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READ THE ENTIRE LABEL BEFORE USING THIS PRODUCT.

USE ONLY IN ACCORDANCE WITH INSTRUCTIONS.

KEEP OUT OF REACH OF CHILDREN

FENATAACK 40 EC

INGREDIENTS

Fenamiphos.....40%
Other ingredients60%

FENATAACK is an organophosphorous nematicide against the major genera of nematodes attacking field crops, vegetables and turf. It is a compound with high nematicidal activity, and can be applied broadcast, in-the-row, in band, by drench, before or at planting time, or to established plants. Complete soil incorporation is not essential.

FENATAACK is a broad-spectrum nematicide with good plant tolerance to many field, vegetable, and fruit crops. Presently registered for control of the major genera of nematodes attacking.

FENATAACK is available in 40% emulsifiable concentrate, and 10% and 15% granular formulations.
Packing 1 litre bottle, 1 kg aluminium sachet

FENATAACK can be used on field, vegetable and fruit crops, cotton, peanuts, soybeans, cabbage, brussels sprouts, bananas, turf grasses, and non-bearing fruit trees, and turf.

Trade Names Of Other Firms: Trade names for products containing Fenamiphos include Nemacur.

What is FENATAACK and how does it work?

FENATAACK contains as its active ingredient, Fenamiphos. It is a systemic and contact poison, with nematicidal activity against endoparasitic, ectoparasitic, cyst forming and root-knotting species belonging to the genera *Belonolaimus*, *Criconemoides*, *Helicotylenchus*, *Hemicycliophora*, *Heterodera*, *Meloidogyne*, *Paratylenchus*, *Pratylenchus*, *Radopholus*, *Rotylenchus*, *Trichodorus*, *Tylenchorynchus*, *Tylenchulus*, and *Tylenchus* species.

Results also indicate that FENATAACK is active against golden nematodes (*Heterodera*

rostochiensis) infesting potatoes. Preliminary data indicate that FENATAACK is systemically active against aphids, mites, thrips, fleahoppers, mealybugs, and adult cucumber beetles.

Excellent insecticidal and acaricidal activity has also been noted with foliar applications of Nemacur on a broad spectrum of field and vegetable crops.

Key Benefits of FENATAACK 40 EC:

1. Broad spectrum insecticide with excellent nematicidal activity
2. Trusted performance. Reliable.
3. Used worldwide over many years by major partners.

PRECAUTIONS

Harmful if swallowed, inhaled or absorbed through skin. Causes eye irritation. Avoid contact with skin, eyes or clothing. Avoid breathing dust or vapor. Wash thoroughly with soap and water after handling. Remove contaminated clothing and wash before reuse. Keep children or pets away from treated area until dry.

SYMPTOMS OF POISONING

Irritation on skin or eyes.

MEDICAL TREATMENT

Treatment is symptomatic.

FIRST AID

If on skin, remove contaminated clothes. Rinse and then rinse skin immediately with plenty of water and soap for 15-20 minutes. Call a poison control centre or doctor for treatment advice.

If inhaled, move person for fresh air. If person is not breathing, call for an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a poison control centre or doctor for further treatment advice.

If in eyes, first hold eye open and rinse with plenty of water for 15-20 minutes (remove contact lenses if easily possible). Call poison control center or doctor for treatment advice.

If ingested, call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do NOT induce vomiting unless told to do so by poison control center or doctor. Do not give anything to an unconscious person.

DIRECTIONS OF USE

Crop	G ai/ha
Ornamentals	0.05 kg ai/ha
Banana	2.5 – 3 g ai
Tomato	30 ppm ai

DISPOSAL METHODS

Do not dispose of undiluted chemicals on site. If recycling, replace cap and return clean containers to recycler or designated collection point. If not recycling, break, crush, or puncture and bury empty containers in a local authority landfill. If no landfill is available, bury the containers 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.

STORAGE CONDITION

Store in the closed, original container in a cool, well-ventilated area. Do not store for prolonged periods in direct sunlight. Store in a locked room or place away from children, animals, food, feedstuffs, seed and fertilizers. Triple or preferably pressure rinse containers before disposal. Add rinsing to spray tank.

For More Details including effects on environment email contact@ivorychem.com with Subject "FENATAACK DETAILS"

More Details:

TOXICOLOGICAL EFFECTS

- **Acute toxicity:** Fenamiphos is highly toxic via the oral route, with reported LD50 values of 2 to 19 mg/kg in the rat and 56 to 100 mg/kg in guinea pigs. It is also highly toxic to dogs and rabbits [8,13]. The acute dermal toxicity of the compound is also high, with reported dermal LD50 values of 72 to 154 mg/kg in rats [8,13]. The inhalation toxicity of the compound is also high, with reported inhalation LC50 values in rats of 0.11 to 0.17 mg/L [8,13]. Longer exposures at moderately lower concentrations also caused rat mortality [8]. The compound has the potential to cause significant eye damage at acute exposure levels. It is nonirritating to the skin [13]. Symptoms of acute toxic exposure to the nematicide are consistent with those of other organophosphate compounds and include difficulty in breathing, diarrhea, urination, and slowness of the heart. Other symptoms include muscle twitching and tremors [8,13].
- **Chronic toxicity:** A number of long-term feeding studies have been conducted with this compound on several different species of animals. In dogs, dietary doses of 0.0125 to 0.25

