Shaugh. No. 058001

EAB Log Out Date SEP 30 1986

Init.

To: Ms. Geraldine Werdig, PM-50 and
Mr. Larry Schnaubelt, PM-12
Registration Division (TS-767)

From: Carolyn K. Offutt
Chief, Environmental Processes and Guidelines Section
Exposure Assessment Branch, HED (TS-769)

Attached please find the review of:

Reg./File No.:

Chemical: Azinphos Methyl

Type Product: Insecticide

Product name: Guthion

Company name: Mobay

Submission Purposes: Proposed (7/22/86 Mobay letter) ~~for~~ Protocol for Azinphos Methyl (Guthion) Worker Reentry Study (Cucumber Harvesting Study).

ZBB Code:

Action Code 400

Date In: 7/24/86

EAB #: 6751

Date Completed: 9/23/86

Days

2.0

Deferrals To:

___ Ecological Effects Branch

___ Residue Chemistry Branch

___ Toxicology Branch

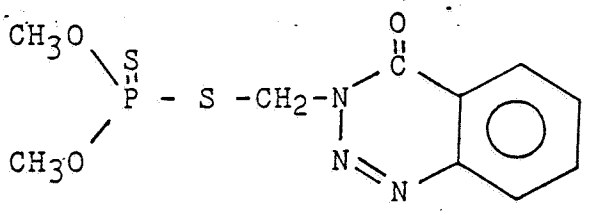
Monitoring study requested by EAB: /X/

Monitoring study voluntarily conducted by registrant: /__/

Review of Proposed Protocol for Guthion Worker Reentry Study (Cucumber Harvesting Study)

1. CHEMICAL:

Chemical name: O,O-Dimethyl S-(3,4-dihydro-4-oxobenzo[d][1,2,3]-triazin-3-ylmethyl) phosphorodithioate
Common name: Azinphos Methyl
Product name: Guthion
Structure:



2. TEST MATERIAL:

Not applicable

3. STUDY/ACTION TYPE:

Proposed Protocol for Azinphos Methyl (Guthion) Worker Reentry Study on Cucumber Harvesting Exposure.

4. STUDY IDENTIFICATION:

Title: See July 22, 1986 letter.
Author: G. E. Brussell
Draft Protocol No: Not Included
Submitted by: Mobay Chemical Corporation with letter to Ms. Geraldine Werdig, dated 7/22/86.
Issue Dates: 7/23/86 (Date Received at EPA)
Accession No: None

5. REVIEWED BY:

Linda L. Kutney, Chemist
Environmental Processes and Guidelines Section/EAB/HED
Linda L Kutney Date 9/30/86

6. APPROVED BY:

Carolyn K. Offutt, Chief
Environmental Processes and Guidelines Section/EAB/HED
Carolyn K Offutt Date 9/30/86

7. CONCLUSIONS:

The sampling regimen described in the protocol for dermal and airborne exposure appears satisfactory, although details concerning quality assurance measures for the experiment are not complete. Good laboratory practices must be followed for the laboratory results to be considered valid.

The proposed protocol is acceptable for the estimation of worker exposure to guthion due to hand-harvesting of cucumbers and other crops of similar height and exposure. We suggest that blueberries be grouped with Group B. The digging and harvest of potatoes should be considered a separate group unto themselves, due to the intense hand soil contact which occurs during these activities.

8. RECOMMENDATIONS:

The detailed comments and conclusions concerning the proposal submitted by Mobay should be forwarded to the Company.

The sampling protocol for dermal and airborne exposure appear satisfactory, provided good laboratory practices are followed, but data from this study could not be transferred to blueberries or potatoes. Blueberries would be more appropriately grouped with Group B crops, because of their height, and corresponding higher potential exposure. Potato digging and harvest should be considered separately because the primary exposure due to this operation is from hand contact with the soil. Soil degradation of guthion and the exposure to workers hands is likely to be much different from that encountered when the primary degradation and exposure is foliar.

Data following treatment of cucumbers with guthion should also be conducted at the maximum application rate allowed on the label. If Mobay wishes to revise their label, the data produced by this study may support a revision in the number of applications on the new label.

9. BACKGROUND:

Mobay proposed an updated protocol (See the 7/22/86 letter to Ms. Geraldine Werdig, PM-50, received at EPA on 7/23/86) for the collection of worker exposure data following treatment of cucumbers with guthion.

10. DISCUSSION:

Mobay has proposed an updated protocol for the collection of worker exposure data following treatment of

cucumbers with guthion. Mobay proposes to substitute exposure data on cucumbers for field worker exposures for all the operations on crops listed on 7/22/86 as members of Group C, namely: hand harvesting cranberries, weeding and harvesting strawberries, tying cauliflower heads, hand thinning and sacking broccoli/Brussell sprouts/cabbage, hand thinning and harvesting lettuce, hand harvesting artichokes/green onions, thinning sugar beets, hand harvesting eggplant/peppers/tomatoes/celery, hand weeding and hand harvesting cantaloupe/watermelon/honeydew melons/cucumbers, and maintaining and scouting potatoes, as well as harvesting blueberries and digging and harvesting potatoes.

The company should be advised that the endorsement of the protocol using the cucumber crop as a surrogate for foliar application of guthion is appropriate for crops of similar height (below chest height) and exposure route only. For this reason, data from this study could not be transferred to blueberries, which have a highbush variety that grows over 8' high. In addition, the results of this study could not be transferred to root crops which are currently harvested by hand, because of the great difference in exposure scenario to the workers, and the difference in growing conditins and potential environmental breakdown of the chemiscal. For this reason, data from this study could not be transferred to potatoes. We suggest that these crops not be included in this grouping. We feel blueberries are more similar to other crops in Group B; and, potatoes should be grouped by themselves.

Ten workers will be monitored for inhalation and dermal exposure following the hand-harvesting of guthion-treated cucumbers. Guthion 50 WP is to be applied using ground equipment, at a rate of 0.5 lb ai/acre. The conditions of application were not provided in this submission; it is assumed that this rate and mode of application are appropriate. The maximum application rate allowed on the label should be used.

The sampling regimen described in the protocol, beginning 24-36 hours after application, for dermal and airborne exposure appears in order, although the details of the interval of sampling are not given in this document. The analytical method is not described in detail, and quality assurance techniques, such as preparation of spiked (known quantity) samples to determine recovery percentages, analyses of blank samples, and analyses of duplicate samples to determine repeatability, are not mentioned.

It is advisable for known quantities of the compounds, and separate quantities of important metabolites ~~may~~ to be

incorporated into untreated sample crops, stored as the treated samples are stored, and analyzed along with the samples. In this way, data concerning the storage stability, the recovery %, and general quality control of the technician and accuracy of the analytical methods may be obtained. Other pertinent information concerning the precision of the analytical technique may be obtained by performing and comparing the results of duplicate analyses. In sum, good laboratory practices must be followed for the laboratory results to be considered valid.

11. ONE LINER:

Not applicable

12. CONFIDENTIAL BUSINESS INFORMATION:

None