



SIGMA-ALDRICH

Material Safety Data Sheet

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Section 1 - Product and Company Information

Product Name: FENITROTHION, 250MG, NEAT
Product Number: 442592
Brand: Supelco Chemical
Company: Sigma-Aldrich
Street Address: 3050 Spruce Street
City, State, Zip, Country: SAINT LOUIS, MO 63103 US
Technical Phone: 800-325-5832
Fax: 800-325-5052
Emergency Phone: 314-776-6555

Section 2 - Composition/Information on Ingredient

Table with 5 columns: Substance Name, CAS #, SARA 313, EC no, Annex I Index Number. Row 1: FENITROTHION, 122-14-5, No, 204-524-2, 015-054-00-0

Formula: C9H12NO5PS
Synonyms: AC-47300, Accothion, Agria 1050, Agriya 1050, Agrothion, American cyanamid CL-47,300, Arbogal, BAY 41831, Bayer 41831, Bayer S 5660, Cekutrothion, CL 47300, CP 47114, m-Cresol, 4-nitro-, O-ester with O,O-dimethyl phosphorothioate, O,O-Dimethyl-O-(3-methyl-4-nitrophenyl)-monothiofosfaat (Dutch), O,O-Dimethyl-O-(3-methyl-4-nitro-phenyl)-monothiophosphat (German), Dimethyl 3-methyl-4-nitrophenyl phosphorothionate, O,O-Dimethyl O-(3-methyl-4-nitrophenyl) phosphorothionate, O,O-Dimethyl O-(3-methyl-4-nitrophenyl) phosphorothioate, O,O-Dimethyl O-(3-methyl-4-nitrophenyl) thiophosphate, O,O-Dimethyl-O-(4-nitro-5-methylphenyl)-thionophosphat (German), O,O-Dimethyl O-(4-nitro-3-methylphenyl)thiophosphate, O,O-Dimethyl O-4-nitro-m-tolyl phosphorothioate, Dimethyl 4-nitro-m-tolyl phosphorothionate, O,O-Dimethyl-O-(3-metil-4-nitrofenil) fosforotioato (Portugese), O,O-Dimetil-O-(3-metil-4-nitro-fenil)-monotiofosfato (Italian), EI 47300, ENT 25,715, Fenition, Fenitrothion, Fenitrotion (Hungarian), Folithion, Folithion EC 50, 8057HC, Insecligas F, Kotion, Macbar, MEP (pesticide), Metathion, Metathione, Metathion E 50, Metathionine, Metathionine E50, Metation, Metation E50, 3-Methyl-4-nitrophenyl dimethyl phosphorothioate, Methylnitrofos, Mglawik F, Monsanto CP 47114, Novathion, Nuvanol, Oleosumifene, Ovadofos, Owadofos, OMS 43, Pennwalt C-4852, Phenitrothion, Phosphorothioic acid, O,O-dimethyl O-(3-methyl-4-nitrophenyl) ester, S 5660, S 112A, Sumifene, Sumithion, Sumitomo S-1102A, Super Sumithion, Thiophosphate de O,O-dimethyle et de O-(3-methyl-4-nitrophenyle) (French), Tionofosforan O,O-dwumetylo-O-(3-metylo)-4-nitrofenyloxy (Polish), Verthion

Section 3 - Hazards Identification

Emergency Overview
Highly Toxic (USA) Very Toxic (EU). Dangerous for the environment. Harmful in contact with skin and if swallowed. Very toxic by inhalation. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. Cholinesterase inhibitor. Target organ(s): Central nervous system. Heart.

HMIS Rating
Health: 2\* Flammability: 1 Reactivity: 0

NFPA Rating
Health: 2 Flammability: 1 Reactivity: 0

\*additional chronic hazards present.
For additional information on toxicity, please refer to Section 11.

Section 4 - First Aid Measures

Oral Exposure
If swallowed, wash out mouth with water provided person is conscious. Call a physician immediately.
Inhalation Exposure
If inhaled, remove to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen.
Dermal Exposure
In case of skin contact, flush with copious amounts of water for at least 15 minutes. Remove contaminated clothing and shoes. Call a physician.
Eye Exposure
In case of contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.

Section 5 - Fire Fighting Measures

Flash Point: > 210 °F > 100 °C
Autoignition Temp: N/A
Extinguishing Media
Suitable
Water spray. Carbon dioxide, dry chemical powder, or appropriate foam.
Firefighting
Protective Equipment
Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.
Specific Hazard(s)
Emits toxic fumes under fire conditions.

Section 6 - Accidental Release Measures

Procedure to be Followed in Case of Leak or Spill
Evacuate area.
Procedure(s) of Personal Precaution(s)
Wear self-contained breathing apparatus, rubber boots, and heavy rubber gloves.
Methods for Cleaning Up
Sweep up, place in a bag and hold for waste disposal. Avoid raising dust. Ventilate area and wash spill site after material pickup is complete.

Section 7 - Handling and Storage

Handling
User Exposure
Do not breathe dust. Do not get in eyes, on skin, on clothing. Avoid prolonged or repeated exposure.

