Shaughnessy No.: 081901

Date out EAB: 26 APR 1984

To: H. Jacoby
Product Manager 21
Registration Division (TS-767)

From: Samuel M. Creeger, Chief
Environmental Chemistry Review Section 1
Exposure Assessment Branch
Hazard Evaluation Division (TS-769c)

COPY

Attached, please find the EAB review of:

Reg./File No.: 50534-8

Chemical: Chlorothalonil

Type Product: F

Product Name: BRAVO 500

Company Name: SDS Biotech Corp.

Submission Purpose: fulfill conditions of conditional registration on soybeans

ZBB Code: other

Action Code: 400

Date In: 1/6/84

EFB No.: 4145

Date Completed: 26 APR 1984

TAIS (Level II)	Days
64	3

Deferrals To:

_____ Ecological Effects Branch

_____ Residue Chemistry Branch

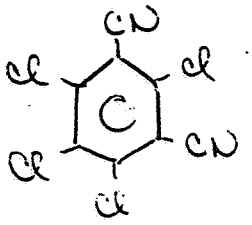
_____ Toxicology Branch

1.0 INTRODUCTION

SDS Biotech has submitted crop rotation studies with chlorothalonil, a fungicide, in order to fulfill conditions of registration on soybeans. EPA Accession No. 252088.

2.0 Bravo 500: chlorothalonil: DS-2787
2,4,5-6 - tetrachloroisophthalonitrile

MRID 139550



3.0 DISCUSSION

3.1 An Indoor Crop Rotation Study with ^{14}C-chlorothalonil (2,4,5, 6-tetrachloroisophthalonitrile). Study No. 4EF-82-0169.

Uniformly ring labeled ^{14}C-chlorothalonil was the test material. The soil in the study was a sandy loam soil whose properties are given in Table 1. Soil was treated with the radioactive material to give a concentration of 9.5 ppm. This appears to about twice the maximum recommended label rate of application. The soil was treated aerobically in the absence of light. The temperature was controlled to give 14 hr at 27-29°C and 10 hr at 16-24°C during each day of aging. Soil was aged for 30 and 88 days. Spring wheat, lettuce and carrots were the crops planted. In the greenhouse, a 14 hr daylight cycle at 27-29°C and a 10 hr night cycle at 16-24°C were maintained. At maturity plants were harvested.

For analysis crops were separated into various parts: wheat into wheat grain, chaff, and straw; and carrots into tops and roots. Radioactive content was determined by LSC. Plant tissue was extracted with acetone/0.3 N HCl (4:1) and residues were quantified using HPLC (uv detector). Further quantitation and identification was accomplished by GC/radioactive monitor and GC/mass spectrometry. Soil samples were extracted using the same extraction solution for plant tissue and quantitation was accomplished using LSC and HPLC.

Results

Figure 4 shows the structures of the known soil metabolites of chlorothalonil. Soil samples were analyzed for each planting and harvest interval. Table 1 shows the results of the analyses. All of the known metabolites were present.

Table 2 gives the residue levels in crop samples. All crops grown in aged treated soil accumulated residues. The average residue levels for lettuce and carrots do not appear to change significantly with time. However, the residues in wheat show a large increase with time particularly in grain and chaff. Table 10 summarizes the data generated for the various fraction of crops analyzed. Only two metabolites (DS-46851 and DS-3701) are accumulated into plants.

Conclusion

This study identifies metabolites found in soil and plant tissue and satisfies confined rotational crop data requirement.

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Pages 4 through 10 are not included.

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