

## Chemical Safety Data Sheet MSDS / SDS

## Fenitrothion

Revision Date:2024-12-21 Revision Number:1

## SECTION 1: Identification of the substance/mixture and of the company/undertaking

## Product identifier

Product name : Fenitrothion  
CBnumber : CB5406210  
CAS : 122-14-5  
EINECS Number : 204-524-2  
Synonyms : FENITROTHION,MEP

## 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  
Address : Building 1, Huihuang International, Shangdi 10th Street, Haidian District, Beijing  
Telephone : 400-158-6606

## SECTION 2: Hazards identification

## Classification of the substance or mixture

Acute toxicity - Category 4, Oral  
Hazardous to the aquatic environment, short-term (Acute) - Category Acute 1  
Hazardous to the aquatic environment, long-term (Chronic) - Category Chronic 1

## Label elements

## Pictogram(s)

□□□□

Signal word Danger

## Hazard statement(s)

H225 Highly Flammable liquid and vapour  
H301 Toxic if swallowed  
H304 May be fatal if swallowed and enters airways  
H312 Harmful in contact with skin  
H315 Causes skin irritation  
H330 Fatal if inhaled

H336 May cause drowsiness or dizziness

H410 Very toxic to aquatic life with long lasting effects

#### **Precautionary statement(s)**

P210 Keep away from heat/sparks/open flames/hot surfaces. — No smoking.

P260 Do not breathe dust/fume/gas/mist/vapours/spray.

P273 Avoid release to the environment.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P331 Do NOT induce vomiting.

P301+P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.

P370+P378 In case of fire: Use ... for extinction.

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

P501 Dispose of contents/container to.....

#### **Prevention**

P264 Wash ... thoroughly after handling.

P270 Do not eat, drink or smoke when using this product.

P273 Avoid release to the environment.

#### **Response**

P301+P317 IF SWALLOWED: Get medical help.

P330 Rinse mouth.

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**

no data available

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## SECTION 3: Composition/information on ingredients

### **Substance**

Product name	: Fenitrothion
Synonyms	: FENITROTHION,MEP
CAS	: 122-14-5
EC number	: 204-524-2
MF	: C9H12NO5PS
MW	: 277.23

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## SECTION 4: First aid measures

### **Description of first aid measures**

**If inhaled**

Fresh air, rest. Half-upright position. 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. Induce vomiting (ONLY IN CONSCIOUS PERSONS!). Refer for medical attention .

**Most important symptoms and effects, both acute and delayed**

This compound is an organophosphate insecticide. It is a highly toxic cholinesterase inhibitor, that acts on the nervous system. Does not cause delayed neurotoxicity and contact produces little irritation. (EPA, 1998)

**Indication of any immediate medical attention and special treatment needed**

Basic Treatment: Establish a patent airway. Suction if necessary. Aggressive airway control may be needed. Watch for signs of respiratory insufficiency and assist ventilations if necessary. Administer oxygen by nonrebreather mask at 10 to 15 L/min. Monitor for pulmonary edema and treat if necessary . Monitor for shock and treat if necessary. Anticipate seizures and treat if necessary . For eye contamination, flush eyes immediately with water. Irrigate each eye continuously with normal saline during transport . Do not use emetics. For ingestion, rinse mouth and administer 5 ml/kg up to 200 ml of water for dilution if the patient can swallow, has a strong gag reflex, and does not drool. Administer activated charcoal . Organophosphates and related compounds

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## SECTION 5: Firefighting measures

**Extinguishing media**

Non-Specific -- Organophosphate Pesticide n.o.s.) Move containers from fire area if you can do so without risk. Fight fire from maximum distance. Dike fire control water for later disposal; do not scatter the material. Wear positive pressure breathing apparatus and special protective clothing. This compound is an organophosphate insecticide. Small fires: dry chemical, carbon dioxide, water spray, or foam. Large fires: water spray, fog or foam. (EPA, 1998)

**Specific Hazards Arising from the Chemical**

When heated to decomposition, it emits very toxic fumes of oxides of nitrogen, phosphorus and sulfur. Decomposition at 212-284F produces a mixture of organophosphorus polymers. Unstable in alkaline media. Stable for 2 years if stored at 68-77F. Do not store above 104F. (EPA, 1998)

**Advice for firefighters**

Use water spray, powder, foam, carbon dioxide.

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## SECTION 6: Accidental release measures

**Personal precautions, protective equipment and emergency procedures**

Personal protection: chemical protection suit including self-contained breathing apparatus. Absorb remaining liquid in sand or inert absorbent. Collect leaking liquid in covered containers. Then store and dispose of according to local regulations. Do NOT wash away into sewer. Do NOT

let this chemical enter the environment.

### Environmental precautions

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 wash away into sewer. Personal protection: chemical protection suit including self-contained breathing apparatus.

### Methods and materials for containment and cleaning up

Collect and arrange disposal. Keep the chemical in suitable and closed containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment. Adhered or collected material should be promptly disposed of, in accordance with appropriate laws and regulations.

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## 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. Keep in a well-ventilated room./Storage temperature should be less than 40 deg C on account of the tendency/ to isomerize.

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## SECTION 8: Exposure controls/personal protection

### Control parameters

#### Occupational Exposure limit values

Component	Fenitrothion			
CAS No.	122-14-5			
	Limit value - Eight hours		Limit value - Short term	
	ppm	mg/m <sup>3</sup>	ppm	mg/m <sup>3</sup>
Austria	?	1	?	?
Japan - JSOH	?	1	?	?
People's Republic of China	?	1	?	2 (1)
Poland	?	0,02	?	0,1
	Remarks			
People's Republic of China	(1) 15 minutes average value			

#### Biological limit values

no data available

### Exposure 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

### Eye/face protection

Wear face shield or eye protection in combination with breathing protection.

