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

MAR 16 1988

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MEMORANDUM

OFFICE OF
PESTICIDES AND TOXIC SUBSTANCES

SUBJECT: 88-MT-01. Section 18 Specific Exemption. Fenvalerate on Wheat, Barley, and Oats. No MRID #. RCB # 3478.

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THRU: Edward Zager, Section Head
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The Montana Department of Agriculture has requested a Section 18 Specific Exemption be granted for the use of Pydrin or ASANA on small grains (wheat, barley and oats). For Pydrin, the active insecticidal ingredient is an isomeric mixture of cyano (3-phenoxyphenyl)methyl-4-chloro-alpha-(1-methylethyl)-benzene-acetate. For ASANA, (S)-cyano (3-phenoxyphenyl)methyl-(S)-4-chloro-alpha-(1-methyl-ethyl)benzeneacetate is the active ingredient.

Toleances are established for residues of cyano (3-phenoxy-phenyl)methyl-4-chloro-alpha-(1-methylethyl)benzeneacetate or fenvalerate in or on a variety of raw agriculture commodities including corn grain at 0.02 ppm, corn forage and fodder at 50.0 ppm, milk at 0.3 ppm, and meat and meat byproducts at 1.5 ppm [40 CFR 180.379]. Pending tolerances include those for barley grain (5 ppm), barley straw, forage, and hay (40 ppm), wheat grain (1 ppm), wheat straw, forage, and hay (25 ppm), wheat milled by-products except flour (5 ppm), eggs, (1 ppm), milk fat (12 ppm reflecting 0.6 ppm in whole milk), and meat and meat byproducts (3 ppm) (see M. Metzger's review of 4/23/86, 86-MT-08).

Feed tolerances are established for residues of fenvalerate in or on dried apples pomace (20 ppm), dried tomato pomace (10 ppm), soybean hulls (1.0 ppm), sugarcane bagasse (20 ppm), and sunflower hull (2.0 ppm) [21 CFR 561.97].

The proposed label is identical to the one that was requested in 1986 for Pydrin except that in the current request the ASANA formulation is included as an alternative. The proposed use would allow applications as needed of either Pydrin at rates of 0.1-0.2 lb ai/A (a maximum of 0.4 lb ai/A for the duration of the specific exemption) or ASANA at rates of 0.025-0.05 lb ai/A (a maximum of 0.1 lb ai/A). Applications may be made by aircaft in a minimum of 1 gallon of finished spray per acre or by ground sprayers in a minimum of 4 gallons of finished spray per acre. A PHI of 21 days will be imposed. Treated fields will not be cut for hay or grazed within the preharvest interval.

The metabolism of fenvalerate in small grains is adequately understood. The residue of concern includes only the parent compound (PP4F3021, E. Haeberer's review of 5/3/85).

Residue data on grain, straw, and byproducts of wheat and barley were tabulated in the previous RCB memo of 4/23/86. In summary, residue levels of fenvalerate as a result of applications of 0.4 lb ai/A (Pydrin formulated product) ranged from <0.01 ppm to 3.39 ppm in grain of wheat and barley (PHI=21 days), from 0.98 ppm to 32.9 ppm in straw (PHI=21 days), from 0.31 ppm to 1.4 ppm on whole plant (green), and from 0.06 ppm to 1.3 ppm in wheat byproducts (PHI=7 days).

RCB expects residue levels resulting from the use of ASANA are no higher than those from Pydrin because of lower application rates of ASANA (0.1 lb ai/A maximum).

No residue data were submitted for oats. However, oats are similar enough to wheat and barley that residue data for these commodities will be translated to oats for the purposes of this Section 18 request.

