6-9-94

42521101 +
42649901

Chemical No.: 129086/128831
DP Barcode: D188793/D185581
Case: 030678/030552
Submission: S436327/S428515
Date Out of EFGWB: 6/9/94

To: Robert Forrest
Project Manager #14
Registration Division

From: Henry Nelson, Ph.D., Head H Nelson
Surface Water Section
Environmental Fate and Groundwater Branch/EFED (7507C)

Thru: Henry Jacoby, Chief Henry Jacoby 6/9/94
Environmental Fate and Groundwater Branch
Environmental Fate and Effect Division (7507C)

Attached please find the EFGWB review of:

ID # (s): 003125-URR Mat 7484 technical/003125-URE AZTEC 2.1% granular

Common Name (s): Phostebupirim

Type of Product: Insecticide

Product Name:

Company Name: Miles Inc.

Purpose: Review of a field measurement of phostebupirim and cyfluthrin runoff from a corn field in Jackson County, Illinois treated with Aztec 2.1 G

Action Code: 101

Total Review Time: 6 days

This review covers the fate and runoff portion of the EEB requested study in Jackson County, Illinois.

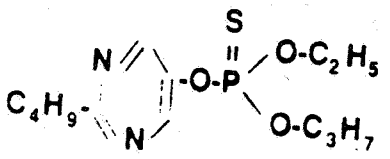
1. CHEMICAL:

Common Name: Phostebupirim

Chemical Name: O-[2-(1,1-Dimethylethyl)-5-pyrimidinyl] O-ethyl O-(1-methylethyl) phosphorothioate.

Type of Product: Insecticide

Chemical Structure:



Formulations:

Phostebupirim	2%
Cyfluthrin	0.1%
Inert Ingredients	97.9%

Physical/Chemical Properties:

Physical State:	Blue granules
Molecular formula:	$C_{13}H_{23}N_2O_3PS$
Molecular Weight:	318.4
Solubility (20 °C):	5.5 ppm in water; soluble in alcohols, ketons and toluene
Vapor Pressure (20 °C):	3.8×10^{-5} mmHg at 20 °C
Boiling Point:	152 °C

2. TEST MATERIAL:

AZTEC 2.1 % granular. See DER for methodology

3. STUDY/ACTION TYPE:

Field runoff study on phostebupirim and cyfluthrin in Illinois.

4. STUDY IDENTIFICATIONS:

Lin, J. C. and P. A. Toll 1991. Field measurement of phostebupirim and cyfluthrin runoff from a corn field in Jackson County, Illinois treated with AZTEC 2.1 G. MRID # 42521101 and Supplement-Report Corrections (MRID # 42649901). (Report Number 101309)

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5. REVIEWED BY:

Siroos Mostaghimi, Ph.D., Environmental Engineer Siroos - Mostaghimi
Surface Water Section
Environmental Fate and Groundwater Branch/EFEF

6. APPROVED BY:

Henry Nelson, Ph.D., Head H Nelson
Surface Water Section
Environmental Fate and Groundwater Branch/EFEF

7. BACKGROUND:

AZTEC 2.1 % is a granular insecticide which contains 2.0% phostebupirim and 0.1% cyfluthrin. Cyfluthrin has already been reviewed as active ingredient in other pesticides. The focus of this review is mainly on phostebupirim. AZTEC is applied to soil at planting time to control corn rootworm larvae, cutworms, wireworms, seedcorn maggot and seedcorn beetles. It is applied at planting as a 7-inch band or as a T-band over the row behind the planter shoe. Miles Inc. conducted a field study to determine the transport of phostebupirim and cyfluthrin in runoff water and to validate a runoff model for T-band incorporated granular material. The small plots (50 x 170 feet) were subjected to varying amounts of simulated rainfall, during which the runoff water was sampled and then analyzed.

According to the "BEAN sheet", this package was assigned to EFED on 3/05/93.

