US EPA ARCHIVE DOCUMENT

MMSD/ILSB
2301

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

APR 21 1988

OFFICE OF
PESTICIDES AND TOXIC SUBSTANCES

MEMORANDUM

SUBJECT: PP4E3143. Methomyl on Brassica Leafy Vegetables. RCB # 3500. Submission of 2/15/88. No MRID No.

PP4E3144. Methomyl on Leeks. RCB # 3501, Submission of 2/15/88. No MRID No.

FROM: R. W. Cook, Chemist RW Cook
Tolerance Petition Section I
Residue Chemistry Branch,
Hazard Evaluation Division (TS-769C)

THRU: R. S. Quick, Section Head, TPSI RSQ
Residue Chemistry Branch
Hazard Evaluation Division (TS-769C)

TO: H. Jamerson, PM 45
Registration Support and Emergency Response Branch
Registration Division (TS-767C)

and

Toxicology Branch,
Hazard Evaluation Division (TS-769C)

DEFICIENCIES REMAINING TO BE RESOLVED:

PP4E3143: Methomyl on Brassica Leafy Vegetables Crop Group: There are no deficiencies outstanding.

PP4E3144 - Methomyl on Leeks.
There are no deficiencies outstanding.

RECOMMENDATIONS:

PP4E3143: We recommend, TOX considerations permitting, for the establishment of the proposed 6 ppm tolerance for residues of methomyl and its oxime in or on the Crop Group Brassica Leafy Vegetables.

PP4E3144: We recommend for the proposed 3 ppm tolerance for residues of methomyl and it oxime in or on leeks.

DISCUSSION:

In our previous review of subject petitions, (see memo of 11/23/84, R. W. Cook, PP4E3143; and L. Kutney, memo of 1/16/85, PP4E3144) several outstanding deficiencies were noted. We shall repeat the previous deficiency, using the Deficiency number previously recorded. We shall then give the petitioner's response, and finally, RCB comments and conclusions.

PP6E3143 - METHOMYL ON BRASSICA LEAFY VEGETABLES.

PP4E3143 - Deficiency #1:

The major residue of concern for methomyl have been considered to be methomyl and small amounts of its oxime metabolite. It has recently come to our attention, however, that acetamide may be a metabolite of methomyl. We have raised the question whether acetamide is a plant metabolite in other pending methomyl actions. TOX Branch has also requested additional information regarding acetamide. Until these questions are resolved, we conclude that the metabolism of methomyl on plants (specifically in this case Brassica leafy vegetables) is not adequately understood. Residue data for acetamide on leafy vegetables may be needed.

Our Comments or Conclusions:
See comments under **DETAILED CONSIDERATIONS**

PP4E3143 - Deficiency #2:

Adequate enforcement methods are available for methomyl and its oxime. However, if acetamide is determined to be a metabolite and if TOX is concerned with its presence, then adequate enforcement methodology for residue of acetamide may be required.

Our Comments or Conclusions:
See our comments under **DETAILED CONSIDERATIONS**

PP4E3143 - Deficiency #3a:

We are unable to draw any conclusions on the likelihood that residues of methomyl in or on Brassica (cole) vegetable crops will exceed the proposed 6 ppm tolerance, since the metabolism is not sufficiently understood.

Our Comments or Conclusions:
See our comments under **DETAILED CONSIDERATIONS**

PP4E3143 - Deficiency #7:

The existing residue data for methomyl and its oxime on leafy vegetables indicate that the proposed 7 day PHI is appropriate for Chinese broccoli (gai lon) but that a 10 day PHI (rather that the proposed 7 day PHI) may be needed for Chinese mustard cabbage (gai toy).

Petitioner's Response:

The petitioner now proposes a 10 day PHI for Chinese mustard cabbage (gai toy).

Our Comments or Conclusions:

The proposed 10 day PHI for Chinese mustard cabbage (gai toy) adequately addresses our concerns in this issue. This deficiency is resolved.

