



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

R.F.
11-28-89

NOV 28 1989

OFFICE OF
PESTICIDES AND TOXIC SUBSTANCES

MEMORANDUM

SUBJECT: PP#9E3790. Iprodione (Rovral® 50W Fungicide) in or on Chinese Mustard. Evaluation of Analytical Methods and Residue Data
EPA Reg. No. 264-453.
(MRID # 411928-00, 01. DEB # 5693).

From: Freshteh Toghrol Ph.D., Chemist *F. Toghrol*
Special Registration Section II
Dietary Exposure Branch
Health Effect Division (H7509C)

THRU: Leung Cheng, Acting Section Head *L. Cheng*
Special Registration Section II
Dietary Exposure Branch
Health Effect Division (H7509C)

To: Hoyt L. Jamerson, PM-43
Emergency Response and Minor Use Section
Registration Division (H7505C)

and
Toxicology Branch
Health Effect Division (H7509C)

The IR-4 National Director, Dr. R. H. Kupelian, State Agricultural Experiment Station, Rutgers University, New Brunswick, New Jersey 08903, on behalf of the IR-4 project and the Agricultural Experiment Station of Florida requests the establishment of a tolerance for the combined residues of the fungicide Iprodione [3-(3,5-dichlorophenyl)-N-(1-methylethyl)-2,4-dioxo-1-imidazolidinecarboxamide], its isomer [3-(1-methylethyl)-N-(3,5-dichlorophenyl)-2,4-dioxo-1-imidazolidine carboxamide], and its metabolite [3-(3,5-dichlorophenyl)-2,4-dioxo-1-imidazolidinecarboxamide] at 15.0 ppm, in Florida only.

46

Permanent tolerances are established (40 CFR 180.399) for combined residues of Iprodione [3-(3,5-dichlorophenyl)-N-(1-methylethyl)-2,4-dioxo-1-imidazolidinecarboxamide], its isomer [3-(1-methylethyl)-N-(3,5-dichlorophenyl)-2,4-dioxo-1-imidazolidinecarboxamide], and its metabolite [3-(3,5-dichlorophenyl)-2,4-dioxo-1-imidazolidinecarboxamide] in or on: Bean vines (dried hay) at 90.0 ppm, beans (dry) at 2.0 ppm, bean forage at 90.0 ppm, beans (succulent) at 2.0 ppm, onion (dry bulb) at 0.5 ppm, lettuce at 25 ppm, and broccoli at 25 ppm.

A temporary tolerance for iprodione/metabolites on potatoes at 0.5 ppm expired on 6/8/89.

Conclusion

1. The nature of residue in plants and animals is adequately understood for the purpose of this petition. The residue of concern in plants and animals are iprodione (RP-26019), its isomer (RP-30228) and its metabolite (RP-3290).
2. An analytical method is available for enforcement purposes in PAM II.
3. Field residue data, for iprodione on Chinese mustard grown in Florida show that residues are not likely to exceed the proposed tolerance level of 15 ppm, with a 10 day PHI.
4. Chinese mustard is not used as animal feed item. Therefore, animal metabolism and secondary residues of iprodione in meat, milk, poultry, and eggs are not expected as a result of the proposed use.
5. An International Residue Limit Status sheet is attached. There are no internationally established tolerances for iprodione in or on Chinese mustard. Therefore, there are no compatibility problems.

Recommendation:

Tox consideration permitting DEB recommends for the establishment of the proposed tolerance of 15 ppm for residues of iprodione, its isomer and its metabolite in or on Chinese mustard in Florida.

Detailed Consideration

Manufacture and Formulation

The manufacturing process and composition of iprodione have been adequately discussed (A. Rathman, PP#8G2084, 3/2/79). The impurities are not likely to produce a residue problem.

This product is formulated as Rovral® 50W Fungicide (EPA Reg. No. 264-453) and containing 50% of the active ingredient iprodione. All inerts are cleared for use under 40 CFR 180.1001.

Proposed use:

Rovral® 50W Fungicide, EPA Reg. No. 264-453 is to be used on Chinese mustard grown in Florida only. Apply as a foliar spray in sufficient water to obtain thorough coverage (50 to 100 gallons/A), at the rate of 1.0 lb ai/A, with 10 to 14 day interval as long as conditions favor disease development. Do not apply within 10 days of harvest. Do not make more than 4 applications of Rovral® 50W Fungicide/season.

Nature of the Residue

Plant Metabolism

Plant metabolism studies were not submitted with this petition. However based on the plant metabolism data submitted earlier in support of other petitions strawberries and wheat PP#8G2087, peaches PP#2F2596, lettuce PP#3G2801, peanuts PP#4G3037, and rice PP#6F3443/FAP#6H5507, it was concluded that the nature of the residue is adequately understood. The residue of concern consists of iprodione (RP-26019), its isomer (RP-30228) and its metabolite (RP-32490).

Animal Metabolism:

No animal metabolism data were submitted with this petition. Based on the animal metabolism data submitted earlier in support of other petitions (cows and goats in PP#2F2728 and chickens in PP#3F2964), DEB concludes that nature of the residue in animals is adequately understood. The residue of concern in animals consists of iprodione, its isomer and its metabolites.

Analytical Method

The analytical method used to generate data for residues of iprodione, its isomer and its metabolite in or on Chinese mustard are "Analyses for Iprodione, RP32490 and PR30228". The same method was used to generate data for peaches, nectarines and plums (PP#8E3645, R. W. Cook, 7/22/88).

