

Shaughnessy No.: 109801

Date Out of EFGWB: JUL 12 1989

To: Susan Lewis
Acting Product Manager #21
Fungicide-Herbicide Branch
Registration Division (H7505C)

From: Emil Regelman, Supervisory Chemist
Chemistry Review Section #2
Environmental Fate & Ground Water Branch (H7507C)

Thru: Henry Jacoby, Acting Chief
Environmental Fate & Ground Water Branch
Environmental Fate & Effects Division (H7507C)

Attached, please find the EFGWB review of...

Reg./File # : 264-EUP-IT

Common Name : Iprodione

Type Product : Fungicide

Product Name : Rovral, Glycophene

Company Name : Rhone-Poulenc Ag Company

Purpose : Review the application for an experimental use permit (264-
EUP-IT) for iprodione on beans (dry, snap, and lima), potatoes,
& dry bulb onions.

Date Received: 2/1/89

Action Code(s): 710

Date Completed: 7/11/89

EFGWB #(s) : 90324

Total Reviewing Time: (decimal days): 2.0 days

Deferrals to: Ecological Effects Branch, EFED
Science Integration & Policy Staff, EFED
Non-Dietary Exposure Branch, HED
Dietary Exposure Branch, HED
Toxicology Branch, FHA Support/HED

1. CHEMICAL: Common name(s):

Iprodione

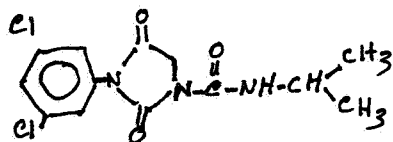
Chemical name:

3-(3,5-Dichlorophenyl)-N-(1-methylethyl)-2,4-dioxo-1-imidazolidinecarboxamide.

Other name(s):

Rovral, RP-26019, Glycophene

Structure:



Formulations:

Rovral\ 4F

Physical/Chemical properties:

Molecular formula: $C_{13}H_{13}Cl_2N_2O_3$.

Molecular weight: 329.5

Physical state: White, odorless, non-hydroscopic crystal.

Solubility: Soluble in acetone and benzene. Almost insoluble in water (13 mg/L).

2. TEST MATERIAL:

N/A.

3. STUDY/ACTION TYPE:

Review Rhone-Poulenc's application for Experimental Use Permit (264-EUP-IT) to apply iprodione (Rovral 4F, EPA Reg. No. 264-482) by air on beans (dry, snap, and lima), potatoes, and dry bulb onions in 13 states (CA, CO, ID, ME, MI, MN, ND, NM, NY, OR, TX, WA, WI).

4. STUDY IDENTIFICATION:

N/A.

5. REVIEWED BY:

Padma Datta, Ph.D.
Chemist
Chemistry Review Section 2
EFGWB/EFED/OPP

Signature: PRDatta

Date: 7/11/89

6. APPROVED BY:

Emil Regelman
Supervisory Chemist
Chemistry Review Section 2
EFGWB/EFED/OPP

Signature: 

Date: JUL 12 1989

7. CONCLUSIONS:

1. Previously submitted data are inadequate to support the proposed EUP (264-EUP-IT).
2. Of the 5 studies required to support the proposed EUP, only four have been received:

161-1 hydrolysis
162-1 aerobic soil metabolism
163-1 leaching and adsorption/desorption
165-4 accumulation in fish

The 5th study (165-1 confined rotational crops) has not yet been submitted for review.

3. Data to support the confined rotational crop requirement have been repeatedly requested from the registrant (appx. 13 times) since 1983.
4. Since 1983, EAB has concurred with several EUP requests despite lack of the confined rotational crop data since only label-specified crops (having established tolerances) would be rotated; however, EFGWB has become increasingly aware that the control of which crops may be rotated from year-to-year is not always assured by label restrictions.
5. Based on submitted environmental fate data, iprodione appears to be relatively immobile and relatively persistent in soil; therefore, EFGWB anticipates that soil residues may be uptake by rotational crops. However, we are unable to estimate the actual nature and extent of such accumulation without actual rotational crop data.

8. RECOMMENDATION:

RD should forward the confined rotational crop (165-1) study for review when received, along with any pending EUP requests.