mg/kg/day over 2 years produced depressions in cholinesterase activity at middle doses and above. No effects were noted in the liver or in blood chemistry even at the highest dose [8]. Rats exposed to 1.5 mg/kg/day over 2 years experienced increases in thyroid gland and lung weights in females, and increased heart weight in males. There were no organ weight changes noted in the rats at doses below 0.5 mg/kg/day [64]. Brain weights have also been affected by exposure to moderate amounts of the compound [8]. Two studies have been conducted on the potential risk to pesticide workers (loaders and applicators) from the use of Nema-cur. One study concluded that occupational exposure levels were more than 100 times lower than the level which causes cholinesterase inhibition in animals and thus the use of the compound did not pose a significant risk to the users [8]. Another study concluded that the main threat to applicators was through the skin on the hands. However, the levels of exposure on the hands were significantly below the level that had caused chronic toxicity in mice. It was concluded that the pesticide could be used safely [65].

- **Reproductive effects:** Both male and female rats fed moderate to high doses of fenamiphos (0.15 to 1.5 mg/kg/day) over three generations showed no compound-related reproductive effects at the middle doses tested (0.5 mg/kg/day). At the higher doses the second generation of pups showed a decrease in body weight gain. This effect was not seen in the third generation [64]. It is unlikely that this compound would cause reproductive effects in humans.
- **Teratogenic effects:** A single study of pregnant rats fed fenamiphos during gestation over a range of doses (up to 1 mg/kg/day) showed a decrease in the maternal weight at doses of 0.3 mg/kg/day and above. At the highest dose a higher number of the pups from the exposed group had died relative to the unexposed controls, and the pups which survived had decreased weights [64]. In tests with pregnant rabbits fed up to 0.4 mg/kg, no birth defects were noted [8]. However, another reference stated that teratogenic studies were positive in rabbits, though the effects in the offspring were induced at doses much higher than those that cause maternal toxicity [8]. The results from

these studies suggest that teratogenic effects in humans are unlikely.

- **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 [8,64].
- **Carcinogenic effects:** Two studies, one conducted with mice and the other with rats, indicated that fenamiphos is not carcinogenic [8,64]. 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) [64].
- **Organ toxicity:** Target organs identified in studies of test animals and exposed workers are the central nervous system, heart, lungs, and thyroid.
- **Fate in humans and animals:** Fenamiphos is readily absorbed through the digestive tract and lungs. One study placed the amount absorbed near 95% of the ingested dose. The compound is rapidly broken down within the organism, and the by-products are excreted in the urine. The majority of a dose was recovered in urine within 15 hours after treatment [65].

ECOLOGICAL EFFECTS

- **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 [6]. 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 [6]. In a controlled experiment, fenamiphos was determined to be the most toxic of thirteen different cholinesterase inhibitors [66]. In tests with wild songbirds (red-winged blackbirds and house sparrows) an unspecified dose of Nema-cur was highly toxic to these species, with death of the birds occurring within an hour of eating the granules [66].
- **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) [8]. The compound is not expected to

bioaccumulate appreciably in aquatic organisms [6].

- **Effects on other organisms:** Fenamiphos is practically nontoxic to honeybees [8].

ENVIRONMENTAL FATE

- **Breakdown in soil and groundwater:** Fenamiphos is of moderate persistence in the soil environment, with a reported soil half-life of about 50 days [19]. The compound appears to have no effect on the activity of soil bacteria [8]. Aerobic processes are most important for breakdown of the compound. Fenamiphos is not strongly adsorbed to soils [19], but neither it nor its breakdown products have been found in over 1200 wells tested in six states.
- **Breakdown in water:** Fenamiphos disappears quickly from water in acidic and alkaline water, but it is stable in neutral water when held in the dark. The compound, when in the presence of artificial light, disappears very rapidly. In a neutral solution, half of the initial amount of the compound degraded within 4 hours.
- **Breakdown in vegetation:** In plants, the compound is absorbed through the roots and translocated to the leaves. It is broken down within the plant. The products of its breakdown are relatively persistent and can also inhibit cholinesterase [6].

PHYSICAL PROPERTIES AND GUIDELINES

Physical Properties:

- **Appearance:** Fenamiphos is a colorless crystal in its pure form, or a tan waxy solid in the technical form [13].
- **Chemical Name:** ethyl 4-methylthio-m-tolyl isopropylphosphoramidate [13]
- **CAS Number:** 22224-92-6
- **Molecular Weight:** 303.40
- **Water Solubility:** 700 mg/L @ 20 C [13]
- **Solubility in Other Solvents:** s. in dichloromethane, isopropanol, and toluene [13]
- **Melting Point:** 46 C (technical) [13]
- **Vapor Pressure:** 0.12 mPa @ 20 C [13]
- **Partition Coefficient:** Not Available
- **Adsorption Coefficient:** 100 [19]

Exposure Guidelines:

- **ADI:** 0.005 mg/kg/day [38]

- **MCL:** Not Available
- **RfD:** 0.00025 mg/kg/day [53]
- **PEL:** Not Available
- **HA:** 0.002 mg/L (lifetime) [64]
- **TLV:** 0.1 mg/m³ (8-hour) (skin) [47]



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