

US EPA ARCHIVE DOCUMENT

Date Out:

6-11-93  
Chemical Code: 129099  
DP Barcode: D191406

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## ENVIRONMENTAL FATE AND GROUND WATER BRANCH

Review Action

JUN 11 1993

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To: Rebecca Cool, PM #41  
Special Review and Reregistration Division (H7508W)

From: Akiva Abramovitch, Section Head  
Chemistry Review Section 3  
Environmental Fate & Ground Water Branch/EFED (H7507C)

Thru: Henry Jacoby, Chief  
Environmental Fate & Ground Water Branch/EFED (H7507C)

*Henry Jacoby 6/11/93*

Attached, please find the EFGWB review of...

<b>Common Name:</b>	Imidacloprid	<b>Trade name:</b>	Confidor 2 Flowable
<b>Company Name:</b>	Miles		
<b>ID #:</b>	93AZ0003		
<b>Purpose:</b>	EMERGENCY EXEMPTION		

<b>Type Product:</b>	<b>Action Code:</b>	<b>EFGWB #(s):</b>	<b>Review Time:</b>
INSECTICIDE	500	93-0740	1.0 DAYS

STATUS OF STUDIES IN THIS PACKAGE:

STATUS OF DATA REQUIREMENTS  
ADDRESSED IN THIS PACKAGE:

Guideline #	MRID	Status <sup>1</sup>

Guideline #	Status <sup>2</sup>

<sup>1</sup>Study Status Codes: A=Acceptable U=Upgradeable C=Ancillary I=Invalid  
<sup>2</sup>Data Requirement Status Codes: S=Satisfied P=Partially satisfied N=Not satisfied R=Reserved W=Waived.

1. CHEMICAL:

Common Name: Imidacloprid

Chemical Name:

Exists as tautomer.

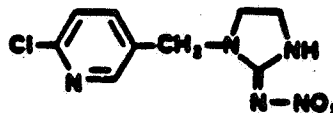
1-((6-Chloro-3-pyridinyl)methyl)-4,5-dihydro-N-nitro-1H-imidazol-2-amine.

1-[(6-chloro-3-pyridinyl)methyl]-N-nitro-2-imidazolidinimine.

Preferred tautomer.

Type of product: Insecticide

Chemical Structure:



Physical/Chemical Properties

Molecular formula: C<sub>9</sub>H<sub>10</sub>N<sub>5</sub>O<sub>2</sub>Cl.  
Molecular weight: 255.67.  
Physical state: Light yellow powder.  
Density: 1.542 g/cm<sup>3</sup>.  
Vapor pressure (20 C): 6.0 x 10<sup>-9</sup> Torr.  
Solubility (20 C): 0.58 g/L water; miscible in n-hexane, methylene chloride, 2-propanol, and toluene.  
K<sub>ow</sub> : 3.7 @ 21°C

2. TEST MATERIAL:

N/A

3. STUDY/ACTION TYPE:

The Arizona Department of Agriculture requests an EMERGENCY EXEMPTION (Section 18) to use Confidor 2 Flowable (21.4% ai) to control the Silverleaf (Sweetpotato) Whitefly on cotton.

4. STUDY IDENTIFICATION:

1. Letter from the Arizona Department of Agriculture dated May 11, 1993 to Rebecca Cool outlining the section 18 application.

2. Contact Persons:

Ed Minch  
Arizona Department of Agriculture  
1688 West Adams  
Phoenix, Arizona 85007  
(602) 542-0954

Dr. Theo Watson  
Department of Entomology  
University of Arizona  
Tucson, Arizona 85721  
(602) 621-1151

5. REVIEWED BY:

Kevin L. Poff, Chemist  
Environmental Chemistry Review Section #3  
Environmental Fate and Groundwater Branch/EFED

KLP  
Date:

6. APPROVED BY:

Akiva Abramovitch, Ph.D., Chemist  
Environmental Chemistry Review Section #3  
Environmental Fate and Groundwater Branch/EFED

Date: Akiva Abramovitch  
MAY 28 1993

7. CONCLUSIONS:

a. Administrative Conclusions

The EFGWB can support the EMERGENCY EXEMPTION (section 18) petitioned by the Arizona Department of Agriculture to apply Imidacloprid (Confidor 2 Flowable) as a treatment for whiteflies on cotton to 300,000 acres in 6 counties (Lapaz, Maricopa, Mohave, Pima, Pinal, and Yuma) in Arizona from July 5, 1993 to October 15, 1993. However, there is potential concern for this chemical to leach to ground water and/or be transported to surface waters so care must be taken to protect these waters during use, particularly in vulnerable areas.

b. Scientific Conclusions

Although the environmental fate data for imidacloprid under a terrestrial non-food crop use is not totally complete (reviewed and acceptable according to EFGWB guidelines) at this time, we do have enough acceptable and supplemental data to grant the exemption.

