration in aquatic organisms is moderate(SRC). A BCF for fenamiphos of 468 was measured in earthworms(3).

12.4 Mobility in soil

Koc values of fenamiphos in an Arredondo sand (0.80% organic carbon; pH 6.8; 93.8% sand), a Cecil sandy loam (0.90% organic carbon; pH 5.6; 65.8% sand, 19.5% silt, 14.7% clay), and a Webster silty clay loam (3.97% organic carbon; pH 7.3; 18.4% sand, 45.3% silt, 38.3% clay) were 148, 197, and 249, respectively(1). In soil column leaching studies, fenamiphos was most strongly retained in the Webster soil(1). Fenamiphos had a measured Koc value of 190 in a Batcombe soil (3.53% organic matter; pH 6.1)(2). Adsorption of fenamiphos was measured in four surface and subsurface soils from Hawaii; Koc values were 94 to 344 (organic carbon content 1.3-6.22%; pH 5.3-6.7) measured in surface soil and values of 73 to 202 were measured in subsoil (60-80 cm below surface; organic carbon content 0.55-3.19%; pH 5.3-6.8)(3). A Koc of 370 was measured for Molokai silty clay loam (pH 5.8; 1.2% organic carbon)(4). Adsorption of fenamiphos was measured on five European soils; Koc values were 1686 in clay soil (1.3% organic matter), 178.5 in silt loam (3.7% organic matter), 218.5 in loam (3.45 % organic matter), 207.6 in silt (1.55% organic matter), and 935.7 in loamy sand (9.25% organic matter)(5). Fenamiphos had Koc values of 585 (75.0% clay, 3.29% organic carbon), 290 (22.6% clay, 2.39% organic carbon), 210 (17.0% clay, 3.32% organic carbon), 200 (20.3% clay, 1.36% organic carbon) and 1100 (6.0% clay, 4.43% organic carbon) in five European soils(6). According to a classification scheme(7), Koc values of 73 to 148(1,3) have high mobility in soil, Koc values ranging from 190 to 370(1-6) have moderate mobility in soil, and Koc values of 585 to 1686(5-6) have low mobility in soil, suggesting that mobility is very dependent on soil characteristics(SRC).

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
Fenamiphos	Fenamiphos	22224-92-6	244-848-1
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.
Philippines Inventory of Chemicals and Chemical Substances (PICCS)			Not Listed.
Vietnam National Chemical Inventory			Not Listed.
Chinese Chemical Inventory of Existing Chemical Substances (China IECSC)			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



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Depending on the degree of exposure, periodic medical examination is indicated. 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 solvent(s) also consult the card(s) (ICSC) of the solvent(s). Carrier solvents used in commercial formulations may change physical and toxicological properties. Do NOT take working clothes home.

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.