Shaughnessy No.: 081901

Date out EAB: 11 MAY 1984

To: H. Jacoby
Product Manager 12
Registration Division (TS-767)

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

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: review aquatic field dissipation study

ZBB Code: other

Action Code: 400

Date In: 1/27/84

EFB No.: 4180

Date Completed: 11 MAY 1984

TAIS (Level II) Days

62 3

Deferrals To:

X Ecological Effects Branch

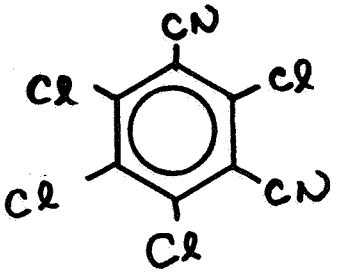
_____ Residue Chemistry Branch

_____ Toxicology Branch

1.0 INTRODUCTION

Diamond Shamrock has submitted an aquatic field dissipation study with chlorothalonil. Acc. No. 071552.

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



3.0 DISCUSSION

This study was conducted to determine the potential effects on the aquatic environment - water, sediment, and fish - as a result of the runoff of chlorothalonil and its degradation products from treated soybean fields.

A 3.8 acre experimental pond and a 1.5 acre control pond were selected in St. Michael's, MD. Approximately 8.3 acres were planted with soybeans. Chlorothalonil was applied using ground boom techniques. The application rate was 2.75 pt product per acre and chlorothalonil was applied every 14 days for a total of three applications. This rate is the maximum recommended label rate on soybeans.

Runoff was monitored during each significant rainfall at two runoff channels between the test field and the experimental pond. In the ponds, 4 stations were established and each contained separate cages with 100 bluegill sunfish or 100 channel catfish. Station 4 was restocked on day 10 after second treatment because fish escaped from the cage.

Before and after treatments, pond water (surface and bottom) and sediment were collected from both ponds along with native bluegill sunfish and non-native sunfish and catfish from experimental pond. Non native fish were sampled before placement into control pond and experimental pond. Pond water from both ponds was sampled for water quality analysis, temperature and light penetration.

Residues of chlorothalonil (DS-2787) and its degradation products 4-hydroxy-2,5,6-trichloroisophthalonitrile (DS-3701), 3-cyano-2,4,5,6-tetrachlorobenzamide (DS-19221), trichloro-3-carboxybenzamide (DS-46851), 3-cyano-trichlorobenzamide (DS-47524) and 3-cyanotrichlorohydroxybenzamide (DS-47525) were analyzed for in samples of pond water, pond sediment, runoff water, runoff soil and fish.

Results

Test site description, sampling schedule, water quality analyses, meteorological data during application, rainfall recordings and, sediment and soil analyses are all given in the Attachment.

Chlorothalonil and its degradation products were found in field runoff in both water and soil. These data indicate generally higher residues in soil than in water. Table 1 summarizes these data.

Pond water analyses indicated residues of chlorothalonil during the pretreatment period. Post treatment analysis indicated random findings of chlorothalonil and its degradation products. No residue of chlorothalonil was greater than 0.7 ppb in the experimental pond. These results are summarized in Tables 2 and 3.

Chlorothalonil and its degradation products were found in pond sediment for both pre- and post-treatment periods from both control and experimental ponds. These residue values were generally low and random in occurrence. Table 4 summarizes these results.

Residue values in fish were generally non-detectable. One sample of bluegill sunfish indicated residues of one degradation product before application. Post-treatment residues of chlorothalonil were not detected in catfish or sunfish from the experimental pond. Residues of degradation products were sporadic and low in these same fish. These data are summarized in Table 5.

Fish mortality was observed on day 10 after third treatment when 41 sunfish were found dead. No other significant mortalities took place. Because of the generally low levels of chlorothalonil residues, disease was thought to have caused these deaths. Table 6 shows these data.

4.0 CONCLUSIONS and RECOMMENDATIONS

The study was well conducted and satisfies the aquatic field dissipation requirement. No significantly large residues of chlorothalonil or its degradation products were found in fish or pond samples. Runoff of chlorothalonil from treated field is expected with greater residue amounts associated with soil rather than water runoff.

EAB defers to EEB to comment on any toxicological significance to non target species as a result of these residue levels.

Richard V. Moraski
Review Section No. 1

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