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

JUN 13 1995

MEMORANDUM

OFFICE OF
PREVENTION, PESTICIDES AND
TOXIC SUBSTANCES

SUBJECT: Chlorothalonil: List A Reregistration Case No. 0097: Chemical ID No. 081901: Product and Residue Chemistry Considerations to be Included in the HED Chapter of the Reregistration Eligibility Decision Document. CBRS No. 13505: DP Barcode D201522.

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

THROUGH: E. Zager, Chief
Chemistry Branch II: Reregistration Support
Health Effects Division

TO: Karen Whitby, Acting Chief
Risk Coordination & Analysis Branch
Health Effects Division (7509C)

Please find attached the product and residue chemistry chapters to be included in the HED chapter of the Chlorothalonil Reregistration Eligibility Decision Document. The chapters were prepared by Dynamac Corp. under supervision of CBRS, and have been revised to reflect Agency policy.

Additional product chemistry data are required to support eleven MPs registered to ISK Biosciences Corp. and one MP registered to Veterens Ilex, Inc. The outstanding product chemistry data requirements should not delay a reregistration eligibility decision for Chlorothalonil.

Additional residue data are required to support reregistration of uses on beans, peanuts and sweet corn. These data include field residue trials to depict residues in or on beans forage and hay/straw, peanut hay and sweet corn forage. These data are required as a result of changes to the livestock feeds table (Table II) in Subdivision O of the Pesticide Assessment Guidelines, and therefore should not delay a reregistration eligibility decision for Chlorothalonil. Additional storage stability information to support residue studies is required; however, this information is expected to be confirmatory to our conclusion that Chlorothalonil residues of concern are stable under frozen storage.

There are at present no tolerances on animal commodities. Data reviewed in poultry and ruminant metabolism studies indicate that tolerances are not needed at this time for poultry and eggs but may be needed for meat and milk. In order to assess the need for these tolerances, a ruminant feeding study must be submitted.

Although all the data requirements of the Registration Standard have not been met at this time, the outstanding data are considered to be confirmatory to our reregistration eligibility decision in these documents. Sufficient data are available to conduct reasonable anticipated residue assessments both for plant and animal commodities. Two sets of anticipated residues will be provided to DRES in a separate memorandum; one for residues of chlorothalonil and the other for residues of the chlorothalonil contaminant, hexachlorobenzene (HCB).

Attachments: Chlorothalonil Product and Residue Chemistry Chapters of the RED.

cc: W.Smith; Reg. Std. File; SF; RF; A. Ertman(SRRD); Dynamac 7509C:WSmith:CBRS:CM2:Rm805A:703 305-5353:05/25/95
RDI: Pilot Team:05/23/95 EZager:06/07/95

CHLOROTHALONIL

REREGISTRATION ELIGIBILITY DECISION:

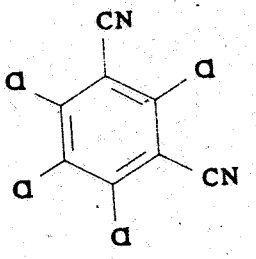
PRODUCT CHEMISTRY CONSIDERATIONS

(Shaughnessy No. 081901; Case No. 0097)

(CBRS No. 13505; DP Barcode D201522)

DESCRIPTION OF CHEMICAL

Chlorothalonil (tetrachloroisophthalonitrile) is a broad spectrum non-systemic protectant fungicide for control of foliar diseases of vegetable and ornamental crops, and for mold/mildew control in wood.



Empirical Formula:	$C_8Cl_4N_2$
Molecular Weight:	265.9
CAS Registry No.:	1897-45-6
Shaughnessy No.:	081901

IDENTIFICATION OF ACTIVE INGREDIENT

Technical chlorothalonil is a white crystalline solid with a melting point of 250-251 C. Chlorothalonil is practically insoluble in water at 25 C (ca. 0.6 ppm) and only slightly soluble in acetone, chloroform, ethanol, kerosene, methyl ethyl ketone, mineral oil, toluene, and xylene ($\leq$8.0% by weight). The technical product is stable under normal storage temperatures, on exposure to ultraviolet radiation, and in moderate alkaline or acidic aqueous media.

MANUFACTURING-USE PRODUCTS

A search of the Reference Files System (REFS) conducted 11/16/94 identified twelve chlorothalonil manufacturing-use products (MPs) registered under Shaughnessy No. 081901. Two additional products, which are currently listed in REFs as end-use products, are appropriately identified as MPs based on past data submissions and current labeling. A list of the chlorothalonil MPs subject to a reregistration eligibility decision is presented below.