8. CONCLUSIONS:

A. Study in General:

The study was conducted well and the results are reported clearly. However, the following drawbacks were observed:

1. There were no replicates for plots in this study.

2. Since different plots varied in several variables, it was difficult to determine the effects of individual variables on the runoff of phostebupirim and cyfluthrin.

3. The analytical results of cyfluthrin runoff samples showed large variations between duplicate samples.

B. Field Characteristics:

The study site was located in Jackson County, Illinois. The soil is classified as a Hosmer silt loam with an average slope of 3.5%. The soil is a C soil (slow infiltration rate and a moderately high potential for runoff) with 1% organic matter (high soil-erodability factor). All of these soil characteristics along with the row orientations (three plots had row orientation down the slope) indicate that this site was a good choice for a reasonable worst runoff case.

The plots were prepared for corn, however; no corn was planted in this study. Aztec is applied as a preemergence insecticide. The conditions (bare ground with no corn) under which this study was conducted make it easier to extrapolate the results to other crops. However, under the real field conditions when corn is planted, its emergence and growth through out the growing season, will effect the runoff from the field and consequently the data obtained under those conditions.

C. Rainfall Intensity Calibration:

According to the rainfall intensity-duration frequency curve from 1903 to 1955 at Cairo, Illinois, the rainfall intensity of 0.93 inches per hour (plot 3) for the duration of 2 hours would correspond to a one-in-two year event. A 1.94 inches per hour rainfall (plot 4) with 2 hours duration would represent a one-in-fifty year event. These rainfall intensity/durations represent a range of high runoff scenarios.

D. Runoff Measurements:

Plot 4 with a down slope orientation and an antecedent moisture content of 0.229 cm^3/cm^3, received a one-in-fifty year rainfall event (1.94 in/hr for two hours). The rainfall event produced a runoff volume of 405.2 ft^3 and the largest associated phostebupirim loss of 55.2 mg (0.47% of total applied). This plot also produced the second largest amount of cyfluthrin loss (1.66 mg or 0.28% of the total applied).

Plot 2 with a down slope orientation and an antecedent moisture content of 0.259 cm^3/cm^3 received a one-in-two year rainfall event (1.85 inches of rain or 0.88 in/hr for 2.10 hours) and generated 33.9% of the runoff flow (407.7 ft^3). The runoff produced the second largest loss of phostebupirim (51.9 mg or 0.41% of total applied) and the largest cyfluthrin loss (1.7 mg or 0.26% of the total applied).

As expected plot 3 with a cross slope orientation and an antecedent

4

moisture content of 0.220 cm^3/cm^3 which received 0.93 in/hr rainfall for 2.75 hours produced the least amount of runoff water (83.9 ft^3). This runoff produced the third largest amount of phostebupirim loss (10.49 mg or 0.090% of the total applied) and the least amount of cyfluthrin loss (0.74 mg or 0.128% of the total applied) among all plots. The cross slope orientation slow down the movement of water and increases the infiltration rate; therefore, less water is moved through the flume.

Plot 1 which received the least amount of rainfall (1.8 inches or 0.58 in/hr for 3.1 hours), generated 86.7 ft^3 of runoff water. The runoff produced the least amounts of loss for both phostebupirim and cyfluthrin (4.3 mg and 0.74 mg, respectively).

Plots 1 and 2 both had down slope crop rotation and similar total rainfall (1.80 and 1.85 inches, respectively). The difference in water yield (86 ft^3 vs. 407.7 ft^3) is partly due to the difference in the antecedent moisture contents on the top 8 cm soil surface of these two plots (0.128 vs. 0.259 cm^3/cm^3) and in the storm intensities (0.58 in/hr vs. 0.88 in/hr, respectively).

The raw data indicated that the duplicate results for the cyfluthrin analysis varied significantly. No reason was provided by the laboratory.