Chinese mustard analyses were conducted at IR-4 Northeast Region Analytical Laboratory NYSAES-Cornell University Geneva, NY 11456-0462. In summary, iprodione, its isomer (PR30228) and its metabolite (RP-32490) are extracted with acetone from Chinese mustard samples. The extract is evaporated to dryness using a rotary evaporator. The residue is washed with a mixture of water and 1% Na_2SO_4 and is extracted 3 times with 10% ethylacetate/methylene chloride. The extract is evaporated to dryness using a rotary evaporator, and the residue is dissolved in 25 ml acetonitrile using a sonicator for 2 minutes and is analyzed by HPLC, with a ABI Kratos 757 photodetector. Percent recovery at fortification level of 0.2 and 4.0 ppm for iprodione, its isomer (RP-30228) and its metabolite (RP-32490) ranged from 94 to 110, 92 to 102, and 90 to 95 respectively. The limit of detection for the method is reported to be 0.025 ppm for each compound (PP#8E3645, R. W. Cook, 7/22/88).

There is a method (GC) available in PAM II for iprodione on kiwi fruit for enforcement purposes. This method was submitted in conjunction with PP#3F2810 (R. Perfetti, 3/21/83).

DEB concludes that adequate methods are available for enforcement purposes.

Storage Stability

The storage stability data, for iprodione, its isomer and its metabolite on Chinese mustard at fortification level of 0.2 and 0.5 ppm for 2 month ranged from 94% to 100%, 90% to 98% and 90% respectively. These data indicate that iprodione/ metabolite are stable for at least 2 months in or on Chinese mustard at -20 °C.

Magnitude of the Residue on Chinese Mustard:

The field trials for iprodione on Chinese mustard were conducted in Delray Beach, Florida, in 1988. Four foliar applications of iprodione at 1.0 lb ai/A (1X) and 2.0 lb ai/A, (2X) were made on Chinese mustard, with 10 day intervals.

Chinese mustard was harvested 10 days after the last application, frozen in dry ice, shipped while frozen to the

analytical laboratory. The samples at the laboratory were kept at -20 °C, till analysis (ca. 3.5 months).

Table I. Residues of iprodione (RP-26019), its isomer (RP-30228) and its metabolite (RP-32490) in or on Chinese mustard.

<u>lb ai/A</u>	<u># of appli-</u> <u>-cation</u>	<u>PHI</u> <u>day</u>	<u>Residue ppm</u>		
			<u>Iprodione</u>	<u>isomer</u>	<u>metabolite</u>
1.0	4	10	7.5	0.36	0.1
1.0	4	10	4.3	0.26	<0.1
1.0	4	10	4.6	0.35	0.14
1.0	4	10	6.8	0.42	0.16
2.0	4	10	21.0	0.67	0.16
2.0	4	10	24.0	0.70	0.18
2.0	4	10	17.0	0.74	0.18
2.0	4	10	24.0	1.10	0.26

Based on above data, DEB concludes that the proposed use (4 application at 1.0 ai/A) of iprodione in or on Chinese mustard will not exceed the proposed 15.0 ppm tolerance.

Meat, Milk, Poultry, and Eggs

There are no animal feed items involved, therefore secondary residues are not expected to be found in meat, milk, poultry, and eggs.

Other Considerations:

The International Tolerance Status sheet is attached. There are no established tolerances for iprodione/isomer/metabolite in or on Chinese mustard in other countries or Codex, therefore there are no compatibility problems.

cc: PP#9E3790, Iprodione S.F., R.F., Circ., F. Toghrol, R. Schmitt: Branch Chief, PMSD/ISB (Eldredge), SACB (J. R. Tomerlin).
 RDI: L. Cheng: Acting Section Head (11/28/89): E. Zager: Deputy Branch Chief (11/28/89):
 TS-H7509C:DEB:F.Toghrol:F.T.:RM:802:CM#2:703-557-7887:11/28/89.

J. Shes
11/27/89

Attachment:

Page 1 of 1

INTERNATIONAL RESIDUE LIMIT STATUS

CHEMICAL Iprodione

CODEX NO. III

CODEX STATUS:

☒ No Codex Proposal
Step 6 or Above (on mustard).

Residue (if Step 8): _____

Iprodione residue

<u>Crop(s)</u>	<u>Limit</u> <u>(mg/kg)</u>
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PROPOSED U.S. TOLERANCES:

Petition No. 9E3790

DEB Reviewer Freshet Teshrol

Residue: Iprodione, its isomer
and its metabolite

<u>Crop(s)</u>	<u>Limit</u> <u>(mg/kg)</u>
Chinese mustard	15 PPM

CANADIAN LIMITS:

☒ No Canadian Limit (on mustard)

Residue: Iprodione
metabolite

<u>Crop(s)</u>	<u>Limit</u> <u>(mg/kg)</u>
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MEXICAN LIMITS:

☐ No Mexican Limit

Residue: _____

<u>Crop(s)</u>	<u>Limit</u> <u>(mg/kg)</u>
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Iprodione [3-(3,5-dichlorophenyl)-N-(1-methylethyl)]

NOTES dioxo-1-imidazolidine carboxamide
Form Revised 1989

* Metabolite: 3-(3,5-dichlorophenyl)-N-(1-methylethyl)-2-oxo-1-imidazolidine carboxamide
3-(3,5-dichlorophenyl)-N-(1-methylethyl)-2-oxo-1-imidazolidine carboxamide