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**Storage**  
Suitable  
Keep tightly closed.

## Section 8 - Exposure Controls / PPE

**Engineering Controls**  
Safety shower and eye bath. Use only in a chemical fume hood.

**Personal Protective Equipment**  
**Respiratory**  
Government approved respirator.  
**Hand**  
Compatible chemical-resistant gloves.  
**Eye**  
Chemical safety goggles.

**General Hygiene Measures**  
Wash contaminated clothing before reuse. Wash thoroughly after handling.

Exposure Limits	Type	Value
Country	NDS	0.02 MG/M3
Poland	NDSch	0.1 MG/M3
Poland	NDSP	-

## Section 9 - Physical/Chemical Properties

Appearance	Physical State	Color
	Liquid	Yellow

**Molecular Weight:** 277.2 AMU

Property	Value	At Temperature or Pressure
pH	N/A	
BP/BP Range	109 °C	0.1 mmHg
MP/MP Range	N/A	
Freezing Point	N/A	
Vapor Pressure	N/A	
Vapor Density	N/A	
Saturated Vapor Conc.	N/A	
SG/Density	1.32 g/cm3	20 °C
Bulk Density	N/A	
Odor Threshold	N/A	
Volatile%	N/A	
VOC Content	N/A	
Water Content	N/A	
Solvent Content	N/A	
Evaporation Rate	N/A	
Viscosity	N/A	
Partition Coefficient	N/A	
Decomposition Temp.	N/A	
Flash Point °F	> 210 °F	
Flash Point °C	> 100 °C	
Explosion Limits	N/A	
Flammability	N/A	
Autoignition Temp	N/A	

**Solubility**  
**Solubility In Water:** Insoluble.  
**Other Solvents:** MOST ORGANIC SOLVENTS.

N/A = not available

## Section 10 - Stability and Reactivity

**Stability**  
**Stable**  
Stable.  
**Materials to Avoid**  
Strong oxidizing agents.

**Hazardous Decomposition Products**  
**Hazardous Decomposition Products**  
Carbon monoxide, Carbon dioxide, Phosphorous oxides, Sulfur oxides.

**Hazardous Polymerization**  
**Hazardous Polymerization**  
Will not occur.

## Section 11 - Toxicological Information

**Route of Exposure**  
**Skin Contact**  
May cause skin irritation.  
**Skin Absorption**  
May be harmful if absorbed through the skin.  
**Eye Contact**  
May cause eye irritation.  
**Inhalation**  
Material may be irritating to mucous membranes and upper respiratory tract. May be harmful if inhaled.  
**Ingestion**  
Harmful if swallowed.

**Target Organ(s) or System(s)**  
Central nervous system. Heart. Blood. Eyes.

**Signs and Symptoms of Exposure**  
Cholinesterase inhibitors can cause heavy salivation and secretion in the lungs, lachrymation, blurred vision, involuntary defecation, diarrhea, tremor, ataxia, sweating, hypothermia, lowered heart rate, and/or a fall in blood pressure as a result of their action at cholinergic nerve sites. Exposure can cause: Headache. Nausea. Vomiting. Dizziness. Drowsiness. Confusion. Weakness. Muscle cramps/spasms. Change in pupil size. Fever. Seizures. Incoordination. Convulsions. Coma.

**RTECS Number:** TG0350000

### Toxicity Data

Oral - Man: 429 UL/KG (LDLO)  
Remarks: Behavioral:Coma.  
Lungs, Thorax, or Respiration:Respiratory depression.  
Gastrointestinal:Other changes.

Oral - Rat: 250 mg/kg (LD50)

Inhalation - Rat: 378 mg/m3 (LC50)  
Remarks: Behavioral:Tremor,  
Behavioral:Muscle contraction or spasticity.  
Lungs, Thorax, or Respiration:Dyspnea.

Skin - Rat: 1002 mg/kg (LD50)

Intraperitoneal - Rat: 300 MG/KG (LD50)  
Remarks: Autonomic Nervous System:Other (direct) parasympathomimetic.

Lungs, Thorax, or Respiration:Fibrosis (interstitial).

Subcutaneous - Rat: 1300 MG/KG (LD50)

Intravenous - Rat: 33 MG/KG (LD50)

Remarks: Biochemical:Enzyme inhibition, induction, or change in blood or tissue levels: Reactivates cholinesterase.  
Lungs, Thorax, or Respiration:Dyspnea.  
Behavioral:Convulsions or effect on seizure threshold.

Intratracheal - Rat: 950 MG/KG (LD50)

Remarks: Autonomic Nervous System:Other (direct) parasympathomimetic.  
Behavioral:Tremor.  
Lungs, Thorax, or Respiration:Fibrosis (interstitial).

Oral - Mouse: 229 mg/kg (LD50)

Skin - Mouse: 2500 mg/kg (LD50)

Remarks: Biochemical:Enzyme inhibition, induction, or change in blood or tissue levels True cholinesterase.

Intraperitoneal - Mouse: 280 MG/KG (LD50)

Remarks: Biochemical:Enzyme inhibition, induction, or change in blood or tissue levels True cholinesterase.