9. BACKGROUND:

On 1/18/89, Rhone-Poulenc (registrant) submitted an application for an EUP (264-EUP-IT) to apply Rovral 4F (EPA Reg. No 264-482) by air to dry, snap and lima beans, potatoes and dry bulb onions. The experimental use program will be used to ascertain whether or not residues on beans, potatoes, and dry bulb onions will exceed already established tolerances and to gather efficacy data for Rovral 4F from aerial applications. Treatments to a total of 216 acres would be as follows:

144 lbs ai to 60 acres in NY, WI, CA, MN, ND, OR (beans)
 274 lbs ai to 72 acres in CA, ME, MI, MN, WI, CO (potatoes)
 378 lbs ai to 84 acres in in CA, CO, ID, MI, NM, NY, OR, TX, WA (onions)

With reference to this EUP, tolerances have been established under 40CFR 180.399 for the combined residues of iprodione, its isomer 3-(1-methylethyl)-N-(3,5-dichlorophenyl)-2,6-dioxo-1-imidazolidine-carboxamide, and its metabolite 3-(3,5-dichlorophenyl)-2,6-dioxo-1-imidazolidine-carboxamide in or on the following raw agricultural commodities:

Commodity	ppm
Beans, dried, vine hay	90.0
Beans, dry	2.0
Beans, forage	90.0
Beans, succulent	2.0
Onions, dry bulb	0.5*
Potatoes	0.5

* tolerance expires June 8, 1989

In its reviews of 12/17/87 and 12/31/87 (71005 and 80036), EFGWB evaluated a study on accumulation in field rotational crops. No residues of parent, its isomer, and degradates were detectable by GLC (LOD .05 ppm) in the following rotated crops: tomatoes, cotton, sugar beets planted 30 days following the last of 10-1 lb ai/a applications. Although this study was only considered partially acceptable in support of the data requirement, it was adequate to support the addition of the tested crops to the Rovral label.

The status of data requirements to support full registration of iprodione for terrestrial food crops is as follows:

161-1 - Hydrolysis	satisfied
161-2 - Photodegradation in water	satisfied
161-3 - Photodegradation on soil	satisfied
162-1 - Aerobic soil metabolism	satisfied
162-2 - Anaerobic soil metabolism	satisfied
163-1 - Leaching and adsorption/desorption	satisfied
164-1 - Field soil dissipation	satisfied
165-1 - Confined rotational crops	<u>not satisfied</u>
165-2 - Field rotational crops	<u>partially</u> satisfied
165-4 - Fish accumulation	satisfied

10. DISCUSSION OF INDIVIDUAL TESTS OR STUDIES:

N/A.

11. COMPLETION OF ONE-LINER:

See attached one-liner.

12. CBI APPENDIX:

N/A.

ENVIRONMENTAL FATE & GROUND WATER BRANCH
PESTICIDE ENVIRONMENTAL FATE ONE LINE SUMMARY

Page 1

Common Name: IPRODIONE
Chem. Name : 3-(3,5-DICHLOROPHENYL)-N-(1-METHYLETHYL)-2,4-DIOXO-
: 1-IMIDAZOLIDINE CARBOXAMIDE
Snaugh. # : 109801
Type Pest. : Fungicide
Formulation: WP50 ET AL
Uses : CONTROL OF SPRING AND SUMMER DISEASES ON TURF AND DISEASES
: OF ORNAMENTALS. ALSO FOR ALMONDS, GRAPES, STONE FRUITS,
: LETTUCER, GARLIC, ONIONS

Date: 05/04/89

CAS Number: 36734-19-7

Empir. Form: $C_{13}H_{12}N_3O_3Cl_2$
Mol. Weight: 329.16
Solub.(ppm): 13 @ 20 C

VP (Torr): <1.0E-5
Log Kow :
Henry's :

Hydrolysis (161-1)

pH 5: []
pH 7: []
pH 9: [*] 1 DA
pH 3: [*] STABLE
pH 6: [*] 20 DAYS
pH : []

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

Air : []
Soil : [*] 7-14 DAYS ON C1Lm
Water: [*] 3-7 DA
: []
: []
: []

MOBILITY STUDIES (163-1)

Soil Partition (Kd)

1. []
2. []
3. []
4. []
5. []
6. []

