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

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PREVENTION, PESTICIDES, AND
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MEMORANDUM

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SUBJECT: Methidathion. Reregistration Case No. 0034, Chemical No. 100301. Product and Residue Chemistry Chapters for the Reregistration Eligibility Decision Document (RED). CBRS No.16950. DP Barcode D223665.

FROM: William O Smith, Chemist *William O. Smith*
Chemistry Pilot Review Team
Chemistry Branch II: Reregistration Support
Health Effects Division (7509C)

THRU: Edward Zager, Branch Chief *RB Pagett*
Chemistry Branch II: Reregistration Support
Health Effects Division (7509C) *for*

TO: Paula Deschamp
Risk Characterization and Analysis Branch
Health Effects Division (7509C)

Attached are the Product and Residue Chemistry Chapters for the Methidathion RED. This information was compiled by Dynamac Corporation under supervision of CBRS, HED. These chapters have undergone secondary review in CBRS and have been revised to reflect Agency policies.

All product chemistry data submitted in support of the reregistration of methidathion have been evaluated and have been found to be satisfactory. CBRS has no objections to the reregistration of methidathion with respect to product chemistry.

All residue chemistry data submissions in support of the reregistration of methidathion have been reviewed. Field residue data must be submitted for cotton gin byproducts and a tolerance must be proposed for this commodity when adequate field residue data have been submitted. Additionally, tolerance revisions have been required. Tolerances for grass, grass hay, alfalfa and alfalfa hay should be revoked as the use on alfalfa/timothy is to be canceled. The tolerances on clover and clover hay should also be revoked as the use on clover grown for seed is a non-food use. Tolerances on potatoes should be revoked because there are no

registered uses on this crop. Contingent upon the above cancellations/revocations, there will be no further need for tolerances on meat, milk, poultry and eggs; these tolerances should also be revoked. The tolerance on citrus fruits (except mandarins) should be increased from 2 ppm to 4 ppm. No Section 409 tolerances are required; however, a Section 701 MRL should be established for residues in citrus oil.

CBRS believes the existing data constitute a substantially complete database sufficient to assess dietary exposure and has no objections to the reregistration of methidathion with respect to residue chemistry.

cc: Reviewer(W. Smith), Reg. Std. File, RF, SF, Circ.

RDI:Pilot Team:6/6/96:RPerfetti:6/10/96

7509C:CBRS:CM#2:Rm805A 305-5353:WSmith:6/5/96

METHIDATHION

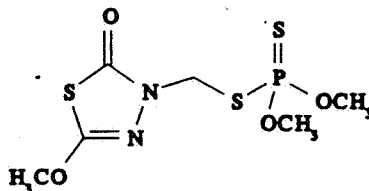
REREGISTRATION ELIGIBILITY DECISION:

PRODUCT CHEMISTRY CONSIDERATIONS

Shaughnessy No. 100301; Case No. 0034

DESCRIPTION OF CHEMICAL

Methidathion (*O,O*-dimethyl phosphorodithioate, *S*-ester with 4-(mercaptomethyl-2-methoxy-1,3,4-thiadiazolin-5-one) is an insecticide/acaricide registered for control of a broad spectrum of agricultural insect and mite pests on various crops, predominantly alfalfa, citrus, and cotton.



Empirical Formula:	C ₆ H ₁₁ N ₂ O ₄ PS ₃
Molecular Weight:	302.3
CAS Registry No.:	950-37-8
Shaughnessy No.:	100301

IDENTIFICATION OF ACTIVE INGREDIENT

Methidathion is a colorless to white crystalline solid with an organophosphate odor and a melting point of 39-40 C. Methidathion is slightly soluble in water at 240 ppm (20 C), and is soluble in benzene, acetone, methanol, and xylene at >60 g/100 mL (25 C). Methidathion is only moderately soluble in chloroform and dichloromethane.

MANUFACTURING-USE PRODUCTS

A search of the Reference Files System (REFS) conducted 10/18/95 identified two methidathion manufacturing-use products (MPs) registered to Ciba-Geigy Corporation under Shaughnessy No. 100301: the 95% technical (T; EPA Reg. No. 100-530) and the 50% formulation intermediate (FI; EPA Reg. No. 100-567). Only the Ciba-Geigy 95% T and 50% FI are subject to a reregistration eligibility decision.

REGULATORY BACKGROUND

The Methidathion Guidance Document dated 1/13/83 required additional product chemistry data for the methidathion TGAI and MPs. The Methidathion Final Reregistration Standard and Tolerance Reassessment (FRSTR) dated 6/7/88 evaluated data submitted in response to the Guidance Document, and required that recent product chemistry data be submitted to fulfill remaining requirements. Additional data were required for all 61 and 62 series GLNs, and for some 63 series GLNs. The current status of the product chemistry data requirements for Ciba-Geigy methidathion MPs is presented in the attached data summary tables.

CONCLUSIONS

All pertinent data requirements are satisfied for the Ciba-Geigy methidathion 95% TGAI/T and 50% FI. Provided that the registrant either certifies that the suppliers of beginning materials and the manufacturing processes for the methidathion T and MP have not changed since the last comprehensive product chemistry review or submits complete updated product chemistry data packages, CBRS has no objections to the reregistration of methidathion with respect to product chemistry data requirements.

AGENCY MEMORANDA CITED IN THIS DOCUMENT

CBRS No(s): 8424
DP Barcode(s): D167622
Subject: Methidathion (ID # 100301). Ciba-Geigy Response to the Methidathion
Registration Standard: Product Chemistry.
From: F. Toghrol
To: L. Rossi
Dated: 2/20/92
MRID(s): 41863501 through 41863503

CBRS No(s): 8425
DP Barcode(s): D167625
Subject: Methidathion. Ciba-Geigy Response to Guidance Document Dated 9/88.
Product Chemistry Data Requirements for 50% FI.
From: L. Cheng
To: L. Rossi
Dated: 5/7/92
MRID(s): 41863504 through 41863506

CBRS No(s): 12158
DP Barcode(s): D192769
Subject: Response to the Methidathion Reregistration Standard: Product Chemistry
From: R. Perfetti
To: L. Rossi and A. Rathman
Dated: 9/16/93
MRID(s): 42789701 through 42789703

CBRS No(s): 15702
DP Barcode(s): D218276
Subject: Product Chemistry for Methidathion 50S. Chemical No. 100301. Case No.
0034. Registration No. 100-567. GLN's 61-1, 61-2, 61-3, 62-2, 62-3, 63-7,
63-12, 63-14, 63-16, 63-19, 63-20.
From: W. Smith
To: B. O'Keefe/L. Schnaubelt
Dated: 11/15/95
MRID(s): 43733301 through 43733305

PRODUCT CHEMISTRY CITATIONS

Bibliographic citations include only MRIDs containing data which fulfill data requirements.

References (cited):

- 00011347 Ciba-Geigy Corporation (1977) Chemical Data Section for Methidathion. (Unpublished study received Jun 28, 1977 under 100-530; CDL:230756-A).
- 00131026 Ciba-Geigy Corp. (1982) [Chemistry of Technical Methidathion]. (Compilation; unpublished study received Sep 1, 1983 under 100-530; CDL:251155-A).
- 00142590 Ciba-Geigy Corp. (1983) Ciba-Geigy Technical Methidathion: Methidathion 505: Response to Product Chemistry Comments in EPA Letter of December 1, 1983. Unpublished study. 2 p.
- 00155944 Ciba-Geigy Corp. (1986?) Technical Methidathion: Density. Unpublished study. 1 p.
- 40079802 Gale, T. (1986) Methidathion: Analytical Short Report Product Chemistry Data: Study No. ASGSR-86-18. Unpublished compilation prepared by Ciba-Geigy Corp. 15 p.
- 41863501 Lail, L. (1991) Technical Methidathion: Product Chemistry: Lab Project Number: PC-91-001. Unpublished study prepared by Ciba Geigy Corp. 60 p.
- 41863502 Lail, L. (1991) Technical Methidathion: Product Chemistry: Lab Project Number: PC-91-001. Unpublished study prepared by Ciba Geigy Corp. 100 p.
- 41863503 Lail, L. (1991) Technical Methidathion: Product Chemistry: Lab Project Number: PC-91-001. Unpublished study prepared by Ciba Geigy Corp. 66 p.
- 41863504 Lail, L. (1991) Methidathion 50S: Product Chemistry: Lab Project Number: PC-91-004. Unpublished study prepared by Ciba Geigy Corp. 69 p.
- 41863505 Lail, L. (1991) Methidathion 50S: Product Chemistry: Lab Project Number: PC-91-004. Unpublished study prepared by Ciba Geigy Corp. 78 p.
- 41863506 Lail, L. (1991) Methidathion 50S: Product Chemistry: Lab Project Number: PC-91-004. Unpublished study prepared by Ciba Geigy Corp. 9 p.
- 42789701 Jackson, W. (1993) Technical Methidathion: Supplement to Product Chemistry. Unpublished study prepared by Ciba-Geigy Corp. 17 p.