Product (registration date)	EPA Reg. No.	Registrant	Comments (i.e., transfers, label claim)
97% T (1/92)	50534-200	ISK Biosiences Corporation [a]	
96% T (9/83)	50534-7		Transferred (9/9/83) from Occidental Chemical Corp. (EPA Reg. No. 677-308).
96% T (10/83)	50534-24		Transferred (10/28/83) from Occidental Chemical Corp. (EPA Reg. No. 677-283).
96% T (4/84)	50534-117		
96% FI (4/84)	50534-114		Transferred (4/23/84) from Diamond Shamrock Corp. (EPA Reg. No. 2204-12).
75% FI (10/83)	50534-29		Transferred (10/28/83) from Occidental Chemical Corp. (EPA Reg. No. 677-293).
75% FI (4/84)	50534-116		Identified in REFS as an end-use product; however, labeled for the manufacture of mildew-resistant cement grout only.
40.4% FI (10/83)	50534-34		Transferred (10/28/83) from Occidental Chemical Corp. (EPA Reg. No. 677-330).
40.4% FI (4/84)	50534-115		
30.8% FI (10/83)	50534-35		Identified in REFS as an end-use product; however, labeled for repackaging only.
29.6% FI (10/83)	50534-33		Transferred (10/28/83) from Occidental Chemical Corp. (EPA Reg. No. 677-326).
98% T (1/92)	60063-1	Sostram Corporation	*These "me-too" registrations are being addressed by RD and will not be considered further under the Chlorothalonil RED.*
40.4% FI (4/93)	60063-6		
98% T (1/83)	61451-2	Veterans Ilex, Incorporated	Transferred (12/11/90) from Griffin Corp. (EPA Reg. No. 1812-268)

[a] The name of the registrant has changed from SDS Biotech to Fermenta Plant Protection to ISK Biotech Corp. to ISK Biosciences Corp. without change in company number.

REGULATORY BACKGROUND

The regulatory background for chlorothalonil products in terms of comprehensive product chemistry reviews is presented below. The ISK Biosciences 96% Ts (EPA Reg. Nos. 50534-7, 50534-24, and 50534-117) were determined to be identical in the Chlorothalonil FRSTR; the registrant has subsequently confirmed that the 97% T (EPA Reg. No. 50534-200) is essentially equivalent to these products.

Product (EPA Reg. No.)	September 1984 Guidance Document [a]		March 1988 FRSTR	
	Data required	Data submitted in response	Data required	Data submitted in response
97% T (50534-200)	Not Registered	N/A [b]	Not Registered	N/A
96% T (50534-7)	61-1, -2, -3 62-1, -2, -3 63-2 through -13	61-1, -2, -3 62-1, -2, -3 63-2 through -5, -7 through -14, -16 through -20	63-7, -12, -13, -14, -16, -17, -20	63-7, -12, -13
96% T (50534-24)	61-1, -2, -3 62-1, -2, -3 63-2 through -13	61-1, -2, -3 62-1, -2, -3 63-2 through -5, -7 through -14, -16 through -20	63-7, -12, -13, -14, -16, -17, -20	63-7, -12, -13
96% T (50534-117)	61-1, -2, -3 62-1, -2, -3 63-2 through -13	61-1, -2, -3 62-1, -2, -3 63-2 through -5, -7 through -14, -16 through -20	63-7, -12, -13, -14, -16, -17, -20	63-7, -12, -13
96% FI (50534-114)	61-1, -2, -3 62-1, -2, -3 63-2 through -13	61-1, -2 62-2, -3 63-7, 63-8	61-1, -3 62-1 [c], -2 63-2, -3, -4, -7, -12, -14, -16, -17, -18, -20	None
75% FI (50534-29)	61-1, -2, -3 62-1, -2, -3 63-2 through -13	61-1, -2 62-2, -3 63-12, 63-13	61-1, -2, -3 62-1 [c], -2 63-2, -3, -4, -7, -12, -14, -16, -17, -18, -20	None
75% FI (50534-116)	61-1, -2, -3 62-1, -2, -3 63-2 through -13	61-1, -2 62-2, -3	61-1, -2, -3 62-1 [c], -2 63-2, -3, -4, -7, -12, -14, -16, -17, -18, -20	None