As expected the total suspended solids increased with increased runoff volume (Table 8). No residue values associated with suspended solids were reported for plots 2 and 3. The Phostebupirim loss associated with suspended solids and loss due to runoff water for plots 1 and 4 are compared below:

	Phostebupirim			
Plot No.	Runoff Water		Suspended solids	
	mg	%	mg	%
1	4.3	0.034	0.29	0.0023
4	55.2	0.474	5.68	0.044

E. Model Evaluation:

In this study, the runoff model was calibrated by adjusting the curve numbers until the modeling predictors of runoff volumes agreed with those determined in the field. The fact that the ranks of the antecedent moisture content and runoff numbers are not the same is not surprising since the

plots differed in slope orientation and/or rainfall intensity-durations as well as in the antecedent moisture content. Furthermore, the antecedent moisture contents of plots 2,3 and 4 were comparable. The reported results are shown below:

Plot No.	Volumetric soil Moisture Content	Rank	Curve No.	Rank
1	0.128	4	67.5	2
2	0.259	1	84.1	1
3	0.220	3	57.4	4
4	0.229	2	58.5	3

9. RECOMMENDATIONS:

Please forward this review and the attached DER to EEB.

10. DISCUSSION:

Several studies (see one-liner and EFGWB files) indicate that the main degradation pathway for MAT 7484 (phostebupirim) appears to be primarily abiotic processes (hydrolysis $t_{1/2}$ =47 days at pH 5, 45 days at pH 7, and 41 days at pH 9; photodegradation in water $t_{1/2}$ =31 hours under natural sunlight; photodegradation on soil $t_{1/2}$ =106 days under natural sunlight) and to a lesser extent biotic processes (aerobic soil metabolism $t_{1/2}$ =343 days; anaerobic soil metabolism $t_{1/2}$ = 279 days). MAT 7484 appears to be moderately persistent to persistent (laboratory half-lives varied from 41 days to 343 days). Mat 7484 appears to be relatively immobile with reported Freundlich K_{ad} values ranging from 12.37 for a sandy loam soil to 15.63 for a silt loam soil. The K_{oc} varied from 1024 (silt loam soil) to 2674 (sandy soil). In several studies data indicated that MAT 7484 did not accumulate in the rotational crops (wheat, kale and beets) planted 30, 120, and 272 days following soil treatment.

The main degradation pathway for cyfluthrin appears to be photodegradation. Cyfluthrin is not persistence when exposed to light but will be moderately persistent if incorporated into aerobic soils based on the following :

Hydrolysis- half life less than 2 days at pH 9
Photodegradation in water- half life about 1 day
Photodegradation on soil- half life 48 to 72 hours
Aerobic and anaerobic soil metabolism- half life 56-63 days

However, under sterile acidic and neural conditions, cyfluthrin is reported to be persistence (hydrolysis half life is stable at pH 5 and half life at pH 7 is 193

days).
Cyfluthrin has a very low solubility in water (1.20×10^{-3} mg/L at 20 °C). The soil/water partition coefficient is not available; however, the high octanol/water partition coefficient (log K_{ow} =5.62) suggests that soil erosion will probably predominate over dissolved runoff as a pathway for surface water contamination by cyfluthrin except in cases where the sediment yield to runoff volume ratio is much lower than usual. A study (EFGWB files) of cyfluthrin persistence in soil indicates that cyfluthrin applied at 1.0 Kg/ha, dissipated with a half-life of < 32 days in the upper 6 inches of a slit loam soil. Neither cyfluthrin nor its degradates appeared to leach into the 6 to 12 inch soil depth.

Cyfluthrin residues were found in wheat stalks planted up to 285 days after treatment with 400 g A.I./acre. If wheat planted less than 9 months after cyfluthrin application, residues may show up in wheat stalks. This is important when wheat is planted in the rotation cycle along with cotton.

11. COMPLETION OF ONE-LINER:

None

12. CBI INDEX:

Not applicable

DATA EVALUATION RECORD (DER)

Phostebupirim

ID # (s): 003125-URR Mat 7484 technical/003125-URE AZTEC 2.1% granular

Common Name: Phostebupirim

Chemical Name: O-[2-(1,1-Dimethyl)-5-pyrimidinyl] O-ethyl O-(1-methyl-ethyl) phosphorothioate.

