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

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OFFICE OF
PESTICIDES AND TOXIC SUBSTANCES

MEMORANDUM

SUBJECT: EPA Reg. #10163-78
[RCB #893]
[Acc. #262397]

Azinphos-Methyl [GUTHION®]:
Amended Registration for
Almonds (in California).

FROM: William L. Anthony
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Hazard Evaluation Division (TS-769C)

TO: Larry Schnaubelt, Act. PM #12
Insecticide-Rodenticide Branch
Registration Division (TS-767C)

THRU: Ed Zager, Section Head
Special Registration Section II
Residue Chemistry Branch
Hazard Evaluation Division (TS-769C)

William L. Anthony

The Gowan Company of Yuma, AZ, requests an amended registration for the use of Gowan Azinphos-M50 WP (EPA Registration #10163-73), an insecticide.

Tolerances

Tolerances for residues of the a.i., azinphos-methyl[O,O-dimethyl S-[(4-oxo-1,2,3-benzotriazin-3(4H)-yl)methyl] in/on almonds meats and almond hulls exist at 0.3 and 10.3 parts per million (ppm), respectively [40 CFR 180.154].

[Note: The present tolerance of 10.3 ppm for residues in/on almond hulls should be amended to read 10 ppm - see Registration Standard for Azinphos-Methyl, Residue Chemistry, p. 204, April 4, 1986].

Tolerance for residues of azinphos-methyl and/or its metabolites calculated as azinphos-methyl exists at 0.04 ppm in milk [40 CFR 180.154a].

Registered Use for Almonds

The 50% WP and 2 lb/gal EC formulation are registered for

foliar applications (using ground or aerial equipment) at 0.375 to 0.5 lb ai/ 100 gal finished spray. Up to 500 gal may be applied per acre; therefore up to 2.5 lb ai/A may be applied per treatment. No more than two applications per year may be made. Applications must be made at least 30 days apart. Livestock may not be grazed in treated areas for 21 days after treatment. A 60-day PHI is in effect.

The proposed use would reduce the PHI to 28 days.

Residue Data

1. The following data were gathered from PP#7F0582:

A total of 14 studies were conducted following three (3) applications at the rate of 2 lb ai/A, with a 30 to 33 day PHI. Residues in almond meats ranged from ND (< 0.1 ppm) to 0.3 ppm and from 7.6 ppm to 208 ppm in almond hulls. Admittedly, the 208 ppm value is aberrant, however, a residue value of 14.0 ppm was reported on almond hulls at a 32 days PHI, following only one (1) application at 2 lb ai/A.

In addition, a residue of 9.3 ppm was found in almond hulls at a 60-day PHI following three (3) applications of 2 lb ai/A.

2. In a series of eight (8) studies submitted by Mobay, March 12, 1979, (reviewed by J. Shaughnessy, August 3, 1979) following 2 to 3 applications at the rate of 1.9 to 2 lb act/A, residues ranged from < 0.1 ppm to 0.21 ppm in or on almond meats at PHI's of 36 to 82 days. The highest residues in the hulls, 8.24 ppm and 5.09 ppm, were observed at 60 days following two post-bloom applications of 2 lb act/A.

Residue data from the two submissions shown above were assayed by the colorimetric method of W.R. Meagher, et al., J. Agr. Food Chem. 8, (1960), p.282. (See PAM II, Method II).

Residue data submitted by the Mobay Company in 1981 (see review of E. Zager, February 12, 1982) reflect 24 studies conducted in California. Three aerial or ground applications of Guthion®50-WP were made on almond trees at the rate of

2 lb act/A in 19.7 to 400 gal per acre. In 12 of the studies, the first two(2) applications were made post-bloom; in the remaining 12 tests, the first application was made when the trees were dormant and the second application was made postbloom. In all tests, the third application was made at 10% hull split. Almonds were harvested at 28 days after the last treatment. Residues of Guthion ranged from ND (< 0.01 ppm) to 0.04 ppm in almond meats and from 0.02 to 3.58 ppm in the hulls. No detectable residues (< 0.02 ppm) of the oxygen analog were found.

The residues were extracted from crop samples with chloroform and the extracts evaporated to dryness. Clean-up was accomplished using alumina, Super-Cell and Sea-Sorb column chromatography. Silica gel columns were then used to separate Guthion and its oxygen analog; the residues were dissolved in ethyl acetate and analyzed. Reported recoveries for Guthion and its oxygen analog at fortification levels of 0.05 ppm and 0.10 ppm, respectively, were 76 to 88 percent from almond meats, and 76 to 88 percent from almond hulls.

The gas chromatograph with FPD in the P mode was used for data analysis shown above for the 1981 studies by Mobay.

Based on the above residue data, we conclude that residues of azinphos-methyl and its oxygen analog are not likely to exceed 0.3 ppm for almond meats at a 28-day PHI as the result of the proposed use. However, residues of azinphos-methyl and its oxygen analog may exceed the established tolerance of 10.0 ppm for almond hulls as a result of the proposed or amended use.

Conclusion

1. Residues of azinphos-methyl and its oxygen analog in/on almond meats are not likely to exceed the established tolerance of 0.3 ppm as a result of proposed use.
2. Residues of azinphos-methyl and its oxygen analog in/on almond hulls may exceed the established tolerance of 10 ppm as a result of the proposed use.

Recommendation

For reason given in Conclusion #2, we recommend against this amended registration.

cc: Reviewer:SF [Azinphos-Methyl,(Guthion)]:RF:Amend.Use File,
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