

Approved use

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

FEB 14 1986

OFFICE OF
PESTICIDES AND TOXIC SUBSTANCESMEMORANDUM

SUBJECT: EPA Reg.#100-629 Metalaxyl [RIDOMIL®-MZ58]:
[RCB #60][Acc.#259156] Amended Registration

FROM: William L. Anthony
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THRU: Ed Zager, Section Head
Special Registration II
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EZager

Ciba-Geigy, Greensboro, NC has requested an amendment to permit the aerial application of their formulation RIDOMIL®-MZ58 (EPA Reg.#100-629), a wettable powder, on potatoes, cucumbers, onion, tomatoes, melon, and squash. Currently, RIDOMIL®-MZ58 is registered for ground use only on these commodities.

RIDOMIL®-MZ58 contains: the active ingredients, metalaxyl [N-(2,6-dimethylphenyl)-N-(methoxyacetyl)alanine, methylester] at 10.0% and mancozeb (coordination product of zinc ions and manganese ethylene bisdithiocarbamate) at 48.0%. The remainder of the formulation consists of inerts at 42.0%.

Metalaxyl is a systemic fungicide for use on selected crops to control diseases caused by the Phycomycete fungi family and mancozeb is effective against a wide range of fungal pathogens.

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Tolerances are established for residues of the parent, metalaxyl and its metabolites containing the 2,6-dimethylaniline moiety and N-(2-hydroxymethyl-6-methyl)-N-(methoxyacetyl)-alanine, methylester, each expressed as metalaxyl, in or on onions (green) at 10 parts per million (ppm); onions (dry bulb) at 3 ppm; tomatoes, cucumbers, melons, and squash each at 1 ppm; and potatoes at 0.5 ppm (40 CFR 180.408).

There is a food additive tolerance for residues of metalaxyl and its metabolites on processed potatoes (including potato chips) at 4 ppm (21 CFR 561.273).

Permanent tolerances have been established for secondary residues of the parent metalaxyl and its metabolites on meat, fat, and meat byproducts (except liver and kidney) of cattle, goats, hogs, horses, poultry, and sheep at 0.05 ppm. Tolerances for liver and kidney of all the aforementioned animals are 0.4 ppm; tolerance for milk is 0.02 ppm.

Permanent tolerances also exist for residues of the fungicide [Mancozeb; Dithane®-45M] [40 CFR 180.176] which is a coordination product of zinc ion and maneb (manganese ethylene bisdithiocarbamate) [40 CFR 180.110] containing 20 percent manganese, 2.5 percent zinc, and 77.5 percent ethylene bisdithiocarbamate (the whole product calculated as zinc ethylene bisdithiocarbamate) in/on cucumbers, melon, summer squash, and tomatoes at 4.0 ppm; onions (dry bulb) at 0.5 ppm and an interim tolerance on potatoes at 0.5 ppm.

Registered Uses for Ground Application

The registered uses of RIDOMIL®-MZ58 for ground application only:

Potatoes: Apply 1.5 to 2.0 lbs RIDOMIL®-MZ58 (0.15 to 0.2 lbs metalaxyl) and (0.72 to 0.96 lbs mancozeb)/A. For dilute ground applications the water volume will vary from 20 to 150 gals/acre. Start when plants are 6 inches high or when conditions are favorable for late blight development, and continue at 14-day intervals. Use is restricted to not more than four applications of RIDOMIL-MZ58/A/season with a 7-day preharvest interval (PHI).

Tomatoes: Same use directions and restrictions apply as for potatoes, except there is a 5-day PHI. Start applications when plants are six inches high or when conditions are favorable for disease development and continue at 14-day intervals.

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Onions (Dry Bulb and Seed Onions): Same use directions and restrictions as applied for potatoes. Start applications when conditions are favorable for disease development and continue at 14-day intervals.

Cucumbers, Melons, and Squash: Same use directions and restrictions apply as for tomatoes. Start when plants are in two-leaf stage and continue at 14-day intervals throughout season.

Proposed Use (Aerial Application)

The active ingredient, Mancozeb, is registered for aerial application on all of the crops, viz., potatoes, tomatoes, onions (dry bulb and seed), cucumbers, onions, and tomatoes.

Aerial application rates will be the same as ground rates except applications will be made in 3 to 10 gals of water.

