

US EPA ARCHIVE DOCUMENT

Shaughnessy No.:
Date out of EAB:

MAY 18 1987

To: Lois Rossi
Product Manager 21
Registration Division (TS 767C)

From: Emil Regelman, Supervisory Chemist
Review Section #3
Exposure Assessment Branch
Hazard Evaluation Division (TS 769C)



Attached, please find the EAB review of...

Reg./File # 100-617

Chemical Name: Propiconazole (Tilt)

Type Product: fungicide

Product Name: Tilt

Company Name: Ciba-Geigy

Purpose: submission of metabolism data

Action Code: 331 EAB # (s): 70297

Date Received: 3/4/87 TAIS Code: _____

Date Completed: MAY 18 1987 Total Reviewing Time: 0.5 day

Monitoring Study Requested: _____

Monitoring Study Volunteered: _____

Deferrals to: _____ Ecological Effects Branch
 ✓ Residue Chemistry Branch
 ✓ Toxicology Branch

1
8

1. CHEMICAL:

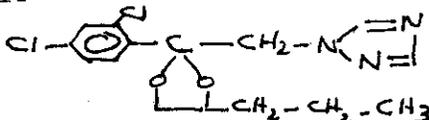
chemical name:

1-[[2-(2,4-dichlorophenyl)-4-propyl-1,3-dioxolan-2-yl] methyl-1H-1,2,4-triazole

common name: propiconazole (not known to be ANSI official)

trade name: Tilt

structure:



CAS #

Shaughnessy #:

2. TEST MATERIAL: described in detail in specific study review

3. STUDY/ACTION TYPE:

metabolism and correlation of metabolites in target and rotation crops of propiconazole

4. STUDY IDENTIFICATION:

Szolics, I.M. and Simoneaux, B.J. Metabolism Data and Correlation of Metabolites In Target and Rotation Crops of Propiconazole. dated 6/27/85. Report No. ABR-85056 EPA Record #190343. submitted 2/27/87.

5. REVIEWED BY:

Typed Name: E. Brinson Conerly
Title: Chemist, Review Section 3
Organization: EAB/HED/OPP

E. Brinson Conerly 5/18/87

6. APPROVED BY:

Typed Name: Emil Regelman
Title: Supervisory Chemist, Review Section 3
Organization: EAB/HED/OPP

Emil Regelman
MAY 18 1987

7. CONCLUSIONS:

The submission indicates that there is uptake of the subject compound, in rotational crops, and that the nature of the metabolites is defined for the tested crops. We defer to RCB and TOX as to the significance of these residues.

8. RECOMMENDATIONS:

As the submission was informational in nature, there are no data upon which to base a recommendation.

9. BACKGROUND:

Although this type of material is not usually reviewed by EAB, the submitter has provided it for informational purposes.

10. DISCUSSION OF INDIVIDUAL TESTS OR STUDIES:

A. STUDY IDENTIFICATION

Szolics, I.M. and Simoneaux, B.J. Metabolism Data and Correlation of Metabolites In Target and Rotation Crops of Propiconazole. dated 6/27/85. Report No. ABR-85056 EPA Record #190343. submitted 2/27/87.

B. MATERIALS AND METHODS

greenhouse test protocol -- target crop -- peanuts:

Two crops were grown, sprayed 2x @ 140 gm ai/A and 1x @ 126 gm ai/A, one crop with triazole-labelled and the other with phenyl labelled test material.

field test protocol

target crop -- peanuts, total of eight sprays @ 70.0 gm ai/A and two ground applications @ 0.375 lb [170.25 gm] ai/A.

rotational crops -- winter wheat, lettuce, corn, and carrots were planted

greenhouse test protocol -- rotational crop -- winter wheat and corn

C. REPORTED RESULTS

greenhouse target crop -Translocation of the radioactivity occurred for both labels. [The levels in the kernels]...plus extraction and common moiety data...show that the alkyl chain between the phenyl and triazole ring cleaved prior to radioactive translocation to kernels....[R]esults [also] indicate the major metabolite in the mature peanut probably was 1,2,4-triazole-1-alanine...[M]ost of the metabolites in the peanut stalks still had both rings with the alkyl bridge intact.

field test target crop -- not discussed

field test rotational crop -- rotational crops of winter wheat, lettuce, corn and carrots showed that the major metabolites were the triazole-acetic acid and alanine conjugates of propiconazole.

greenhouse rotational crops -- most of the metabolites are aqueous soluble for both labels, and consisted of conjugates of acetic acid and alanine, as well as conjugates of the alkanol and -hydroxy isomers.

soil -- 55 weeks after application, 65.8% of the label was nonextractable, 16.4% was propiconazole, 6.3% represented organic soluble components, and only 7.4% was water-soluble.

D. STUDY AUTHOR'S CONCLUSIONS/QUALITY ASSURANCE MEASURES

Propiconazole (CGA-64250), i.e. 1-[[2-(2,4-dichlorophenyl)-4-propyl-1,3-dioxolan-2-yl] methyl-1H-1,2,4-triazole, is a broad spectrum fungicide being developed for use on a variety of plants.

Metabolite identification for the target crop, peanuts, includes ...hydroxylation of the alkyl group on the dioxalane ring, opening of the dioxalane ring, and eventual cleavage of the carbon chain between the phenyl and triazole ring. Metabolite characterization, identification and correlation for rotational wheat, lettuce, corn and carrots indicate that the same degradation products of propiconazole are found in target and rotation crops.

Degradation of propiconazole in soil produced mainly nonextractable components. After 55 weeks, propiconazole was found in the soil as well as small quantities of the alkanol and ketone degradation products. Based on the identification of polar soil metabolites in a Switzerland study and the close similarity in constituents of soil and pH of the soil used by U.S. and Switzerland, the β -hydroxy and 1,2,4-triazole can be expected to be produced by the U.S. soil as the polar metabolites.

The metabolic pathway for propiconazole in peanuts is shown in figure 17 [attached]. Based on characterization of metabolites in the rotation crops and comparison to metabolites in the target crop, it can be concluded that the metabolic pathway for propiconazole is the same in target and rotation crops.

E. REVIEWER'S DISCUSSION AND INTERPRETATION OF STUDY RESULTS

This submission is not within our scope of expertise, but is noted as informational material.

1. COMPLETION OF ONE-LINER: n.a.
12. CBI APPENDIX: n.a.

Page ___ is not included in this copy.

Pages 5 through 8 are not included in this copy.

The material not included contains the following type of information:

- Identity of product inert ingredients.
- Identity of product impurities.
- Description of the product manufacturing process.
- Description of quality control procedures.
- Identity of the source of product ingredients.
- Sales or other commercial/financial information.
- A draft product label.
- The product confidential statement of formula.
- Information about a pending registration action.
- FIFRA registration data.
- The document is a duplicate of page(s) _____.
- The document is not responsive to the request.

The information not included is generally considered confidential by product registrants. If you have any questions, please contact the individual who prepared the response to your request.