42789702 Jackson, W. (1993) Supplement to Product Chemistry: Technical Methidathion. Unpublished study prepared by Ciba-Geigy Corp. 9 p.

42789703 Jackson, W. (1993) Supplement to Product Chemistry (Series 63): Technical Methidathion. Unpublished study prepared by Ciba-Geigy Corp. 6 p.

43733301 Lail, L. (1995) Technical Methidathion Product Chemistry: (Product Identity and Composition): Supplement: Lab Project Number: PC-95-027: CC-DOCPRODCHEM95027.DOC. Unpublished study prepared by Ciba-Geigy Corp. 15 p.

43733302 Lail, L. (1995) Methidathion 50S Product Chemistry: (Product Identity and Composition): Supplement: Lab Project Number: PC-95-028: Z:\CC-DOCPRODCHEMM-50S.DOC. Unpublished study prepared by Ciba-Geigy Corp. 15 p.

43733303 Lail, L. (1995) Technical Methidathion Product Chemistry: (Analysis and Certification of Ingredient Limits): Supplement: Lab Project Number: PC-95-027: Z:\CC-DOCPRODCHEM95027-B.DOC. Unpublished study prepared by Ciba-Geigy Corp. 52 p.

43733304 Lail, L. (1995) Methidathion 50S Product Chemistry: (Analysis and Certification of Ingredient Limits): Supplement: Lab Project Number: PC-95-028: Z:\CC-DOCPRODCHEMM-50S-62.DOC. Unpublished study prepared by Ciba-Geigy Corp. 55 p.

43733305 Lail, L. (1995) Technical Methidathion & Methidathion 50S Product Chemistry: (Physical and Chemical Characteristics): Supplement: Lab Project Number: PC-95-027: PC-95-028: Z:\CC-DOCPRODCHEM95027-C.DOC. Unpublished study prepared by Ciba-Geigy Corp. 5 p.

Case No. 0034
Chemical No. 100301

Case Name: Methidathion
Registrant: Ciba-Geigy Corporation
Product(s): 95% T (EPA Reg. No. 100-530)

PRODUCT CHEMISTRY DATA SUMMARY

Guideline Number	Requirement	Are Data Requirements Fulfilled? ^a	MRID Number ^b
61-1	Product Identity and Disclosure of Ingredients	Y	<u>41863501</u> , 42789701 ^c , CSF dated 7/20/95 ^d
61-2	Starting Materials and Manufacturing Process	Y	<u>00011347</u> , <u>41863501</u> , 42789701 ^c
61-3	Discussion of Formation of Impurities	Y	<u>00142590</u> , 40079802, <u>41863501</u> , 42789701 ^c
62-1	Preliminary Analysis	Y	<u>00131026</u> , 40079802, <u>41863502</u>
62-2	Certification of Ingredient Limits	Y	<u>00131026</u> , <u>00142590</u> , <u>40079802</u> , <u>41863502</u> , 42789702 ^c , CSF dated 7/20/95 ^d
62-3	Analytical Methods to Verify the Certified Limits	Y	<u>00131026</u> , 40079802, <u>41863502</u> , 42789702 ^c
63-2	Color	Y	<u>00011347</u> , 40079802, <u>41863503</u> , 42789703 ^c
63-3	Physical State	Y	<u>40079802</u> , <u>41863503</u> , 42789703 ^c
63-4	Odor	Y	<u>00011347</u> , <u>41863503</u> , 42789703 ^c
63-5	Melting Point	Y	<u>00011347</u> , <u>41863503</u> , 42789703 ^c
63-6	Boiling Point	N/A ^a	
63-7	Density, Bulk Density or Specific Gravity	Y	<u>00155944</u> , <u>41863503</u> , 42789703 ^c
63-8	Solubility	Y	<u>00011347</u> , <u>00131026</u> , <u>41863503</u> , 42789703 ^c
63-9	Vapor Pressure	Y	<u>00011347</u> , <u>41863503</u> , 42789703 ^c
63-10	Dissociation Constant	Y	<u>41863503</u> , 42789703 ^c
63-11	Octanol/Water Partition Coefficient	Y	<u>00131026</u> , <u>41863503</u> , 42789703 ^c
63-12	pH	Y	<u>00131026</u> , <u>00142590</u> , <u>41863503</u> , 42789703 ^c
63-13	Stability	Y	<u>00011347</u> , 40079802, <u>41863503</u> , 42789703 ^c
63-14	Oxidizing or Reducing Action	Y	42789703 ^c

Guideline Number	Requirement	Are Data Requirements Fulfilled? ^a	MRID Number ^b
63-15	Flammability	Y	42789703 ^c
63-16	Explosability	Y	42789703 ^c
63-17	Storage Stability	Y	42789703 ^c
63-18	Viscosity	N/A ^c	
63-19	Miscibility	N/A ^c	
63-20	Corrosion Characteristics	Y	42789703 ^c

^a Y = Yes; N = No; N/A = Not Applicable.

^b **Bolded** citations were reviewed in the Methidathion FRSTR dated 6/7/88; underlined citations were reviewed under CBRS No. 8424, D167622, 2/20/92, F. Toghrol; and all remaining citations were reviewed as noted.

^c CBRS No. 12158, D192769, 9/16/93, R. Perfetti.

^d CBRS No. 15702, D218276, 11/15/95, W. Smith.

^e Data are not required because the TGAI/MP is a solid at room temperature.

Case No. 0034
Chemical No. 100301

Case Name: Methidathion
Registrant: Ciba-Geigy Corporation
Product(s): 50% FI (EPA Reg. No. 100-567)

PRODUCT CHEMISTRY DATA SUMMARY

Guideline Number	Requirement	Are Data Requirements Fulfilled? ^a	MRID Number ^b
61-1	Product Identity and Disclosure of Ingredients	Y	<u>41863504</u> , CSF dated 7/20/95
61-2	Starting Materials and Manufacturing Process	Y	<u>00131026</u> , <u>41863504</u> , <u>43733301</u> , <u>43733302</u>
61-3	Discussion of Formation of Impurities	Y	<u>41863504</u> , <u>43733301</u> , <u>43733302</u>
62-1	Preliminary Analysis	N/A ^c	<u>41863505</u>
62-2	Certification of Ingredient Limits	Y	<u>41863505</u> , CSF dated 7/20/95
62-3	Analytical Methods to Verify the Certified Limits	Y	<u>41863505</u> , <u>43733304</u>
63-2	Color	Y	<u>00131026</u> , <u>41863506</u>
63-3	Physical State	Y	<u>00131026</u> , <u>41863506</u>
63-4	Odor	Y	<u>00131026</u> , <u>41863506</u>
63-5	Melting Point	N/A ^c	
63-6	Boiling Point	N/A ^c	
63-7	Density, Bulk Density or Specific Gravity	Y	<u>00131026</u> , <u>41863506</u> , <u>43733305</u>
63-8	Solubility	N/A ^c	
63-9	Vapor Pressure	N/A ^c	
63-10	Dissociation Constant	N/A ^c	
63-11	Octanol/Water Partition Coefficient	N/A ^c	
63-12	pH	Y	<u>00131026</u> , <u>00142590</u> , <u>41863506</u> , <u>43733305</u>
63-13	Stability	N/A ^c	
63-14	Oxidizing or Reducing Action	Y	<u>00131026</u> , <u>41863506</u> , <u>43733305</u>
63-15	Flammability	Y	<u>00131026</u> , <u>41863506</u>
63-16	Explosibility	Y	<u>00131026</u> , <u>41863506</u> , <u>43733305</u>
63-17	Storage Stability	Y	<u>00131026</u> , <u>41863506</u>
63-18	Viscosity	Y	<u>00131026</u> , <u>41863506</u>
63-19	Miscibility	Y	<u>00131026</u> , <u>41863506</u> , <u>43733305</u>
63-20	Corrosion Characteristics	Y	<u>00131026</u> , <u>41863506</u> , <u>43733305</u>

^a Y = Yes; N = No; N/A = Not Applicable.