Rf Factors

1. [] IN SOIL COLUMN STUDIES, WITH
2. [] LOAMY MUD, SdLm, C1Lm, AND
3. [] SiC1Lm, MOST OF THE ACTIVITY
4. [] WAS IN UPPER 10 CM; IN LEACH-
5. [] ATE, 2% FROM SiC1Lm, LESS
6. [] THAN 1% FROM OTHERS

METABOLISM STUDIES (162-1,2,3,4)

Aerobic Soil (162-1)

1. [*] 20-70 DAYS, C1Lm AND SiLm
2. [*] 50-70 DA CLAY LOAM
3. [*] 30-50 DA SILTY CLAY LOAM
4. []
5. []
6. []
7. []

Anaerobic Soil (162-2)

1. [*] 20-50 DA CLAY LOAM
2. [*] 50 DA SILTY CLAY LOAM
3. []
4. []
5. []
6. []
7. []

Aerobic Aquatic (162-4)

1. []
2. []
3. []
4. []

Anaerobic Aquatic (162-3)

1. [#] 6.4 DAYS IN WATER AND 126
2. [] DAYS IN SiLm SEDIMENT.
3. []
4. []

[*] - Acceptable Study. [#] - Supplemental Study

ENVIRONMENTAL FATE & GROUND WATER BRANCH
PESTICIDE ENVIRONMENTAL FATE ONE LINE SUMMARY

Page 2

Common Name: IPRODIONE

Date: 05/04/89

VOLATILITY STUDIES (163-2,3)

[] Laboratory:

[] Field:

DISSIPATION STUDIES (164-1,2,3,5)

Terrestrial Field (164-1)

- 1.[*] 20-40 DA SAND, LOAM, SANDY CL LM
- 2.[*] 20-40 DA SANDY LOAM CLAY LOAM
- 3.[*] WITH SAMPLING AT 0-2, 2-4, AND 4-6". T_{1/2} VALUES WERE:
- 4.[] NORTHEASTERN 15-45 DAYS, SOUTHEASTERN 8-30 DAYS,
- 5.[] SOUTHWEST 15-90 DAYS, MIDWEST 40-50 DAYS
- 6.[]

Aquatic (164-2)

- 1.[]
- 2.[]
- 3.[]
- 4.[]
- 5.[]
- 6.[]

Forestry (164-3)

- 1.[]
- 2.[]

Other (164-5)

- 1.[]
- 2.[]

ACCUMULATION STUDIES (165-1,2,3,4,5)

Confined Rotational Crops (165-1)

- 1.[]
- 2.[]

Field Rotational Crops (165-2)

- 1.[*] IPRODIONE, RP-30228, RP-32490 WERE NOT DETECTABLE
- 2.[] IN SORGH., SOYBEANS etc TREATED TWICE WITH .5 LB AIA

Irrigated Crops (165-3)

- 1.[]
- 2.[]

Fish (165-4)

- 1.[*] BLUEGILL EDIBLE 102X; VISCERA 555X; WHOLE 180X
- 2.[*] CATFISH EDIBLE <50X; VISCERA 500X; WHOLE <50X

Non-Target Organisms (165-5)

- 1.[]
- 2.[]

ENVIRONMENTAL FATE & GROUND WATER BRANCH
PESTICIDE ENVIRONMENTAL FATE ONE LINE SUMMARY

Page 3

Common Name: IPRODIONE

Date: 05/04/89

GROUND WATER STUDIES (158.75)

1. []
2. []
3. []

DEGRADATION PRODUCTS

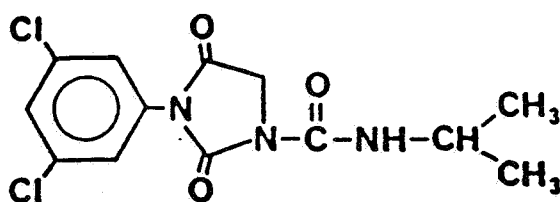
1. DICHLOROANILINE (SEE ENCLOSURE FOR OTHERS)
2. RP-30228 ACCOUNTS FOR 71% OF RADIOACT. IN SEDIMENT EXTRACTS IN
3. ANAEROBIC AQUATIC STUDY.
- 4.
- 5.
- 6.
- 7.
- 8.
9. pH AND TEMPERATURE HAVE MARKED EFFECT ON PERSISTENCE
- 10.

