112701 7/5/83

112701

Date Out EFB: 08 JUL 1983

TO: Bill Miller
Product Manager 16
TS-767

FROM: Dr. Richard Moraski
Acting Chief
Review Section No. 1
Exposure Assessment Branch
Hazard Evaluation Division

R. Moraski

Attached please find the environmental fate review of:

Reg./File No.: 10182-LI

Chemical: Brodifacoum

Type Product: Rodenticide

Product Name: VOLID Rodenticide Pellets

Company Name: ICI Americas

Submission Purpose: Review data to support use on fruit and nut orchards in Virginia, West Virginia, Maryland and Pennsylvania

ZBB Code: ?

ACTION CODE: 171

Date in: 5/9/83

EFB # 3364

Date Completed: 7/8/83

TAIS (level II)	Days
63	2

Deferrals To:

_____ Ecological Effects Branch

_____ Residue Chemistry Branch

_____ Toxicology Branch

1.0 INTROUDCTION

ICI Americas (or RD) has submitted for review data which were requested by EAB in dated February 26, 1982. In this review, EAB concurred with the proposed use of VOLID Rodenticide Pellets (Brodifacoum, as a. i.) for use on fruit and nut orchards during dormant season in the states of Virginia, West Virginia, Maryland and Pennsylvania.

However, the original submission referenced data which, according to the EAB review, had never been reviewed by EAB. EAB requested the following data be submitted:

Reference No.	Subject
J3	Soil adsorption study
J4	Soil Mobility Study
J5	Soil Residue Method
J6	The final report of the study "Persistence of Brodifacoum in Soil Under Field Conditions."

Note: The current submission contains two volumes; each containing identical copies of the above studies.

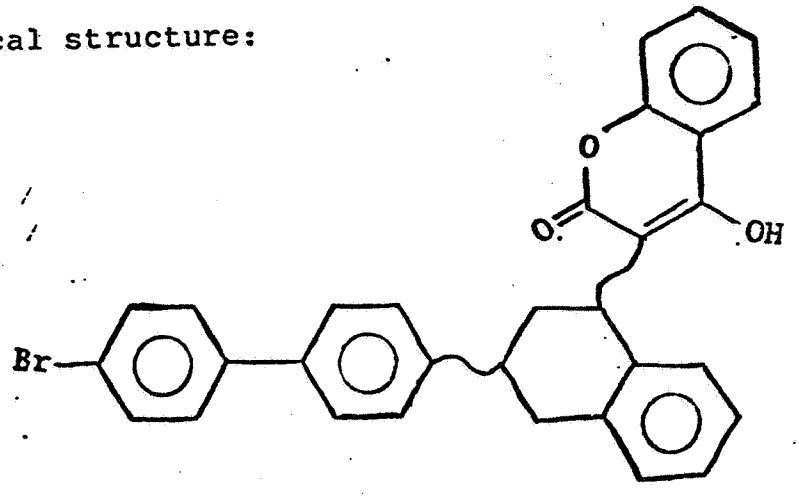
Inspection of EAB files by this reviewer indicates that previous EAB review dated October 28, 1981 included review of these studies, with the exception of the final report of the field dissipation study. The registrant had applied for registration of Talon-G Rodenticide Pellets (Brodifacoum, as a. i.) for outdoor use against commensal rodents.

1.1 Chemical

Common name: Brodifacoum

Chemical name: [3-(3-[4'-bromo-(1,1'-biphenyl)-4-yl]-1,2,3,-4-tetrahydro-1-naphthalenyl)-4-hydroxy-2H-1-benzopyran-2-one

Chemical structure:



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2.0 DIRECTIONS FOR USE

Use directions are appended to this review.
Note: Attached use directions call for hand (spot) or broadcast application. Previous EAB review mentions only the broadcast application.

3.0 DISCUSSION OF DATA

Note: Since these studies have been reviewed, this review will briefly repeat the conclusions of the October 28, 1981 EAB review.

3.1 BRODIFACOUM: Adsorption and Desorption in Soils Measured Under Laboratory Conditions. S. E. Newby and B. G. White. July 17, 1979. ICI Report Series TMJ 1764.

EAB concluded that Brodifacoum is highly immobile in three different soil types and did not appear to hydrolyze readily. Adsorption seemed to correlate roughly with the percent organic matter of the soil.

3.2 BRODIFACOUM: Leaching on Soil Thicklayer Chromatograms. J. E. B. Stevens and I. R. Hill. October 8, 1979. ICI Report Series RJ 0072.

EAB concluded Brodifacoum has a very low mobility in several different soils even at exagerated application rates.

3.3 BRODIFACOUM: Development of Methods to Study its Degradation in Soil. D. J. Arnold, J. H. Rapley and M. S. Weissler. October 17, 1979. ICI Report Series RJ 0064.

EAB concluded that the procedures described seemed more than adequate to support future studies which use the procedures described.

Also, the following study on analytical methods was included in the current submission:

3.4 An HPLC Method For the Determination of Brodifacoum in Soil. K. G. Koubek and J. P. Ussary. January 29, 1979. ICI Report Series TMU 0423/A. ICI Submssion Vol IV, Reference 3J. EPA Acc. No. 237938.

The authors report a method which is suitable for quantitative determination of residues of the cis and trans isomers of brodifacoum in soil. The limit of determination is reported as 0.04 ppm of total brodifacoum.

Soil samples are extracted with 30% methanol in chloroform then filtered. The extract is brought to dryness by roto-evaporation and residue redissolved in 15% methylene chloride in cyclohexane. The solution is cleaned up by gel permeation chromatography (column: 25 x 310 mm Bio-Beads SX-3 (200 to 400 mesh). The residue is redissolved in HPLC mobile phase, injected and analyzed by adsorption chromatography using a UV detector (column: uPorasil stainless steel, 30 cm long by 3.9 mm id).

The mobile phase is described as 75 parts cyclohexane, 25 parts methylene chloride, 0.6 parts glacial acetic acid.

The authors report recoveries of 96% to 100% from spiked soil samples (0.04 to 10.00 ppm).

Conclusion

The method reported appears adequate for the analysis of the cis and trans isomers of brodifacoum extracted from soil.

Analysis of any possible degradation products was not described.

3.5 Brodifacoum Dissipation in Soil (Interim Report). J. P. Ussary. January 30, 1979. ICI Report Series TMU 0424/B (Note: The Section J Table of Contents lists this study as "J4- Persistence of Brodifacoum in Soil Under Field Conditions.")

Conclusion

This is the same interim report that had been previously submitted for EAB review which prompted the request for the final report.

The final report is still outstanding and should be submitted.

4.0 RECOMMENDATIONS

4.1 EAB continues to have no objections to the conditional registration of VOLID Rodenticide Pellets as proposed for use in fruit and nut orchards in Virginia, West Virginia, Maryland and Pennsylvania.

4.2 EAB still suggests that the registant submit the final report of the study on soil persistence under field conditions. See Section 3.5 above.

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PAGES 6 THROUGH 8 ARE NOT INCLUDED. THOSE PAGES CONSIST OF DRAFT LABELING.