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

PROPICONAZOLE

MAR 17 1986

OFFICE OF
PESTICIDES AND TOXIC SUBSTANCES

Memorandum

Subject: 86-TX-05. Section 18 emergency exemption
for use of Tilt 3.6 EC on rice in Texas.
RCB No. 632

From: Francis B. Suhre, Chemist *Francis B. Suhre*
Residue Chemistry Branch
Hazard Evaluation Division (TS-769)

Thru: Edward Zager, Section Head *E. Zager*
Special Registration Section II
Residue Chemistry Branch
Hazard Evaluation Division (TS-769)

To: Donald R. Stubbs/L. Pemberton, PM #41
Registration Support and Emergency
Response Branch
Registration Division (TS-767)

and

Toxicology Branch
Hazard Evaluation Division (TS-769)

The Texas Agricultural Extension Service is requesting a Section 18 emergency exemption for the use of Tilt 3.6 EC (3.6 lbs per gallon of 1-[[2-(2,4-dichlorophenyl)-4-propyl-1,3-dioxolan-2-yl]methyl]-1H-1,2,4-triazole; common name, propiconazole) EPA Reg. No. 100-617 to control sheath blight, R. Solani, in Texas rice growing areas.

Ciba-Geigy Corporation has submitted a petition (PP#4F3074) to establish tolerances for propiconazole and its metabolites convertible to 2,4-dichlorobenzoic acid at 0.1 ppm in rice grain and 3.0 ppm in rice straw. The petition is currently in reject status due to deficiencies not directly relevant to this Section 18 request.

The proposed use calls for the application of 8 ounces (100 g ai/A) of Tilt 3.6 EC at the time of internode elongation (panicle differentiation) or 6 ounces (75 g ai/A) at the

time of first internode elongation (panicle initiation) and a second application of 6 ounces at the time of booting before the boot splits and the heads emerge.

Application will be made by a certified applicator using aerial spray techniques. 10,000 gallons of Tilt 3.6 EC will be used during the 1986 Texas rice season. Use restrictions will include: Do not apply within 41 days of harvest or to stubble or ratoon crop rice; Do not apply to headed rice; Water drained from treated areas must not be used for irrigation of other crops.

The metabolic nature of propiconazole in grain and livestock has previously been reviewed (PP#4F3074, A. Smith memorandum of 7-12-84). Plant residues consist of the parent compound; free and conjugated metabolites containing the intact parent ring and free and conjugated metabolites containing both the phenyl and triazole rings. Residues in the fruiting parts of the plant consist primarily of triazole ring metabolites including 1,2,4-triazole-1-alanine. Residues in animal tissue consist of the parent compound; free and conjugated metabolites containing the intact parent ring system with hydroxy groups, carboxylic acid groups, or hydroxy acid groups on the alkyl side chain of the dioxolane ring and to a lesser extent metabolites of the intact dichlorophenyl and triazole ring structure; in addition residues of triazole, triazolealanine conjugates and acetyl triazolealanine were found in liver and milk. Residues did not concentrate in the fat of meat and milk.

Analytical methodology adequate for assaying propiconazole and its metabolites, convertible to 2,4-dichlorobenzoic acid, in plants and livestock exists and are described in AG-415, residues in crops by conversion to 2,4-dichlorobenzoic acid (Accession Number 252457), and AG-359, residues in milk, eggs, and animal tissue by conversion to 2,4-dichlorobenzoic acid (Accession Number 252458). The methods are based on gas chromatography and electron capture detection. Method sensitivity is 0.05 ppm with recoveries generally ranging from 70 to 90%. The available methodology does not determine the presence of 1,2,4-triazole or its conjugates.