Product (EPA Reg. No.)	September 1984 Guidance Document [a]		March 1988 FRSTR	
	Data required	Data submitted in response	Data required	Data submitted in response
40.4% FI (50534-34)	61-1, -2, -3 62-1, -2, -3 63-2 through -13	61-1, -2 62-2, -3 63-7	61-1, -3 62-1 [c], -2 63-2, -3, -4, -7, -12, -14, -16, -17, -18, -20	None
40.4% FI (50534-115)	61-1, -2, -3 62-1, -2, -3 63-2 through -13	61-2 62-3	61-1, -3 62-1 [c], -2 63-2, -3, -4, -7, -12, -14, -16, -17, -18, -20	None
30.8% FI (50534-35)	61-1, -2, -3 62-1, -2, -3 63-2 through -13	61-1, -2 62-2, -3	61-1, -2, -3 62-1 [c], -2 63-2, -3, -4, -7, -12, -14, -16, -17, -18, -20	None
29.6% FI (50534-33)	61-1, -2, -3 62-1, -2, -3 63-2 through -13	61-1, -2 62-2, -3 63-7, -12	61-1, -3 62-1 [c], -2 63-2, -3, -4, -7, -12, -14, -16, -17, -18, -20	None
98% T (61451-2)	61-1, -2, -3 62-1, -2, -3 63-2 through -13	61-1, -2, -3 62-1, -2, -3 63-2, -3, -4, -7 through -13, -17	61-1, -3 62-1, -2, -3 63-5, -7, -13, -14, -16, -17, -20	61-1, 61-2, -3 62-1, 62-2 63-5, -7, -13

[a] The Guidance Document did not address physical/chemical data requirements for GLNs 63-14 through 63-20.

[b] N/A = not applicable

[c] Although the FRSTR required preliminary analysis (GLN 62-1) for the FIs, these data requirements will be fulfilled by data for the technical source product/TGAI.

The Chlorothalonil Guidance Document dated 9/84 states that levels of hexachlorobenzene (HCB) in technical chlorothalonil must be at or below 0.05% (500 ppm) for registration or reregistration of the products, and that analytical methods for determination of HCB must be acceptable to the Agency. Preliminary analysis data presented in the Chlorothalonil FRSTR indicated that HCB levels for the ISK Biosciences technicals were below the allowable limit; however, preliminary analysis of the Veterans Ilex 98% T indicated HCB levels above the 0.05% limit (CBRS No. 11584, D189159). The registrant has since modified the manufacturing process to lower HCB levels. Recent analysis of the Veterans Ilex technical

as manufactured by the modified process indicates that HCB levels are now within the allowable limits; however, because the HPLC analytical method used has not yet been validated, additional data are required (CBRS Nos. 13592 and 13953, D202277 and D205005).

A 6/87 Data Call-In (DCI) required data concerning polyhalogenated dibenzo-p-dioxins and dibenzofurans (PCDDs and PCDFs) in technical chlorothalonil. Although additional data are required concerning the levels of PCDDs/PCDFs in chlorothalonil, initial studies indicate that PCDFs are present in the Veterans Ilex technical (CBRS No. 9952, D178734, and CBRS No. 12193, D192977), and that no PCDDs/PCDFs are present at levels at or above the Agency-specified LOQs in the ISK Biosciences technical chlorothalonil as produced at the facility identified as Chlorothalonil Unit I (CBRS No. 13029, D197984); data remain outstanding concerning the ISK Biosciences technical chlorothalonil as manufactured at Chlorothalonil Unit II.

A Chlorothalonil reregistration DCI dated 7/31/91 was issued in lieu of the Chlorothalonil FRSTR.

The current status of the product chemistry data requirements for chlorothalonil products is presented in the attached data summary tables. Refer to these tables for a listing of the outstanding product chemistry data requirements.

CONCLUSIONS

All generic data requirements except for dioxin analysis are satisfied for the ISK Biosciences chlorothalonil technicals (EPA Reg. Nos. 50534-7, 50534-24, 50534-117, and 50534-200). Additional generic data are required concerning the Veterans Ilex 98% T (EPA Reg. No. 61451-2). In addition, product-specific data are outstanding for all manufacturing-use products of chlorothalonil. Provided that the registrants submit the data required in the attached data summary tables, CBRS has no objections to the reregistration of chlorothalonil with respect to product chemistry data requirements.

AGENCY MEMORANDA CITED IN THIS DOCUMENT

CBRS No(s).:	9853
DP Barcode(s):	D177726
Subject:	Determination of Polychlorinated Dibenzo-p- Dioxins and Dibenzofurans in Chlorothalonil. Waiver Request.
From:	S. Funk
To:	A. Ertman
Dated:	6/3/92
MRID(s):	none

CBRS No(s).:	9952
DP Barcode(s):	D178734
Subject:	Chlorothalonil: Determination of Chlorinated Dibenzo-p- Dioxins and Dibenzofurans.
From:	S. Funk
To:	L. Rossi/A. Ertman
Dated:	9/24/92
MRID(s):	42321601

