

US EPA ARCHIVE DOCUMENT

2-3-93

DP BARCODE: D175181

CASE: 006724
SUBMISSION: S412289

DATA PACKAGE RECORD
BEAN SHEET

DATE: 03/04/92
Page 1 of 1

* * * CASE/SUBMISSION INFORMATION * * *

CASE TYPE: REGISTRATION ACTION: 165 NEW PROD-OC-MINOR CHG
CHEMICALS: 103301 Acephate (O,S-dimethyl acetylphosphoramidothioate 15.0000%

ID#: 059639-TL ORTHENE 15 GRANULAR
COMPANY: 059639 VALENT U.S.A. CORPORATION
PRODUCT MANAGER: 14
PM TEAM REVIEWER:
RECEIVED DATE: 02/18/92 DUE OUT DATE: 08/26/92

ROOM:
ROOM:

* * * DATA PACKAGE INFORMATION * * *

DP BARCODE: 175181 EXPEDITE: N DATE SENT: 03/04/92 DATE RET.: / /
CHEMICAL: 103301 Acephate (O,S-dimethyl acetylphosphoramidothioate)
DP TYPE: 001 Submission Related Data Package
ADMIN DUE DATE: 08/01/92 CSF: Y LABEL: Y

ASSIGNED TO	DATE IN	DATE OUT
DIV : EFED	03/05/92	/ /
BRAN: EEB	/ /	/ /
SECT:	/ /	/ /
REVR :	/ /	/ /
CONTR:	/ /	/ /

* * * DATA REVIEW INSTRUCTIONS * * *

review attached application for new registration of a granular acephate product for in-furrow application to cotton. Acephate is currently registered on cotton as a seed treatment and as an in-furrow liquid spray

Note attached vol. 1 which contains discussions of benefits and exposure to nontargets

Is this proposed use of a granular acephate product likely to result in any significant increase in exposure/risk over the currently registered use of acephate?

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

DP BC	BRANCH/SECTION	DATE OUT	DUE BACK	INS	CSF	LABEL
175176	RSB/PRS	03/04/92	08/01/92	Y	Y	Y
175178	TSCB	03/04/92	08/01/92	Y	Y	Y
175184	OREB	03/04/92	08/01/92	Y	Y	Y
175191	RSB/PCRS	03/04/92	08/01/92	Y	Y	Y

(1)

ECOLOGICAL EFFECTS BRANCH

Chemical: Acephate, Orthene 15G

100.0 Purpose of Submission

The Registrant (Valent Corporation) has submitted an application for a Section 3 registration for the in-furrow use of acephate (Orthene 15G) in cotton to control thrips and aphids. The Registration Division wants to know whether the proposed use is likely to result in any significant increase in exposure/risk over the currently registered uses of acephate? In addition, the RD has requested the EFED to expedite the review.

101.0 Chemical Properties

Active Ingredient:
Acephate (O,S-Dimethylacetylphosphoramidothioate)...15%
Inerts85%

102.0 Label Directions

102.1 Application rates/methods/Directions

Apply 6 to 6.67 lbs. product (0.9-1.0 lbs. a.i.) per acre with in-furrow granular application equipment at planting. Minimize surface application by ensuring adequate application depth (2" minimum) and immediate coverage of furrows with soil. Calibrate and adjust application equipment to insure proper rate and accurate placement. Soil incorporate (disc) any surface material present in turn-rows immediately after application.

102.2 Environmental Hazards

"This pesticide is toxic to birds. Cover or soil incorporate spills. Soil incorporate (disc) any surface material present in turn rows immediately after application to limit exposure of birds to surface granules. Do not apply directly to water or to areas where surface water is present or to intertidal areas below the mean high water mark."