The available data indicate that imidacloprid is mobile ( $Kd_{ads}$ ) = 0.956, 1.02, 4.18, 4.76, 3.45 for a sand (0.4% OM), loamy sand (0.6% OM), silt loam (2.6% OM), silt loam (with sodium azide), and loam (2.0% OM), and persistent (aerobic soil  $t_{1/2}$  = > 1 year in a sandy loam soil, terrestrial field dissipation  $t_{1/2}$  = 107 days to > 1 year). Therefore, imidacloprid has the potential to leach to ground water. In addition, high solubility and mobility are concerns for transport to surface water by dissolved run-off.

8. RECOMMENDATIONS:

The EMERGENCY EXEMPTION (section 18) to use imidacloprid (confidor 2 flowable systemic insecticide) to control white flies in Arizona may be granted provided ground and surface water in the use sites are protected. Also inform the Arizona Department of Agriculture of the following label statement that was not present on the reviewed confidor 2 flowable label: "This chemical demonstrates the properties and characteristics associated with chemicals detected in ground water. The use of this chemical in areas where soils are permeable, particularly where the water table is shallow, may result in ground-water contamination."

## 9. BACKGROUND :

Imidacloprid [NTN 33893; 1-((6-chloro-3-pyridinyl)methyl)-4,5-dihydro-N-nitro-1H-imidazole-2-amine] is a broad spectrum, systemic insecticide currently being developed by Miles Inc. for Terrestrial Non-food, or Residential and Commercial Outdoor: Lawns, turfgrass, and ornamentals. Also, Greenhouse Non-food or Residential and Commercial Indoor: Ornamentals. The proposed maximum use rates are 0.5 lb ai/A/year or 500-560 g/ha, greenhouse soil applications are limited to a single application per crop cycle, or once per year on crops having a production cycle of longer than one year. Single active ingredient formulations include wettable powder, flowable concentrate, and granular. Multiple active ingredient formulations include carbofuran (5% granular). Formulations include the 94% ai technical, 75% concentrate, and a 2.5% and 0.62% granular

The submission of data required for full registration of imidacloprid on terrestrial non-food use sites is summarized below:

### Satisfied:

**-Hydrolysis** (161-1); MRID #42055337, EFGWB #92-0210,-0196. Stable at pH 5, 7, some degradation at pH 9  $t_{1/2}$  = 355 days.

**-Photodegradation in Water** (161-2); MRID #42256376, EFGWB #92-0847,-1039/42.

Half-life of approximately 1 hour (4.2 hours theoretical, under natural sunlight) in sterile aqueous buffer solutions (pH 7) that were continuously irradiated with an artificial light source (xenon lamp) for up to 2 hours at 23-24.5 C.

**-Photodegradation on Soil** (161-3); MRID #42256377, EFGWB #92-0847,-1039/42.

Half-life of 39 days (171 hours, theoretical half-life under natural sunlight) on sandy loam soil that was continuously irradiated with a UV-filtered xenon light source for 15 days at  $25 \pm 2$  C.

**-Aerobic Soil Metabolism** (162-1); MRID #42073501, EFGWB #92-0210,-0196.

Calculated half-life of > 1 year in a sandy loam soil that was incubated in the dark at  $22 \pm 2^\circ\text{C}$  and 75% of the 0.33 bar moisture.  $\text{CO}_2$ , was the major degradate.

**-Anaerobic Aquatic Metabolism** (162-3); MRID #42256378, EFGWB #92-0847,-1039/42. Half-life of 27 days in anaerobic silt loam sediment that was incubated in the dark at  $22 \pm 1$  C for 1 year.

**-Adsorption/Desorption** (163-1); MRID #42520801, EFGWB #93-0266,93-0071. This review. Freundlich  $K_{\text{ads}}$  constants and 1/N isotherms describing the adsorption of NTN 33893 on a sand (0.4% OM), loamy sand (0.6% OM), silt loam (2.6% OM), silt loam (with sodium azide), and loam (2.0% OM) were  $K_{\text{ads}}=0.956$ ;  $1/N=0.781$ ,  $K_{\text{ads}}=1.02$ ;  $1/N=0.877$ ,  $K_{\text{ads}}=4.18$ ;  $1/N=0.775$ ,  $K_{\text{ads}}=4.76$ ;  $1/N=0.729$ , and  $K_{\text{ads}}=3.45$ ;  $1/N=0.757$

respectively. The Freundlich  $K_{des}$  constants and  $1/N$  isotherms describing the desorption of NTN 33893 on the above soils were  $K_{des}=0.662$ ;  $1/N=0.917$ ,  $K_{des}=0.542$ ;  $1/N=1.02$ ,  $K_{des}=4.68$ ;  $1/N=0.775$ ,  $K_{des}=3.38$ ;  $1/N=0.877$ , and  $K_{des}=4.40$ ;  $1/N=0.793$  respectively.