Recovery values were submitted in connection with PP4F3021 and reviewed by E. Haeberer in RCB review of 5/15/84. Values ranged from 74 to 123% when grain of wheat and barley were fortified at 0.05 to 2.0 ppm fenvalerate, from 74 to 139% when straw of wheat and barley were fortified at 0.05 to 10 ppm, from 94 to 104% when whole plant (green) of wheat and barley were fortified at 0.05 to 15 ppm, and from 85 to 138% when milled byproducts of wheat were fortified at 0.05 to 0.2 ppm. The analytical method used to determine residues of the parent compound is Method # MMS-R-478-1 (GLC with an electron capture detector). The two diastereomeric pairs of fenvalerate appear as two separate GC peaks which are both measured for quantitation of the total residue.

RCB concludes that residues of fenvalerate are not likely to exceed 5.0 ppm on grain and milled products of wheat and barley, and 40 ppm on forage, straw, and hay of wheat and barley.

As discussed in RCB's 4/23/86 review, the diets of beef cattle could consist of ca 34 ppm fenvalerate residues based on wheat hay (25%, 10 ppm), oat hay (25%, 10 ppm), wheat grain (25%, 1.25 ppm), and corn fodder (25%, 12.5 ppm). The diet of dairy cattle could be similar (ca 33 ppm). The diets of turkeys and broilers could consist of ca 5.8 ppm fenvalerate residues on the basis of apple pomace (5%, 1 ppm), wheat grain (75%, 3.5 ppm), and oat grain (25%, 1.25 ppm). The diet for laying hens could be comparable (ca 5.0 ppm).

Maximum residues found in lactating cows that were fed 80 ppm carbon-14 labeled fenvalerate for 21 days and sacrificed 12 hours after the last dose were 0.3 ppm in muscle, 1.59 ppm in kidney, 2.21 ppm in liver, and 3.36 ppm in fat. Cows that were sacrificed 10 and 20 days after the final dose retained considerably lower residues in all tissues except in liver and kidney where residues remained the same or increased slightly.

Residues in milk plateaued between days 3 and 7 with a maximum of 0.76 ppm.

Based on the above data and a linear extrapolation, RCB estimates that residues are not likely to exceed the established tolerances of 1.5 ppm for meat and meat byproducts of cattle and 0.3 ppm for milk.

Maximum residues expressed in terms of fenvalerate equivalents found in poultry (PP2F2657, memo of K. Arne, 2/21/84) that were fed 9 ppm carbon-14 labeled fenvalerate for 50 days were 0.60 ppm in liver, 0.08 ppm in fat, <0.02 ppm in meat, and 0.14 ppm in egg yolk. Most of the residue found meat, fat and egg yolk was the parent compound. About 47% to 60% of the residue in liver was not extractable, and of that which was extractable, none was parent.

Based on the above, RCB estimates that residues of fenvalerate are not likely to exceed 0.1 ppm in poultry meat (except poultry liver) and eggs, and not to exceed 0.5 ppm in poultry liver.

CONCLUSIONS AND RECOMMENDATION

1. For the purposes of this Section 18 request, the residue of concern is fenvalerate in both plants and animals.

2. Analytical methods are available for enforcement (Method # MMS-R-478-1 in PP4F3021 and PAM II, Method II).

3. Residues of fenvalerate are not likely to exceed the values given below as a result of the proposed use of either Pydrin or ASANA.

wheat grain	5.0 ppm
barley grain	5.0
oat grain	5.0
wheat milled products	5.0
barley milled products	5.0
oat milled products	5.0
wheat forage, straw, hay	40
barley forage, straw, hay	40
oat forage, straw, hay	40
meat, fat and meat byproducts of cattle, goats, hogs, horses and sheep	1.5 ppm
milk	0.3
meat, fat and meat byproducts of poultry (except liver)	0.1
eggs	0.1

4. Reference standards are available from the Pesticides and Industrial Chemicals Repository, RTP, NC.

TOX considerations permitting, RCB has no objections to this Section 18 request using either the Pydrin or ASANA formulation on small grains grown in Montana. An agreement should be made with FDA regarding the legal status of the treated commodities in commerce.

cc:Circ, RF, Section 18 F, Cheng, TAS (S. Stanton), PMSD/ISB
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