

Fenitrothion -MATERIAL SAFETY DATA SHEET

Manufacturer/information service:

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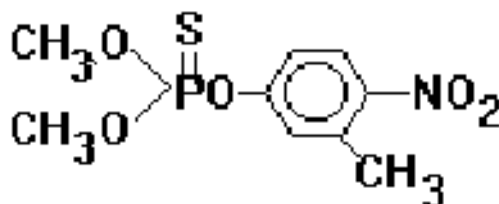
1. Chemical Product Identification

Product Name: Fenitrothion

Molecular Formula: C₉H₁₂NO₅PS

Molecular Weight: 277.2

Structural Formula:



Chemical Name: O,O-dimethyl O-4-nitro-m-tolyl phosphorothioate (IUPAC)

Form: liquid

Color: yellowish brown

Odor: with a special odor

CAS No.: 122-14-5

2. Composition / Information On Ingredients

Composition	CAS No.	Content %
Fenitrothion	122-14-5	95.0
Other ingredients		5.0

3. Hazards Identification

Ingredient (purity): 95% Min

Volume percent: None

TLV PPM: None

TLV mg/M³: None

LEL: None

Signal word: Caution

Toxicity Class III

Toxicity(Rat):Oral LD50 :20mg/kg

Dermal:2500mg/kg

4. First Aid Measures

Inhalation: Fresh air rest. Half-upright position. Artificial respiration if indicated. Refer for medical attention.

Skin: Remove contaminated clothes. Rinse and then wash skin with water and soap. Refer for medical attention.

Eyes: First rinse with plenty of water for several minutes (remove contact lenses if easily possible) then take to a doctor.

Ingestion: Rinse mouth. Induce vomiting (only in conscious person!). Refer for medical attention.

Notes for ICSC 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. Accothion Metathion Novathion Sumithion are trade names.

5. Fire-Fighting Measures

Extinguishing Media: Use National Fire Protection Association (NFPA) Class B extinguishers carbon dioxide, dry chemical for small fires. Water Spray or foam for larger fires.

Unusual fire and explosion hazards: In common with many organic Chemicals, including the majority of dyes and pigments in powder form.

Special fire fighting procedures: Firefighters should be equipped with self contained breathing apparatus to protect from potentially toxic and irritating fumes.

6. Accidental Release Measures

Personal cautions: safety glasses or goggles, rubber gloves, shoes plus socks, long-sleeved shirt, and long pants.

Cleaning methods

EX: clear the material in time. Transfer to a properly labeled deposit that will be closed and sealed until the recovery of elimination of the product.

Environmental cautions

EX: prevent the contamination of the floor and of beds of water.

7. Handling and Storage

Handling: Do not apply to humans, their clothing, or bedding.

Storage: store at normal temperatures. Away from children, feed, food.

8. Exposure Controls / Personal Protection

Personal protective equipment

Respiratory protection: Approved respirator

Protective gloves: Rubber gloves

Eye protection: Safety goggles or face shield.

Industrial hygiene: adequate ventilation.

9. Physical and Chemical Properties

Appearance and odor: brown oily liquid

Solubility: 14mg/L @ 25°C in water

Specific gravity (water=1): Not applicable

Bulk density: 1.32

Vapour pressure: 7.999×10^{-4} Pa @ 20°C

Boiling point: 140-145 °C

PH: 6.0-9.0

Volatility : 0.82mg/m³

Viscosity : 0.02Pa * s

10. Stability And Reactivity

Conditions to avoid: not Applicable

Products to avoid: not Applicable

Thermal decomposition: not Applicable

Hazardous decomposition not Applicable

Hazardous reaction: not Applicable

11. Toxicological Information

Teratogenic Effects: No teratogenic effects were observed in albino rabbits dosed with 0, 0.3 or 1 mg fenitrothion/kg/day in gelatine capsules on gestation days 6 through 18.

Mutagenic Effects: No mutagenic effects were seen in *Drosophila melanogaster* or mice.