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Inert Ingredients	97.9%

Data Requirement: Review of a field measurement of Phostebupirim and cyfluthrin runoff from a corn field in Jackson County, Illinois treated with Aztec 2.1 G

MRID No(s).: 42521101 and 42649901. Lin, J. C. and P. A. Toll 1991. Field measurement of phostebupirim and cyfluthrin runoff from a corn field in Jackson County, Illinois treated with AZTEC 2.1 G. (Report Number 101309)

REVIEWED BY: Siroos Mostaghimi, Ph.D., Environmental Engineer
ORGANIZATION: EFGWB/EFED/OPP
TELEPHONE: (703) 305-5028

Siroos Mostaghimi

APPROVED BY: Henry Nelson, Ph.D. H Nelson **Date:** JUNE 3, 1994
TITLE: Surface Water Section Head
ORGANIZATION: EFGWB/EFED/OPP
TELEPHONE: (703) 305-7356

SIGNATURE:

CONCLUSIONS:

A. Study in General:

The study was conducted well and the results are reported clearly. However, the following drawbacks were observed:

8

1. There were no replicates for plots in this study.

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Plot 2 with a down slope orientation and an antecedent moisture content of 0.259 cm^3/cm^3 received a one-in-two year rainfall event (1.85 inches of rain or 0.88 in/hr for 2.10 hours) and generated 33.9% of the runoff flow (407.7 ft^3). The runoff produced the second largest loss of phostebupirim (51.9 mg or 0.41% of total applied) and the largest cyfluthrin loss (1.7 mg or 0.26% of the total applied).

As expected plot 3 with a cross slope orientation and an antecedent moisture content of 0.220 cm^3/cm^3 which received 0.93 in/hr rainfall for 2.75 hours produced the least amount of runoff water (83.9 ft^3). This runoff produced the third largest amount of phostebupirim loss (10.49 mg or 0.090% of the total applied) and the least amount of cyfluthrin loss (0.74 mg or 0.128% of the total applied) among all plots. The cross slope orientation slow down the movement of water and increases the infiltration rate; therefore, less water is moved through the flume.

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4	0.229	2	58.5	3

MATERIALS AND METHODS:

1. Field Characteristics:

The study site was located in Jackson County, Illinois at the Southern Illinois University Agronomy Field Station. Four plots, 1 and 2 (50 X 170 feet) and 3 and 4 (60 X 130 feet), were prepared by plowing under a field which had been fallow pasture for approximately five years. The plots were then disked and rolled to prepare a corn seed bed. No corn was planted because the runoff events were simulated prior to corn emergence. To quantitate the runoff potential for different tillage practices, two row orientations versus the slope were used. Plots 1, 2 and 4 had rows oriented down the slope and plot 3 had rows oriented across the slope (See Figure 1). The soil was Hosmer silt loam classified as a "C" soil. The slope of the site was 3-4 %.

2. AZTEC Application and Simulation Rainfall:

AZTEC was applied to each plot at 0.16 lbs A.I./acre. The application was made to the area of the field above the water collection equipment (Figure 2). The soil within the metal flashing area was not treated because installation of the flashing across the T-bands would disturb the "normal" distribution of the compound.

Twenty-four hours after AZTEC application the plots were subjected to

simulated rainfall as following:

Plot Number	Rainfall Intensity (inch/hr)	Duration (hours)	Total (inches)	Plot Orientation
1	0.58	3.10	1.80	Down slope
2	0.88	2.10	1.85	Down slope
3	0.93	2.75	2.56	Cross slope
4	1.94	2.00	3.88	Down slope