**-Adsorption/Desorption (163-1);** MRID #42520802, EFGWB #93-0266, 93-0071, This review. (Supplemental adsorption/desorption data was submitted on degradate NTN 33823 generated in the anaerobic aquatic metabolism 162-3 study. NTN 33823 increased to a total maximum average of 66.0% of the applied radioactivity at 249 days posttreatment and was 64.0% at 358 days). Freundlich  $K_{ads}$  constants and  $1/N$  isotherms describing the adsorption of NTN 33823 on a sand (0.4% OM), loamy sand (0.6% OM), silt loam (2.6% OM), and loam (2.0% OM) were  $K_{ads}=0.761$ ;  $1/N=1.22$ ,  $K_{ads}=2.91$ ;  $1/N=1.09$ ,  $K_{ads}=14.2$ ;  $1/N=1.02$ , and  $K_{ads}=10.1$ ;  $1/N=0.819$  respectively. The Freundlich  $K_{des}$  constants and  $1/N$  isotherms describing the desorption of NTN 33823 on a sand, loamy sand, silt loam, and loam were  $K_{des}=0.456$ ;  $1/N=1.41$ ,  $K_{des}=2.45$ ;  $1/N=1.13$ ,  $K_{des}=16.9$ ;  $1/N=1.03$ , and  $K_{des}=12.0$ ;  $1/N=0.840$  respectively.

**-Soil Column Leaching (163-1);** MRID #42055339, EFGWB #92-0210,-0196. (Aged) (>85% of the radioactivity was contained in the aged portion and the 0-5cm column layer). Imidacloprid was found at  $48.5 \pm 1.1\%$  of the applied radioactivity in the top layer (the applied sandy loam soil).  $37 \pm 0.0\%$  of the applied radioactivity was found in the 0-5 cm layer.  $10.8 \pm 1.4\%$  was found in the 5-10 cm layer.  $4.2 \pm 0.6\%$  was found in the 10-15 cm layer.  $1.8 \pm 0.1\%$  was found in the 15-20 cm layer.  $0.3 \pm 0.1\%$  was found in the 20-30 cm layer. 0.14% of the applied radioactivity was found in the total volume of leachate. About 90.4% of unchanged parent compound was found in the sandy loam soil after an aging period of 30 days.

**Ancillary data (supplemental):**

**-Adsorption/Desorption (163-1);** MRID #42055338, EFGWB #92-0210,-0196. (Unaged) This study was determined to be supplemental due to an inadequate comparison of German soils to US soil.  $K_{ads}$  values on a sandy loam soil, (greenhouse Kansas), (1.4% OM), silt soil, Hofchen (1.8% OM), low humus sandy soil, (standard soil 2.1), (0.75% OM), and a silty clay, (Ranschbach), (0.64% OM) were  $K_{ads}=3.59$ ;  $1/N=0.744$ ,  $K_{ads}=2.38$ ;  $1/N=0.827$ ,  $K_{ads}=1.17$ ;  $1/N=0.777$ ,  $K_{ads}=1.36$ ;  $1/N=0.851$  respectively. The Freundlich  $K_{des}$  constants and  $1/N$  isotherms describing the desorption of NTN 33893 on the above soils were  $K_{des}=4.0$ ;  $1/N=0.789$ ,  $K_{des}=2.75$ ;  $1/N=0.905$ ,  $K_{des}=2.09$ ;  $1/N=0.921$ ,  $K_{des}=2.11$ ;  $1/N=0.916$  respectively.

**-Terrestrial Field Dissipation (164-1);** EFGWB #92-0847,-1039/42. MRID #42256379. Imidacloprid dissipated with an observed half-life of >1 year from the upper 6 inches of a bareground plot (100 x 102 feet) of loamy sand soil in Georgia following a broadcast application of imidacloprid (23.3% ai liquid suspension) at 0.5 lb ai/A on April 16, 1990!

MRID #42256380. Imidacloprid did not dissipate from the upper 6 inches of a plot (60 x 150 feet) of sandy loam soil planted to

corn in Minnesota during the 12 months following a preemergence application of imidacloprid [Bay NTN 33893 240 FS; 1-((6-chloro-3-pyridinyl)methyl)-4,5-dihydro-N-nitro-1H-imidazol-2-amine; 22.8% liquid suspension] at 0.5 lb ai/A on June 6, 1990.