CBRS No(s).:	10461
DP Barcode(s):	D181882
Subject:	Reregistration of Chlorothalonil. ISK-Biotech's Response to Product Chemistry Data Requirements.
From:	W. Smith
To:	W. Waldrop/A. Ertman
Dated:	11/24/92
MRID(s):	42433801-42433803

CBRS No(s).:	11584
DP Barcode(s):	D189159
Subject:	Chlorothalonil Reregistration. List A Chemical No. 081901; Case 0097. Veterans-Ilex: Response to Chlorothalonil DCI for their 97.5% T/MP (EPA Reg. No. 61451-2) Data Requirements (GLN Nos. 61-2, 61-3, 62-1, 63-5, 63-7, and 63-13).
From:	F. Toghrol
To:	L. Rossi/W. Waldrop
Dated:	11/23/93
MRID(s):	42683301-42683303

CBRS No(s).:	13029
DP Barcode(s):	D197984
Subject:	Chlorothalonil: Chemical 081901: Case 0097: Product Chemistry: Determination of Polychlorinated Dibenzo-p-Dioxins and Dibenzofurans.
From:	W. Smith
To:	W. Waldrop/A. Ertman
Dated:	8/15/94
MRID(s):	43052701

CBRS No(s).:	12193
DP Barcode(s):	D192977
Subject:	Chlorothalonil. Case No. 0097. Registrant's Response to Dioxin/Furans Data Requirement.
From:	L. Cheng
To:	A. Ertman
Dated:	8/23/94
MRID(s):	42779301

CBRS No(s).:	13592 and 13953
DP Barcode(s):	D202277 and D205005
Subject:	Chlorothalonil: Chemical 081901: Case 0097: Product Chemistry Data: Veterans Ilex, Inc.
From:	W. Smith
To:	W. Waldrop/A. Ertman
Dated:	10/6/94
MRID(s):	43196101 and 43264801

CBRS No(s).:	14592
DP Barcode(s):	D208601
Subject:	Chlorothalonil: Chemical 081901: Case 0097: Product Chemistry Data on Stability (63-13): Veterans Ilex, Inc.
From:	W. Smith
To:	W. Waldrop/A. Ertman
Dated:	11/14/94
MRID(s):	43402101

PRODUCT CHEMISTRY CITATIONS

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

References (cited):

00055014 Diamond Shamrock Agricultural Chemicals (19??) Chemical and Physical Properties of Tetrachloroisophthalonitrile (DS-2787). (Unpublished study received Sep 23, 1976 under 6G1871; CDL:095293-A)

00143748 SDS Biotech Corporation (1985) chlorothalonil Product chemistry Data. Unpublished compilation. 37 p.

00143749 SDS Biotech Corporation (1985) Chlorothalonil Product Chemistry Data. Unpublished compilation. 134 p.

00153787 Griffin Corp. (1985) Griffin Chlorothalonil Technical Product Chemistry Data. Unpublished compilation. 86 p.

40202501 Burton, R. (1986) Clarification of Beginning Materials and Manufacturing Process for Chlorothalonil Manufacturing-use Products. Unpublished study prepared by Fermenta Plant Protection Co. 9 p.

40202502 Butke, G.; Powers, L.; Scozzie, J. (1985) Characterization of Trace Impurities in 2,4,5,6-Tetrachloroisophthalonitrile: (Chlorothalonil, SDS-2787). Unpublished compilation prepared by SDS Biotech Corp. 39 p.

40333801 Mizner, R. (1987) Results from Analyses of Technical Chlorothalonil. Unpublished study prepared by Fermenta Plant Protection Co. 20 p.

40333802 Vargyas, L. (1985) The Determination of Chlorothalonil in Technical Daconil (SDS-2787) by Gas Liquid Chromatography: Document No. SP-8103. Unpublished study prepared by Fermenta Plant Protection Co. 14 p.

42321601 REPLACED BY MRID 42779301

42433801 Sweetapple, G. (1991) Chlorothalonil - Determination of Bulk Density: Lab Project Number: 1081-91-0315-AS-001: 1081-91-0315-AS: 1780T. Unpublished study prepared by Ricerca, Inc. 22 p.

42433802 Thomas, E. (1991) Chlorothalonil - Determination of pH: Lab Project Number: 1081-91-0312-AS-001: 1081-91-0312-AS: 1780T. Unpublished study prepared by Ricerca, Inc. 28 p.

42433803 Sanders, J. (1992) Technical Chlorothalonil - Determination of Stability: Lab Project Number: 1081-91-0313-AS-001: 1081-91-0313-AS: 1780T. Unpublished study prepared by Ricerca, Inc. 44 p.

