124101
SHAUGHNESSEY NO.

28
REVIEW NO.

EEB BRANCH REVIEW

DATE: IN 9-13-83 OUT 11/1/83

FILE OR REG. NO. 3125-236

PETITION OR EXP. PERMIT NO.

DATE OF SUBMISSION 8-17-83

DATE RECEIVED BY HED 9-9-83

RD REQUESTED COMPLETION DATE 11-10-84

EEB ESTIMATED COMPLETION DATE 11-6-83

RD ACTION CODE/TYPE OF REVIEW 335/Amendment

TYPE PRODUCT(S): I, D, H, F, N, R, S Insecticide/Nematicide

DATA ACCESSION NO(S).

PRODUCT MANAGER NO. H. Jacoby (21)

PRODUCT NAME(S) Nemacure 15G

COMPANY NAME Mobay Chemical Corporation

SUBMISSION PURPOSE Proposed conditional registration of Okra use

SHAUGHNESSEY NO.	CHEMICAL, & FORMULATION	% A.I.
100601	Fenamiphos	15.0

6 pages

Pesticide Name Nemacur

100 Pesticide Label Information

100.1 Pesticide Use

Nemacur 15G is currently registered for control of nematodes in cotton, peanuts and other crops. The purpose of this amendment is to add the use of Nemacur on okra under the IR-4 program.

100.2 Formulation Information

Active ingredient:
Fenamiphos.....15%
Inert Ingredients: 85%

100.3 Application Methods, Directions, Rates

See attached label amendment

100.4 Target Organisms

Nematodes.

100.5 Precautionary Labeling

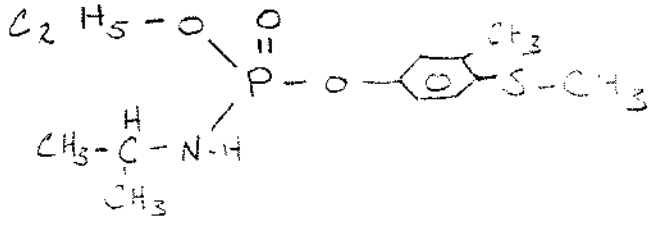
This product is toxic to fish and wildlife.
Keep out of lakes, streams or ponds.
Birds feeding on treated areas may be killed.

101 Physical and Chemical Properties

101.1 Chemical Name

Ethyl 3-methyl-4-(methylthio) Phenyl (1-methylethyl) Phosphoramidate

101.2 Structural Formula



101.3 Common Name

Fenamiphos

101.4 Trade Name

Nemacur

101.5 Molecular Weight

303

101.6 Physical State

Tan, waxy solid

101.7 Solubility

Water = 400 ppm

102 Behavior in the Environment

102.1 Soil

Nemacur adsorbs to soil particles but can leach in soils which have a low adsorption coefficient. These would tend to be light soils with less organic matter or fine clay particles. Nemacur generally converts to sulfoxide and sulfone phenols within 3 weeks, but residues of Nemacur (@ 20 lbs. a.i.) and its metabolites have been found in a soil sample 2 years after the last application. These residues were noted to be tightly bound to soil particles in heavier soils. Hydrolysis is not a mode of soil degradation as Nemacur binds to soil molecules, and this can allow for some runoff to occur.

102.2 Water

The 1/2 - Life of Nemacur in water (pH. 7) was noted to be about 5 days. The degradation products of hydrolysis were not identified.

102.3 Plant

Nemacur and its soil metabolites sulfoxide and sulfone are absorbed by plants. The matabolites undergo further thiooxidation, followed by hydrolysis. Sulfoxide and sulfone phenols consitute the major residue in plants, perhaps as much as 10x the level of the original cholinesterase inhibitor. These Phenols seem to bear similarity to the hydrolysis products of fenthion. It should also be noted here that technical Nemacur is comprised of impurities [redacted] Information on photodegradation is not available.

