

US EPA ARCHIVE DOCUMENT

8-28-83

SHAUGHNESSEY NO.

REVIEW NO.

EEB BRANCH REVIEW

DATE: IN 8-26-83 OUT 10/28/83

FILE OR REG. NO. 35977-U, 35977-L

PETITION OR EXP. PERMIT

DATE OF SUBMISSION 8-5-83

DATE RECEIVED BY HED 8-24-83

RD REQUESTED COMPLETION DATE 12-14-83

EEB ESTIMATED COMPLETION DATE 12-07-83

RD ACTION CODE/TYPE OF REVIEW 120/115 : New Chemical

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

DATA ACCESSION NO(S).

PRODUCT MANAGER NO. T. Gardner (17)

PRODUCT NAME(S) Logic (RO 13-5223) Fire Ant Bait

COMPANY NAME Maag Agrochemicals

SUBMISSION PURPOSE Submission of further data to support registration

SHAUGHNESSEY NO.	CHEMICAL & FORMULATION	% A.I.
	Fenoxycarb	

Fenoxycarb

103 Toxicological Properties

This submission provided non-target toxicity data. Nine studies were included, the following is a summary table.

<u>Species</u>	<u>Test Type</u>	<u>Results</u>	<u>Category</u>
Bobwhite Quail	LD50	>7000 mg/kg	Core
Mallard Duck	LD50	>3000 mg/kg	Core
Bobwhite Quail	8-day LC50	11574 ppm	Core
Mallard Duck	8-day LC50	>20,000 ppm	Core
<u>Daphnia magna</u>	48-hr LC50	0.4 ppm	Core
Rainbow trout	96-hr LC50	1.6 ppm	Core
Carp	96-hr LC50	2.7 ppm	Suppl.
Bluegill sunfish	96-hr LC50	1.86 ppm	Suppl.
Bee (showed abnormal behavior at 1250 ppm exposure)			

Test material was 95% pure technical grade for each study.

See the attached Data Evaluation Record.

These studies show Fenoxycarb to be practically non-toxic to birds, moderately toxic to fish and highly toxic to aquatic invertebrates.

107 Conclusions

The data submitted fulfill all but one of the "6 basic" studies required by EEB. The warmwater fish study is the one that should be reconducted.

Daniel Rieder 10/28/83
Daniel Rieder
Wildlife Biologist, Section 2

Norman Cook 10-28-83
Norm Cook, Section Head
Section 2, Ecological Effects Branch

Clayton Bushong 10/28/83
Clayton Bushong, Chief
Ecological Effects Branch, HED

SHAUGHNESSEY NO.

REVIEW NO.

EEB BRANCH REVIEW

DATE: IN 8-15-83 OUT 10/31/83

FILE OR REG. NO. 35977-L, 35977-U

PETITION OR EXP. PERMIT NO. _____

DATE OF SUBMISSION 8-5-83

DATE RECEIVED BY HED 8-12-83

RD REQUESTED COMPLETION DATE 12-5-83

EEB ESTIMATED COMPLETION DATE 11-28-83

RD ACTION CODE/TYPE OF REVIEW 120 } New Chemical

115 }

TYPE PRODUCT(S): I, D, H, F, N, R, S Fire Ant Bait

DATA ACCESSION NO(S). _____

PRODUCT MANAGER NO. T. Gardner (17)

PRODUCT NAME(S) Logic Fire Ant Baits

COMPANY NAME Maag Agrochemicals

SUBMISSION PURPOSE Proposed full registration of fire ant baits

SHAUGHNESSEY NO. _____ CHEMICAL, & FORMULATION % A.I.

Fenoxycarb

(Ethyl(2-(p-phenoxy phenoxy)

ethyl)carbamate 18

LOGIC

100 Pesticide Label Information

100.1 Pesticide Use

Insect growth regulator

100.2 Formulation Information

Logic is 1% Fenoxycarb

100.3 Application Methods, Directions and Rates

Apply broad cast or aeriaily at 1 to 1.5 lbs/Acre. This is equivalent to 0.16 oz to 0.24 oz a.i. per acre. See the attached label.

100.4 Target Organism

Fire Ants

100.5 Precautionary Labeling

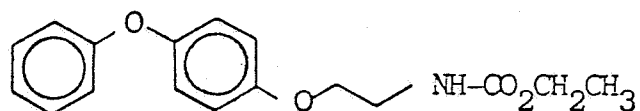
This product is toxic to fish. Do not apply directly to water. Do not contaminate water by cleaning of equipment or disposal of wastes.

101 Physical and Chemical Properties

101.1 Chemical Name:

(Ethyl(2-p-phenoxy phenoxy))ethyl)carbamate)

101.2 Structural Formula



101.3 Common Name

Fenoxycarb

101.4 Trade Name

RO 13-5223

102 Behavior in the Environment

No environmental fate data were available from EAB. However unvalidated information submitted with this package suggest that Fenoxycarb is short-lived in the environment. See attachment 2.

103 Toxicological Properties

The following studies were submitted and validated. See / / review by D. Rieder.

