

Fenamiphos -MATERIAL SAFETY DATA SHEET

Manufacturer/information service:

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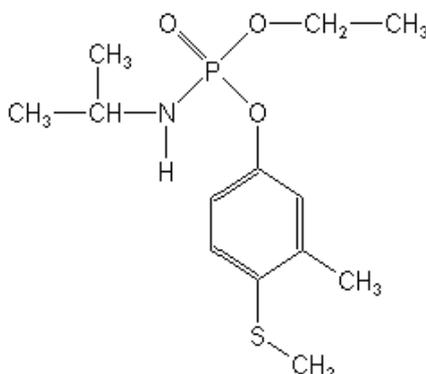
1. Chemical Product Identification

Product Name: Fenamiphos

Molecular Formula: C₁₃H₂₂NO₃PS

Molecular Weight: 303.4

Structural Formula:



Chemical Name: ethyl 4-methylthio-m-tolyl isopropylphosphoramidate

Form: granules

Color: Beige to brown

Odor: Weak characteristic

CAS No.: 22224-92-6

2. Composition / Information On Ingredients

Composition	CAS No.	Content %
Fenamiphos	22224-92-6	90.0
Other ingredients		10.0

3. Hazards Identification

Hazard classification: Hazardous

4. First Aid Measures

Skin contact: Immediately remove contaminated clothing. Wash skin with soap and water. Seek medical attention if irritation develops or persists. If signs of poisoning occur get medical attention immediately. Persons assisting the patient should protect themselves from contamination. If advised by doctor or Poisons Information Centre, atropine tablets may be administered.

Eye contact: Rinse eyes immediately with clean water for at least 15 minutes and obtain urgent medical aid, preferably from an eye specialist.

Ingestion: Wash out mouth with water. Keep patient at rest and seek urgent medical advice as above. Transport patient to doctor or hospital quickly. If advised by doctor or Poisons Information Centre, atropine tablets may be administered. Do not attempt to give anything by mouth to a semi-conscious or unconscious person.

First Aid Facilities: Provide eyewash and safety shower facilities in the workplace. Obtain an emergency supply of atropine tablets 0.6 mg.

5. Fire-Fighting Measures

Extinguishing media: Waterspray, carbon dioxide, dry chemical, foam.

Hazards from combustion products: In a fire, hydrogen cyanide, carbon monoxide, phosphorus pentoxide, sulphur dioxide and nitrogen oxides may be formed.

Precautions for fire fighters: Fire fighters should wear full protective gear, including self-contained breathing apparatus. Keep unnecessary people away and move all other personnel to windward side of fire. Isolate hazard area and deny entry. Consider evacuation, taking all relevant factors into account. In case of doubt, evacuate immediate vicinity and request emergency services assistance. Use water spray to cool fire-exposed containers. Bund area with sand or earth to prevent contamination of drains or waterways. Dispose of fire control water or other extinguishing agent and spillage safely later.

6. Accidental Release Measures

Avoid contact with the spilled material or contaminated surfaces. Do not smoke, eat or drink during the cleanup process. Personnel involved in cleanup should wear full body protective clothing and equipment as described in Section 8 –Personal Protection. Keep people and animals away. Consider evacuation and obtain assistance from emergency services if needed. Prevent spilled material from entering drains or watercourses. Contain spill and sweep up carefully. Avoid creating dust. Collect and store in recovery drums. Clean floor with detergent and water, absorbing wash water with clay granules and transfer this to the drum. Seal and label drums for safe disposal. Deal with all spillages immediately. If contamination of drains, streams, watercourses, etc. is unavoidable, warn the local water authority. Decontaminate tools, equipment and clothing used in the cleanup. Dispose of any heavily soiled clothing, placing it in disposal drum.

7. Handling and Storage

Handling: Keep out of reach of children. Very dangerous. Poisonous if absorbed by skin contact, inhaled or swallowed. Repeated minor exposures may have a cumulative poisoning effect. Avoid contact with eyes and skin. Do not inhale dust. After use and before eating, drinking or smoking, wash hands, arms and face thoroughly with soap and water. After each day's use, wash gloves, respirator and contaminated clothing with detergent and warm water.