MRID #42256381. Imidacloprid dissipated with a calculated half-life of 146 days (Day 0 -Day 364) from a plot of sandy loam soil planted to tomatoes in California after a preemergence application of imidacloprid (23.3% ai liquid suspension) at 0.5 lb ai/A.

MRID #42256382. Imidacloprid dissipated from turf with a calculated half-life of 107 days (data points 0 - 126 days).

MRID #42256383. Imidacloprid did not appear to dissipate from the 0- to 3- inch depth of loam soil of a bluegrass turf plot (70 x 110 feet) in Minnesota during the 4 months following a broadcast application of imidacloprid (22.8% liquid suspension) at 0.5 lb ai/A to the turf on June 19, 1990.

**Not Satisfied:**

-Long Term Terrestrial Field Dissipation (164-5). Two studies are required.

Option 1: One study with the granular and one study with the liquid concentrate.

Option 2: Two studies with the liquid concentrate. One of which needs to be incorporated. In addition to the two studies with the liquid concentrate, bridging data between the liquid concentrate and granular formulation are required. **All studies are to be completed on a Type A or B soil with low organic matter content.**

**Waived:**

-Laboratory studies of pesticide accumulation in fish (165-4). No data were reviewed, although data provided by the registrant indicates a very low octanol/water (Kow) partition coefficient (Kow for imidacloprid = 3.7 @ 21°C).

**Reserved:**

-Ground Water Monitoring:

-Small Prospect. (166-1)

-Small Retrospect. (166-2)

10. **DISCUSSION:**

a. The EFGWB has the following comments concerning this submission:

Except for field dissipation data all requirements for the terrestrial non-food use have been satisfied for imidacloprid.

The Arizona Department of Agriculture is petitioning to apply imidacloprid at a maximum of 5 times in one use season (July to October) at 0.05 lb. ai/acre with a total maximum of 0.25 lb ai/acre during this growing season. This is 1/2 the 0.5 lb ai/acre/year maximum use rate proposed by Miles Inc.

**b. Description of Emergency Exemption Program:**

It is estimated that 300,000 acres will be treated with 0.05 lb. ai (3 fl. oz) per acre with a maximum of 5 applications. A total of 75,000 lbs. of ai or 35,000 gallons of product will be applied (confidor 2 flowable contains 2 lbs of ai/gallon). Applications to blooming cotton will be made at night and the method of application will be ground or air. The use season will be July 5, 1993 to October 15, 1993.

11. COMPLETION OF ONE-LINER:

Attached.

12. CBI INDEX:

Not Applicable.



Environmental Fate & Effects Division  
 PESTICIDE ENVIRONMENTAL FATE ONE LINE SUMMARY  
**IMIDACLOPRID**

Last Update on March 3, 1993

[V] = Validated Study    [S] = Supplemental Study    [U] = USDA Data

LOGOUT	Reviewer:	Section Head:	Date:
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Common Name: IMIDACLOPRID

Smiles Code:

PC Code # : 129099

CAS #:

Caswell #:

Chem. Name : 1-[(6-chloro-3-pyridinyl)methyl]-4,5-dihydro-N-nitro-1H-imidazole-2-amine

Action Type: Insecticide

Trade Names: NTN 33893

(Formul'tn): 0.62% granular, 2.5% granular, 75% concentrate, 94% technical

Physical State: light yellow powder

Use : terrestrial nonfood uses

Patterns : Maximum commercial rate 0.560 kg ai/ha, 0.5 lb ai/A/year

(% Usage) :

:

Empirical Form:  $C_9H_{10}ClN_5O_2$

Molecular Wgt.: 255.67

Vapor Pressure: 6.90E -9 Torr

Melting Point : °C

Boiling Point: °C

Log Kow : 0.52

pKa: @ °C

Henry's : E Atm. M3/Mol (Measured)

4.00E-12 (calc'd)

Solubility in ...

Comments

Water	5.80E	2	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	miscible
Xylene	E		ppm	@ °C	
2-propanol	1.60E	3	ppm	@20.0 °C	
	E		ppm	@ °C	

Hydrolysis (161-1)

[V] pH 5.0: Stable in dark at 25C

[V] pH 7.0: Stable in dark at 25C

[V] pH 9.0: Degraded slightly with a half-life of 355 days.