^b **Bolded** citations were reviewed in the Methidathion FRSTR dated 6/7/88; underlined citations were reviewed under CBRS No. 8425, D167625, 5/7/92, L. Cheng; and all other citations were reviewed under CBRS No. 15702, D218276, 11/15/95, W. Smith.

^c This data requirement will be satisfied by data for the technical source product (TGAI).

**Methidathion
Shaughnessy No. 100301; Case 0034
Reregistration Eligibility Decision**

January 19, 1996

Contract No. 68-D4-0010

**Submitted to:
U.S. Environmental Protection Agency
Arlington, VA**

**Submitted by:
Dynamac Corporation
1910 Sedwick Road
Building 100, Suite B
Durham, NC 27713**

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Methidathion

REREGISTRATION ELIGIBILITY DECISION

RESIDUE CHEMISTRY CONSIDERATIONS

Shaughnessy No. 100301; Case No. 0034

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Methidathion

REREGISTRATION ELIGIBILITY DECISION

RESIDUE CHEMISTRY CONSIDERATIONS

Shaughnessy No. 100301; Case No. 0034

INTRODUCTION

Methidathion (S-[(5-methoxy-2-oxo-1,3,4-thiadiazole-3-(2H)-yl) methyl] O,O-dimethylphosphorodithioate) is an insecticide registered for foliar application to alfalfa, almonds, artichokes, carambola, citrus fruits, clover, cotton, kiwifruit, longans, mangos, olives, pecans, pome fruits, safflower, sorghum (grain), stone fruits, sugar apples, sunflower, timothy, tobacco, and walnuts, using ground or aerial equipment. Three end-use products, including a wettable powder (WP) and two emulsifiable concentrate (EC) formulations are registered for use on food and feed crops.

REGULATORY BACKGROUND

The Methidathion Guidance Document was issued 1/83. Methidathion was the subject of a Final Reregistration Standard and Tolerance Reassessment (FRSTR) issued in 1988. These documents summarized regulatory conclusions regarding the available residue chemistry data. The FRSTR specified that additional data were required for reregistration purposes. Several submissions of data have been received since the FRSTR. The information contained in this document outlines the current Residue Chemistry Science Assessments with respect to the reregistration eligibility of methidathion.

Tolerances ranging from 0.05-12 ppm have been established for residues of methidathion in/on plant commodities [40 CFR §180.298(a)]. Tolerances of 0.03-0.05 ppm have been established for the combined residues of methidathion, its oxygen analog (S-[(5-methoxy-2-oxo-1,3,4-thiadiazole-3-(2H)-yl)methyl] O,O-dimethyl-phosphorothioate), its sulfoxide metabolite (2-methoxy-4-(methylsulfinylmethyl)-1,3,4-thiadiazole-5-one), and its sulfone metabolite (2-methoxy-4-(methylsulfonylmethyl)-1,3,4-thiadiazole-5-one) in animal commodities [40 CFR §180.298(b)]. Tolerances with regional registration of 0.1-0.2 ppm have been established for residues of methidathion in carambola, kiwifruit, longan, and sugar apple [40 CFR §180.298(c)]. The molecular structures of methidathion and its currently regulated metabolites are depicted in Figure 1. The HED metabolism committee has determined that the residue of concern is methidathion *per se* (R. Perfetti, CBRS memorandum of 4/6/95).

The Agency has recently updated the Livestock Feeds Table [Pesticide Assessment Guidelines, Subdivision O, Residue Chemistry, Table II (September, 1995)]. Additional residue data are now required for some commodities as a result of changes in Table II; these

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data requirements have been incorporated into this document. These new data requirements will be imposed at the issuance of the Methidathion RED but should not impinge on the reregistration eligibility decision for methidathion. The need for additional tolerances and for revisions to exposure/risk assessments will be determined upon receipt of the required residue chemistry data.

Figure 1. Chemical names and structures of methidathion and its regulated metabolites.

Common Name/ Chemical Name and Code	Structure
Methidathion S-[(5-methoxy-2-oxo-1,3,4-thiadiazole-3-(2H)-yl)methyl] O,O-dimethyl-phosphorodithioate GS-13005	
Methidathion oxygen analog S-[(5-methoxy-2-oxo-1,3,4-thiadiazole-3-(2H)-yl)methyl] O,O-dimethyl-phosphorothioate GS-13007	
Methidathion sulfoxide 5-methoxy-3-methylsulfinylmethyl-1,3,4-thiadiazole-2-one GS-28370	
Methidathion sulfone 5-methoxy-3-methylsulfonylmethyl-1,3,4-thiadiazole-2-one GS-28369	

SUMMARY OF SCIENCE FINDINGS

GLN 171-3: Directions for Use

A REFs search conducted 10/18/95 indicated that there are three methidathion end-use products (EPs) with food/feed uses registered to Ciba Geigy Corp. These EPs are presented below.

EPA Reg. No.	Acceptance Date	Formulation Class	Product Name
100-501 ^a	3/95	2 lb/gal EC	Supracide® 2E Insecticide-Miticide
100-719	5/94	2 lb/gal EC	Supracide® Insecticide-Miticide
100-754 ^b	5/95	25% WP	Supracide® 25 WP Insecticide-Miticide

^a Includes CA770039, CA900002, FL920005, ID930003, OR930007, and WA940019.

^b Includes WA940020.

The restricted entry interval is 48 hours for applications of ≤ 2 lb ai/A or 14 days for applications at >2 lb ai/A.

A comprehensive summary of the registered food/feed use patterns of methidathion, based on the product labels registered to Ciba Geigy Corp., is presented in Table A. A tabular summary of the residue chemistry science assessments for reregistration of methidathion is presented in Table B. The conclusions listed in Table B regarding the reregistration eligibility of methidathion food/feed uses are based on the use patterns registered by the basic producer, Ciba Geigy Corp. When end-use product DCIs are developed (e.g., at issuance of the RED), RD should require that all end-use product labels (e.g., MAI labels, SLNs, and products subject to the generic data exemption) be amended such that they are consistent with the basic producer labels.

These labels must be revised to delete the restriction on feeding cotton gin trash to livestock. The feed uses on alfalfa and timothy need to be canceled, as the basic producer is not supporting these uses. The SLN label for use on clover grown for seed must be amended to include restrictions to prevent food or feed use of treated plant parts.

GLN 171-4 (a): Plant Metabolism: The qualitative nature of the residue in plants is adequately understood based on studies with [¹⁴C]methidathion on cotton, tomato, artichokes, and citrus. Methidathion *per se* is the residue of concern.

GLN 171-4 (b): Animal Metabolism: Adequate goat and poultry metabolism studies are available. Methidathion *per se* is the residue of concern. The Agency has determined that methidathion represents a 40 CFR §180.6(a)(3) situation in that there is no reasonable expectation of finite residues in animal commodities. Therefore, residues in livestock

commodities are not to be regulated. This conclusion assumes cancellation of the feed uses on alfalfa, clover, and timothy and revocation of tolerances on these commodities.

GLN 171-4 (c/d): Residue Analytical Methods: Adequate methods are available for data collection and tolerance enforcement pertaining to methidathion *per se* in/on plant commodities. Method I in Pesticide Analytical Manual (PAM), Vol. II is a GLC/flame photometric detection (FPD) method. Methods used for data collection include methods based on the PAM, Vol. II method and other GC methods. There are no requirements for enforcement methodology for animal commodities as the tolerances for animal commodities are to be revoked.