3. Instrumentation:

Immediately following the AZTEC application, the runoff water collection apparatus, consisting of a 3-inch parshell flume and 16-inch galvanized metal flashing was installed (Figure 2). The parshell flume was fitted with a 4-inch diameter PVC stilling well. The water depth in the stilling well was continuously monitored by an ISCO bubbling flow meter to measure the amount of flow passing through the flume. Sequential samples of runoff water were collected by an ISCO programmable sampler for phostebupirim analysis. Composites samples of runoff water were collected for cyfluthrin analysis by another sampler. Both samplers were programmed to take samples at two minute intervals from the water passing through the flume. Runoff flow through the flume was calculated using the following formula:

$$\text{Flow } (ft^3/sec) = 0.992 \times H^{1.547}$$

Where H = depth of flow measured in feet

The rainfall simulator used in this study is also illustrated in Figure 2. The amount of rainfall reaching the plot was determined randomly by placing plastic cups throughout the plot. The irrigation water was supplied from a pond located in the Agronomy field station. The plots were divided into grids based on evenly spaced flags at the top of the plot. This grid was used to randomly assign the locations for placement of rain cups, for taking surface samples and soil cores. The naturally occurring rainfall was also measured during the experimental period.

4. Soil Sampling:

Prior to chemical application and rainfall simulation, soil samples were taken from the plots to determine the soil texture. Immediately prior to the rainfall simulation soil samples were taken to determine the antecedent soil moisture content. Prior to irrigation soil samples from the surface soil were taken for residue analysis.

RESULTS

1. Meteorology Record and Antecedent Moisture Content:

The daily meteorological records for the month of July are shown in Table 1 (Table 2 of the report). Nine rainfall events were recorded in this month. Table 2 (Table 3 of the report) shows the analysis results of the antecedent soil moisture content for each soil core sample taken from each plot prior to the rainfall simulation. The water content for the top soil layer (0-8 cm) were 0.128, 0.259, 0.220 and 0.229 cm^3/cm^3 for plot 1 to 4, respectively.

2. Rainfall Intensity Calibration:

To quantitate the significance of surface runoff, the "true" amount of rainfall applied to each plot were measured. A detailed measurement sheet for each plot is shown in Table 3, 4, 5 and 6.

3. Runoff Measurement:

This study was conducted to investigate the phostebupirim and cyfluthrin runoff under different rainfall intensity, different antecedent soil moisture content and different crop orientation. The runoff summaries for phostebupirim and cyfluthrin are shown in Table 7 (Table 4 of the report). The most phostebupirim runoff was measured in plot 4 (55.2 mg or 0.47% of total applied to the plot)) which had down slope orientation and received 3.88 inches of rainfall in 2 hours. Plot 1 which also had a down slope orientation but received the least amount of rainfall (1.8 inches in 3.1 hrs) produced the least amount of phostebupirim runoff (4.3 mg or 0.034% of total applied to the plot). The most cyfluthrin runoff was measured in plot 2 (1.69 mg or 0.27% of total applied to this plot) which had a down slope orientation and received 1.85 inches of rainfall in 2.10 hrs. The least amount of cyfluthrin runoff was measured in plot 1 (0.62 mg or 0.098% of total applied to this plot) which had a down slope plot orientation and received the least amount of rainfall in this study (1.80 inches in 3.1 hrs).

Table 8 (Table 6 of the report) shows the total suspended solids (TSS) in runoff water and phostebupirim mass associated with suspended solids. The highest runoff volume (407.7 ft^3 in plot 2) produced the largest amount of TSS (14 g/L) and the lowest runoff volume (86.4 ft^3 in plot 1) produced the lowest amount of TSS (3.4 g/L). Both plots had down slope crop orientation with similar amounts of total rainfall (1.80 and 1.85 inches for plot 1 and 2, respectively); however, the antecedent moisture content in plot 2 was almost twice of that in plot 1 (0.128 cm^3/cm^3 vs. 0.258 cm^3/cm^3).

4. Model Validation:

The trial and error scheme for predicting the curve number using the volumetric soil moisture content is shown in Table 9 (Table 7 of the report). The trial and error method for predicting curve numbers using rainfall and antecedent moisture content was not successful.

DISCUSSION:

See conclusions.

Page_____ is not included in this copy.

Pages 15 through 25 are not included.

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.

