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

JUN 14 1989

OFFICE OF
PESTICIDES AND TOXIC SUBSTANCES

MEMORANDUM

SUBJECT: ID#3125-341: Methamidophos (Monitor®) in/on Potatoes. Response to Registration Standard, Amendment of 7/14/88 (MRID #407473-1; DEB #4709).

FROM: W. T. Chin, Chemist, Ph.D. W. T. Chin
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THRU: Philip V. Errico, Section Head J. Gaines for PE
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TO: W. H. Miller, PM #16
Insecticide-Rodenticide Branch
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and

Toxicology Branch
Health Effect Division (H7509C)

BACKGROUND

In response to the data request specified in EPA's 6/25/86 Amendment to the Sept. 1982 Guidance Document for the Re-registration of Pesticide Products Containing Methamidophos, the petitioner, Mobay Corp., submitted a cover letter (7/14/88) together with a report entitled Monitor® - Magnitude of the Residue on Potatoes (2/4/88). EPA's request and the petitioner's response are restated below, followed by DEB's comments/conclusions.

SUMMARY OF RESIDUE DATA REMAINING TO BE SUBMITTED

Data needed under §171-4: Magnitude of methamidophos residues for tomatoes, cabbages, peppers, carrots, table (garden) beets grown for seed, and alfalfa and clover for seed.

RECOMMENDATION

DEB concludes that the residue data submitted are adequate to support the 0.10 ppm tolerance established for potatoes under 40 CFR 180.315. However, a processing study is still needed (granules, chips and dried potatoes) to determine if food additive tolerances are necessary. It may be necessary for the registrant to treat potatoes at an exaggerated rate to have sufficient residue for the processing study.

DETAILED CONSIDERATIONS

Data Needed Under §171-4: Magnitude of the Residue for Potatoes

"The following residue field trials not previously required in the September 1982 Methamidophos Guidance Document are needed. The available residue data on potatoes are no longer considered adequate to support the established tolerance because the data are not geographically representative.

Potatoes grown in Colorado, Idaho, Maine, North Dakota and Washington must be treated repeatedly (according to local agricultural practices) with an EC product at 1 lb ai/A using both aerial and ground equipment. Labels permit applications as needed or in a 7- to 10-day program. Tubers are to be harvested at intervals including the 14-day PHI and analyzed for methamidophos. In addition, processing studies may be needed (granules, chips and dried potatoes) to determine if food additive tolerances are necessary."

The Petitioner's Response

The report (MRID #407473-1) submitted indicates that 5 field trials were conducted in 1987 on potato plants grown in Colorado, Idaho, Maine, North Dakota and Washington states. These would cover approximately 73% of the commercial potato production areas in the U.S.A. According to local agricultural practices, 2 to 4 foliar applications using Monitor® 4EC with aerial or ground equipment were conducted at the rate of 16 oz ai/A at 7- to 9-day intervals. Samples of potato tubers were collectd at intervals of 7-8 or 14-15 days following applications, and stored at 0 to -10°F until analyzed within 154-173 days.

A storage stability study was conducted along with this experiment. Results show that methamidophos residues are stable in/on potatoes at 0 to -10°F for 205 days.

Analytical Method

J. B. Leary's GC method (JAOAC 57(1), 189-191, 1974) was used for residue analysis with minor modifications specified in "Addendum to Analytical Method." Briefly: Samples are extracted with ethyl acetate and dried over anhydrous $Na_2SO_4$. The extract is evaporated and cleaned up with column chromatography. Methamidophos residues are eluted with a 10% methanol solution in ether and determined by GC equipped with a thermionic specific (nitrogen-phosphorous) detector (TSD). The limit of determination of this method is 0.01 ppm and recoveries ranging from 71%

to 88% at 0.01 to 0.10 ppm fortifications were reported. Adequate examples of calculations and gas chromatograms are submitted. Both J. B. Leary's GC method (JAOAC: 57, 189-191, 1974) and Method I in PAM II are available for enforcement purposes.

Residue Data

The residue data generated from potatoes treated with foliar applications of Monitor® 4EC in the above mentioned 5 states are summarized in Table 1 below:

Table 1. Methamidophos Residues in or on Potatoes

| Location | Method of Application | Dosage (oz ai/A) | PHI (Days) | Gross Residues Determined (ppm) |
|---|---|---|---|---|
| Maine | Ground | 2 x 16 | 8 | <0.01 |
| | | | 15 | <0.01 |
| N. Dakota | Air | 4 x 16 | 7 | <0.01 |
| | | | 14 | <0.01 |
| Colorado | Air | 4 x 16 | 7 | <0.01 |
| | | | 14 | <0.01 |
| Idaho | Ground | 4 x 16 | 8 | <0.01 |
| | | | 15 | <0.01 |
| Washington | Ground | 4 x 16 | 7 | <0.01 |
| | | | 14 | <0.01 |

DEB's Comments/Conclusions

1. The residue data shown in Table 1 indicate that methamidophos residues were not detected (<0.01 ppm) in/on potato tuber samples treated with Monitor® 4EC 2 to 4 times at 16 oz ai/A at 7 or 15 days PHI. The field records, storage stability study and residue data are considered adequate. Therefore, DEB concludes that the residue data submitted are adequate to support the 0.10 ppm tolerance established for potatoes under 40 CFR 180.315.

2. However, a processing study is still needed (granules, chips and dried potatoes) to determine if food additive tolerances are necessary. It may be necessary for the registrant to treat potatoes at an exaggerated rate to have sufficient residue for the processing study.

cc: Circu., R.F., EAB, EEB, TOX, PM#16, Methamidophos Reg. Std., W.T.Chin, R.D.Schmitt, PMSD-ISB
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