The FDA PESTDATA database dated 1/94 (PAM, Volume I, Appendix I) indicates that methidathion is completely recovered (>80%) by Multiresidue Methods Section 302 (Luke method; Protocol D), exhibited small (<50%) recovery using Methods Section 303 (Mills, Onley, Gaither method; Protocol E, non-fatty), and is completely or partially (50-80%) recovered, depending on the Florisil elution system used, by Multiresidue Method Section 304 (Mills fatty food method; Protocol E, fatty).

GLN 171-4 (e): Storage Stability Data: Storage stability data are available on alfalfa forage and hay, clover forage, corn forage, corn fodder, corn grain, cottonseed, cottonseed refined oil, kiwifruit, and oranges. However, data are required pertaining to the storage intervals and conditions of crop samples from several studies. The studies lacking storage information are listed in Table 14 of CBRs Nos. 10870 and 11158 (DP Barcodes D184576 and 186643; 3/2/93; R. Perfetti).

GLN 171-4 (k): Magnitude of the Residue in Plants: The reregistration requirements are satisfied for magnitude of the residue in/on, almond hulls, artichokes, carambola, citrus fruits, cottonseed, pome fruits, stone fruits, kiwifruit, longan, mandarins, mangos, nuts, olives, peaches, pecans, safflower seeds, sorghum (fodder, forage, and grain), sugar apple, sunflower seeds, tobacco, and walnuts.

Methidathion residue data requirements for cotton gin byproducts which result from changes in the Livestock Feeds Table (TABLE II, September, 1995) should be imposed at this time. However, this requirement should not impinge on the reregistration eligibility decision for methidathion. Data are required on methidathion in the plant byproducts from ginning cotton, consisting of burrs, leaves, stems, lint, and immature seeds. Cotton must be harvested by commercial equipment (stripper and mechanical picker) to provide an adequate representation of plant residue for the ginning process. At least three field trials for each type of harvesting (stripper and picker) are needed, for a total of six field trials. The need for additional tolerances and revisions to the exposure/risk assessments will be made upon receipt and evaluation of required data.

GLN 171-4 (l): Magnitude of the Residue in Processed Food/Feed: Adequate data are available to demonstrate that residues do not concentrate in commodities derived from

sunflower seed and these data can be translated to safflower seed. Owing to the use patterns for apples, plums, and olives, finite residues are not expected in the RACs and requirements for processing studies have been waived.

Residues concentrate in citrus oil. Based on a highest average field trial (HAFT) residue value of 3.5 ppm for oranges and an average concentration factor of 118x from 10 processing studies, residues of 412 ppm would be expected in citrus oil. As citrus oil is not ready-to-eat (NRTE) and assuming a dilution factor of 238, dietary exposure to methidathion residues from citrus oil would be 1.7 ppm, lower than the re-assessed tolerance level of 4 ppm for citrus fruit. Therefore, no 409 tolerance is required. A Section 701 MRL of 420 ppm is appropriate for citrus oil.

Seven processing studies on cottonseed indicate an average concentration factor of 1.9x in cottonseed hulls. The highest average field trial (HAFT) residue for cottonseed is <0.01; therefore, residues in cottonseed hulls would not be expected to exceed the established tolerance of 0.2 ppm on the RAC. No Section 409 tolerance or Section 701 MRL is required for cottonseed hulls.

The seven cottonseed processing studies indicate a 1.3x average concentration of residues in refined oil; this does not represent an appreciable concentration. Furthermore, the most recent processing study demonstrated that bleaching refined oil decreased the residues to a level below that in seed and subsequent hydrogenation and deodorization reduced refined oil residues to below the limit of quantitation (<0.05 ppm). Neither a Section 409 tolerance nor a Section 701 MRL is required for refined cottonseed oil.

GLN 171-4 (j): Magnitude of the Residue in Meat, Milk, Poultry, and Eggs: The HED Metabolism Committee has determined that methidathion represents a 40 CFR §180.6(a)(3) situation in that there is no reasonable expectation of finite residues in animal commodities; therefore, livestock feeding studies and tolerances on livestock commodities are not required. This conclusion regarding the need for tolerances on livestock commodities requires that the registrations/tolerances on alfalfa, clover, and grasses be canceled/revoked. Any additional uses resulting in residues of methidathion in/on livestock feed items may engender the need for tolerances in/on meat, milk, poultry and eggs.

GLN 165-1 and 165-2: Rotational Crops: The available confined rotational crop study is adequate. Field rotational crop data and tolerances for rotated crops are not required.

TABLE A. FOOD/FEED USE PATTERNS SUBJECT TO REREGISTRATION FOR METHIDATHION (CASE 0034).

Site	Application Type Application Timing Application Equipment	Formulation [EPA Reg. No.]	Max. Single Application Rate (lb ai/A)	Max. # Apps.	Use Limitations ^a
Food/feed uses					
Alfalfa and Timothy					
Foliar	Ground, aerial	2 lb/gal EC [WA940019] 25% WP [WA940020]	1	NS	Restricted to Kittitas County, WA; other sites are restricted to seed production. 21-day PHI/PGI. ^b
Almonds					
Foliar	Dormant/delayed dormant or cover spray Ground, aerial	2 lb/gal EC [100-501] [100-719] 25% WP [100-754]	3	2	80-day PHI. Do not graze treated areas or feed cover crops to livestock. Do not apply more than one dormant/delayed dormant nor more than one cover spray per season.
Apples, pears					
Foliar	Dormant, delayed dormant Ground, aerial	2 lb/gal EC [100-501] [100-719] 25% WP [100-754]	3	1	Apply before blossoms open. Do not graze treated areas or feed cover crops to livestock.
Apricots, cherries, nectarines, peaches, plums, prunes					
Foliar	Dormant, delayed dormant Ground, aerial	2 lb/gal EC [100-501] [100-719] 25% WP [100-754]	3	1	Apply before blossoms open. Do not graze treated areas or feed cover crops to livestock.

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Table A. (continued)

Site	Application Type Application Timing Application Equipment	Formulation [EPA Reg. No.]	Max. Single Application Rate (lb ai/A)	Max. # Apps.	Use Limitations*
Artichokes					
Foliar Ground, aerial		2 lb/gal EC [100-501] [100-719] 25% WP [100-754]	1	8	Do not apply after buds begin to form. 14-day re-treatment interval.
Carambola					
Foliar Ground		2 lb/gal EC [FL920005]	0.375	3	21-day PHI. 30-day re-treatment interval. Do not graze treated areas.
Citrus fruit					
Foliar Ground		2 lb/gal EC [100-501] [100-719] 25% WP [100-754]	5	2	14-day PHI. 60-day PHI if applied with oil. Do not apply during the bloom period. Lemons: when used with oil, do not exceed 2.5 lb ai/A or apply more than once per season.
Cotton					
Foliar Ground, aerial		2 lb/gal EC [100-501] [100-719] 25% WP [100-754]	1 (0.5 after bolls open)	4	14-day PHI. 5- to 7-day retreatment intervals. Do not graze treated plants of feed gin trash to livestock.

(continued; footnotes follow.)

Table A. (continued)

Site	Application Type Application Timing Application Equipment	Formulation [EPA Reg. No.]	Max. Single Application Rate (lb ai/A)	Max. # Apps.	Use Limitations ^a
Kiwi fruit					
Foliar Dormant Ground		2 lb/gal EC [CA900002]	2	1	Do not use after bud break.
Longan					
Foliar Ground		2 lb/gal EC [FL920005]	0.25	2	21-day PHI. 45-day re-treatment interval. Do not graze treated areas.
Mangos					
Foliar Dormant to bloom Ground		2 lb/gal EC [100-501] [100-719]	0.25	5	Apply between post-harvest and bloom stage. Do not graze treated areas or feed cover crops to livestock.
Olives					
Foliar Post-harvest or pre-bloom period Ground		2 lb/gal EC [100-501] [100-719] 25% WP [100-754]	3	1	Do not apply after buds break. Do not graze treated areas or feed cover crops to livestock.
Pecans (Southern U.S. only)					
Foliar Ground		2 lb/gal EC [100-501] [100-719] 25% WP [100-754]	4	2	60-day PHI. Do not graze treated areas or feed cover crops to livestock.

