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

OFFICE OF
PESTICIDES AND TOXIC SUBSTANCES

MAY 10 1989

MEMORANDUM

SUBJECT: PP# 9F3713
Guthion (Azinphos-Methyl) in or on Almond Nutmeats and Hulls; Mobay Corporation's Response to Questions Raised by the Analytical Chemistry Branch (ACB/BEAD) on the Submitted Method (Letter of April 17, 1989).

FROM: H. Fonouni, Ph.D., Chemist H. E. Fonouni
Dietary Exposure Branch
Health Effects Division (H7509C)

THRU: Richard D. Schmitt, Ph.D., Acting Chief
Dietary Exposure Branch
Health Effects Division (H7509C) Richard D Schmitt

TO: Donald A. Marlow, Chief
Analytical Chemistry Branch
Biological and Economic Analysis Division (H7503C)

Mobay Corporation recently submitted an analytical method, Gas Chromatographic Method for Determination of Guthion[R] Residues in Plant Material, for method validation. In submitting the procedure to the Analytical Chemistry Branch (ACB/BEAD), DEB requested expeditious completion of the method trial (memorandum of 3/6/89 by H. Fonouni) as requested by the Registration Division (memorandum of 2/21/89 by A. Lindsay). Subsequently, in a phone conversation, C. Stafford (ACB) raised several questions concerning the methodology (Attachment I). As requested by RD, the issues raised were relayed by the reviewer to Mobay Corporation (F. Sandie), and the petitioner's responses were transmitted by phone to ACB (C. Stafford).

Mobay Corporation has now provided responses to the subject questions in a written format (Attachment I). DEB is submitting the correspondence to ACB for evaluation and requests that comment(s) on the subject matter be included in the method validation report.

Attachment I: Azinphos-Methyl (Guthion)
PP# 9F3713
Analytical Methodology Validation
Letter of April 17, 1989
by Mobay Corporation

cc: RF, Circu., H. Fonouni, pp# 9F3713, D. Edwards (PM 12), PMSD/ISB.
RDI: DEdwards: 5/8/89: RALoranger: 5/8/89.
H7-509C: DEB: HEFonouni: CM#2: Rm 803: 557-7561: Typist (hf):5/9/89.

9-1366

Mobay

Bayer

Attachment I

Mobay Corporation
A Bayer USA INC. COMPANY

P.O Box 4913
Hawthorn Road
Kansas City, MO 64120-0013
Cable: Kemagro Kansas City
Telephone: 816/242-2000

April 17, 1989

Mr. Dennis Edwards, Jr.
Product Manager (12)
Environmental Protection Agency
Registration Division (TS-767C)
401 M Street, S.W.
Waterside Mall
Washington, D.C. 20460

Subject: Azinphos-methyl (GUTHION)
Pesticide Petition No. 9F3713
Analytical Methodology Validation

Dear Mr. Edwards:

Ms. Portia Jenkins of your staff contacted Mr. Terry McNamara of my staff with five questions from the Dietary Exposure Branch (DEB) regarding Mobay's analytical residue method, Mobay Report No. 69523.

To facilitate scientific communications between the Agency and Mobay regarding these questions, it was arranged to have DEB's chemist, Dr. Hossein Fonouni, talk directly with one of Mobay's chemist, Mr. Frank Sandie, with the understanding that the responses would also be submitted to the Agency in writing.

Accordingly, the questions and the responses are as follows:

1. Can another solvent be substituted for benzene in the silica column chromatographic procedure?

   Yes, toluene can be substituted for benzene in the silica column procedure, however, the volume of the last elution solvent (20% acentonitrile/benzene) should be increased from 250 ml to 300 ml if toluene is substituted.

2. What grade of silica gel is used for the column chromatographic procedure?

   The silica gel used in this procedure is 100-200 mesh analytical reagent from Fisher Scientific (Cat. No. S679).

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3. What are Super-Brite beads and where can they be obtained?

The Super-Brite beads are simply small glass beads. Mobay does not have any other specifications on them, but they really aren't essential. Their purpose is to protect the surface of the column bed from being distributed by the addition of solvent to the column. Mobay suggests that granular sodium sulfate would serve the same purpose as the glass beads.

4. Is the 8-inch length for the gas chromatographic column stated in the method correct?

The 8-inch column length is stated correctly, and Mobay is aware that an 8-inch column length is unusually short. In explanation, Mobay custom made the columns as the shortest columns which we could mount in our gas chromatographic instruments. Mobay did this to maximize the sensitivity and reproducibility by minimizing the number of active sites in the column which would adsorb or decompose the analytes.

Superior GC analysis has been achieved using an alternate column. Mobay now recommends the use of a fused silica Megabore capillary column. The use of this type of column also eliminates the need for the use of corn oil or Carbowax 400 in the injection solvent (for both standard and samples) previously required for the saturation of active sites.

Specifically, we recommend the use of a direct flash injection liner obtained from J & W Scientific (Part No. 2101064) with a DB-1 15 meter x 0.53 mm i.d. column having a 1.5 micrometer film thickness (J & W Scientific). With this column the following operating conditions are recommended:

Column Temperature - 230°C Isothermal
Injector Temperature - 260°C
Detector Temperature - 275°C
Carrier Gas - Helium at a flow rate of 10 cc/min.
Retention Times: GUTHION - 5.0 min.
GUTHION oxygen analog - 3.8 min.

5. Could Mobay provide the Agency with appropriate almond meat and almond hull control materials?

Mobay can provide such material, and this material has been shipped to the following address (provided by Dr. Fonouni):

Mr. Charles Stafford
US EPA Building 306
BARC East
Beltsville, Maryland 20705

We hope this information is helpful. If you have any further questions on this matter, please don't hesitate to contact us.

Yours very truly,

MOBAY CORPORATION
AGRICULTURAL CHEMICALS DIVISION

John S. Thornton, Manager
Registrations
Research and Development

JST:FTM:brh

cc: Dr. Hossein Fonouni
Dietary Exposure Branch (TS-769C)