COMMENTS

LEACHING-SOIL COLUMN STUDY: GLYCOPHENE LEACHED 10-15 CM IN 30 CM COLUMN WITH 50 CM WATER IN 30 HOURS, USING LOAMY SAND, SANDY LOAM, AND CLAY LOAM. IT LEACHED 15-20 CM FOR SILTY CLAY LOAM. LEACHING IS A POTENTIAL PROBLEM ONLY IN SOILS OF ACID pH AND FINE TEXTURE.

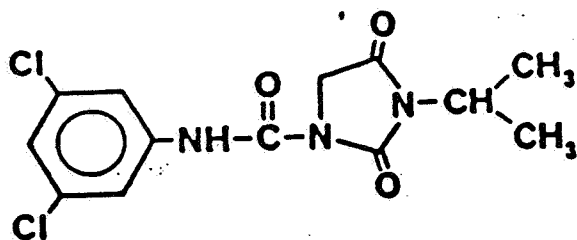
References: REG STD

Writer : J. HANNAN



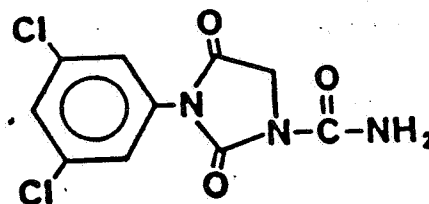
3-(3,5-Dichlorophenyl)-1-isopropyl-aminocarbonyl-2,4-dioxoimidazolidine

(Iprodione, RP-26019)

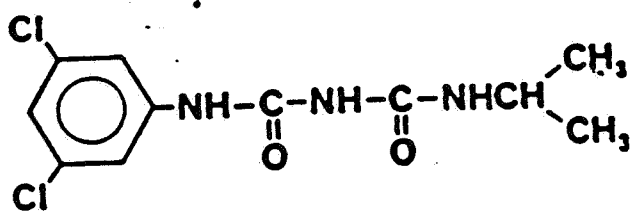


1-(3,5-Dichloroanilino)carbonyl-3-isopropylamino-2,4-dioxoimidazolidine

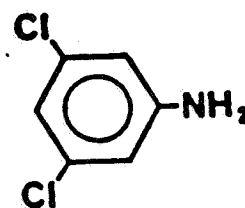
(RP-30228)



RP-32490



RP-36221



RP-32596

6570

Metabolites
code vs. name

1. RP 30228 3-(1-methylethyl)-N-(3,5-dichlorophenyl)-2,4-dioxo-1-imidazolidinecarboxamide
2. RP 32490 3-(3,5-dichlorophenyl)-2,4-dioxo-1-imidazolidinecarboxamide
3. RP 30181 3-isopropylhydantoin
4. RP 35606 1-(3,5-dichlorophenyl)carbamoyl-3-(1-methylethyl)-1-ureyleneacetic acid
5. RP 37176 3-(1-methylethyl)-N-(3,5-dichlorophenyl)-1-ureylene acetamide
6. RP 32247 3-(3,5-dichlorophenyl)-1-ureyleneacetic acid
7. RP 32956 3,5-dichloroaniline
8. RP 36233 3-(3,5-dichlorophenyl)-N-(1-methylethyl)-1-ureylene acetamide
9. MK 1 3-(3,4-dichlorophenyl)-N-(1-methylethyl)-2,4-dioxo-1-imidazolidinecarboxamide
10. MK 21 3-(3,5-dichlorophenyl)-N-(1-oxo-ethyl)-2,4-dioxo-1-imidazolidinecarboxamide
11. RP 37677 3-(3,5-dichloro-4-hydroxyphenyl)-N-(1-methylethyl)-2,4-dioxo-1-imidazolidinecarboxamide
12. MK 41 3-(3-chloro-5-hydroxyphenyl)-N-(1-methylethyl)-2,4-dioxo-1-imidazolidinecarboxamide
13. MK 7060 3-(dihydroxyphenyl)-N-(1-methylethyl)-2,4-dioxo-1-imidazolidinecarboxamide
14. RP 36221 3-(1-methylethyl)-N-(3,5-dichlorophenyl)-1-ureylene carboxamide
15. RP 35606 1-(3,5-dichlorophenyl)carbamoyl-3-(1-methylethyl)-1-ureyleneacetic acid

AIN 5721-93

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- ☐ Description of quality control procedures.
- ☐ Identity of the source of product ingredients.
- ☐ Sales or other commercial/financial information.
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