42683301 Jacobson, S. (1993) Determination of the Chemical Characteristics of Chlorothalonil Technical: Product Chemistry - Discussion of Impurities: Lab Project Number: VTNS-9202-61: VTNS-9202. Unpublished study prepared by Compliance Services International. 35 p.

42683302 Jacobson, S. (1993) Determination of the Chemical Characteristics of Chlorothalonil Technical: Product Chemistry - Preliminary Analysis: Lab Project Number: VTNS-9202-62: VTNS-9202. Unpublished study prepared by Compliance Services International. 70 p.

42683303 Jacobson, S. (1993) Determination of the Chemical Characteristics of Chlorothalonil Technical: Product Chemistry - Physical Properties: Lab Project Number: VTNS-9202-63: VTNS-9202. Unpublished study prepared by Compliance Services International. 65 p.

42779301 Jacobson, S. (1993) Analysis of Technical Chlorothalonil for Residues of Halogenated Dibenzo-p-Dioxins and Dibenzofurans: Lab Project Number: VTNS-9203: 9821-A. Unpublished study prepared by Compliance Services International. 1653 p.

43052701 Mayo, H. (1993) Batch Assays of Technical Chlorothalonil for Polyhalogenated Dibenzo-p-dioxins/Dibenzofurans: Final Report - Chlorothalonil Unit I Samples: Lab Project Number: PC-92-RPB-044-001. Unpublished study prepared by Enseco Inc. 916 p.

43196101 Jacobson, S. (1994) Supplemental Report: Determination of the Chemical Characteristics of Chlorothalonil Technical: Product Chemistry - Preliminary Analysis. Unpublished study prepared by Compliance Services International for Veterans Ilex, Inc. Report No. VTNS-9202-62. 70 p.

43264801 Jacobson, S. (1994) Amended Supplemental Report: Determination of the Chemical Characteristics of Chlorothalonil Technical:Product Chemistry - Preliminary Analysis MRID Number 42683302: Lab Project Number: VTNS-9202: VTNS-9202-62. Unpublished study prepared by Compliance Services International. 77 p.

43402101 Clark, A. (1994) Stability of Chlorothalonil: Lab Project Number: 3735-F. Unpublished study prepared by Midwest Research Institute. 21 p.

Case No. 0097
Chemical No. 081901

Case Name: Chlorothalonil
Registrant: ISK Biosciences Corporation
Product(s): 97% T (EPA Reg. No. 50534-200) and 96% Ts (EPA Reg. Nos. 50534-7, 50534-24, and 50534-117).

PRODUCT CHEMISTRY DATA SUMMARY

Guideline Number	Requirement	Are Data Requirements Fulfilled? [a]	MRID Number [b]
61-1	Product Identity and Disclosure of Ingredients	Y [c]	40202501
61-2	Starting Materials and Manufacturing Process	Y	00143748 40202501
61-3	Discussion of Formation of Impurities	Y	00143748 40202502
62-1	Preliminary Analysis	N [d]	40333801 43052701 [e]
62-2	Certification of Ingredient Limits	Y	40202501
62-3	Analytical Methods to Verify the Certified Limits	Y	40202502 40333802
63-2	Color	Y	00143749
63-3	Physical State	Y	00143749
63-4	Odor	Y	00143749
63-5	Melting Point	Y	00143749
63-6	Boiling Point	N/A [f]	
63-7	Density, Bulk Density or Specific Gravity	Y	42433801
63-8	Solubility	Y	00143749
63-9	Vapor Pressure	Y	00143749
63-10	Dissociation Constant	Y	00143749
63-11	Octanol/Water Partition Coefficient	Y	00143749
63-12	pH	Y	42433802
63-13	Stability	Y	00143749 42433803
63-14	Oxidizing of Reducing Action	N	
63-15	Flammability	N/A [f]	
63-16	Explodability	N	
63-17	Storage Stability	N	
63-18	Viscosity	N/A [f]	
63-19	Miscibility	N/A [f]	
63-20	Corrosion Characteristics	N	

[a] Y = Yes; N = No; N/A = Not Applicable. Submitted data are applicable to all products. The 96% Ts were determined to be identical in the FRSTR. The 97% T has been determined to be essentially equivalent to these products based on a letter from the registrant included in the product jacket and a CSF dated 1/9/91 (product jacket) which demonstrates

[redacted]

COMMERCIAL/FINANCIAL INFORMATION IS NOT INCLUDED

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[b] Unbolded citations were reviewed in the Chlorothalonil FRSTR dated 3/11/88; **bolded** citations were reviewed under CBRS No. 10461, D181882, dated 11/24/92, by W. Smith; and all other citations were reviewed as noted.

