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OFFICE OF  
PESTICIDES AND TOXIC SUBSTANCES

MEMORANDUM

SUBJECT: 85-OR-04. Proposed Section 18 emergency exemption for the use of iprodione (Rovral) on caneberries grown in Oregon. RCB #939.

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THRU: Edward Zager, Section Head *E. Zager*  
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TO: Donald R. Stubbs, PM #41  
Emergency Response and Minor Use Section  
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and

Toxicology Branch  
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The Oregon Department of Agriculture is requesting a Section 18 emergency exemption allowing use of the fungicide iprodione, trade name: Rovral 50 WP, for the control of Botrytis fruit rot in/on caneberries grown in Oregon.

Permanent tolerances are established for the combined residues of the fungicide iprodione [3-(3,5-dichlorophenyl)-N-(1-methyl ethyl)-2,4-dioxo-1-imidazolidinecarboxamide], its isomer [3-(1-methyl ethyl)-N-(3,5-dichlorophenyl)-2,4-dioxo-1-imidazolidinecarboxamide], and its metabolite [3-(3,5-dichlorophenyl)-2,3-dioxo-1-imidazolidinecarboxamide], in/on several raw agricultural commodities at 10 ppm for Kiwi fruit and 20 ppm for several stone fruits (40 CFR 180.399). PP# 5E3214 proposing a tolerance of 15 ppm for residues of iprodione in/on raspberry, boysenberry, blueberry and currants is currently under review.

The proposed use would permit aerial or ground application of Rovral 50 WP at 0.5-1.0 lb act/A in 50-100 gallons of spray solution, for a maximum of 5 applications/season with last application as late as harvest (O-PHI).

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The metabolism of iprodione is adequately understood and is discussed in connection with PP# 8G2087 (memo of A. Rathman, 3/2/79) and PP# OG2402 (memo of L. Propst, 11/28/80). For the purpose of this Section 18 exemption, the residues of concern are the parent iprodione [3-(3,5-dichlorophenyl)-N-(1-methyl ethyl)-2,4-dioxoimidazolidine-1-carboxamide], its isomer RP30228 [3-(1-methyl ethyl)-N-(3,5-dichlorophenyl)-2,4-dioxo-1-imidazolidinecarboxamide], and its metabolite RP32490 [3-(3,5-dichlorophenyl)-2,4-dioxo-1-imidazolidinecarboxamide].

The analytical method used to determine iprodione residues in/on raspberries and blackberries is described in this submission. The method involves conversion of the parent compound, iprodione and its metabolites to 3,5-dichloroaniline (DCAA) under strong alkaline conditions. The method was adapted after Pease (J. Agr. Food Chem. 10:279, 1962) in which diuron was hydrolyzed under alkaline conditions to 3,4-dichloroaniline. Briefly, the method involves refluxing the sample with 20% aqueous sodium hydroxide. The resulting dichloroaniline is removed from the hydrolysis mixture by steam distillation. The distillate is then partitioned with hydrochloric acid solution and the residues are extracted from the acid phase using benzene/sodium hydroxide. The residues in the benzene phase is then analyzed for 3,5-dichloroaniline using GC equipped with Scandium EC detector. The dichloroaniline equivalent is calculated as iprodione. Minimum method detectability is 0.01 ppm.

Using the above described procedure, recoveries for raspberry samples fortified at 0.2-10 ppm, ranged from 87-108% for iprodione, its isomer and its metabolite, averaging 95%. The high background residues of 0.28, 0.58 and 0.61 ppm from Summer and Lynden, WA samples reported to be due to contamination. Recoveries from stored samples were reported at 89 to 115, averaging 100%.

For the purpose of this Section-18 exemption, we conclude that the alkaline hydrolysis method described in this request will be adequate for enforcement. In this method iprodione residues are converted to dichloroaniline moieties which are then calculated as iprodione equivalent.

The above described method is different than method I PAM II described for Kiwi fruit which involves acetone extraction in a buffered pH-7 solution and partitioning with methylene chloride. A successful method tryout of this method has been performed by the EPA. This method is also recommended for enforcement.

Residue data included with this request reflect 2 field trials from Summer and Lynden, Washington and one control trial from Graham, Washington. Raspberries and blackberries received 5-6 applications of iprodione at 1-2 lbs act/A/application (1-2x). The combined iprodione residues in/on raspberries at 0-day PHI ranged from 5.22 to 11.74 ppm, reflecting 1X rate and from 11.11 to 22.68 ppm at the 2X rate, corrected for recovery and interference. Much lower residues were observed in/on blackberries, a maximum corrected value of 2.84 ppm reflecting an exaggerated rate of 2X at 0-day PHI.

From the available data, we conclude that the combined residues of iprodione [3-(3,5-dichlorophenyl)-N-(1-methyl ethyl)-2,4-dioxo-1-imidazolidinecarboxamide], its isomer [3-(1-methyl ethyl)-N-(3,5-dichlorophenyl)-2,4-dioxo-1-imidazolidinecarboxamide], and its metabolite [3-(3,5-dichlorophenyl)-2,4-dioxo-1-imidazolidinecarboxamide] in/on canberries will not exceed 15 ppm as a result of the proposed use.

#### Meat, Milk, Poultry and Eggs

There are no feed items involved in this use. Therefore, there will be no problem with secondary residues in meat, milk, poultry and eggs.

#### Conclusions

1. For the purpose of this Section 18 exemption, we consider the residue of concern of iprodione in plants to be the parent compound iprodione [3-(3,5-dichlorophenyl)-N-(1-methyl ethyl)-2,4-dioxoimidazolidine-1-carboxamide], its isomer [3-(1-methyl ethyl)-N-(3,5-dichlorophenyl)-2,4-dioxo-1-imidazolidinecarboxamide], and its metabolite [3-(3,5-dichlorophenyl)-2,4-dioxo-1-imidazolidinecarboxamide].
2. Adequate analytical methodologies are available for enforcement. The method, described in this request, utilizes the alkaline hydrolysis to convert iprodione residues to the dichloroaniline moieties which are then calculated as iprodione, equivalent. Method I of PAM II described for Kiwi fruits may also be used for enforcement.
3. Residues of iprodione [3-(3,5-dichlorophenyl)-N-(1-methyl ethyl)-2,4-dioxo-1-imidazolidinecarboxamide], its isomer [3-(1-methyl ethyl)-N-(3,5-dichlorophenyl)-2,4-dioxo-1-imidazolidinecarboxamide], and its metabolite [3-(3,5-dichlorophenyl)-2,4-dioxo-1-imidazolidinecarboxamide] will not exceed 15 ppm in/on canberries as a result of the proposed use.

4. There will be no problem with secondary residues of iprodione in/on meat, milk, poultry and eggs from this use.
5. Reference standards for iprodione, its isomer and its metabolite are available from the US EPA Pesticide and Industrial Chemical Repository.

Recommendations

TOX considerations permitting, we have no objections to the proposed Section 18 exemption. An agreement should be made with FDA regarding the legal status of the treated commodities in commerce.

cc: R.F., Circu, Reviewer, iprodione(Rovral)S.F., Section 18 S.F. Pmsd/KF  
RDI: EZ:5/7/85:RDS:5/7/85  
TS-769:RCB:SM:bj:RM-810:CM#2:X557-7377:5/8/85