PP4E3144 - METHOMYL ON LEEKS

PP4E3144 - Deficiency #1a:

The residue of concern have been considered to be methomyl and small amounts of its oxime metabolite, S-methyl-N-hydroxythioacetimidate. However, recent evidence indicates that the carcinogen, acetamide, may be present as a metabolite of methomyl. TOX Branch has also requested additional information regarding acetamide. Until these questions are resolved, we conclude that the metabolism of methomyl on plants, specifically leeks, is not adequately understood. If residues of acetamide are determined to be of toxicological concern, the petitioner may be required to supply us with analyses for acetamide on methomyl-treated leeks.

Our Comments or Conclusions:
See our comments under DETAILED CONSIDERATIONS

PP4E3144 - Deficiency #2:

Adequate methodology is available for methomyl and its oxime hydrolysis product. However, if acetamide is determined to be a metabolite, and it TOX is concerned with its presence, then adequate enforcement methodology may be needed for the analysis of acetamide residues.

Our Comments or Conclusions:
See our comments under DETAILED CONSIDERATIONS

PP4E3144 - Deficiency #3a, 3b, 3c, and 3d:

Insufficient data are available to support the proposed tolerance. We will need additional residue data on leeks from the major leek-producing states, California and New Jersey which reflect the maximum proposed application on leeks in order for us to draw a conclusion as to the magnitude of residues to be expected for the proposed use.

Validation data will be required for methomyl and its oxime on leeks by the method used to analyze the leek samples in the requested data.

Storage stability studies (which include details of the method of storage for the entire length of the storage stability study) will be required for methomyl on leeks. The duration of the study should reflect the timeperiod(s) for which residue samples are stored.

Data are available on the related crop, green onions, from the previous petition, PP9E2164. These data support a tolerance of 3 ppm reflecting 2 applications of 0.45 lb ai/A and the observation of a 7-day PHI on green onions or leeks. Provided the question of possible acetamide residues can be resolved without the submission of additional data, the petitioner could, as an alternative to the data requests in conclusions 3a-3c above, propose a use and tolerance for leeks as stated above in this conclusion.

Petitioner's Response:

A revised use pattern (dated 3/22/85) proposing 2 applications at 0.45 lb. active ingredient/A and observing a 7 day PHI is submitted. See our comments under Detailed Considerations.

Our Comments or Conclusions:

The petitioner has resolved Deficiencies #3a, 3b, 3c and 3d.

PP4E3144 - Deficiency #4:

If the petitioner opts for the alternative in conclusion 3d above, he should submit a revised Section B proposing 2 applications of 0.45 lb. ai/Acre and the observation of a 7-day PHI.

Petitioner's Response:

A revised use pattern (dated 3/22/85) proposing 2 applications at 0.45 lb. active ingredient/A and observing a 7 day PHI is submitted.

Our Comments or Conclusions:

The petitioner has resolved Deficiency #4. See our comments under Detailed Considerations.

DETAILED CONSIDERATIONS:

DIRECTIONS FOR USE:

PP 6E3143 - Brassica Leafy Vegetables: The proposed 10 day PHI for Chinese mustard cabbage adequately addresses our concerns in this issue. This deficiency is resolved.

PP 6E3144 - Leeks: The petitioner has opted for the alternative in conclusion 3d above, and has submitted a revised Section B proposing 2 applications of 0.45 lb. ai/Acre and the observation of a 7-day PHI.

METABOLISM IN PLANTS:

The question regarding acetamide as a plant metabolite of methomyl has recently been resolved. The metabolism of a similar pesticide has shown that acetamide is not produced during plant metabolism (see Frank Boyd memorandum of 1/12/87 in PP6F3417 in this regard).

Therefore, we conclude that deficiencies #1, #2, and #3a of PP6E3143, as well as Deficiencies #1a, and #2 of PP6E3144 are now moot.

RESIDUE DATA:

The petitioner has opted for the alternative in conclusion 3d above. He has revised the use pattern as we have suggested and we can conclude that residues resulting in or on leeks for the proposed use will not exceed 3 ppm.

INTERNATIONAL TOLERANCES:

International residue status of methomyl on Brassica leafy vegetables and leeks was considered in our previous reviews, which see.

cc: S.F., R.F., PP4E3143/4E3144, R.W.Cook, PMSD(ISB),TOX,FDA.
TS-769C:RCB:Reviewer:RWCook:rwc:4/20/88:Rm810H:CM2:5577324.
RDI:Section Head:RSQuick:4/19/88:RDSchmitt:4/19/88