To: Geo. LaRocca/A. Heywood
Product Manager # 15
Registration Division (TS-767)

From: Paul Mastradone, Ph.D., Acting Chief
Environmental Chemistry Review Section 1
Environmental Fate and Ground Water Branch
Environmental Fate and Effects Division (TS-769-C)

THRU: Henry Jacoby, Acting Chief
Environmental Fate and Ground Water Branch/EFED (TS-769C)

Attached, please find the EAB review of...

Reg./File #: 618-01

Chemical Name: Avermectin

Type Product: Miticide/Insecticide

Product Name: AGRI-MEK 0.15 EC

Company Name: MERCK

Purpose: Review request to register product on tomatoes.

Date Received: 11/15/88

Action Code: 181

Date Completed: ____________________

EFGWB #(s): 90143

Total Reviewing Time (decimal days): 2.0

Deferrals to:
   Ecological Effects Branch, EFED
   Science Integration & Policy Staff, EFED
   Non-Dietary Exposure Branch, HED
   X Dietary Exposure Branch, HED
   Toxicology Branch, HED
1. **CHEMICAL:**

   **Common Name:** abamectin
   **Chemical Name:** avermectin
   **Trade Name:** AGRI-MEK 0.15 EC
   **Chemical Structure:**

   ![Chemical Structure Diagram]

   The active ingredient is composed of not less than 80% avermectin B_{1a} and not more than 20% avermectin B_{1b}.

2. **TEST MATERIAL:** Not applicable. Reference is to Abamectin 0.15 EC

3. **STUDY/ACTION TYPE:** The registrant is applying for registration of abamectin/avermectin B_{1a} and its delta 8, 9 isomer for use on tomatoes; a petition for permanent tolerances on tomatoes is also submitted.

4. **STUDY IDENTIFICATION:** Not applicable.

5. **REVIEWED BY:**

   Herbert L. Manning, Ph.D.
   Microbiologist, EFGWB/EFED

   Signature: [Signature]
   Date: APR - 6

6. **APPROVED BY:**

   Paul J. Mastradone, Ph.D.
   Acting Chief, Section 1, EFGWB/EFED

   Signature: [Signature]
   Date: APR - 6

7. **CONCLUSION:**

   Our files indicate two studies, Field Dissipation and Adsorption/Desorption, are required to support registration of abamectin/avermectin B_{1a} and its delta 8, 9 isomer on tomatoes. A
recent review (1/17/89, EFGBW # 90227, 90225) evaluated a field dissipation study and judged it unacceptable, since it was incomplete and amounted to an interim report. See Section 9A (Introduction to BACKGROUND) for a summary of the environmental fate data on abamectin.

8. RECOMMENDATION:

EFGBW (Environmental Fate & Ground Water Branch) recommends that the registrant send in for review the results of the analyses of the three remaining soil core replicates (study reviewed 1/17/89, Norton, J.A., 1988. Soil leaching/soil dissipation study for abamectin 0.15 EC miticide/insecticide, Acc. #409271-01), along with identification of residues, half-life calculations, and decline curves, in order to complete the soil dissipation study.

We also recommend an Adsorption/Desorption (batch equilibrium) leaching study be done, since abamectin/avermectin has been shown to give conflicting results in the soil TLC (immobile) and soil column (polar products leached) studies.

9. BACKGROUND:

A. Introduction—The data required for use of abamectin on tomatoes (terrestrial, food crop use), and the current status of the data in our files, is as follows:

<table>
<thead>
<tr>
<th>Studies Required</th>
<th>Current Status in Files</th>
</tr>
</thead>
<tbody>
<tr>
<td>o Hydrolysis</td>
<td>Stable to hydrolysis at pH 5.7, and 9 (review of 4/18/83, EAB #130). Acceptable study.</td>
</tr>
<tr>
<td>o Photodegradation—water/soil</td>
<td>Rapid degradation; half-life of &lt;12 hours in water and &lt;1 day on soil. Degradates were only characterized as polar, moderately polar, and nonpolar (review of 3/28/84, EAB #4170). Acceptable study.</td>
</tr>
<tr>
<td>o Aerobic/Anaerobic Soil Metabolism</td>
<td>Aerobic degradation depended on soil type; half-life varied from 2 weeks to 2 months. Fourteen degradates were detected, but not identified (review of 3/28/84). Acceptable study.</td>
</tr>
</tbody>
</table>
Leaching (soil columns and TLC)

Field Dissipation

Rotational Crop

Fish Accumulation

Soil TLC indicated immobility (Class I). Radioactivity (mainly polar products) was detected (<8%) in leachates of all 4 columns in both aged and unaged parent (review of 3/28/84). An Adsorption/desorption study should be done.