Environmental Fate & Effects Division
PESTICIDE ENVIRONMENTAL FATE ONE LINE SUMMARY
PHOSTEBUPERIM
Last Update on July 17, 1992
[V] = Validated Study [S] = Supplemental Study [U] = USDA Data

LOGOUT	Reviewer:	Section Head:	Date:

Common Name: PHOSTEBUPERIM
Smiles Code:
PC Code # :129086 CAS #: Caswell #:

Chem. Name :o-[2-(1,1 dimethyl)-5-pyrimidinyl]-o-ethyl-o-(1-,methylethy) phosphorothioate
Action Type:

Trade Names: MAT 7484
(Formul'tn):
Physical State:

Use :foodcrop
Patterns :
(% Usage) :
:

Empirical Form:
Molecular Wgt.: Vapor Pressure: E Torr
Melting Point : °C Boiling Point: °C
Log Kow : pKa: @ °C
Henry's : E Atm. M3/Mol (Measured)

Solubility in ...			Comments
Water	5.50E	ppm @20.0 °C	
Acetone	E	ppm @ °C	
Acetonitrile	E	ppm @ °C	
Benzene	E	ppm @ °C	
Chloroform	E	ppm @ °C	
Ethanol	E	ppm @ °C	
Methanol	E	ppm @ °C	
Toluene	E	ppm @ °C	
Xylene	E	ppm @ °C	
	E	ppm @ °C	
	E	ppm @ °C	

Hydrolysis (161-1)
[V] pH 5.0:47 days
[V] pH 7.0:45 days
[V] pH 9.0:41
[ ] pH :
[ ] pH :
[ ] pH :

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Photolysis (161-2, -3, -4)
[ ] Water:
[ ] :
[ ] :
[ ] :

[ ] Soil :
[ ] Air :

Aerobic Soil Metabolism (162-1)
[V] 343 days 1/2 life; CO2 (31% after 12 months); OMAT(<1%),
[ ] TBHP (1%), IMATS (3%)
[ ]
[ ]
[ ]
[ ]
[ ]

Anaerobic Soil Metabolism (162-2)
[V] extrapolated 1/2 life of 279 days; IMATS(5%), TBHP (4%),
[ ] CO2 (2%)
[ ]
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Anaerobic Aquatic Metabolism (162-3)
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Aerobic Aquatic Metabolism (162-4)
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Soil Partition Coefficient (Kd) (163-1)
[V] Kad ranged from 12.37 (sandy loam) to 15.63 (silt loam)
[ ] Kdes ranged from 14.92 (clay loam) to 18.52 (silt loam)
[ ]
[V] OMAT Kads ranged from 1.4 (sandy loam) to 3.6 (silt loam)
[ ] Kdes ranged from 1.1 (sand) to 5.3 (silt loam)
[ ]

Soil Rf Factors (163-1)
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Laboratory Volatility (163-2)
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Field Volatility (163-3)
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Terrestrial Field Dissipation (164-1)
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Aquatic Dissipation (164-2)
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Forestry Dissipation (164-3)
[ ]
[ ]

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Long-Term Soil Dissipation (164-5)
[ ]
[ ]

Accumulation in Rotational Crops, Confined (165-1)
[V] <0.01 ppm accumulated in all 3 crops (wheat, kale, and beets
[ ] planted 30 days posttreatment

Accumulation in Rotational Crops, Field (165-2)
[ ]
[ ]

Accumulation in Irrigated Crops (165-3)
[ ]
[ ]

Bioaccumulation in Fish (165-4)
[V] Bioconcentration factor was 660X in whole body, 110X in fillet,
[ ] 1100X in viscera; depuration rapid and <2% remained after 14 days

Bioaccumulation in Non-Target Organisms (165-5)
[ ]
[ ]

Ground Water Monitoring, Prospective (166-1)
[ ]
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Ground Water Monitoring, Small Scale Retrospective (166-2)
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Ground Water Monitoring, Large Scale Retrospective (166-3)
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Ground Water Monitoring, Miscellaneous Data (158.75)
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Environmental Fate & Effects Division
PESTICIDE ENVIRONMENTAL FATE ONE LINE SUMMARY
PHOSTEBUPERIM
Last Update on July 17, 1992
[V] = Validated Study [S] = Supplemental Study [U] = USDA Data