Subcutaneous - Mouse: 1 GM/KG (LD50)

Remarks: Biochemical:Enzyme inhibition, induction, or change in blood or tissue levels True cholinesterase.

Intracerebral - Mouse: 1 GM/KG (LD50)

Oral - Cat: 142 mg/kg (LD50)

Skin - Rabbit: 1250 mg/kg (LD50)

Oral - Guinea pig: 500 mg/kg (LD50)

Intravenous - Guinea pig: 112 MG/KG (LD50)

Remarks: Biochemical:Enzyme inhibition, induction, or change in blood or tissue levels: Reactivates cholinesterase.  
Lungs, Thorax, or Respiration:Dyspnea.  
Behavioral:Convulsions or effect on seizure threshold.

Oral - Chicken: 280 mg/kg (LD50)

Remarks: Peripheral Nerve and Sensation:Flaccid paralysis without anesthesia (usually neuromuscular blockage).  
Behavioral:Somnolence (general depressed activity).  
Behavioral:Convulsions or effect on seizure threshold.

Oral - Quail: 56.2 mg/kg (LD50)

Oral - Duck: 1190 mg/kg (LD50)

Skin - Duck: 504 mg/kg (LD50)

Oral - Bird (wild): 11 mg/kg (LD50)

#### Chronic Exposure - Mutagen

<u>Species</u>	<u>Dose</u>	<u>Cell Type</u>	<u>Mutation test</u>
Human	40 MG/L	leukocyte	Cytogenetic analysis
Human	40 MG/L	lymphocyte	Cytogenetic analysis
Human	55400 UG/L	Embryo	Sister chromatid exchange
Hamster	200 MG/L	lung	Cytogenetic analysis
Hamster	277 MG/L	lung	Sister chromatid exchange

#### Chronic Exposure - Reproductive Hazard

<u>Species</u>	<u>Dose</u>	<u>Route of Application</u>	<u>Exposure Time</u>
Rat	90 MG/KG	Oral	(7-15D PREG)

Result: Effects on Newborn: Behavioral. Effects on Newborn: Other postnatal measures or effects.

### Section 12 - Ecological Information

N/A

#### Acute Ecotoxicity Tests

Test Type  
EC50 Algae

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Time: Value:  
96.0 h 1.1 - 2.2 mg/l

Test Type

EC50 Daphnia

Species

Daphnia magna

Time: Value:  
48.0 h 0.01 mg/l

Test Type

LC50 Fish

Species

Carassius auratus (Goldfish)

Time: Value:  
48.0 h 3.4 mg/l

Test Type

LC50 Fish

Species

Cyprinus carpio

Time: Value:  
96.0 h 15 mg/l

Test Type

LC50 Fish

Species

Onchorhynchus mykiss (Rainbow trout)

Time: Value:  
96.0 h 1.0 - 2.0 mg/l

Test Type

LC50 Fish

Species

Lepomis macrochirus (Bluegill)

Time: Value:  
96.0 h 2.5 - 4.3 mg/l

### Section 13 - Disposal Considerations

#### Appropriate Method of Disposal of Substance or Preparation

Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.  
Observe all federal, state, and local environmental regulations.

### Section 14 - Transport Information

#### DOT

Proper Shipping Name: Toxic, liquids, organic, n.o.s.

UN#: 2810

Class: 6.1

Packing Group: Packing Group III

Hazard Label: Keep away from food

PIH: Not PIH

#### IATA

Proper Shipping Name: Toxic liquid, organic, n.o.s.

IATA UN Number: 2810

Hazard Class: 6.1

Packing Group: III

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## Section 15 - Regulatory Information

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### EU Directives Classification

**Symbol of Danger:** Xn N

#### Indication of Danger

Harmful. Dangerous for the environment.

**Risk Statements** R: 22 50/53

Harmful if swallowed. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

**Safety Statements** S: 60 61

This material and its container must be disposed of as hazardous waste. Avoid release to the environment. Refer to special instructions/safety data sheets.

### US Classification and Label Text

#### Indication of Danger

Highly Toxic (USA) Very Toxic (EU). Dangerous for the environment.

#### Risk Statements

Harmful in contact with skin and if swallowed. Very toxic by inhalation. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

#### Safety Statements

After contact with skin, wash immediately with plenty of soap-suds. Wear suitable protective clothing and gloves. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). This material and its container must be disposed of as hazardous waste. Avoid release to the environment. Refer to special instructions/safety data sheets.

#### US Statements

Cholinesterase inhibitor, Target organ(s): Central nervous system, Heart.

### United States Regulatory Information

SARA Listed: No

### Canada Regulatory Information

#### WHMIS Classification

This product has been classified in accordance with the hazard criteria of the CPR, and the MSDS contains all the information required by the CPR.

DSL: No

NDSL: No

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## Section 16 - Other Information

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### Disclaimer

For R&D use only. Not for drug, household or other uses.

### Warranty

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. Sigma-Aldrich Inc., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale. Copyright 2007 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.