### Skin protection

Protective gloves. Protective clothing.

### Respiratory protection

Use ventilation, local exhaust or breathing protection.

### Thermal hazards

no data available

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## SECTION 9: Physical and chemical properties

### Information on basic physicochemical properties

Physical state	neat
Colour	Yellow-brown liquid
Odour	Phenolic odor
Melting point/freezing point	3.4°C
Boiling point or initial boiling point and boiling range	140-145°C (0.05 torr)
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	165.2°C
Auto-ignition temperature	no data available
Decomposition temperature	140-145°C
pH	no data available
Kinematic viscosity	no data available
Solubility	Readily soluble in dichloromethane, 2-propanol, toluene, hardly sol in n-hexane.
Partition coefficient n-octanol/water	log K <sub>ow</sub> = 3.30
Vapour pressure	1.5 x 10 <sup>-2</sup> Pa (20 °C)
Density and/or relative density	1.328 (20°C)
Relative vapour density	1.328 (20°C)
Particle characteristics	no data available

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## SECTION 10: Stability and reactivity

### Reactivity

Decomposes on heating and on burning. This produces toxic fumes including nitrogen oxides, phosphorus oxides and sulfur oxides.

### Chemical stability

It is hydrolyzed by alkali, in 10 m sodium hydroxide 50% loss occurs in 4.5 hr @ 30 deg c

### **Possibility of hazardous reactions**

Organophosphates, such as FENITROTHION, 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**

no data available

### **Hazardous decomposition products**

no data available

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## **SECTION 11: Toxicological information**

### **Acute toxicity**

- Oral: LD50 Rat (female) acute oral 800 mg/kg
- Inhalation: no data available
- Dermal: LD50 Rat (male) acute percutaneous 890 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 E Evidence of Non-carcinogenicity for Humans

### **Reproductive toxicity**

no data available

### **STOT-single exposure**

The substance is irritating to the eyes and skin. The substance may cause effects on the nervous system. This may result in convulsions, respiratory failure and death. Cholinesterase inhibition. The effects may be delayed. Medical observation is indicated.

### **STOT-repeated exposure**

Cholinesterase inhibition. Cumulative effects are possible. See Acute Hazards/Symptoms.

### **Aspiration hazard**

No indication can be given about the rate at which a harmful concentration of this substance in the air is reached on evaporation at 20°C.

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## **SECTION 12: Ecological information**

### **Toxicity**

Toxicity to fish: LC50 Rainbow trout 2.4 mg/l/96 hr, water 10 deg C (95% confidence limit 2.0-2.9 mg/l), wt 1.5 g. Static bioassay without aeration, pH 7.2-7.5, water hardness 40-50 mg/l as calcium carbonate and alkalinity of 30-35 mg/l. Technical material, 95%.

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**

The loss of fenitrothion was faster in non-sterile soil than sterile soil indicating degradation in soil was a combination of abiotic and microbial reactions(1). The rate of fenitrothion degradation in soil depended on pH, soil type, organic amendment, soil moisture content and pesticide concentration(1). The half-life was 1608 days in a non-sterile sandy loam soil containing 1,000 ppm fenitrothion at a soil pH 7.2 and moisture content of 50%(1). On the other hand, the biodegradation half-life was 13 days in a non-sterile clay loam soil containing 100 ppm fenitrothion at a soil pH 10 and moisture content of 50%(1).

### **Bioaccumulative potential**

There were no consistent differences in concn of fenitrothion in streamwater with depth, or between midstream and slow water at the stream edge. This was true of aq and oil-based formulations. A large portion of the fenitrothion was taken up by suspended material; in sediment, it was taken up mainly by the organic fraction. Concn of fenitrothion were above pre-spray values in most plants and insects sampled, and in some, above peak concn found in the water. Highest and most persistent residues were found in a livewort. Highest residues in an animal were found in black fly larvae, perhaps explained by their filter-feeding on suspended matter with high fenitrothion concn. Peak concn in plants and animals usually occurred at 6 or 24 hr postspray sampling times, and in all cases decr thereafter. Aminofenitrothion and fenitrooxon in sediments and 3-methyl-4-nitrophenol in plants and insects were seldom and inconsistently detected.

### **Mobility in soil**

Measured fenitrothion Koc values of 593 and 254 in Tsukuba and Kanuma soils(1) and 1531, 1201, 833, and 1061 in 4 rice soils(2) have been determined. According to a classification scheme(3), these Koc value suggests that fenitrothion is expected to have low to moderate mobility in soil. A study conducted on organic and silty clay loam soil, from the Boreal Forest in Ontario, Canada, indicate a maximum adsorption rate of 92 ug/g and 81 ug/g, respectively, in 30 hrs when fenitrothion-acetone is added to the soils(4). In the same experiment, studies with a buffer solution showed 38 and 48% desorption rate after 50 hrs extraction time(4).

### **Other adverse effects**

no data available

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## **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.

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## 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

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## 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.

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## **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](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**

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. Do NOT take working clothes home.

#### **Disclaimer:**

The information in this MSDS is only applicable to the specified product, unless otherwise specified, it is not applicable to the mixture of this product and other substances. This MSDS only provides information on the safety of the product for those who have received the appropriate professional training for the user of the product. Users of this MSDS must make independent judgments on the applicability of this SDS. The authors of this MSDS will not be held responsible for any harm caused by the use of this MSDS.