Analytical Methods

The total residue method used for determining the combined residues of metalaxyl and its metabolites containing the 2,6-dimethylaniline moiety in this current study was (AG-395) a modification of the analytical method AG-348 dbed in PP#2500/IH5299, P. Errico, March 9, 1982.

Various crops fortified with metalaxyl ranging from 0.05 to 5 ppm, yielded recoveries of 89 + 17%. The limit of detection was 0.05 ppm expressed in metalaxyl equivalents.

Residue Data

New residue data were submitted in this petition for cucumbers, onions (dry bulb), and tomatoes.

Potatoes (Dakota, MN): Residue data for ground and aerial application on potatoes were submitted in IF2500/IH5299 (March 9, 1982). Six applications of RIDOMIL®-2E [2 lb ai/gal] were ground applied at the rate of 0.375 lb ai (1.87X)/50 gal water/A; the same number of applications and same amount of active ingredient/5 gals water/A were aerially applied. All applications were at 7-day intervals with a 7-day PHI.

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Two samples taken from each application contained residues of metalaxyl (metalaxyl and its metabolites expressed as metalaxyl equivalents) of < 0.05 ppm.

Cucumbers (South Carolina) (New Data): A total of four applications of RIDOMIL®-MZ were made by ground equipment at the rate of 0.2 lb metalaxyl(1.0X)/A and 0.96 lbs mancozeb/A in 25 gals water. The same rate and number of applications were aerially applied in 8 gal water/A. There was a 14-day interval between each application and a zero-day PHI, with both methods.

Residues for metalaxyl (metalaxyl and its metabolites expressed as metalaxyl equivalents) from ground foliar treatment were 0.05 and 0.07 ppm; and from aerial application, 0.05 and 0.06 ppm. The number of applications by ground or by air did not exceed four.

Onions, bulbs (New York and Texas) (New Data): In the New York study, a total of five applications at the rate of 0.2 lb metalaxyl(1.0X) plus 0.96 lbs mancozeb in 90 gal water/A were made by ground equipment the same rate and number of applications were aerially applied in 3 gals water/A. There was a 7-day interval between each application, with a 7-day PHI.

Residues for metalaxyl (metalaxyl and its metabolites expressed as metalaxyl equivalents) were < 0.05 ppm.

In the Texas study, a total of ten applications at the rate of 0.2 lbs metalaxyl (1.0X)/A plus 0.96 lb mancozeb/A in 50 gals water were made by ground equipment; the same treatment was aerially applied in 5 gals water/A. There was a 7-day interval between each application with a 7-day PHI.

Residues of metalaxyl (metalaxyl and its metabolites expressed as metalaxyl equivalents) following ground foliar application (two samples) were 0.14 ppm and 0.25 ppm. For aerial foliar application (two samples), residues were < 0.05 ppm and < 0.07 ppm.

Tomatoes (California) (New Data): Six applications of RIDOMIL®-MZ58 were made by ground equipment at the rate of 0.2 lb metalaxyl (1.0X) plus 0.96 lbs mancozeb/A in 25 gals water; the same treatment was aerially applied per A in 5 gals water. There was a 10 to 12 day interval between each application with a zero-day PHI.

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Residues of metalaxyl (metalaxyl and its metabolites expressed as metalaxyl equivalents) following the analysis of two samples from each application method were reported to be <0.05 ppm.

Melons and Squash: No residue data were submitted for residues of metalaxyl in/on these two commodities by aerial application. Under crop-grouping, 40 CFR 180.34 (d)(12)(15) melons, squash, and cucumbers belong to the same gourd family.

Conclusions

1. Metalaxyl and its metabolites containing the 2,6-dimethyl-aniline moiety and N-(2-hydroxymethyl-6-methyl)-N-(methoxyacetyl)-alanine methylester each expressed as metalaxyl is the residue of concern.
2. Residues of metalaxyl and its metabolites are not expected to exceed the established tolerances for potatoes, cucumbers, onions (dry bulb), tomatoes, melons, and squash, as a result of the proposed aerial applications.
3. Mancozeb is registered for aerial applications on the subject commodities.

Recommendations

We have no objection to the amended registration for the fungicide, RIDOMIL®MZ58.

cc: Circu, S.F. (Metalaxyl), W.L. Anthony, R.F., PMSD/ISB,
Metalaxyl Amended Use File

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