

SUBJECT:

PP#OG2402. Iprodione on almonds. Evaluation of the analytical method and residue data.

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Rhone-Poulenc Chemical Company, Agrochemical Division, is requesting a temporary tolerance for residues of the fungicide Iprodione [3-(3,5-dichlorophenyl)-N-(1-methylethyl)-2,4-dioxo-1-imidazolidinecarboxamide] and its metabolites, RP 30228 [3-(1-methylethyl)-N-(3,5-dichlorophenyl)-2,4-dioxo-1-imidazolidinecarboxamide] and RP 32490 [3-(3,5-dichlorophenyl)-2,4-dioxo-1-imidazolidine carboxamide] in or on almond nut meat at 0.05 ppm.

The present proposal provides for the application of 46 lbs of active to treat approximately 16 acres of almonds in California for a period of two years. Testing of iprodione would involve both aerial and ground application.

A temporary tolerance for residues of this chemical and its metabolites has been established in apricots, cherries (sweet and sour), nectarines, peaches and plums (fresh prunes) at 20 ppm.

Conclusions

1. For the purpose of this temporary tolerance, the fate of Iprodione in plants has been adequately delineated. The primary residues will consist of the parent compound and the isomer RP30288.
2. Adequate analytical methodology is available to enforce the proposed tolerance.
3. For the purpose of this EUP, the proposed tolerance of 0.05 ppm is adequate to cover combined residues of Iprodione and its metabolites resulting from the proposed use.
4. There are no concerns with secondary residues in meat, milk, poultry and eggs.

Recommendations

We recommend that the proposed temporary tolerance of 0.05 ppm for the combined residues of Iprodione and its metabolites be granted.

Detailed Considerations

Formulation

Iprodione is formulated as Rovral® a wettable powder and contains 53.16% of technical iprodione, [REDACTED]. The inerts in the formulation are cleared under Sec. 180.1001.

The manufacturing procedure and technical impurities are described in detail in PP#8G2087 (see A. Rathman memo of 3/2/79). No residue problems are anticipated from the low levels of technical impurities.

Proposed Use

Rovral® is a fungicide proposed for use in the control of monilinia brown rot blossom blight on almonds. A foliar spray is to be applied at the rate of 0.125 lbs active/100 gallons in sufficient water to obtain thorough coverage (100-400 gallons per acre by ground application and 20 gallons per acre by aerial application). Application is made at red tip and if conditions are favorable for disease development, a second application should be made at full bloom. The maximum recommended use rate is 0.5 lb active/A/application.

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There is a restriction against grazing treated orchards or feeding treated cover crops to animals. The almonds must be custom hulled and the hulls destroyed. Given the limited size of this EUP, we consider such a hull restriction to be practical.

Nature of the Residue

No data on the fate of Iprodione on almonds has been submitted. However, a study on the metabolism of Iprodione on strawberries and wheat was reviewed in PP#8G2087. In this study ¹⁴C-Iprodione uniformly labeled in the phenyl ring was applied either as a ground (pre-plant) or foliar treatment.

Autoradiographs of plants given foliar treatments show that most of the activity remains at the site of application. The majority of the activity from plants given foliar treatment was due primarily to the parent compound. The isomer, 3-(1-methylethyl)-N-(3,5-dichlorophenyl)-2,4-dioxo-1-imidazolidinecarboxamide (RP 30228), was also detected, but was a very minor constituent of the residue.

In the case of soil treatments, residues are taken up in the roots and translocated to the aerial portions of the plant. The majority of the

INERT INGREDIENT INFORMATION IS NOT INCLUDED

activity was in a bound form (especially in the roots) and was not identified. Activity in the leaves and stems also contained a high portion of bound residue with the extractable residue identified as the parent, RP 30288 and RP 32490.

Since the use under consideration here is a foliar application, we consider the fate of Iprodione in plants sufficiently detailed for the purpose of this temporary tolerance. The primary residues will consist of the parent compound and the isomer RP 30288. Both are determined by the proposed method of analysis.