[ ] pH :

[ ] pH :

[ ] pH :

Environmental Fate & Effects Division  
PESTICIDE ENVIRONMENTAL FATE ONE LINE SUMMARY  
IMIDACLOPRID

Last Update on March 3, 1993

[V] = Validated Study [S] = Supplemental Study [U] = USDA Data

Photolysis (161-2, -3, -4)

- [V] Water: 1 hour pH 7 Xenon lamp
- [ ] :
- [ ] :
- [ ] :

- [V] Soil : t<sub>1/2</sub> = 39 days on a sandy loam soil under a Xenon light source
- [ ] Air :

Aerobic Soil Metabolism (162-1)

- [V] In sandy loam in dark, degraded with a calculated half-life of > 1 year at 22C. CO<sub>2</sub> was the major degradate at 7.4% of the applied
- [ ] No single degradate accounted for more than 1.7% of applied (.006 ppm)
- [S] t<sub>1/2</sub> = 248 +/- 50 days, silt loam
- [S] t<sub>1/2</sub> = 341 +/- 153 days, silt loam
- [S] t<sub>1/2</sub> = 188 +/- 25 days, silt loam (see also comments section)

Anaerobic Soil Metabolism (162-2)

- [ ] See anaerobic aquatic metabolism study.
- [ ]
- [ ]
- [ ]
- [ ]
- [ ]
- [ ]

Anaerobic Aquatic Metabolism (162-3)

- [V] t<sub>1/2</sub> = 27 days in a silt loam sediment.
- [ ]
- [ ]
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Aerobic Aquatic Metabolism (162-4)

- [ ]
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Environmental Fate & Effects Division  
 PESTICIDE ENVIRONMENTAL FATE ONE LINE SUMMARY  
**IMIDACLOPRID**

Last Update on March 3, 1993

[V] = Validated Study    [S] = Supplemental Study    [U] = USDA Data

Soil Partition Coefficient (Kd) (163-1)

[V]	Soil Type	Kads	1/N	Kdes	1/N	%OM	
[ ]	sand	0.956	.781	.662	.917	0.4%	
[ ]	lmysd	1.02	.877	.542	1.02	0.6%	
[ ]	Stlm	4.18	.775	4.68	.775	2.6%	See
[ ]	loam	3.45	.757	4.4	.793	2.0%	Comments Section
[ ]	Stlm(w/NaN3)	4.76	.729	3.38	.877	2.6%	

Soil Rf Factors (163-1)

- [V] sandy loam soil; 49% of applied was found in the aged sandy loam
- [ ] layer. 37% in the 0-5 cm layer. 11% in the 5-10cm layer. 4.2% in
- [ ] the 10-15cm layer. 1.8% was found in the 15-20cm layer. 0.3% in
- [ ] the 20-30cm layer. 0.14% was found in the leachate. CO2 was 1.7%
- [ ] of applied after 30 days.
- [ ]
- [ ]

Laboratory Volatility (163-2)

- [ ]
- [ ]

Field Volatility (163-3)

- [ ]
- [ ]

Terrestrial Field Dissipation (164-1)

- [S] observed t1/2= >1 year loamy sand soil in Georgia with an app.
- [ ] rate of 0.5lb/ai/A of liquid suspension.
- [S] did not dissipate in the upper 6 inches of sandy loam soil in
- [ ] MN at 0.5lb/ai/A of liquid suspension.
- [S] t1/2=146 days in a sandy loam soil in CA at 0.5lb/ai/A of liquid
- [ ] suspension.
- [S] t1/2=107 days on turf Georgia at 0.5lb/ai/A.
- [S] did not dissipate on a turf plot in MN. at 0.5lb/ai/A.
- [ ]
- [ ]

Aquatic Dissipation (164-2)

- [ ]
- [ ]
- [ ]
- [ ]
- [ ]
- [ ]

Forestry Dissipation (164-3)

- [ ]
- [ ]

Environmental Fate & Effects Division  
PESTICIDE ENVIRONMENTAL FATE ONE LINE SUMMARY  
IMIDACLOPRID

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Long-Term Soil Dissipation (164-5)

[ ]  
[ ]

Accumulation in Rotational Crops, Confined (165-1)

[ ]  
[ ]

Accumulation in Rotational Crops, Field (165-2)

[ ]  
[ ]

Accumulation in Irrigated Crops (165-3)

[ ]  
[ ]

Bioaccumulation in Fish (165-4)

[ ]  
[ ]

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)

[ ]  
[ ]  
[ ]  
[ ]

Ground Water Monitoring, Large Scale Retrospective (166-3)

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[ ]  
[ ]  
[ ]

Ground Water Monitoring, Miscellaneous Data (158.75)

[ ]  
[ ]  
[ ]

Environmental Fate & Effects Division  
PESTICIDE ENVIRONMENTAL FATE ONE LINE SUMMARY  
IMIDACLOPRID

Last Update on March 3, 1993

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Field Runoff (167-1)

[ ]  
[ ]  
[ ]  
[ ]

Surface Water Monitoring (167-2)

[ ]  
[ ]  
[ ]  
[ ]

Spray Drift, Droplet Spectrum (201-1)

[ ]  
[ ]  
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[ ]

Spray Drift, Field Evaluation (202-1)

[ ]  
[ ]  
[ ]  
[ ]