Field Runoff (167-1)
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Surface Water Monitoring (167-2)
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Spray Drift, Droplet Spectrum (201-1)
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Spray Drift, Field Evaluation (202-1)
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Degradation Products

Environmental Fate & Effects Division
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Comments

References:
Writer : GJT

Environmental Fate & Effects Division
PESTICIDE ENVIRONMENTAL FATE ONE LINE SUMMARY
CYFLUTHRIN
Last Update on March 22, 1994
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Common Name: CYFLUTHRIN
Smiles Code:
PC Code # :128831 CAS #:68359-37-5 Caswell #:

Chem. Name :CYANO (4-FLUORO-3-PHENOXYPHENYL) METHYL-3(2,2-DICHLORO-ETHENYL)-2,2-DIMETHYL-CYCLOPROPANECARBOXYLATE
Action Type: PYRETHROID; INSECTICIDE

Trade Names: BAYTHROID
(Formul'tn): WATER-SOL. CONC.; EMULSIFIABLE CONC.; ULV FORMULATION;
Physical State:

Use :FOLIAR INSECTICIDE FOR CONTROL OF CHEWING INSECTS ON A
Patterns :VARIETY OF CROPS SUCH AS CORN, COTTON, PEANUTS
(% Usage) :
:

Empirical Form: $C_{22}H_{18}NFO_3Cl_2$
Molecular Wgt.: 434.27 Vapor Pressure: 3.30E -8 Torr
Melting Point : °C Boiling Point: °C
Log Kow : 5.62 pKa: @ °C
Henry's : E Atm. M3/Mol (Measured) 1.57E -5 (calc'd)

Solubility in ...					Comments
Water	1.20E -3	ppm	@20.0	°C	
Acetone	E	ppm	@	°C	
Acetonitrile	E	ppm	@	°C	
Benzene	E	ppm	@	°C	
Chloroform	E	ppm	@	°C	?
Ethanol	E	ppm	@	°C	
Methanol	E	ppm	@	°C	
Toluene	E	ppm	@	°C	
Xylene	E	ppm	@	°C	
	E	ppm	@	°C	
	E	ppm	@	°C	

Hydrolysis (161-1)
[V] pH 5.0:STABLE
[V] pH 7.0:193 DAYS
[V] pH 9.0:< 2 DAYS
[ ] pH :
[ ] pH :
[ ] pH :

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Photolysis (161-2, -3, -4)
[V] Water:ABOUT 1 DAY IN NATURAL SUN
[ ] :
[ ] :
[ ] :

[V] Soil :48-72 HRS; SdLm, Hg LAMP
[ ] Air :

Aerobic Soil Metabolism (162-1)
[V] 73.5 DAYS IN GERMAN LOAM SOIL, pH=6.2
[V] 94.8 DAYS " " SANDY LOAM, pH=5.9
[ ]
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[ ]
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[ ]

Anaerobic Soil Metabolism (162-2)
[V] SAME AS WITH AEROBIC SOILS
[ ]
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Anaerobic Aquatic Metabolism (162-3)
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Aerobic Aquatic Metabolism (162-4)
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Soil Partition Coefficient (Kd) (163-1)
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Soil Rf Factors (163-1)
[V] AGED AND UNAGED RESIDUES
[ ] IMMOBILE IN AGRIC SAND (FL),
[ ] SdLm (OR), SdClLm (IN), SiLm
[ ] (NB), SiCl (MD)
[ ]
[ ]

Laboratory Volatility (163-2)
[ ]
[ ]

Field Volatility (163-3)
[ ]
[ ]

Terrestrial Field Dissipation (164-1)
[V] <31 DAYS IN UPPER 6" IN EIGHT DIFFERENT STUDIES; DEGRADATES
[ ] WERE NOT PERSISTENT AND DID NOT ACCUMULATE SIGNIFICANTLY
[ ]
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Aquatic Dissipation (164-2)
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Forestry Dissipation (164-3)
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[ ]

Long-Term Soil Dissipation (164-5)
[ ]
[ ]

Accumulation in Rotational Crops, Confined (165-1)
[V] WITH .72 PPM IN SOIL AT DAY 0, CONC. DROPPED TO
[ ] .10 PPM BY DAY 359; RESIDUE MOSTLY PARENT COMPD.