Data characterizing animal metabolites has not been submitted. An animal study using radioactive Iprodione demonstrated that within 96 hrs after dosing, close to 99% of the administered dose was excreted.

Since the label restricts the grazing of treated orchards and the feeding of treated cover crops and almond hulls to animals, we are not here pursuing the inadequacies in delineation of the metabolism of Iprodione in animals.

Analytical Methodology

The analytical method used to generate the residue data for this petition was Rhodia Analytical Method No. 151. The samples were analyzed for parent compound (RP 26019) and its two metabolites 3-(1-methylethyl)-N-(3,5-dichlorophenyl)-2,4-dioxo-1-imidazolidinecarboxamide (RP 30228) and 3-(3,5-dichlorophenyl)-2,4-dioxo-1-imidazolidinecarboxamide (RP 32490).

The method involves extraction of the residue by blending with acidified acetone. After filtration, the solvent is evaporated. The aqueous phase is extracted with 10% ethyl acetate in methylene chloride and drained through a bed of anhydrous sodium sulfate. The solvent is evaporated and the residue is dissolved in ethyl acetate/toluene; 3:1 (v/v). The sample is then subjected to further clean-up with gel permeation and florisil column chromatography. Residues are determined by GLC using an electron capture (^{63}Ni). The limit of detection is approximately 0.05 ppm for the total residues.

In almond nut meats and almond shells, samples were fortified at levels ranging from 0.05-0.5 ppm. Recoveries of the parent compound ranged from 83.3-128% with the mean value being 104%. Recoveries for the metabolite RP 30228 ranged from 84.3%-115.0% with the mean value being 98.14%. Recoveries for the metabolite RP 32490 ranged from 82.4% - 107.9% with the mean value being 94.9%.

A TLC procedure is available for confirmation. In addition, the company tested the method in the presence of a number of pesticides. Results show that, with the exception of methoxychlor, none of the pesticides interfered with the determination of RP 26019 or its metabolites. The peak for methoxychlor on the RP 26019 column was close to the retention time for RP 26019. A sample spiked with methoxychlor was taken through the entire analytical procedure. Results show that methoxychlor, after going through the analytical procedure, does not interfere with the determination of RP 26019.

We consider the method acceptable for enforcement of the proposed temporary tolerances.

Residue Data

Residue studies with Rovral® (RP 26019) were conducted on eight plots of California almond trees. In seven of the eight studies, Rovral® was applied at rates of 0.5 lb a.i./A/ application, 0.75 lb a.i./A/ application, and 1.0 lb a.i./A/ application. Applications were made at green tip to early bloom, full bloom, and petal fall for a total of three applications, resulting in total rates of 1.5, 2.25 & 3.0 lb a.i./A/ application. In the eighth study, only the 1.0 lb a.i./A/ application rate was applied. Three application schedules were followed in this test: early pink; early pink and full bloom; early pink, full bloom, and petal fall.

Almonds samples were collected after they had fallen to the ground. Random samples were taken and separated into hulls, shells, and nut meats. These samples were analyzed for parent compound (RP 26019) and its two metabolites (RP 30228 and RP 32490).

No residues (<0.05 ppm) of RP26019, RP30228 and RP32490 were found in/on the nut meat from any of the treated almonds including the exaggerated total rate of 3.0 lb a.i./A.

Residues of RP26019 and RP30228 at low levels, 0.12 ppm and 0.05 ppm respectively, were found in only one sample of shells from all the treated plots and this sample was from a plot which received 3.0 lb a.i./A (total). No RP32490 was detected (<0.05 ppm) in or on any samples treated at the exaggerated rate.

We conclude from the above studies that the temporary tolerance of 0.05 ppm in or on almond nut meat resulting from the proposed use is adequate.

Meat, Milk, Poultry and Eggs

Since hulls are to be destroyed, there are no feed items involved in this petition. Considering the label restriction against grazing treated orchards or feeding treated cover crops to animals, there will be no problems with secondary residues in meat, milk, poultry and eggs.

cc: Reading file
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Reviewer
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TS-769:Reviewer:LSPropst:LDT:X77324:CM#2:RM:810:Date:11/25/80
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