[c] We note that the label claim of the 97% T should be revised to reflect the label claim of the product from which it is repackaged.

[d] These data satisfy the requirements of 40 CFR §158.170 (Guideline Reference No. 62-1) concerning preliminary analysis; however, analysis of seven technical samples for halogenated dibenzo-p-dioxins and dibenzofurans remains outstanding for technical chlorothalonil as manufactured at the Chlorothalonil Unit II production facilities.

[e] CBRS No. 13029, D197984, dated 8/15/94, by W. Smith.

[f] Data are not required because the TGAI/MPs are solids at room temperature.

Case No. 0097
Chemical No. 081901

Case Name: Chlorothalonil
Registrant: ISK Biosciences Corporation
Product(s): 96% FI (EPA Reg. No. 50534-114)

PRODUCT CHEMISTRY DATA SUMMARY

Guideline Number	Requirement	Are Data Requirements Fulfilled? [a]	MRID Number [b]
61-1	Product Identity and Disclosure of Ingredients	N [c]	
61-2	Starting Materials and Manufacturing Process	Y	00143748 40202501
61-3	Discussion of Formation of Impurities	N	
62-1	Preliminary Analysis	N/A [d]	
62-2	Certification of Ingredient Limits	N [c]	
62-3	Analytical Methods to Verify the Certified Limits	Y	40333802
63-2	Color	N	
63-3	Physical State	N	
63-4	Odor	N	
63-5	Melting Point	N/A [d]	
63-6	Boiling Point	N/A [d]	
63-7	Density, Bulk Density or Specific Gravity	N	
63-8	Solubility	N/A [d]	
63-9	Vapor Pressure	N/A [d]	
63-10	Dissociation Constant	N/A [d]	
63-11	Octanol/Water Partition Coefficient	N/A [d]	
63-12	pH	N	
63-13	Stability	N/A [d]	
63-14	Oxidizing of Reducing Action	N	
63-15	Flammability	N/A [e]	
63-16	Explodability	N	
63-17	Storage Stability	N	
63-18	Viscosity	N	
63-19	Miscibility	N/A [f]	
63-20	Corrosion Characteristics	N	

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

[b] All citations were reviewed in the Chlorothalonil FRSTR dated 3/11/88.

[c] An updated Confidential Statement of Formula (CSF) must be submitted on EPA Form 8570-4 (Rev 12/90).

[d] This data requirement will be fulfilled by data for the technical source product/TGAI.

[e] Data are not required because the MP does not contain combustible liquids.

[f] Data are not required because the MP is not an emulsifiable liquid to be diluted with petroleum solvents.

Case No. 0097
Chemical No. 081901

Case Name: Chlorothalonil
Registrant: ISK Biosciences Corporation
Product(s): 75% FIs (EPA Reg. Nos. 50534-29 and 50534-116); and
30.8% FI (EPA Reg. No. 50534-35)

PRODUCT CHEMISTRY DATA SUMMARY

Guideline Number	Requirement	Are Data Requirements Fulfilled? [a]	MRID Number [b]
61-1	Product Identity and Disclosure of Ingredients	N [c]	
61-2	Starting Materials and Manufacturing Process	N [d]	00143748
61-3	Discussion of Formation of Impurities	N	
62-1	Preliminary Analysis	N/A [e]	
62-2	Certification of Ingredient Limits	N [c]	
62-3	Analytical Methods to Verify the Certified Limits	Y	40333802
63-2	Color	N [f]	
63-3	Physical State	N [f]	
63-4	Odor	N [f]	
63-5	Melting Point	N/A [e]	
63-6	Boiling Point	N/A [e]	
63-7	Density, Bulk Density or Specific Gravity	N [f]	
63-8	Solubility	N/A [e]	
63-9	Vapor Pressure	N/A [e]	
63-10	Dissociation Constant	N/A [e]	
63-11	Octanol/Water Partition Coefficient	N/A [e]	
63-12	pH	N [f]	
63-13	Stability	N/A [e]	
63-14	Oxidizing of Reducing Action	N	
63-15	Flammability	N/A [g]	
63-16	Explodability	N	
63-17	Storage Stability	N	
63-18	Viscosity	N	
63-19	Miscibility	N/A [h]	
63-20	Corrosion Characteristics	N	

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

[b] All citations were reviewed in the Chlorothalonil FRSTR dated 3/11/88.

[c] Updated Confidential Statements of Formula (CSFs) must be submitted on EPA Form 8570-4 (Rev 12/90).

