Shaughnessy #: 079402

EFB Logout Date: 16 APR 1984

Init.: CJ for SC

To: George La Rocca
Product Manager #15
Registration Division (TS-767)

From: L.A. Richardson, Chief
Environmental Chemistry Review Section #3
Exposure Assessment Branch
Hazard Evaluation Division (TS-769c)

Attached please find the EAB review of...

Reg./File No.: 11678-5

Chemical: Endosulfan

Type Product: I

Product Name:

Company Name: Makhteshim-Agan Inc.

Submission Purpose: Response to RS (Terrestrial Field Dissipation Study)

ZBB Code:

ACTION CODE: 655

Date In: 2/28/84

EFB # 4210

Date Completed: 4/16/84

TAIS (level II)	Days
42	1

Deferrals To:

_____ Ecological Effects Branch

_____ Residue Chemistry Branch

_____ Toxicology Branch

Reviewer: Patricia Ott
Patricia Ott

Endosulfan Terrestrial Field Dissipation Study

Reference: Submitted by Makhteshim-Agan, Inc. EPA Reg. No. 11678-5, cover memo dated January 12, 1984.

This is not new data, but a summary of four published studies. Three of the four (studies 1, 2, and 3) were reviewed as part of the registration standard. These are summarized from EAB's Task 1. The fourth study (Study 4, Rao and Murty (1980), was reviewed as a new study, since the reviewer was able to obtain the hard copy from an EAB journal.

Study 1. Study of Gorbach et al. (found in Task 1, Study 78)
S. Gorbach, R. Haarring, W. Knauf and H.J. Werner. Bull. Environ. Contam. Toxicol. 6(3)193-199 (1971).

This study is an aquatic field dissipation study, not a terrestrial field dissipation study and also, this study is for a rice use in rice fields and endosulfan has no rice use, so it is inappropriate for both the terrestrial and aquatic field dissipation studies.

Study 2. Study of van Dyk and van der Linde (found in Task 1, Study 82)
L.P. van Dyk and A. van der Linde. Agrochemophysica 8(2) 31-34 (1976)

This study does not satisfy the terrestrial field dissipation requirement because data was missing for some of the field samples, there was inadequate sampling, and the authors did not determine the concentration of endosulfan applied to the field sampled.

Study 3. Study of El Zorgani (found in Task 1, Study 39)
G.A. Zorgani. Bull. Environ. Contam. Toxicol. 15(3), 378-382 (1976)

This study does not meet the terrestrial field dissipation study requirement because residues found immediately post-application were four times higher than the concentration of endosulfan applied to the soil. Also, samples were only analyzed weekly for seven weeks, soil characteristics were not given, soil samples were not analyzed for degradation products and only results from one of the two plots studied were included.

Study 4. Study of Rao and Murty (not in Task 1 of the registration standard)

Reference: Published study (D. Rao and A. Murty, J. Agr. Food Chem. 1980, #28, vol. 6 1099-11101) submitted by American Hoechst Corporation, EPA Reg. No. 8340-13, cover memo dated December 23, 1983.

Conclusions:

It is impossible to assess the validity of this study because critical information is missing, such as size of plots, sampling depth, temperature, controls, pre-application sampling, type of equipment used, and how the pesticide was applied. Also, normal field practice for cotton is 2-3 applications at 5-7 day intervals at 0.75-1.5 lb/A and these workers only applied a maximum of 0.8 lb/A once. This study was conducted in India. The registrant only provided a brief summary of this published study. The reviewer obtained the hard copy but many essential details are missing.

Materials and Methods:

Since endosulfan is not registered for rice, the paddy field (flooded) application is not discussed.

Three test plots were sprayed with a 35% EC formulation at 0.1, 0.2, and 0.8 lb/A on a loamy clay soil. Cotton was growing in two of the plots and eggplant was in the third, sampling depth unknown. Core samples (7"deep) were taken at day 100 in one plot only.

Samples were Soxhlet extracted, cleaned up with a charcoal column and analyzed by TLC and colorimetry. The limit of detection was 0.05 ppm and recovery was 87%.

Reported Results:

The half-life for the three application levels appears to be $\leq$10 days. At day 100, endosulfan and metabolites did not leach beyond the 4 inch depth, sampled to 7 inches.

Discussion:

1. Study was done at one-half the highest recommended rate and only with one application.

2. Sampling depth not stated.

3. Method of application not given, including equipment used to apply.

4. Temperature not given.

5. No data for formation and decline of metabolites was given.

6. There was no mention of control samples.

REGISTRATION DIVISION DATA REVIEW RECORD

Confidential Business Information — Does Not Contain National Security Information (E.O. 12065)

7831
2/22/84

1. CHEMICAL NAME: ENDOSULFAN

2. IDENTIFYING NUMBER	3. ACTION CODE	4. ACCESSION NUMBER	TO BE COMPLETED BY PM
11678-5	655	252184	5. RECORD NUMBER: 116321
			6. REFERENCE NUMBER: 8
			7. DATE RECEIVED (EPA): 1/12/84
			8. STATUTORY DUE DATE:
			9. PRODUCT MANAGER (PM): LaRocca
			10. PM TEAM NUMBER: 15

14. CHECK IF APPLICABLE

- ☐ Public Health/Quarantine
- ☐ Minor Use
- ☐ Substitute Chemical
- ☐ Part of IPM
- ☐ Seasonal Concern
- ☐ Review Requires Less Than 4 Hours

MBB

TO BE COMPLETED BY PCB

11. DATE SENT TO HED/TSS: 2/28/84

12. PRIORITY NUMBER: 20

13. PROJECTED RETURN DATE: 4/28/84

15. INSTRUCTIONS TO REVIEWER

A. HED
- ☐ Total Assessment - 3(c)(5)
- ☐ Incremental Risk Assessment - 3(c)(7) and/or E.L. Johnson memo of May 12, 1977.

B. ~~SPRD — (Send Copy of Form to SPRD PM)~~
- ☐ Chemical Undergoing Active RPAR Review
- ☒ Chemical Undergoing Active Registration Standards Review

C. ☐ BFSD
D. ☐ TSS/RD
E. ☐ Other

F. INSTRUCTIONS

Reg. Standard - [redacted]
Terrestrial Field Dissipation

16. RELATED ACTIONS

Acc Nos 252227, 252185

17. 3(c)(1)(D)

- ☒ Use Any or All Available Information
- ☐ Use Only Attached Data
- ☐ Use Only the Attached Data for Formulation and Any or All Available Information on the Technical or Manufacturing Chemical.

18. REVIEWS SENT TO

- ☒ TB
- ☒ EEB
- ☐ EF
- ☒ PL
- ☐ RCB
- ☒ EFB
- ☐ CH
- ☐ BFSD

19. To	TYPE OF REVIEW	NUMBER OF ACTIONS: Registration	Petition	EUP	SLN	Sec. 18	Inert	MNR. USE	Other
HED	TOXICOLOGY								
HED	ECOLOGICAL EFFECTS								
HED	RESIDUE CHEMISTRY								
HED	ENVIRONMENTAL ~~DATE~~ A13								1
RD/TSS	CHEMISTRY								
RD/TSS	EFFICACY								
RD/TSS	PRECAUTIONARY LABELING								
BFSD	ECONOMIC ANALYSIS								

20.	21.	22.	23.	24.
☐ Label Submitted with Application Attached	☐ Confidential Statement of Formula	☐ Representative Labels Showing Accepted Uses Attached	Date Returned to RD (to be completed by HED)	Include an Original and 4 (four) Copies of This Completed Form for Each Branch Checked for Review.

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EPA Form [illegible]