Degradation Products

NTN 33519;Photoproduct  
NTN 38014;Photoproduct  
WAK 4103;Photoproduct  
CPAcid;Photoproduct  
WAK 3839;Photoproduct  
NTN 33823

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Environmental Fate & Effects Division  
PESTICIDE ENVIRONMENTAL FATE ONE LINE SUMMARY  
IMIDACLOPRID

Last Update on March 3, 1993

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Comments

An aerobic soil metabolism study was completed w/ground cover. Mat. balances were not established although it appears that NTN degrades at an accelerated rate w/ground cover/fertilizers. 10% of applied was taken up by the ground cover (study was supplemental). An ad/des on NTN 33823 (major degradate in 162-3 study) showed mobility on soils of low %OM, <1%.

References: Mobay Studies  
Writer : KLP

DP BARCODE: D191406

CASE: 284691  
SUBMISSION: S440617

DATA PACKAGE RECORD  
BEAN SHEET

DATE: 05/18/93  
Page 1 of 1

\*\*\* CASE/SUBMISSION INFORMATION \*\*\*

CASE TYPE: EMERGENCY EXEMP ACTION: 500 SECT18 SPC EXE NC F/F USE  
CHEMICALS: 129099 Imidacloprid

ID#: 93AZ0003

COMPANY:

PRODUCT MANAGER: 41 REBECCA COOL *RD (not SRD)* 703-308-8417 ROOM: CS1

PM TEAM REVIEWER: ANDREA BEARD 703-308-8791 ROOM: CS1

RECEIVED DATE: 05/12/93 DUE OUT DATE: 07/01/93

\*\*\* DATA PACKAGE INFORMATION \*\*\*

DP BARCODE: 191406 EXPEDITE: N DATE SENT: 05/18/93 DATE RET.: / /

CHEMICAL: 129099 Imidacloprid

DP TYPE: 001 Submission Related Data Package

ADMIN DUE DATE: 06/07/93

CSF: N

LABEL: Y

ASSIGNED TO	DATE IN	DATE OUT
DIV : EFED	5/20/93	/ /
BRAN: EFGB	/ /	/ /
SECT:	/ /	/ /
REVR :	/ /	/ /
CONTR:	/ /	/ /

\*\*\* DATA REVIEW INSTRUCTIONS \*\*\*

Please provide a review of the attached request for a specific exemption from AZ for use of imidacloprid (new chemical) on cotton for control of whiteflies. Please indicate whether existing data submitted by the registrant (PP#s 3F4169 & 3H5655) supports this emergency use, and whether there are groundwater concerns expected. Thanks.

Andrea Beard

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

DP BC	BRANCH/SECTION	DATE OUT	DUE BACK	INS	CSF	LABEL
191402	BAB	05/18/93	06/07/93	Y	N	Y
191403	EAB	05/18/93	06/07/93	Y	N	Y
191404	TB-1	05/18/93	06/07/93	Y	N	Y
191405	TSCB	05/18/93	06/07/93	Y	N	Y
191407	EEB	05/18/93	06/07/93	Y	N	Y

*93-0740  
P off*

*14*



# Arizona Department of Agriculture

1688 West Adams, Phoenix, Arizona 85007  
(602) 542-3578 FAX (602) 542-0466

ENVIRONMENTAL SERVICES DIVISION

May 11, 1993

Ms. Rebecca Cool (H7505W)  
Emergency Response and Minor Use Section  
Registration Support Branch  
Registration Division/OPP  
U. S. Environmental Protection Agency  
Room 52, 6th Floor  
2800 Jefferson Davis Highway  
Arlington, Virginia 22202

Dear Ms. Cool:

We would like to apply for a specific exemption under the provision of Section 18 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended, as indicated in the attached request. Please contact me if there are any questions.

The following supporting documents are included:

1. Proposed label (p. 4-7).
2. List of alternative pesticides (p. 8).
3. "Sweetpotato Whitefly in Arizona" and "1993 Insect Pest Management for Cotton" (p. 9-20).
4. Efficacy studies (p. 21-58).
5. List of Endangered Species by county (p. 59-63).
6. Letter from the product registrant (p. 64).
7. Table of economic data (p. 65-66).
8. Letter from Dr. Theo Watson, Department of Entomology, University of Arizona (p. 67).

Sincerely yours,

*Edwin W. Minch*

Edwin W. Minch  
Environmental Specialist

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ALTERNATIVE METHODS OF CONTROL (166.20(a)(4))

Alternative Pesticides: See attached sheet (p. 8).

Other Alternative Practices:

Please see publication, "Sweetpotato Whitefly in Arizona" and "1993 Insect Pest Management for Cotton" (p. 9-20).

EFFICACY OF PROPOSED USE (166.20(a)(5))

Please see attached studies (p. 21-53).