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[d] These data do not satisfy the requirements of 40 CFR §158.160-165 (Guideline Reference No. 61-2) concerning starting materials and the manufacturing process because information regarding the relative amounts of the starting materials and the order in which they are added must be submitted. In addition, the name and address of the manufacturer, producer, or supplier of each starting material used in the manufacture must be provided, along with information regarding the properties (MSDSs) of those materials. Currently, discrepancies exist between the CSFs and the submitted manufacturing process.

[e] This data requirement will be fulfilled by data for the technical source product/TGAI.

[f] Product-specific data are required for the MPs.

[g] Data are not required because the MPs do not contain combustible liquids.

[h] Data are not required because the MPs are not emulsifiable liquids to be diluted with petroleum solvents.

Case No. 0097
Chemical No. 081901

Case Name: Chlorothalonil
Registrant: ISK Biosciences Corporation
Product(s): 40.4% FIs (EPA Reg. Nos. 50534-34 and 50534-115); and 29.6% FI (EPA Reg. No. 50534-33).

PRODUCT CHEMISTRY DATA SUMMARY

Guideline Number	Requirement	Are Data Requirements Fulfilled? [a]	MRID Number [b]
61-1	Product Identity and Disclosure of Ingredients	N [c]	
61-2	Starting Materials and Manufacturing Process	Y	00143748
61-3	Discussion of Formation of Impurities	N	
62-1	Preliminary Analysis	N/A [d]	
62-2	Certification of Ingredient Limits	N [c]	
62-3	Analytical Methods to Verify the Certified Limits	Y	40333802
63-2	Color	N [c]	
63-3	Physical State	N [c]	
63-4	Odor	N [c]	
63-5	Melting Point	N/A [d]	
63-6	Boiling Point	N/A [d]	
63-7	Density, Bulk Density or Specific Gravity	N [c]	
63-8	Solubility	N/A [d]	
63-9	Vapor Pressure	N/A [d]	
63-10	Dissociation Constant	N/A [d]	
63-11	Octanol/Water Partition Coefficient	N/A [d]	
63-12	pH	N [c]	
63-13	Stability	N/A [d]	
63-14	Oxidizing of Reducing Action	N	
63-15	Flammability	N/A [f]	
63-16	Explodability	N	
63-17	Storage Stability	N	
63-18	Viscosity	N	
63-19	Miscibility	N/A [g]	
63-20	Corrosion Characteristics	N	

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

[b] All citations were reviewed in the Chlorothalonil FRSTR dated 3/11/88.

[c] Updated Confidential Statements of Formula (CSFs) must be submitted on EPA Form 8570-4 (Rev 12/90).

[d] This data requirement will be fulfilled by data for the technical source product/TGAI.

[e] Product-specific data are required for the MPs.

[f] Data are not required because the MPs do not contain combustible liquids.

[g] Data are not required because the MPs are not emulsifiable liquids to be diluted with petroleum solvents.

Case No. 0097
Chemical No. 081901

Case Name: Chlorothalonil
Registrant: Veterans Ilex, Incorporated
Product(s): 98% T (EPA Reg. No. 61451-2)

PRODUCT CHEMISTRY DATA SUMMARY

Guideline Number	Requirement	Are Data Requirements Fulfilled? [a]	MRID Number [b]
61-1	Product Identity and Disclosure of Ingredients	N [c]	CSF dated 6/7/94 [d]
61-2	Starting Materials and Manufacturing Process	Y	42683301 43196101 [d]
61-3	Discussion of Formation of Impurities	Y	42683301
62-1	Preliminary Analysis	N [e]	42321601 [f] 42683302 42779301 [g] 43264801 [d]
62-2	Certification of Ingredient Limits	N [c]	CSF dated 6/7/94 [d]
62-3	Analytical Methods to Verify the Certified Limits	N	
63-2	Color	Y	**00153787**
63-3	Physical State	Y	**00153787**
63-4	Odor	Y	**00153787**
63-5	Melting Point	Y	42683303
63-6	Boiling Point	N/A [h]	
63-7	Density, Bulk Density or Specific Gravity	Y	42683303
63-8	Solubility	Y	**00153787**
63-9	Vapor Pressure	Y	**00055014**
63-10	Dissociation Constant	Y	**00153787**
63-11	Octanol/Water Partition Coefficient	Y	**00153787**
63-12	pH	Y	**00153787**
63-13	Stability	Y	**00153787** 43402101 [i]
63-14	Oxidizing of Reducing Action	N	
63-15	Flammability	N/A [h]	
63-16	Explodability	N	
63-17	Storage Stability	N	
63-18	Viscosity	N/A [h]	
63-19	Miscibility	N/A [h]	
63-20	Corrosion Characteristics	N	

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

[b] Unbolded citations were reviewed under CBRS No. 11584, D189159, dated 11/23/93, by F. Toghrol; **bolded** citations were originally reviewed under the Chlorothalonil FRSTR dated 3/11/88 for the Griffin T (EPA Reg. No. 1812-268) and the TGAI physical/chemical data were accepted under CBRS No. 11584, D189159, dated 11/23/93, by F. Toghrol after the product transfer to Veterans Ilex; and all other references were reviewed as noted.