102.3 Description of Use

Orthene 15G is an in-furrow granular insecticide applied at planting for the control of thrips, aphids and cutworms in seedling and young cotton plants. It complements several Orthene formulations which are registered for use on cotton as seed treatments, at planting in-furrow liquid sprays and foliar spray applications, the latter up to 21 days of harvest. The

use pattern of Orthene 15G is identical to that of the in-furrow application currently registered for Orthene 90S. The exposure of cotton plants to the systemic active ingredient, acephate, is identical for either formulation. Orthene 15G will allow cotton growers who currently apply granular insecticides at planting to obtain the same protection currently available for the in-furrow spray use of Orthene 90S without change in their cultural practice or the purchase of additional equipment.

103.0 Estimated Environmental Concentrations (EECs)

Granular formulations require an estimate of the mg of active ingredient per square foot. Because band or in-furrow treatments concentrate the amount of toxicant applied (i.e., on the banded area), label rates must be adjusted to reflect this method of application. The following calculation determines the pound/acre rate of an in-furrow treatment for a 40" row spacing (typical "worst case" for cotton) assuming a 3' band width of the furrow.

Label directions specify that the pesticide is to be covered (as opposed to soil incorporated) by a minimum of 2" of soil whereas turn areas or row ends are to be disced.

Soil incorporation efficiency, relative to in-furrow applications, was based on a study conducted by Hummel, 1983, and was assumed to be 99% of the actual label rate (Comparative Analysis of Acute Avian Risk from Granular Pesticides, 1992).

The following exposure analysis assumes a 40" row spacing, using a 3" band, with the pesticide being covered to a depth of 2 inches.

Maximum rate: 1.0 pounds a.i./A (6.67 lb. prod)

Rate equivalent (40" row spacing):

40" spacing= 13,068 linear feet of row/A
13,068 linear feet of row (x) .25" (3" band)
= 3,267 sq. feet treated
43,560 sq. ft./A / 3,267 sq. ft = 13.3
13.3 (X) 1.0 lb a.i./A= 13.3 lbs. a.i./A rate

Application rate (mg a.i./A): 13.3 lbs. a.i./A (X)
454,000 mg/lb = 6,053,333 mg. a.i./A

Incorporation Efficiency: 99%

Availability: 6,053,333 mg a.i./A (X) 0.01= 60,533 mg.
a.i./A

$$\begin{aligned} \text{EEC} &= \text{mg a.i./sq.ft.} / \text{sq. ft.} / \text{A} \\ &= 60,533 \text{ mg a.i./A} / 43,560 \text{ sq. ft./A} = \\ &\quad \underline{1.38 \text{ mg a.i./sq. ft.}} \end{aligned}$$

104.0 Hazard Evaluation

104.1 Terrestrial

104.1.1 Treated Rows

The EEB uses a comparative analysis (quotient) between the mg a.i./ sq. ft and the adjusted LD50 value for a representative avian species (LD50/sq. ft. factor) to determine acute avian hazard from granular pesticides. A LD50/sq/ ft. factor with a value greater than 1/2 indicates a high level of concern for the proposed use pattern.

The following analysis compares the EEC for a 40" row spacing, 3" band in-furrow treatment with the adjusted LD50 for a 20 gram songbird.

LD50 (mg/kg) Value: Songbird= 140 mg/kg

Adjusted LD50 for bird body weight:

Songbird = 20 grams= 0.020 kg

Adjusted LD50=0.020 kg/bird (X) 140 mg/kg=
2.8 mg/bird

LD50/ sq. ft. Factor:

Mg a.i./sq. ft. / Adj. LD50 / Bird =LD50s /sq. ft.
= 1.38/2.8 = 0.05 LD50s/sq. ft.

The LD50/sq. ft. factor for the songbird has been calculated to be 0.05. This value is below the concern level of .5 and suggests the proposed use pattern poses low concern to avian species utilizing the treated rows. Because of its low body weight, the songbird is indicative of the "worst case" analysis.