FOOD RESIDUES (166.20(a)(6))

Data has been submitted by Miles - Pesticide Petition Number 3F4169 and Food Additive Petition Number 3H5655.

RISK INFORMATION (166.20(a)(7))

Description of Application Sites: Use is requested for LaPaz, Maricopa, Mohave, Pima, Pinal and Yuma Counties.

Possible Risks Posed by Use: Product is generally environmentally safe, but may pose a risk to bees.

Proposals To Mitigate Risks: Applications to blooming cotton will be made at night.

COORDINATION WITH OTHER AGENCIES (166.20(a)(8))

Please see separate sheet for list of endangered of threatened species (p. 59-63).

NOTIFICATION OF REGISTRANT (166.20(a)(9))

Please see attached letter (p. 64).

ENFORCEMENT PROGRAM (166.20(a)(10))

The Arizona Department of Agriculture is the lead agency in the state for enforcement of pesticide use within the state except for structural use (ARS 3-361 et. seq.).

REPEAT USES (166.20(a)(11))

Has a final report from the previous exemption been submitted? (N/A)

PROGRESS TOWARDS REGISTRATION (166.25(b)(2)(ii))

Section 3 application pending at EPA for use on cotton.

**CONFIDOR 2 Flowable**

**CONFIDOR 2 Flowable  
Systemic Insecticide**

**FOR CONTROL OF CERTAIN INSECTS INFESTING COTTON**

**ACTIVE INGREDIENT:**

Imidacloprid, 1-[(6-Chloro-3-pyridinyl)methyl]	
-N-nitro-2-imidazolidinimine .....	21.4%
<b>INERT INGREDIENTS .....</b>	<b>78.6%</b>
	<b>100.0%</b>

Contains 2 pounds of Imidacloprid per gallon

EPA File Symbol No. 3125-URI

Net Contents: \_\_\_\_\_ Gallons

**STOP - READ THE LABEL BEFORE USE**

**Keep Out Of Reach of Children**

**CAUTION**

(See Rear Panel for Statements of Practical Treatment and Other Precautionary Statements)

**SHAKE WELL BEFORE USING**

**AVISO**

**PRECAUCION AL USUARIO:** Si usted no puede leer o entender inglés, no use este producto hasta que la etiqueta le haya sido explicada ampliamente.

**(TO THE USER:** If you cannot read or understand English, do not use this product until the label has been fully explained to you.)



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Confidor 2 Flowable Systemic Insecticide

**DIRECTIONS FOR USE (Continued)**

CONFIDOR 2 Flowable may also be used with other pesticides and/or fertilizer solutions as recommended under specific crop use directions (see NOTE below). When tank mixtures of CONFIDOR 2 Flowable and other pesticides are involved, prepare the tank mixture as recommended above. When pesticide mixtures are needed, add wettable powders first, CONFIDOR 2 Flowable, or other flowables second, and emulsifiable concentrates last. Ensure good agitation as each component is added. Do not add the second component in the mixture until the tank contains at least 1/2 of desired amount of water. If a fertilizer solution is added, a fertilizer pesticide compatibility agent may be needed. Maintain constant agitation during both mixing and application to ensure uniformity of spray mixture.

**NOTE:** Test compatibility of the intended tank mixture before adding CONFIDOR 2 Flowable to the spray or mix tank. Add proportionate amounts of each ingredient in the appropriate order, to a pint or quart jar, cap, shake for 5 minutes, and let set for 5 minutes. Poor mixing or formation of precipitates that do not readily redisperse indicates an incompatible mixture that should not be used. For further information, contact your local Miles representative.

RECOMMENDED APPLICATIONS			
CROP	PEST	RATE PER APPLICATION	REMARKS
Cotton	Whiteflies (including silverleaf or sweet potato)	<u>Foliar Application</u> 3.0 fl oz per acre	<p>Apply specified dosage per acre as a foliar-spray when whiteflies reach treatable levels. Repeat application every 7 days. Thorough coverage of the plant canopy is essential for optimal control. The preferred method of application is by ground using a minimum of 20 gallons of spray volume per acre. If applied by air, utilize a minimum of 10 gallons of spray volume per acre. This product may be tank mixed with other pesticides as recommended for control of other pests or for improved control of whitefly. A spray adjuvant may be tank mixed with CONFIDOR 2 Flowable to improve coverage.</p> <p>CONFIDOR 2 Flowable will not knock down heavy whitefly populations. If the whitefly population is well established, use CONFIDOR 2 Flowable <u>only</u> in combination with another recommended pesticide <u>or</u> apply sequential applications of CONFIDOR 2 Flowable following a minimum of 2 sequential applications of a pyrethroid-organophosphate tank mix. After a maximum of 5 applications of CONFIDOR 2 Flowable, use alternative pesticides to maintain control. Regardless of the number of CONFIDOR 2 Flowable applications made, a minimum of two applications of alternative pesticide must be utilized as the final whitefly treatments of the season.</p> <p>Application of CONFIDOR 2 Flowable made for control of whiteflies will also control aphids and plant bugs.</p> <p>Do not apply more than 15 fluid ounces (0.25 lb active ingredient) of CONFIDOR 2 Flowable per acre per season. Allow at least 14 days between last application and harvest.</p>
<p><b>Resistance:</b> Some insects are known to develop resistance to insecticides after repeated use. As with any insecticide, the use of this product should conform to resistance management strategies established for the use area. Consult your agricultural advisor for resistance management strategies and recommended pest management practices for your area.</p>			