Storage: Store in the closed, original container in a dry, cool, well-ventilated area out of direct sunlight. Store in a locked room or place away from children, animals, food, feedstuffs, seed and fertilisers.

8. Exposure Controls/Personal Protection

Wear full-face respirator with combined dust and gas cartridge. In enclosed spaces a respirator or hood with an independent air supply should be worn. Wear cotton overalls buttoned to the neck and wrist, a washable hat and impervious footwear. Wear elbow-length PVC gloves. Keep working clothes separate. Remove soiled clothing immediately and wash separately from other laundry.

9. Physical and Chemical Properties

Water Solubility: 700 mg/L @ 20 °C

Solubility in Other Solvents: s. in dichloromethane, isopropanol, and toluene

Melting Point: 46°C (technical)

Vapor Pressure: 0.12 mPa @ 20 °C

Partition Coefficient: Not Available

Adsorption Coefficient: 100

10. Stability and Reactivity

Chemical stability: Stable under normal conditions of use.

Conditions to avoid: Extreme heat

Incompatible materials: Oxidizing agents, bases

Hazardous decomposition: In a fire, phosphorus pentoxide, sulphur dioxide, carbon monoxide, and nitrogen oxides may be formed.

11. Toxicological Information

Oral toxicity: LD50 rat: 26 mg/kg

Dermal toxicity: LD50 rat: > 5000 mg/kg

Inhalation toxicity: LC50 (4 h) rat: 44 mg/m³

Skin irritation: Non irritant (rabbit)

Irritation to mucous membranes: Slightly irritating (rabbit)

Mutagenic effects: A number of studies evaluating the mutagenic potential of fenamiphos have all shown the compound to be nonmutagenic. The test subjects included bacterial cells and male mice.

Carcinogenic effects: Two studies, one conducted with mice and the other with rats, indicated that fenamiphos is not carcinogenic. One study was conducted for 1 1/2 years at very high levels (up to 7.5 mg/kg/day in mice) and the other study was conducted over 2 years (up to 1.5 mg/kg/day in rats).

Organ toxicity: Target organs identified in studies of test animals and exposed workers are the central nervous system, heart, lungs, and thyroid.

12. Ecological and Ecotoxicological Information

Effects on birds: Fenamiphos is very highly toxic to birds, with a reported acute oral LD50 for the most sensitive species tested, the ring-necked pheasant, of 0.5 mg/kg. LD50 values for other species range from 1.0 to 2.4 mg/kg, all of which indicate that this is a very highly toxic compound. In a controlled experiment, fenamiphos was determined to be the most toxic of thirteen different cholinesterase inhibitors. In tests with wild songbirds (red-winged blackbirds and house sparrows) an unspecified dose of Nemacur was highly toxic to these species, with death of the birds occurring within an hour of eating the granules.

Effects on aquatic organisms: The toxicity of fenamiphos to aquatic species varies from moderate to high. Bluegill sunfish are extremely sensitive to the presence of the compound. The LC50 for fenamiphos is 9.6 mg/L in this species. Other species tested include the rainbow trout (LC50 is 0.11 mg/L) and the goldfish (LC50 is 3.2 mg/L). The compound is not expected to bioaccumulate appreciably in aquatic organisms.

Effects on other organisms: Fenamiphos is practically nontoxic to honeybees.

13. Disposal Considerations

When disposing, ensure plastic bag is empty. Puncture and bury it in a local authority landfill. If no landfill is available, bury below 500 mm in a disposal pit specifically marked and set up for this purpose clear of waterways, desirable vegetation and tree roots. Empty containers and product should not be burnt. Dispose of waste product as hazardous waste via a licensed disposal contractor to an approved landfill. Do not discharge into drains or sewers.

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 recipients sole responsibility to ensure the transfer of all relevant information from this MSDS to their own MSDS.