

US EPA ARCHIVE DOCUMENT

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

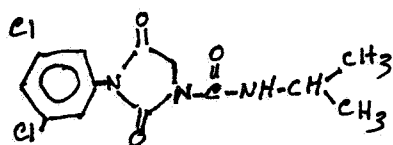
Chemical name:

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:  $C_{13}H_{13}Cl_2N_3O_3$

Molecular weight: 329.5

Physical state: White, odorless, non-hygroscopic 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:

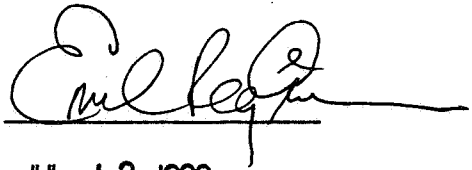
Padma Datta, Ph.D.  
Chemist  
Chemistry Review Section 2  
EFGWB/EFED/OPP

Signature: PKDatta

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 satisfied</u>
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: IPRIDIONE Date: 05/04/89  
Chem. Name : 3-(3,5-DICHLOROPHENYL)-N-(1-METHYLETHYL)-2,4-DIOXO-  
: 1-IMIDAZOLIDINE CARBOXAMIDE.  
Snaugh. # : 109801 CAS Number: 36734-19-7  
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

Empir. Form:  $C_{13}H_{12}N_3O_3Cl_2$  VP (Torr): <1.0E-5  
Mol. Weight: 329.16 Log Kow :  
Solub.(ppm): 13 @ 20 C 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 ClLm  
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, ClLm, AND  
3. [ ] SiClLm, MOST OF THE ACTIVITY  
4. [ ] WAS IN UPPER 10 CM; IN LEACH-  
5. [ ] ATE, 2% FROM SiClLm, LESS  
6. [ ] THAN 1% FROM OTHERS

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

Aerobic Soil (162-1)

1. [\*] 20-70 DAYS, ClLm 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". T1/2 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: IPRADIONE

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.

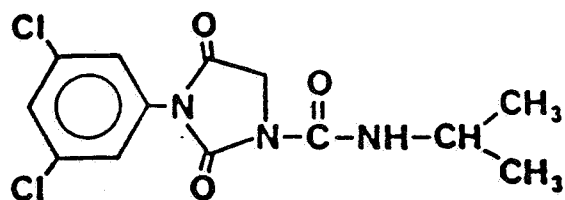
COMMENTS

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

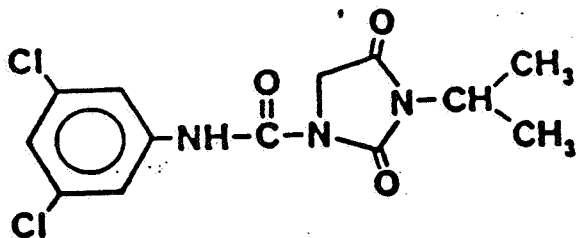
Writer : J. HANNAN





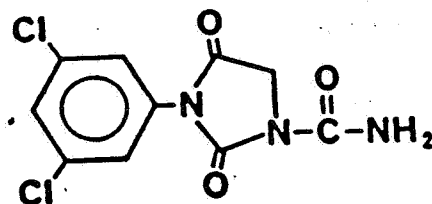
3-(3,5-Dichlorophenyl)-1-isopropyl-aminocarbonyl-2,4-dioxoimidazolidine

(Iprodione, RP-26019)

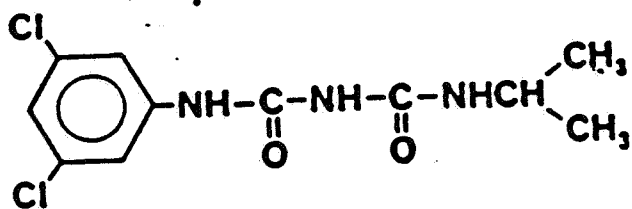


1-(3,5-Dichloroanilino)carbonyl-3-isopropylamino-2,4-dioxoimidazolidine

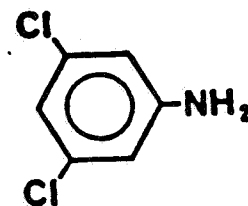
(RP-30228)



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-oxoethyl)-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

Reproduction of EF Reviews

Page      is not included in this copy.

Pages 11 through 20 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.