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May 5, 1993

Miles Inc.  
8400 Hawthorn Road  
PO. Box 4913  
Kansas City, MO 64120-0013  
Phone: 816 242-2000Dr. Edwin Minch, Environmental Specialist  
Arizona Department of Agriculture  
1688 West Adams  
Phoenix, Arizona 85006Re: CONFIDOR 2 Flowable (imidacloprid; NTN 33893)  
Letter of Support / Cotton

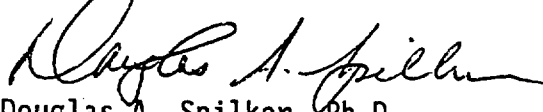
Dear Dr. Minch:

It is our understanding that the Arizona Cotton Growers Association is pursuing an Emergency Exemption for the use of CONFIDOR 2 Flowable systemic insecticide (EPA File Symbol No. 3125-URI) to control whitefly on cotton.

This letter is to inform the Department of our support of the proposed Section 18 in Arizona, and to update the Department regarding our pursuit of a Section 3 registration for the use of CONFIDOR 2 Flowable on cotton. As you are aware, we have a Section 3 application pending with the U.S. EPA for use on cotton (Pesticide Petition No. 3F4169; Food Additive Petition No. 3H5655). Furthermore, we have recently received the U.S. EPA acceptance of our proposed Experimental Use Permit (EPA EUP No. 3125-EUP-204) for the use of imidacloprid (PREMISE) as a termiticide; this EUP has just recently been submitted for your review.

Since we are actively pursuing this Section 3 use of CONFIDOR 2 Flowable on cotton, we gladly support any Section 18 requested by the cotton growers in your state. We also hereby authorize the Arizona Department of Agriculture to refer to any research and test data which may become a part of the Department's files on our active ingredient imidacloprid, in support of this specific action.

Yours very truly,

MILES INC.  
AGRICULTURE DIVISIONDouglas A. Spilker, Ph.D.  
Regulatory Affairs Specialist  
Registrations DepartmentDAS/jcm  
DAS93133cc: Mr. Robert Barkley, President  
Arizona Cotton Growers Association  
Mr. Rick Lavis, Executive Vice President  
Arizona Cotton Growers Association  
Dr. Andy Jordan, National Cotton Council



AB

# Arizona Department of Agriculture

1688 West Adams, Phoenix, Arizona 85007  
(602) 542-3578 FAX (602) 542-0466

ENVIRONMENTAL SERVICES DIVISION

(Last year)

✓

## EMERGENCY EXEMPTION FINAL REPORT (92-AZ-02)

Total Acreage Treated Under Exemption: 158,808 acres permitted.

Total Quantity of Pesticide Used:

Total Amount of Active Ingredient: 11,895 pounds

Total Amount of Product: 7,930 gallons

Discussion of the Effectiveness of the Pesticide Used:

I have discussed the value of this material in control of the whitefly on cotton with a number of growers who used it this past crop season. There is considerable disagreement as to the effectiveness of the product. Some growers felt that it was of little value, others indicated that it had helped. In general I feel that if the product was applied in a timely fashion and used several times that it did increase the control above that which would have been achieved without it. Ovasyn cannot provide the spectacular control of whiteflies that I have seen accomplished by other chemicals when used in different pest situations.

Discussion of Any Unexpected Adverse Effects Which Resulted from This Use: None

Results of Any Compliance Monitoring Required and/or Carried Out Under This Exemption: None

Discussion of Any Enforcement Actions Taken in Connection With the Exemption: We issued grower use permits to cover 158,808 acres of cotton.

Method of Disposition of Food Crop, if Required to be Destroyed Under the Exemption: N/A

Any Other Information Requested by the EPA in Connection With the Exemption: None

Was a Crisis Also Declared? No

Does this Report Cover Both a Specific or Quarantine, and a Crisis Exemption? No

Explanation Why there was a Need to Utilize Crisis Provisions, if a Crisis was Declared: N/A