Carcinogenic Effects: In a two-year feeding study in rats (50 males and 50 females), no dose-related increase in tumor incidence was found upon histopathological examinations of all group. Fenitrothion was administered in the diet to groups of 50 male and 50 female ICR Swiss mice at dose levels of 0, 30, 100 and 200 ppm for 78 weeks. There was no evidence of compound-related effects on appearance and behavior, body weight or mortality. Gross necropsies revealed no consistent compound-related changes in any organs or tissues. The histopathological examinations revealed no consistent treatment-related increase in tumor incidences.

12. Ecological And Ecotoxicological Information

Effects on Birds: Negative results were observed in studies on delayed neurotoxicity in hens. The oral LD50 for chickens was reported as 28 mg/kg. Fenitrothion was found to be highly toxic to upland gamebirds and slightly toxic to waterfowl (acute oral toxicity value to bobwhite quail and mallards was determined to be 23.6 mg/kg and 1,190 mg/kg, respectively). The LC50 for pheasants was 450 to 500 ppm in diets of 2-week-old birds when fed fenitrothion-treated feed for 5 days, followed by untreated feed for 3 days .

Effects on Aquatic Organisms: The time for achieving the highest levels of uptake and the extent of retention of organophosphate residues by fish was directly related to the extent of persistence of a compound in water. Mottosugo fish exposed to 0.6-1.2 mg/l of fenitrothion attained the highest body concentrations (162 mg/kg) after 3 days.

Fenitrothion (4.9 mg/kg) persisted longer than 4 weeks in fish. Fenitrothion is considered somewhat toxic to fish. The 96-hour LC50 was 1.7 ppm for brook trout and 3.8 ppm for bluegill sunfish; moderately toxic to both warmwater and coldwater fish. The 96-hour LC50 to various species of North American freshwater fish has also been reported as 2-12 micrograms/l. The chronic toxicity of fenitrothion to fish is considered low. The 48-hour LC50 values for carp ranged between 2.0 mg/l and 4.1 mg/l. One source stated that aerial spraying of fenitrothion at 2 or 3 oz/acre, on New Brunswick forests has been reported to have no deleterious effect on fish in streams in the treated area. In a study on the acute toxicity of fenitrothion to rainbow trout, embryos were found to be the least sensitive, the sac fry stage was intermediate, and fingerlings and adults were the most sensitive. The toxicity of fenitrothion to rainbow trout increased with increasing temperature. The sublethal effects of fenitrothion exposure on fish include.

Effects on Other Animals (Nontarget species): There is sufficient information to characterize fenitrothion as highly toxic to honeybees (acute toxicity value = 0.383 micrograms/bee) when bees are exposed to direct treatment or to dried residues on foliage . Fenitrothion is considered toxic to spider mites with long residual action. Fenitrothion, applied to host eggs at field rates in the laboratory were found to be highly toxic to *Trichogramma orasiliensis* released on the eggs, causing 84-100% mortality in 24 hours. The long-term effects of fenitrothion and phosphamidon were evaluated on

predaceous carabid beetles and lycosid spiders one year after treatment of Northwestern Ontario forests at 6 oz/A and 4 oz/A, respectively. The populations of these predators were clearly suppressed in the treated area. The results "did not imply a one year persistence of the insecticides, but rather a persistent disturbance of the ecosystem". The acute oral toxicity of fenitrothion to mule deer was reported to be 727 mg/kg.

13. Disposal Considerations

Product: dispose of in compliance with all state and local laws and regulation.

14. Transport Information

Not applicable.

15. Regulatory Information

Not applicable.

16. Other Information

All information and instructions provided in this Material Safety Data Sheet (MSDS) are based on the current state of scientific and technical knowledge at the date indicated on the present MSDS and are presented in good faith and believed to be correct. This information applies to the product as such. In case of new formulations or mixes, it is necessary to ascertain that a new danger will not appear. It is the responsibility of persons on receipt of this MSDS to ensure that the information contained herein is properly read and understood by all people who may use, handle, dispose or in any way come in contact with the product. If the recipient subsequently produce formulations containing this product, it is the recipient's sole responsibility to ensure the transfer of all relevant information from this MSDS to their own MSDS.