104.1.2 Turn Areas and Row Ends

Turn areas and row ends present a greater hazard than the treated rows because the granules are left exposed on the soil surface rather than covered or soil incorporated. EECs for these areas are assumed to be equivalent to the label rate applied as a broadcast application. A 1.0 lb/A broadcast application is equivalent to 10.42 mg a.i./sq. ft. (454,000 mg/lb X 1 lb a.i./A / 43,560 sq.ft./A= 10.42 mg a.i./sq.ft.) The LD50/sq. ft. factor for these areas is equivalent to 3.72 (10.42 mg a.i./sq/ ft. / 2.8 mg). This value is deemed to be of high concern and suggests hazard to non-targets that utilize these

areas. However, because current label directions specify that "... Soil incorporate (disc) any surface material present in turn-rows immediately after application to limit exposure of birds to surface granules", the use pattern poses low concern to avian species utilizing these areas.

104.2 Aquatic

Based upon the USFWS biological opinion for the cotton cluster, as well as the EEBs internal endangered species staff review of acephate, the EEB concludes that the proposed use pattern poses a low concern to non-target aquatic organisms.

105.0 Endangered Species Analysis

105.1 Treated Rows

Based upon the USFWS's biological opinion for the cotton cluster, the only endangered species likely to be exposed from the proposed use pattern is the Attwater's prairie chicken. This species is confined to the cotton growing regions in southeast Texas. Assuming the average weight of the prairie chicken is 1 kg, the adjusted (bird body weight) LD50 value for the species is 140 mg/kg.

The EEB assumes that 1/10 of the adjusted LD50 value is appropriate for calculating acute avian hazard to endangered species (Felthousen, 1979). In this case, 1/10 the LD50 value is equal to 14.0 mg/bird. Thus, the LD50/sq. ft. factor is equal to 0.098 (1.38 mg/sq. ft./ 14.0 mg/bird) and suggests the proposed use pattern is of low concern to the Attwater's prairie chicken utilizing the treated areas.

105.2 Turn Areas and Row Ends

The LD50/sq. ft. factor for endangered species, that utilize turn areas and/or row ends, is calculated to be 0.74 (10.42 mg a.i./sq. ft./ 14.0 mg a.i./bird) and suggests the use pattern does not pose unacceptable risk to the Attwater's prairie chicken utilizing these areas.

106.0 Summary

The EEB has completed an expedited review for the Section 3 registration of Orthene 15G to control pests on cotton. This hazard evaluation has determined that the proposed use pattern and current labeling poses low concern to non-target fish and wildlife, including endangered species.

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February 12, 1992

**REGISTRATION REQUEST FOR
ORTHENE® 15 GRANULAR**

Mr. Robert Forrest,
Product Management Team 14
Document Processing Desk [H7505C]
Registration Division
Office of Pesticide Programs
U.S. Environmental Protection Agency
Registration Division
1921 Jefferson Davis Highway
Arlington, VA 22202

Dear Mr. Forrest:

Enclosed is Valent U.S.A. Corporation's application for the registration of ORTHENE® 15 Granular. This product is a new granular formulation for in-furrow application to cotton to control aphids, thrips and cutworms. The active ingredient is acephate and the technical material is registered as ORTHENE® Technical, EPA Registration Number 59639-41 to Valent U.S.A. Corporation. All guideline registration requirements have been met for technical grade acephate. Chevron Chemical Company has granted Valent the right to cite all Chevron on file at the EPA to support Valent registrations. A copy of the complete ORTHENE (acephate) data matrix and a Certification in Respect to Citation of Data is enclosed.

ORTHENE 15 Granular complements several other ORTHENE formulations which are registered for use on cotton as seed treatments, at-planting in-furrow liquid sprays and foliar spray applications. The use pattern for ORTHENE 15 Granular is identical to that for the in-furrow application currently registered for ORTHENE 90 S with the exception that application is by granule rather than liquid spray. ORTHENE 15 Granular will allow cotton growers who currently apply granular insecticides at planting to obtain the same protection currently available from the in-furrow spray use of ORTHENE 90 S without change in their cultural practices.

Additionally, ORTHENE 15 Granular is an efficacious replacement for the considerably more hazardous granular formulations such as TEMIK® 15 G, THYMET® 15 G and DISYSTON® 15 G currently registered for the early season control of aphids, thrips and cutworms. ORTHENE 15 Granular offers significant reduction in risk associated with applicator and re-entry exposure, groundwater contamination and avian toxicity compared