Incomplete data from review of 1/17/89. Remainder of data will be forthcoming.

Presently under review.

Tested in bluegill sunfish, bioconcentration factors were 69 for whole fish, 30 for fillet, and 110 for viscera (review of 3/28/84); study is acceptable.

10. DISCUSSION OF INDIVIDUAL STUDIES:

Not applicable.

11. COMPLETION OF ONE-LINER:

Not applicable.

12. CBI APPENDIX:

There is no CBI in this review.
OFFICE OF PESTICIDE PROGRAMS DATA REVIEW RECORD

Confidential Business Information—Does Not Contain National Security Information (E.O. 12065)
This form is to be used for individual studies and for submission of pesticide applications

1. PRODUCT NAME
   AGRI-MEK

2. IDENTIFYING NUMBER
   018-01

3. RECORD NUMBER
   2-34567

4. ACTION CODE
   181

5. NRRL/ACCESSION NUMBER
   N/A

6. STUDY GUIDELINE OR NARRATIVE
   N/A

7. REFERENCE NUMBER
   2

8. DATE RECEIVED (EPA)
   Oct 27, 1988

9. PRODUCT/REVIEW MANAGER/DCI
   Brenda Howard

10. PM/RM TEAM NUMBER
    PM-15

11. DATE SENT TO (HED/EFFED/RE/BEAD/Nov 15, 1988)

12. PROJECTED RETURN DATE
    Feb 15, 1989

13. DATE RETURNED TO (RD/SRRD)
    4-6-89

(THIS SECTION APPLIES TO REVIEW OF STUDIES ONLY)

14. CHECK APPLICABLE BOX:

☐ ADVERSE 6(a)(2) DATA (405)
☐ GENERIC DATA (660)
☐ SPECIAL REVIEW DATA (870)
☐ PRODUCT SPECIFIC DATA (555)

15. NUMBER OF INDIVIDUAL STUDIES SUBMITTED

16. HAVE ANY OF THE ABOVE STUDIES (in whole or in part) BEEN PREVIOUSLY SUBMITTED FOR REVIEW? (circle: yes or no) IF YES, PLEASE IDENTIFY THE STUDY(IES):

Yes

17. RELATED ACTIONS:
   9F3703
   9H5570

18. TO
   SCIENCE ANALYSIS & COORD.
   TOXICOLOGY/HFA
   TOXICOLOGY/IR
   DIETARY EXPOSURE
   NON-DIETARY EXPOSURE
   ECOLOGICAL EFFECTS
   ENVIRONMENTAL FATE & GROUND H2O
   SPECIAL REVIEW
   REREGISTRATION
   GENERIC CHEMICAL SUPPORT
   INSECTICIDE-RODENTICIDE
   FUNGICIDE-HERBICIDE
   ANTIMICROBIAL
   PRODUCT CHEMISTRY
   PRECAUTIONARY LABELING
   ECONOMIC ANALYSIS
   ANALYTICAL CHEMISTRY
   BIOLOGICAL ANALYSIS

19. REVIEWS ALSO SENT TO
   SAC
   TOX/HFA
   TOX/IR
   DEB
   NDE
   EEB
   EPGWB
   SR
   RER
   GSC
   IR
   PH
   AM

20. DATA REVIEW CRITERIA
   A. Policy Note #31
   1 = data which meet
   6(a)(2) or meet
   3(c)(2)(B) flagging
   criteria
   2 = data of particular
   concern from
   registration
   standard
   3 = data necessary to
   determine tiered
   testing requirements
   B. Section 18
   1 = data in support of
   section 3 in lieu
   of section 18
   C. Inert Ingredients
   1 = data
   continue
   List 1

White - Data Coordinator
Yellow - Data Review Section
Green - Return with completed review
Pink - 1
Include original + two (2) copies with each submission