Accumulation in Rotational Crops, Field (165-2)
[V] WHEAT STALKS MAY CONTAIN RESIDUES IF PLANTING IS
[ ] DONE LESS THAN 9 MONTHS AFTER TREATMENT.

Accumulation in Irrigated Crops (165-3)
[ ]
[ ]

Bioaccumulation in Fish (165-4)
[V] BLUEGILL SUNFISH BCF: 550-850 X; WITH DEPURATION, T/12 FOR
[ ] RESIDUES = ABOUT 9 DAYS.

Bioaccumulation in Non-Target Organisms (165-5)
[ ]
[ ]

Ground Water Monitoring, Prospective (166-1)
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Spray Drift, Droplet Spectrum (201-1)
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Spray Drift, Field Evaluation (202-1)
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Degradation Products

CO2
4-fluoro-3-phenoxybenzaldehyde (FCR 1260)
4-fluoro-3-phenoxybenzoic acid (FCR 3191)

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Comments

Soil Koc = 10,000.
Rat toxicity studies indicate that the FPB acid is much less toxic than the parent compound.
The technical grade of cyfluthrin consists of four isomers, all having roughly the same solubility and vapor pressure.

References: FARM CHEMICALS HANDBOOK; EPA REVIEWS
Writer : PJH/GML

D188793 +
DP BARCODE: D185581

CASE: 030552 DATA PACKAGE RECORD DATE: 05/24/94
SUBMISSION: S428515 BEAN SHEET Page 1 of 1

* * * CASE/SUBMISSION INFORMATION * * *

CASE TYPE: REGISTRATION ACTION: 101 RESB NC-FOOD/FEED USE
RANKING : 45 POINTS (KO)
CHEMICALS: 129086 Phostebupirim 2.0000%
128831 Cyfluthrin 0.1000%

ID#: 003125-URE aztec 2.1% granular insecticide
COMPANY: 003125 MILES INC
PRODUCT MANAGER: 14 ROBERT FORREST 703-305-6600 ROOM: CM2 219
PM TEAM REVIEWER: MARILYN MAUTZ 703-305-6785 ROOM: CM2 221
RECEIVED DATE: 10/20/92 DUE OUT DATE: 04/28/93

* * * DATA PACKAGE INFORMATION * * *

DP BARCODE: 185581 EXPEDITE: N DATE SENT: 12/10/92 DATE RET.: / /
CHEMICAL: 129086 Phostebupirim
DP TYPE: 001 Submission Related Data Package
CSF: N LABEL: N

ASSIGNED TO	DATE IN	DATE OUT
DIV : EFED	12/11/92	/ /
BRAN: EFGB	12/11/92	/ /
SECT: SWS	12/11/92	/ /
REVR : SMOSTAGH	04/20/94	/ /
CONTR:	/ /	/ /

ADMIN DUE DATE: 03/04/93
NEGOT DATE: 04/09/93
PROJ DATE: 05/19/93

* * * DATA REVIEW INSTRUCTIONS * * *

Attached run-off data for evaluation in connection with the pending application for registration of the subject product The proposed product is currently under review in EFGB (D171136)

* * * DATA PACKAGE EVALUATION * * *

No evaluation is written for this data package

* * * ADDITIONAL DATA PACKAGES FOR THIS SUBMISSION * * *

DP BC	BRANCH/SECTION	DATE OUT	DUE BACK	INS	CSF	LABEL
184283	EEB/RS1	11/04/92	03/04/93	Y	N	N