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Table A. (continued)

Site Application Type Application Timing Application Equipment	Formulation [EPA Reg. No.]	Max. Single Application Rate (lb ai/A)	Max. # Apps.	Use Limitations ^a
Safflower				
Foliar Ground, aerial	2 lb/gal EC [100-501] [100-719] 25% WP [100-754]	0.5	3	28-day PHI. Do not graze treated areas. 7- to 14-day re-treatment intervals.
Sorghum				
Foliar Ground, aerial	2 lb/gal EC [100-501] [100-719]	0.5	3	30-day PHI/PGI. 10- to 14-day re-treatment intervals. Use in CO, KS, OK, TX only.
Sugar apple (including sweetsop, anon, atemoya, and true custard apple)				
Foliar Ground	2 lb/gal EC [FL920005]	0.5	2	14-day PHI. 14-day re-treatment interval. Do not graze treated areas.
Sunflower				
Foliar Ground, aerial	2 lb/gal EC [100-501] [100-719]	0.5	3	50-day PHI. 7-day re-treatment interval. Do not graze treated areas or feed treated forage to livestock.

(continued; footnotes follow.)

Table A. (continued)

Site	Application Type Application Timing Application Equipment	Formulation [EPA Reg. No.]	Max. Single Application Rate (lb ai/A)	Max. # Apps.	Use Limitations*
Walnuts					
Foliar	Dormant/delayed dormant or cover spray.	2 lb/gal EC [100-501] [100-719] 25% WP [100-754]	2 (EC) 3 (WP)	3	7-day PHI. Do not graze treated areas or feed cover crops to livestock. Do not apply more than one dormant/delayed dormant nor more than one cover spray per season.
Non-food/feed uses					
Alfalfa grown for seed					
Foliar	Ground, aerial	2 lb/gal EC [ID930003] [OR930007]	1	NS	Do not apply through irrigation equipment. Do not feed or graze. Seeds may not be used for sprouts. Not for human or animal consumption.
Clover grown for seed					
Foliar	Ground, aerial	2 lb/gal EC [CA770039]	1	NS	None
Tobacco					
Foliar	Ground	2 lb/gal EC [100-501] [100-719]	1	3	3-day PHI

* The restricted entry interval is 48 hours for applications ≤ 2 lb ai/A or 14 days for applications >2 lb ai/A.

PHI/PGI = preharvest interval or pre-grazing interval.

Table B. Residue Chemistry Science Assessments for Reregistration of Methidathion.

GLN: Data Requirements	Current Tolerances, ppm [40 CFR]	Must Additional Data Be Submitted?	References ¹
171-3: Directions for Use	N/A	Yes ²	See Table A.
171-4 (a): Plant Metabolism	N/A	No	00011317 00022903 00022905 00022907 00022910 00022911 00060895 00154460 00154462 05011885 05012174 05013162 40121401 ³ 40127811 40127812 41902201 ⁴ 42537101 ⁵ 42708901 ⁶ 42708902 ⁶
171-4 (b): Animal Metabolism	N/A	No	00011283 00011317 00011335 00011336 00011848 00011936 00022908 00022909 00026090 40127821 42537102 ⁵ 42537103 ⁵ 43170001 ⁷ 43170005 ⁷ 43399702 ⁸
171-4 (c/d): Residue Analytical Methods	N/A	No	00011320 00011324 00011326 00011334 00011337 00011373 00011722 00011843 00011844 00011846 00011852 00020944 00020945 00020979 00029229 00060902 00128127 00154474 05011904 40127804 40127805 40127806 40341001 42537104 ⁵ 42537106 ⁹ 42537107 ⁵ 42537108 ⁵ 42708903 ⁶ 43296401 ¹⁰ 43296402 ¹⁰
171-4 (e): Storage Stability	N/A	Yes ¹¹	00011843 00060902 00154474 40127802 40341001 42537109 ⁵ 42537110 ⁵ 42537111 ⁵

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Table B. (continued).

GLN: Data Requirements	Current Tolerances, ppm [40 CFR]	Must Additional Data Be Submitted?	References ¹
171-4 (k): Magnitude of the Residue in Plants			
<u>Root and Tuber Vegetables Group</u>			
- Potatoes	0.2 [§180.298(a)]	No ¹²	00014404
<u>Citrus Fruits Group</u>			
- Citrus Fruits (except Mandarins)	2.0 [§180.298(a)]	No ¹³	00011323 00011425 00011426 00027999 00029221 00029227 00029228 43308802 ¹⁴
- Mandarins	6.0 [§180.298(a)]	No	00011323
<u>Pome Fruits Group</u>	0.05 [§180.298(a)]	No	00012593 00020946
<u>Stone Fruits Group</u>	0.05 [§180.298(a)]	No	00011641 00011642 00011921 00012593 00012594 00012595 00012596 00012597 00012598 00012599 00012600 00012601 00012603 00012604 00020946 00020947 00020948 00020949 00020950 00020951 00020952 00020953 00020954 00020955 00020956 00020957 00020958 00020959 00020962 00020965 00020967 00020970 00020971
<u>Tree Nuts Group</u>			
- Almond hulls	6.0 [§180.298(a)]	No	00020946 00036942 43308803 ¹⁴
- Nuts	0.05 [§180.298(a)]	No	00011640 00011769 00020946 00036942 43308803 ¹⁴
- Pecans	0.05 [§180.298(a)]	No	00011640
- Walnuts	0.05 [§180.298(a)]	No	00011640 00011769 00020946

Table B. (continued).

GLN: Data Requirements	Current Tolerances, ppm [40 CFR]	Must Additional Data Be Submitted?	References ¹
<u>Cereal Grains Group</u>			
- Sorghum, grain	0.2 [§180.298(a)]	No	00011303 00011304 00011305 00014382 00014383 00014384
<u>Forage, Fodder, and Straw of Cereal Grains Group</u>			
- Sorghum, fodder	2.0 [§180.298(a)]	No	00011303 00011304 00011305 00014382 00014383 00014384
- Sorghum, forage	2.0 [§180.298(a)]	No	00011303 00011304 00011305 00014382 00014383 00014384
<u>Grass Forage and Hay Group</u>			
- Grass forage	12 [§180.298(a)]	No ¹⁵	00011321 43308804 ¹⁴
- Grass hay	12 [§180.298(a)]	No ¹⁵	00011321 43308804 ¹⁴
<u>Non-grass Animal Feeds Group</u>			
- Alfalfa forage	12 [§180.298(a)]	No ¹⁵	00011318 00011319 00011321 00011340 00012575
- Alfalfa hay	12 [§180.298(a)]	No ¹⁵	00011318 00011319 00011321 00011340 00012575
- Clover forage	12 [§180.298(a)]	No ¹⁶	00011318 0001134
- Clover hay	12 [§180.298(a)]	No ¹⁶	00011318 00011340
<u>Miscellaneous Commodities</u>			
- Artichokes	0.05 [§180.298(a)]	No	00011764
- Carambola	0.1 [§180.298(c)]	No	41151802 ¹⁷
- Cottonseed	0.2 [§180.298(a)]	No	00011325 00115199 00011786 40127804
- Cotton gin byproducts	None	Yes ¹⁸	
- Kiwifruit	0.1 [§180.298(c)]	No	40931301 ¹⁹
- Longan	0.1 [§180.298(c)]	No	41151802 ¹⁷
- Mangos	0.05 [§180.298(a)]	No	00011473 00011474

Table B. (continued).