103 Toxicological Properties

103.1 References from Toxicology Branch

Species	Test	Result
Rat	$AOLD_{50}$	2.7 mg/kg

INFORMATION ON IMPURITIES (MANUFACTURING INFORMATION) IS NOT INCLUDED

103.2 Minimum Requirements

103.22.1 Avian Acute Oral LD50

Species	Material	LD50	Category
Bobwhite quail	90% a.i.	1.0 mg/kg	N/A
Bobwhite quail	15% granular	2.4 mg/kg (Corrected for a.i.)	N/A

103.2.2 Avian Dietary LC50

Species	Material	LC50	Category
Bobwhite quail	88% a.i.	36 ppm	Core
Mallard duck	88% a.i.	316 ppm	Core
Japanese quail	Tech.	59 ppm	Supplemental

103.2.3 Fish Acute LC50

Species	Material	LC50	Category
Rainbow trout	88% a.i.	72.1 ppb	Core
Bluegill sunfish	88% a.i.	17.7 ppb	Core
Bluegill sunfish	88% a.i.	9.5 ppb	Core
Bluegill sunfish	Sulfoxide	2653 ppb	Core
Bluegill sunfish	Sulfone	1173 ppb	Core

103.2.4 Aquatic Invertebrate EC50

Species	Material	EC50	Category
Daphnia magna	88% a.i.	1.6 ppb	Supplemental

104 Hazard Assessment

104.1 Discussion

Nemacur is registered on a few large acreage crops (i.e., soybeans, cotton, peanuts) and the proposed amendment would add a small faction in okra. Total acreage of okra grown in the U.S. probably amounts to less than 5000 acres. Nemacur is applied preplant and incorpoated at a use rate of 40 lbs/acre 15G (6 lbs. a.i.).

104.2 Likelihood of Adverse Effects to Non-Target Organisms

Nemacur is an organophosphorous nematicide which is very highly toxic to wildlife and aquatic organisms. It degrades to toxic sulfone and sulfoxide metabolites which affords additional protection for plants because these products are picked up systemically by plants and are more persistent than the parent.

Applications of Nemacur 15G to okra fields would result in granular residues sufficient to pose acute avian risks. After incorportion, granular exposure of 1.25 mg/ft^2 of active ingredient would occur. This level is sufficient to result in avian and mammalian mortality; with 0.2 mg/bird and 0.143 mg/small mammal (white-footed mouse) being sufficient to kill.

Runoff from treated fields could threaten aquatic areas, but okra tends to be grown in small acreage plots usually less than 10 acres.

The risks posed by the okra amendment are considered insignificant in relation to the current registrations of Nemacur.

104.3 Endangered Species

No endangered species have been indentified which would be exposed to Nemacur used on okra.

107. Conclusions

The Ecological Effects Branch has completed an incremental risk assessment (3(c)(7) finding) of the proposed conditional registration of Nemacur 15G for use on okra. Based upon the available data EEB concludes that the proposed use provides for no significant increase in exposure or risks to non-target organisms.

11-3-83
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YLD4

U.S. LABEL

Reason to Issue: To add label claims for okra.

Date of Draft: 8/1/83 (Pre-Reg) (B)

EPA Reg. No. 3125-236-AA

®NEMACUR
15% Granular
SYSTEMIC NEMATICIDE

ACTIVE INGREDIENT:
Ethyl 3-methyl-4-(methylthio)phenyl
(1-methylethyl)phosphoramidate 15%

AMENDMENT

To Previously Registered Labeling

Add the Following:

RECOMMENDED APPLICATIONS

CROP	PEST	DOSAGE NEMACUR 15% GRANULAR BAND: OZS./ 1000 ft of row	DOSAGE NEMACUR 15% GRANULAR BROADCAST: LBS/ACRE	REMARKS
Okra	Nematodes	14.7 to 18.4 oz. (or 13.4 to 16.7 pounds per acre on 36-inch rows)	40 pounds	FOR BAND OR BROADCAST APPLICATION BAND: Apply specified dosage in ounces per 1000 ft. of row in front of the planter shoe as a 12- to 15- inch-band. Incorporate the granules into the soil to a depth of 2- to 6-inches. Use low rate in 12-inch band. Use high rate in 15-inch band. BAND WIDTH (36-inch row spacing) 12-inch: 14.7 oz/1000 ft of row or 13.4 lb/acre 15-inch: 18.4 oz/1000 of row or 16.7 lb/acre WHEN BAND APPLICATIONS ARE USED ON NARROW ROW CROPS, DO NOT USE BAND WIDTHS THAT WILL ALLOW TREATED AREAS TO OVERLAP. BROADCAST: Distribute the granules uniformly over the entire area to be treated and immediately incorporate to a depth of 2- to 6-inches by disking or tilling.