Residue data on propinazole in and on rice were submitted in support of previous Section 18 requests. Data (Accession No. 252457) in support of 84-MN-06 were reviewed by K.W. Dockter (see memorandum of 7-6-84). The data reflects field trials from wild rice growing areas of Minnesota. Residues in the wild rice grain from three treatment regimes: 1) 75 g ai/A at boot stage; 2) 100 g ai/A at boot stage and 3) 75 g ai/A at boot stage followed by 75 g ai/A at flowering. Residues ranged from <0.05 to 0.25 ppm propiconazole equivalents. The 0.25 ppm residue resulted from a 100 g ai/A treatment at the boot stage and a PHI of 37 days. 75 g ai/A at booting and a

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PHI of 37 days produced no residues (<0.05 ppm) in the rice grain. Data (Accession No. 252458) in support of 86-AR-02 were reviewed by S. Malak (see memorandum of 4-18-84). The data reflects four field trials conducted in Arkansas, Louisiana, and Mississippi. Tilt 3.6 EC was applied in one of four treatment regimes: 1) 75 g ai/A at internode elongation followed by 75 g ai/A at booting; 2) 125 g ai/A at internode elongation followed by 125 g ai/A at booting; 3) 125 g ai/A at internode elongation and 4) 250 g ai/A at internode elongation. Residues determined as 2,4-dichlorobenzoic acid, in rice straw and grain from application of Tilt at 75 + 75 g ai/A (treatment regime 1) ranged from 0.1 to 2.08 ppm in rice straw and <0.05 ppm in rice grain at PHI's of 53 to 66 days. Rice in fields treated with 125 + 125 g ai/A (treatment regime 2) produced no residues (<0.05 ppm) in rice grain at PHI's of 53 and 63 days. Residues in rice straw and grain from a single application of 125 g ai/A (treatment regime 3) ranged from 0.05 to 1.84 ppm in rice straw and <0.05 ppm in rice grain at PHI's of 67 to 80 days. Residues in rice grain treated with a single application of 250 g ai/A (treatment regime 4) were <0.05 ppm at a PHI of 67 days. Based on these studies, RCB concludes that residues of propiconazole and its metabolites, convertible to 2,4-dichlorobenzoic acid, will not exceed 0.05 ppm in or on rice hulls, polished rice, and other milled rice products as a result of the proposed use.

Potential livestock feed items include rice grain with hulls, rice straw and the milled fractions. Based on a previous review (84-AR-02, S. Malak memorandum of 4-18-84) RCB concludes that these feed items when used at the maximum dietary burden will contribute <0.35 ppm to cattle and 0.04 ppm to poultry's diet and that this amount will not lead to secondary residues exceeding 0.05 ppm in milk, eggs and meat, fat, and meat by-products of cattle, goats, hogs, horses and sheep as a result of this use. The available data do not permit estimation of residues of 1,2,4-triazole and its conjugates in meat, milk, poultry and eggs from this use.

Conclusions

1) RCB considers the residues of concern in plants and animals to be propiconazole, its metabolites convertible to 2,4-dichlorobenzoic acid and 1,2,4-triazole and its conjugates.

2a) RCB does not expect residues of propiconazole and its metabolites, convertible to 2,4-dichlorobenzoic acid, to exceed 0.05 ppm in and on the grain or hulls and milled products of rice as a result of the proposed use.

2b) RCB does not expect residues of propiconazole and its metabolites, convertible to 2,4-dichlorobenzoic acid, to exceed 3.0 ppm in and on rice straw as a result of the proposed use.

2c) RCB does not expect secondary residues of propiconazole and its metabolites, convertible to 2,4-dichlorobenzoic acid, to exceed 0.05 ppm in milk, eggs, and the meat, fat and meat by-products of cattle, goats, hogs, horses, poultry and sheep as a result of this use.

3) The available residue data does not permit RCB to estimate residue levels of 1,2,4-triazole and its conjugates in rice grain and its fractions and in meat, milk, poultry and eggs. RCB defers to TOX regarding these residues.

4) The gas chromatographic methods described in AG-415, for rice and its fractions (Accession Number 252457) and AG-359, for milk, eggs, and animal tissue (Accession Number 252458) are adequate for enforcement purposes. These methods assay propiconazole and its metabolites, convertible to 2,4-dichlorobenzoic acid; they do not determine 1,2,4-triazole or its conjugates.

Recommendation

TOX considerations permitting, RCB has no objections to the issuance of this Section 18 exemption. An agreement should be made with FDA regarding the legal status of the treated rice in commerce.

cc:R.F.,S.F.,Circu,Reviewer,Section 18 file,PMSD/ISB
RDI:EZ:3/17/86:RDS:3/17/86
TS-769:RCB:FBS:fbs:557-3044:CM#2:RM710:3/17/86