GLN: Data Requirements	Current Tolerances, ppm [40 CFR]	Must Additional Data Be Submitted?	References ¹
- Olives	0.05 [§180.298(a)]	No	00011456
- Safflower, seed	0.5 [§180.298(a)]	No	00038279 00038280
- Sugar apple	0.2 [§180.298(c)]	No	41686301 ²⁰ 41686302 ²⁰
- Sunflower, seeds	0.5 [§180.298(a)]	No	PP#4F1513
- Tobacco	None	No	00011856
171-4(l): Magnitude of the Residues in Processed Food/Feed			
- Apples	None	No ²¹	
- Citrus	None	No ²²	00011323 43308802 ¹⁴
- Cottonseed	None	No ²³	00011325 40127804
- Olives	None	No ²¹	
- Plums/prunes	None	No ²¹	
- Potatoes	None	No	
- Safflower, seed	None	No ²⁴	
- Sunflower seed	None	No ²⁵	PP#4F1513
171-4 (j): Magnitude of the Residue in Meat, Milk, Poultry, and Eggs			
- Meat, mby, and fat of cattle, goats, hogs, horses, and sheep	0.05 [§180.298(b)]	No ²⁶	00022574 00078342 00128127
- Milk	0.03 [§180.298(b)]	No ²⁶	00022574 00078342 00128127
- Meat, mby, and fat of poultry	0.05 [§180.298(b)]	No ²⁶	00011314
- Eggs	0.05 [§180.298(b)]	No ²⁶	00011314
165-1: Rotational Crops (Confined)	N/A	No	40094101 ²⁷ 41902201 ²⁷
165-2: Rotational Crops (Field)	N/A	No	40094102 ²⁷

- References were reviewed in the Methidathion Registration Standard (Guidance Document dated 1/83). References in bold were reviewed in the 1988 FRSTR. Otherwise, submissions were reviewed as noted.
- The end-use product labels must be revised to delete the restriction on feeding cotton gin trash to livestock. The feed uses on alfalfa and timothy (EPA SLN Nos. WA940019 and WA940020) need to be canceled, as Ciba Geigy

Table B (continued).

is not supporting these uses. The SLN label for use on clover grown for seed (EPA SLN No. CA770039) must be amended to include restrictions to prevent food or feed use of treated plant parts.

3. CBRS No. 5140; DP Barcode (none); 6/14/89; R. Schmitt.
4. CBRS No. 8422; DP Barcode D167356; 4/1/92; R. Perfetti.
5. CBRS Nos. 10870 and 11158; DP Barcodes D184576 and 186643; 3/2/93; R. Perfetti.
6. CBRS No. 11683; DP Barcode D189970; 7/28/93; R. Perfetti.
7. CBRS No. 13714; DP Barcode D203435; 7/6/95; R. Perfetti.
8. CBRS No. (none); DP Barcode D210041; 4/6/95; R. Perfetti.
9. CBRS No. (none); DP Barcode (none); 9/17/93; L. Edwards.
10. CBTS Nos. 13529/13530; DP Barcodes D216609/216616; 5/9/94; J. Garbus. CBTS Nos. 13982/13983; DP Barcode D204948/204952; 7/28/94; J. Herndon. CBRS No. 14000; DP Barcode D205407; 1/6/95; G. Kramer.
11. Information is required pertaining to storage intervals and conditions of crop samples used for residue data to support tolerances. The MRID numbers for studies requiring additional sample storage information are listed in Table 14 of CBRS Nos. 10870 and 11158 (DP Barcodes D184576 and 186643; 3/2/93; R. Perfetti).
12. Because there is no registered use, the tolerance for potatoes is to be revoked.
13. The available data indicate that residues may exceed the established 2 ppm tolerance in/on citrus fruit (except mandarins) following registered use; residues of 3.4 and 3.6 ppm were observed in oranges harvested 14 and 60 days following two applications of the 2 lb/gal EC formulation at 5 lb ai/A with (60 day PHI) and without oil (14 day PHI). A tolerance increase to 4 ppm would be appropriate.
14. CBTS No. 14096; DP Barcode D205743; 4/27/95; G. Kramer.
15. This use is to be canceled and the tolerance should be revoked. Alternatively, livestock feeding studies are required to determine tolerance levels on animal commodities.
16. The use on clover grown for seed is a non-food use. The label (CA770039) should be amended to bear the appropriate restrictions or the use must be canceled. The tolerance should be revoked.
17. DEB No. 5538; DP Barcode (none); 10/24/89; F. Toghrol.
18. Methidathion residue data requirements for cotton gin byproducts which result from changes in the Livestock Feeds Table (TABLE II, September, 1995) should be imposed at this time. However, this requirement should not impinge on the reregistration eligibility decision for methidathion. Data are required on methidathion in the plant byproducts from ginning cotton, consisting of burrs, leaves, stems, lint, and immature seeds. Cotton must be harvested by commercial equipment (stripper and mechanical picker) to provide an adequate representation of plant residue for the ginning process. At least three field trials for each type of harvesting (stripper and picker) are needed, for a total of six field trials. The need for additional tolerances and revisions to the exposure/risk assessments will be made upon receipt and evaluation of required data.

Table B (continued).

19. CBTS No. 4769; DP Barcode (none); 3/16/89; M. Nelson.
20. CBTS No. 7298; DP Barcode D158422; 4/22/91; W. Wassell.
21. Owing to the use pattern, finite residues are not expected in the RAC. No processing study is required.
22. A section 701 MRL of 420 ppm is required for citrus oil.
23. No concentration occurs in cottonseed refined oil. Residues in cottonseed hulls are not expected to concentrate enough (1.9x concentration/HAFT <0.1 ppm) to exceed the established tolerance of 0.2 ppm on cottonseed; no Section 409 tolerance or Section 701 MRL is needed for either of these processed commodities.
24. Data from sunflower seed can be translated to safflower seed.
25. Adequate data are available to indicate that residues do not concentrate in any processed commodity.
26. The HED Metabolism Committee has determined that methidathion represents a 40 CFR §180.6(a)(3) situation in that there is no reasonable expectation of finite residues in animal commodities. Therefore, livestock feeding studies and tolerances on livestock commodities are not required. This conclusion regarding the need for tolerances on livestock commodities requires that the registrations/tolerances on alfalfa, clover, and grasses are canceled/revoked. Any additional uses resulting in residues of methidathion in/on livestock feed items may engender the need for tolerances in/on meat, milk, poultry and eggs.
27. CBRS No. 12331; DP Barcode D193876; 12/20/93; R. Perfetti.

TOLERANCE REASSESSMENT SUMMARY

Tolerances for methidathion residues are currently expressed in terms of methidathion *per se* in plant commodities [§180.298(a and c)] and in terms of the combined residues of methidathion, its oxygen analog, and its sulfoxide and sulfone metabolites in animals [40 CFR §180.298(b)]. A summary of the methidathion tolerance reassessment and recommended modifications in commodity definitions are presented in Table C.

Tolerances Listed Under 40 CFR §180.298(a): Adequate data are available to support the established tolerances for methidathion residues in/on almond hulls, pome fruits, artichokes, cottonseed, mandarins, mangos, olives, peaches, pecans, safflower seed, sorghum commodities, stone fruits, sunflower seed, and walnuts. The established tolerance for residues in/on citrus fruit should be increased from 2 ppm to 4 ppm, as residues of 3.4 and 3.5 ppm have been observed following registered use. The commodity definition for "Nuts" should be amended to reflect the correct crop group designation "Tree nuts," and the tolerances for pecans and walnuts, which are covered by the tree nuts group, should be deleted. The tolerance for "Peaches" is not necessary as peaches are covered by the tolerance for residues in/on "Fruits, stone;" therefore we recommend deletion of the tolerance for peaches. The group definitions "Fruits, pome" and "Fruits, stone" should be revised to "Pome fruits" and "Stone fruits," respectively.

The tolerances for grass and grass hay and alfalfa and alfalfa hay should be revoked as the use on alfalfa/timothy is to be canceled. The tolerances on clover and clover hay should be revoked as the use on clover grown for seed is a non-food use.

Tolerances Needed Under 40 CFR §180.298(a): Residue data are required to determine a tolerance level on cotton gin byproducts.

Tolerances Listed Under 40 CFR §180.298(b): The tolerances for residues in animal commodities should be revoked, as the Agency has determined that methidathion represents a 40 CFR §180.6(a)(3) situation in that there is no reasonable expectation of finite residues in animal commodities. This conclusion regarding the need for tolerances on livestock commodities requires that the registrations/tolerances on alfalfa, clover and grasses are canceled/revoked. Any additional uses resulting in residues of methidathion in/on livestock feed items may engender the need for tolerances in/on meat, milk, poultry and eggs.

