

US EPA ARCHIVE DOCUMENT

107901
SHAUGHNESSEY NO.

21
REVIEW NO.

EE BRANCH REVIEW

DATE: IN 9/6/84 OUT 10/11/84

FILE OR REG. NO. 21137-4

PETITION OR EXP. PERMIT NO.

DATE OF SUBMISSION 7/3/84

DATE RECEIVED BY HED 9/5/84

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EEB ESTIMATED COMPLETION DATE 12/24/84

RD ACTION CODE/TYPE OF REVIEW 335/Amendment

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

DATA ACCESSION NO(S).

PRODUCT MANAGER NO. H. Jacoby (21)

PRODUCT NAME(S) Funginex

COMPANY NAME EM Industries, INC.

SUBMISSION PURPOSE Submission of data in response to previous review

SHAUGHNESSEY NO.	CHEMICAL, & FORMULATION	% A.I.
107900	Triforine N, N'-[1,4--Piperazinediylbis (2,2,2-trichloroethylidene)] bis[formamide]	18.2

PESTICIDE NAME: Triforine

100 Submission Purpose and Label Information

100.1 Submission Purpose and Pesticide Use

Amend registration Funginex Fungicide to include almonds (California only).

100.2 Formulation Information

(Excerpted from the label)

Active Ingredient:

Triforine (N,N-[1,4-piperazinediylbis
(2,2,2-trichloroethylidene)]bis[formamide])

.....	18.2%
Inert Ingredients:.....	81.8%
Total:.....	100.0%

This product contains 1.6 lb. of Triforine per gallon.

100.3 Application Methods, Directions, Rates

(Excerpted from the label)

Brown rot blossom blight (California only)

Apply a mixed solution of 12 fl oz of Funginex per 100 gallons of water; sprayed to runoff. Or, for low volume application, apply a mixed solution of 36 to 48 oz of Funginex in 50 to 200 gallons of water per acre. Make the first application at pink bud and the second at 50% to 100% bloom. Do not exceed two applications. Do not apply after petal fall.

100.4 Target Organisms

Brown rot blossom blight

100.5 Precautionary Labeling

(Excerpted from labeling)

Keep out of lakes, ponds and streams. Do not contaminate water by cleaning of equipment or disposal of wastes. Apply this product only as specified on this label.

101 Hazard Assessment

101.1 Discussion

This use represents a substantial increase in the use of triforine. According to the 1978 Agricultural Census by the Dept. of Commerce, almonds are grown on 347,159 acres in California. The crops now listed on the label account for only 290,978 total acres in California. The following lists the California acreage by crop:

<u>Crop</u>	<u>Acres</u>
Apple	28,367
Apricot	26,957
Nectarines	21,577
Peaches	83,797
Cherries	13,740
Plums and Prunes	116,489
Blueberries	51
	<hr/> 290,978

101.2 Likelihood of Adverse Effects to Nontarget Organisms

As per M. Gessner's review of 3/29/83 (#20), the residues from a single application, only two are allowed by the label, will result in residues of vegetation ranging from 144 to 4 ppm. An application directly on to a 6" acre layer of water would result in 0.4 ppm. These expected concentrations would not be considered hazardous to terrestrial wildlife. The toxicity studies reveal that the bobwhite quail is the most sensitive species. The application rate would have to be raised ten times to reach the quail acute LC₅₀ value. Thus, minimal hazard is expected for terrestrial wildlife. Likewise, the Daphnia LC₅₀ is 28 ppm, indicating minimal hazard to freshwater invertebrates. This LC₅₀ is 70 times greater than that expected in the environment. Therefore, minimal hazard is expected to exposed invertebrates. However, the fish LC₅₀ studies due to insolubility problem did not assure exposure. Therefore, they do not meet the guideline requirements and hazard assessment cannot be completed.

Concerning beneficial insects and this proposed use, Allen Vaughan of EEB made the following comments:

The proposed amendment to the label directs application to almonds during bloom. As honey bees are used extensively to pollinate almonds, there is a high probability of bee exposure to this pesticide.

No data are available on the toxicity of triforine to honey bees. In order to assess the hazard to honey bees from the proposed use, EEB requires a honey bee acute contact LD₅₀ study. This study should be submitted prior to registration of the product for use on almonds.

101.3 Endangered Species Considerations

Comment on endangered species will be deferred until both the warm and coldwater fish LC₅₀ studies available for review.

101.4 Adequacy of Toxicity Data

Concerning the submitted bobwhite quail data, Rieder's review of 12/21/81 indicated food consumption data was adequate. This upgrades the bobwhite quail oral LD₅₀ studies by Reno 1979 under Acc. # 242629 as "core" which meets the guideline requirements.

As mentioned in Rieder's review (under Toxicological Properties and Gessner's review of 3/29/83), R. Hitch changed the status of both fish LC₅₀ from "core" to "supplemental" after learning of solubility problems in other studies. Based on this, the following studies are required for this registration with particular attention given to the amount of material in solution or suspension at each dosage level:

- 1) 96-hour LC₅₀ to rainbow trout
- 2) 96-hour LC₅₀ to bluegill sunfish.

Also the lack of data made the evaluation of the hazard to honey bees impossible, therefore as justified in the above section on hazard evaluation, a honey bee acute contact LD₅₀ study is required.

102 Classification

Deferred until the warm and coldwater fish LC₅₀ studies are provided.

103 Conclusions

EEB has reviewed the proposed conditional registration of triforine for use on almonds. EEB is unable to complete an incremental risk assessment (3(c)(7) finding) for this use because pertinent ecological effects data are lacking. In order to assess the risks associated with this use, EEB requires the following data:

- 1) 96-hour LC₅₀ for rainbow trout
- 2) 96-hour LC₅₀ for bluegill sunfish
- 3) Honey bee acute contact LD₅₀

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