<u>Species</u>	<u>Test Type</u>	<u>Results</u>	<u>Test * Material</u>	<u>Category</u>
Bobwhite Quail	Acute Oral	LD50 >7000 mg/kg	95%	Core
Mallard Duck	Acute Oral	LD50 >3000 mg/kg	95%	Core
Bobwhite Quail	8-day dietary	LC50 = 11574 ppm	95%	Core
Mallard Duck	8-day dietary	LC50 >20,000 ppm	95%	Core
<u>Daphnia magna</u>	48-hr acute	LC50 = 0.4 ppm	95%	Core
Rainbow Trout	96-hr acute	LC50 = 1.6 ppm	97%	Core
Carp	96-hr acute	LC50 = 2.7 ppm	95%	Suppl. **
Bluegill sunfish	96-hr acute	LC50 = 1.86	95%	Supl. ***

* percent fenoxycarb

** not an appropriate species

*** too few (6-8) test organisms per test level

104 Hazard Assessment

104.1 Discussion

Fenoxycarb is a new chemical proposed to be used to control imported fire ants. Treated areas would include lawns, turf, rangeland, pasture and nonagricultural land.

The fire ant infestation extends from Florida to Central Texas and into Oklahoma, Arkansas and Tennessee. The potential for exposure is extensive and it is assumed that direct application to water could occur.

The application rate is 0.16 to 0.24 oz a.i./acre. This means the maximum application rate is 0.015 lbs a.i./acre. The label indicates that retreatment may be desirable after 3 to 4 months.

104.2 Likelihood of Adverse Effects to Non-Target Organisms

According to an "in-house" EEC, direct application to 6" of water would result in a concentration of 11 ppb.

$$1 \text{ lb/acre} = 734 \text{ ppb}$$

$$0.015 \times 734 = 11 \text{ ppb}$$

According to Kenaga's nomograph, the following residues could occur on vegetation etc., immediately following application of 0.015 lbs a.i. per acre.

Rate lbs a.i./acre	<u>Residues (ppm)</u>						
	<u>Short Grass</u>	<u>Long Grass</u>	<u>Leafy Crops</u>	<u>Insects</u>	<u>Forage</u>	<u>Seed Pods</u>	<u>Fruit</u>
0.015	3.6	1.65	1.88	0.87	0.87	0.18	0.07

Aquatic

Even though there is potential for widespread exposure, it is unlikely that the use of Fenoxycarb would result in acute hazards to fish or aquatic invertebrates. The expected concentrations in 6" of water, 11.45 ppb, is significantly lower than the lowest fish LC50 of 1.6 ppm and lower than the daphnid LC50 of 400 ppb. Based on information provided by the registrant (attachment 2) Fenoxycarb is unlikely to persist more than a few days in the field.

Terrestrial

Considering the low use rates and subsequent low residues on vegetation it is unlikely that birds would be adversely effected by Fenoxycarb. It is not toxic to birds and not persistent, according to information from the registrant.

There is no mammalian toxicity information in the EEB files, so no assessment can be made of the effects of fenoxycarb on this group.

Honey Bee

Data submitted by the registrant indicate that Fenoxycarb is low to moderate in toxicity to honey bees. In addition, bee hazard is decreased because the pesticide will be formulated [REDACTED] which will result in little or no bee exposure. Thus, proposed use of the formulated product should present no hazard to bees.

INERT INGREDIENT INFORMATION IS NOT INCLUDED

104.3 Endangered Species

Aquatic

It is unlikely that the use of Fenoxycarb would adversely affect endangered aquatic species because of the low acute toxicity of Fenoxycarb to this group and the low use rates. The expected concentrations in 6" of water are less than 1/20th the fish LC50 and 1/20th the daphnid LC50.

	<u>LC50</u>	<u>1/20th</u>	<u>EEC</u>
<u>Fish</u>	1.6 ppm	80 ppb	11 ppb
<u>Aquatic Inv.</u>	0.4 ppm	20 ppb	11 ppb

Terrestrial

It is unlikely that the use of Fenoxycarb would affect avian species because of its low acute toxicity and low use rate. The residues on all vegetation etc. from the nomograph are less than 1/10 the lowest avian LC50.

- Bobwhite Quail LC50 = 11574 ppm
- 1/10th of 11574 = 1157.4 ppm
- highest residue level is 3.6 ppm

It is not possible to assess the hazards of fenoxycarb to endangered mammal species.

104.4 Adequacy of Toxicity Data

The data were sufficient to assess the acute hazards to aquatic species and avian species. However, there were no data on the toxicity of fenoxycarb to mammals nor were there appropriate environmental fate data (i.e., an EAB review).

104.5 Additional Data Required

EEB requires toxicity data on mammals. This data normally come to the Toxicology Branch. Further, EEB needs to see an EAB review of the environmental fate data.

107 Conclusions

107.3 Environmental Hazards Labeling

According to the acute toxicity data the following label statement would be required.

"This product is toxic to aquatic invertebrates. Do not apply directly to water. Do not contaminate water by cleaning of equipment or disposal of wastes."

107.5 Data Requests

EEB requires mammalian toxicity data and environmental data to complete this risk assessment. These data are obtained through the Toxicology Branch and EAB, respectively.

107.7 Recommendations

EEB has reviewed the proposed registration of Fenoxycarb for use as a fire ant control. EEB is unable to complete a full risk assessment (3(c)(5) finding) for this use because pertinent toxicity and environmental fate data are lacking.

Based on available information it is likely that this proposed registration will have minimal acute adverse effects to nontarget fish, aquatic invertebrates and birds. However, we cannot assess the hazards to mammals nor chronic hazards to any organisms until acute and dietary mammalian toxicity data and environmental fate data are available.

Daniel Rieder
Daniel Rieder
Wildlife Biologist

10/28/83

Norman Cook 10.28.83
Norm Cook, Head
Section 2, Ecological Effects Branch

Clayton Bushong
Clayton Bushong, Chief
Ecological Effects Branch HED

10/28/83