Tolerances (with regional registration) Listed Under 40 CFR §180.298(c): Adequate data are available to support the established tolerances for methidathion residues in/on carambola, kiwifruit, longan, and sugar apple.

Table C. Tolerance Reassessment Summary for Methidathion.

Commodity	Current Tolerance (ppm)	Tolerance Reassessment (ppm)	Comment/Correct Commodity Definition
Tolerances listed under 40 CFR §180.298(a):			
Alfalfa	12	Revoke	The use on alfalfa/timothy is to be canceled.
Alfalfa, hay	12		
Almonds, hulls	6	6	
Artichokes	0.05	0.05	
Citrus fruits (except mandarins)	2.0	4.0	Residues of 3.4 and 3.6 ppm have been observed following registered use.
Clover	12	Revoke	The use on clover grown for seed is a non-food use.
Clover, hay	12		
Cottonseed	0.2	0.2	
Fruits, pome	0.05	0.05	<i>Pome fruits</i>
Fruits, stone	0.05	0.05	<i>Stone fruits</i>
Grass	12	Revoke	The use on alfalfa/timothy stands is to be canceled.
Grass, hay	12		
Mandarins	6.0	6.0	
Mangos	0.05	0.05	
Nuts	0.05	0.05	<i>Tree Nuts</i>
Olives	0.05	0.05	
Peaches	0.05	Revoke	Peaches are covered by the established tolerance for stone fruits.
Pecans	0.05	Revoke	Pecans will be covered by a tolerance for tree nuts.
Potatoes	0.2	Revoke	No registered use.
Safflower seeds	0.5	0.5	
Sorghum, fodder	2	2	
Sorghum, forage	2	2	
Sorghum, grain	0.2	0.2	
Sunflower seeds	0.5	0.5	
Walnuts	0.05	Revoke	Walnuts will be covered by a tolerance for tree nuts.

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Table C (continued).

Commodity	Current Tolerance (ppm)	Tolerance Reassessment (ppm)	Comment/Correct Commodity Definition
Tolerances needed under 40 CFR §180.298(a):			
Cotton gin byproducts	None	To be determined	Residue data are required to determine the appropriate tolerance level.
Tolerances listed under 40 CFR §180.298(b):			
Cattle, fat	0.05	Revoke	Methidathion residues in livestock are considered to fall under 40 CFR §180.6(a) (3), and tolerances are not required. This conclusion regarding the need for tolerances on livestock commodities requires that the registrations/tolerances on alfalfa, clover and grasses are canceled/revoked. Any additional uses resulting in residues of methidathion in/on livestock feed items may engender the need for tolerances in/on meat, milk, poultry and eggs.
Cattle, meat	0.05		
Cattle, mbyp	0.05		
Eggs	0.05		
Goats, fat	0.05		
Goats, meat	0.05		
Goats, mbyp	0.05		
Hogs, fat	0.05		
Hogs, meat	0.05		
Hogs, mbyp	0.05		
Horses, fat	0.05		
Horses, meat	0.05		
Horses, mbyp	0.05		
Milk	0.03		
Poultry, fat	0.05		
Poultry, meat	0.05		
Poultry, mbyp	0.05		
Sheep, fat	0.05		
Sheep, meat	0.05		
Sheep, mbyp	0.05		

Table C (continued).

Commodity	Current Tolerance (ppm)	Tolerance Reassessment (ppm)	Comment/Correct Commodity Definition
Tolerances listed under 40 CFR §180.298(c):			
Carambola	0.1	0.1	
Kiwi fruit	0.1	0.1	<i>Kiwifruit</i>
Longan	0.1	0.1	
Sugar apple	0.2	0.2	
Section 701 MRL needed			
Citrus oil	None	420	The dilution factor for citrus oil is 238; no Section 409 tolerance is required.

CODEX HARMONIZATION

Codex MRLs (CXL) are defined in terms of methidathion residues (fat-soluble). This definition is compatible with the HED metabolism committee's recommendation that U.S. tolerances be defined in terms of methidathion *per se*. Codex MRLs and corresponding U.S. tolerances are listed in Table D.

Table D. Codex MRLs (CXL) for methidathion and corresponding U.S. tolerances.

Commodity	Codex MRL (ppm)	U.S. Tolerance (ppm) ^a	Compatibility/Comments
Apple	0.5	0.05 (pome fruits)	Harmonization would require a 10x increase in the U.S. tolerance. Given the U.S. use pattern, we recommend against upward revision of the U.S. tolerance.
Apricot	0.2	0.05 (stone fruits)	Harmonization would require a 4x increase in the U.S. tolerance. Given the U.S. use pattern, we recommend against upward revision of the U.S. tolerance.
Cabbages (head)	0.2	None	
Cattle fat	0.02	None	The current U.S. tolerance of 0.05 ppm will be revoked.
Cauliflower	0.2	None	
Cherries	0.2	0.05 (stone fruits)	Harmonization would require a 4x increase in the U.S. tolerance. Given the U.S. use pattern, we recommend against upward revision of the U.S. tolerance.
Common bean (pods and/or mature seeds)	0.1	None	
Cotton seed	0.2	0.2	U.S. tolerance is compatible with Codex MRL.
Cotton seed oil, crude	1	None	Cottonseed crude oil is not subject to regulation by U.S. tolerance.
Edible offal of cattle, pigs, and sheep	0.02	None	The current U.S. tolerance of 0.05 ppm will be revoked.
Eggs	0.02	None	The current U.S. tolerance of 0.05 ppm will be revoked.
Grapes	0.2	None	
Hops, dry	3	None	
Leafy vegetables	0.2	None	
Lemons and limes	2	4 (citrus fruit)	The current use pattern for methidathion on citrus does not permit a lowering of the U.S. tolerance for citrus fruit.
Maize	0.1	None	

Table D. (continued)

Commodity	Codex MRL (ppm)	U.S. Tolerance (ppm) ^a	Compatibility/Comments
Mandarins	5	6	The current use pattern for methidathion on citrus does not permit a lowering of the U.S. tolerance for mandarins.
Meat of cattle, pigs, and sheep	0.02	None	The current U.S. tolerance of 0.05 ppm will be revoked.
Milk	0.0008	None	The current U.S. tolerance of 0.03 ppm will be revoked.
Nectarine	0.2	0.05 (stone fruits)	Harmonization would require a 4x increase in the U.S. tolerance. Given the U.S. use pattern, we recommend against upward revision of the U.S. tolerance.
Oranges, sweet, sour	2	4 (citrus fruit)	The current use pattern for methidathion on citrus does not permit a lowering of the U.S. tolerance for citrus fruit.
Peach	0.2	0.05 (stone fruits)	Harmonization would require a 4x increase in the U.S. tolerance. Given the U.S. use pattern, we recommend against upward revision of the U.S. tolerance.
Pear	0.5	0.05 (pome fruits)	Harmonization would require a 10x increase in the U.S. tolerance. Given the U.S. use pattern, we recommend against upward revision of the U.S. tolerance.
Peas	0.1	None	
Pig fat	0.02	None	The current U.S. tolerance of 0.05 ppm will be revoked.
Plums (including prunes)	0.2	0.05 (stone fruits)	Harmonization would require a 4x increase in the U.S. tolerance. Given the U.S. use pattern, we recommend against upward revision of the U.S. tolerance.
Potato	0.02	0.2	The U.S. tolerance will be revoked owing to lack of registered use.
Poultry fat	0.02	None	The current U.S. tolerance of 0.05 ppm will be revoked.
Poultry meat	0.02	None	The current U.S. tolerance of 0.05 ppm will be revoked.
Poultry, edible offal	0.02	None	The current U.S. tolerance of 0.05 ppm will be revoked.
Shaddocks or pomelos	2	4 (citrus fruit)	The current use pattern for methidathion on citrus does not permit a lowering of the U.S. tolerance for citrus fruit.

Table D. (continued)

Commodity	Codex MRL (ppm)	U.S. Tolerance (ppm)*	Compatibility/Comments
Sheep fat	0.02	None	The current U.S. tolerance of 0.05 ppm will be revoked.
Sorghum	0.1	0.2 (grain) 2 (forage, fodder)	The current use pattern for methidathion on sorghum does not permit a lowering of the U.S. Tolerances.
Tea, green, black	0.1	None	
Tomato	0.1	None	

* Reassessed U.S. tolerance levels are given.

AGENCY MEMORANDA CITED IN THIS DOCUMENT

CBRS No: 13714
 DP Barcode: D203435
 Subject: Response to the Methidathion Reregistration Standard: Livestock Metabolism Upgrade.
 From: R. Perfetti, Ph.D., CBRS
 To: L. Schnaubelt, SRRD
 Dated: July 6, 1995
 MRID(s): 43170001 and 43170005

CBTS No: 14096
 DP Barcode: D205743
 Subject: ID# 000100-00754. Label Amendment for Methidathion (Supracide 25WP® Insecticide-Miticide).
 From: G. Kramer, Ph.D., CBTS
 To: D. Edwards, Jr./P. Jenkins & J. Smith, IRB & HED
 Dated: April 27, 1995
 MRID(s): 43308801, 43308802, 43308803 and 43308804

CBRS No: None
 DP Barcode: D210041
 Subject: The HED Metabolism Committee Meeting held on April 4, 1995: Methidathion.
 From: R. Perfetti, Ph.D., CBRS
 To: Metabolism Committee, HED
 Dated: April 6, 1995
 MRID(s): 43399701 and 43399702

CBRS No: 14000
 DP Barcode: D205407

Subject: Response to the Methidathion Reregistration Standard: Independent Lab Validation.
From: R. Perfetti, Ph.D., CBRS
To: E. Saito, SRRD
Dated: January 6, 1995
MRID(s): 43296401 and 43296402

CBTS No: 13982 and 13983
DP Barcode: D204948 and D204952
Subject: WA940019 and WA940020. Special Local Need [24(c)] Registration for Application of Supracide 2E® and Supracide 25W® (Methidathion, EPA Reg.#100-501 and 100-754, respectively) to Timothy or Timothy-Alfalfa Stands.
From: G. Herndon, CBTS
To: D. Edwards, Jr./P. Jenkins, IRB
Dated: July 28, 1994
MRID(s): None

CBTS No: 13529 and 13530
DP Barcode: D216609 and D216616
Subject: WA940019 and WA940020. Special Local Need [24(c)] Registration for Application of Supracide 2E® and Supracide 25W® (Methidathion, EPA Reg.#100-501 and 100-754, respectively) to Timothy or Timothy-Alfalfa Stands.
From: J. Garbus, CBTS
To: D. Edwards, Jr./P. Jenkins, IRB
Dated: May 9, 1994
MRID(s): None

CBRS No: 12331
DP Barcode: D193876
Subject: Response to the Methidathion Reregistration Standard: Confined Rotational Crops.
From: R. Perfetti, Ph.D., CBRS
To: L. Rossi, SRRD
Dated: December 20, 1993
MRID(s): 40094101, 41902201

CBRS No: None
DP Barcode: None
Subject: Methidathion and its Metabolites.
From: L. Edwards, CBRS
To: H. Hundley, BEAD
Dated: September 17, 1993
MRID(s): 42537106

CBRS No: 11683
DP Barcode: D189970
Subject: Response to the Methidathion Reregistration Standard
From: R. Perfetti, Ph.D., CBRS
To: L. Rossi, SRRD
Dated: July 28, 1993
MRID(s): 42708901, 42708902, 42708903

CBRS Nos: 10870 and 11158
DP Barcodes: D184576 and D186643
Subject: Response to the Methidathion Reregistration Standard
From: R. Perfetti, PhD., CBRS
To: Lois Rossi, SRRD and E. Saito, HED
Dated: March 2, 1993
MRID(s): 42537101, 42537102, 42537103, 42537104, 42537107, 42537108, 42537109, 42537110, 42537111

CBRS No: 8422
DP Barcode: D167356
Subject: Response to the Methidathion Reregistration Standard
From: R. Perfetti, PhD., CBRS
To: L. Rossi, SRRD
Dated: April 1, 1992
MRID(s): 41902201

CBTS No: 7298
DP Barcode: D158422
Subject: Methidathion in/on Sugar Apple
From: W. Wassell
To: H. Jamerson, RD
Dated: April 22, 1991
MRID(s): 41686301, 41686302

CBTS No: 5538
DP Barcode: None
Subject: PP#9E3769. Methidathion (Supracide® 2E Insecticide-Miticide) in or on Longan and Carambola.
From: F. Toghrol, Ph.D., DEB
To: H. Jamerson, HED
Dated: October 24, 1989
MRID(s): 41151801

CBRS No: 5140
DP Barcode: None
Subject: Ciba-Geigy's Response to the Methidathion Registration Standard
From: R. Schmitt, DEB
To: R. Engler, SACB and L. Rossi, SRRD
Dated: January 4, 1989
MRID(s): 41021401 and 41151802

CBTS No: 4769
DP Barcode: None
Subject: Methidathion in/on Kiwifruit
From: M. Nelson
To: H. Jamerson
Dated: March 16, 1989
MRID(s): 40931301

MASTER RECORD IDENTIFICATION NUMBERS

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00011317 Dupuis, G.; Esser, H.O.; Mucke, W. (1969) The Metabolic Behavior of the Insecticide GS13005: GAAC-69023. (Unpublished study received May 5, 1970 under 0F0892; submitted by Geigy Chemical Corp., Ardsley, N.Y.; CDL:091538-B)

00011318 Mattson, A.M.; Kahrs, R.A. (1969) Determination of GS-13005 Residues in Field Treated Forage: Report No.: GAAC-69042. (Unpublished study received May 5, 1970 under 0F0892; submitted by Geigy Chemical Corp., Ardsley, N.Y.; CDL:091538-G)

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00011426 Taylor, J.B. (1974) Residue Report: AG-A No. 3161; Project No. 303035. (Unpublished study received Sep 27, 1974 under 5F1555; submitted by Ciba-Geigy Corp., Greensboro, N.C.; CDL: 094463-E)

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00011642 Dupre, G.D.; Christensen, M.D. (1974) Summary of Residue Analyses: Bio/dynamics, Inc. No. 73033. (Unpublished study received on unknown date under 4F1522; prepared in cooperation with Bio/dynamics, Inc., submitted by Ciba-Geigy Corp., Greensboro, N.C.; CDL:094033-C)

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00012594 Christensen, M.D. (1977) Residue Report: AG-A No. 4224; 2nd Report; Project No. 303060. (Unpublished study received Jan 25, 1977 under 100-501; prepared in cooperation with Bio/dynamics, Inc., submitted by Ciba-Geigy Corp., Greensboro, N.C.; CDL:227647-B)

00012595 Maggiore, F.; Christensen, M.D. (1977) Residue Report: AG-A No. 4225; 2nd Report; Project No. 303060. (Unpublished study received Jan 25, 1977 under 100-501; prepared in cooperation with Bio/dynamics, Inc., submitted by Ciba-Geigy Corp., Greensboro, N.C.; CDL:227647-C)

00012596 Zaccaria, J.J. (1977) Residue Report: AG-A No. 4234; 2nd Report; Project No. 303060. (Unpublished study received Jan 25, 1977 under 100-501; prepared in cooperation with Bio/dynamics, Inc., submitted by Ciba-Geigy Corp., Greensboro, N.C.; CDL:227647-D)

00012597 Zaccaria, J.J. (1977) Residue Report: AG-A No. 4235; 2nd Report; submitted by Ciba-Geigy Corp., Greensboro, N.C.; CDL:227647-E)

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00012602 Snow, J.G. (1977) Residue Report: AG-A No. 4342; 2nd Report; Project No. 303060. (Unpublished study received Jan 25, 1977 under 100-501; prepared in cooperation with Bio/dynamics, Inc., submitted by Ciba-Geigy Corp., Greensboro, N.C.; CDL:227647-J)

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