[c] These data do not satisfy the requirements of 40 CFR §158.155 and §158.175 (Guideline Reference Nos. 61-1 and 62-2) concerning product identity and certified limits because the registrant must confirm that the "other unidentified impurities" are present individually at less than 0.1%; otherwise, the registrant will be required to identify these impurities and provide nominal concentrations and upper certified limits. In addition, [redacted] (CBRS No. 9952, D178734, and CBRS No. 12193, D192977). Nominal concentrations and upper certified limits must be provided only for dioxins and dibenzofurans detected at levels above the Agency-specified LOQs.

[d] CBRS Nos. 13592 and 13953, D202277 and D205005, dated 10/6/94, by W. Smith.

[e] These data do not satisfy the requirements of 40 CFR §158.170 (Guideline Reference No. 62-1) concerning preliminary analysis because validation data must be submitted in support of the analytical methods used for the determination of the active ingredient and its related impurities. Further analyses are recommended [redacted] using a DB-225 or equivalent confirmatory column prior to establishing certified limits for this impurity.

[f] CBRS No. 9952, D178734, dated 9/24/92, by S. Funk.

[g] CBRS No. 12193, D192977, dated 8/23/94, by L. Cheng.

[h] Data are not required because the TGAI/MP is a solid at room temperature.

[i] CBRS No. 14592, D208601, dated 11/14/94, by W. Smith.

CHLOROTHALONIL

REREGISTRATION ELIGIBILITY DECISION

RESIDUE CHEMISTRY CONSIDERATIONS

Shaughnessy No. 081901; Case 0097

(CBRS No. 13505; DP Barcode D201522)

INTRODUCTION

Chlorothalonil [tetrachloroisophthalonitrile] is a non-systemic fungicide that is used on a variety of food and feed crops including apricots, bananas, beans (succulent and dry), broccoli (including Chinese broccoli), Brussels sprouts, cabbage (including Chinese cabbage), carrots, cauliflower, celery, cherries, cocoa, coffee, corn (sweet), cranberries, cucumbers, garlic, leeks, melons (including cantaloupe, honeydew, muskmelon, and watermelon), mint, nectarines, onions (dry and green), papayas, parsnips, passion fruit, peaches, peanuts, plums (prunes), potatoes, pumpkins, shallots, soybeans, squash (summer and winter), and tomatoes. Chlorothalonil is also registered for use on the following crops grown for seed: field corn, grass, onions, and sugar beets. The chlorothalonil formulations registered for use on these crops include the wettable powder (WP), dry flowable (DF) and flowable concentrate (FlC). Chlorothalonil is typically applied as a postemergence foliar application.

REGULATORY BACKGROUND

The Chlorothalonil Registration Standard Guidance Document was issued 10/84, for which the Residue Chemistry Chapter was dated 11/4/83. A draft of the Chlorothalonil Final Registration Standard and Tolerance Reassessment (FRSTR) was dated 3/11/88 but the FRSTR was never issued. A reregistration Data Call-In Notice (DCI) was issued 7/31/91.

In the Residue Chemistry Chapter (2/19/88) of the Chlorothalonil FRSTR, data were requested depicting the residues of PCBN, a potentially toxic manufacturing impurity of chlorothalonil, in/on several raw agricultural commodities and processed products following treatment with chlorothalonil end-use products. The Agency has since determined that these data are not required and that residues of PCBN in/on food/feed commodities treated with chlorothalonil are not of toxicological concern.

Tolerances for residues of chlorothalonil in/on raw agricultural commodities are currently expressed in terms of the combined residues of chlorothalonil and its metabolite 4-hydroxy-2,5,6-trichloroisophthalonitrile [*40 CFR §180.275(a) and (b)*]. These tolerances are set at 0.05-15 ppm. No tolerances have been established for residues of chlorothalonil in animal commodities and no food/feed additive tolerances have been established. The chemical structures of chlorothalonil and its 4-hydroxy metabolite are shown in Figure A. Adequate

CHLOROTHALONIL

REREGISTRATION ELIGIBILITY DECISION

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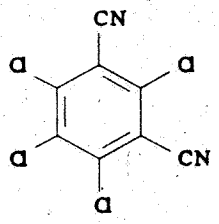
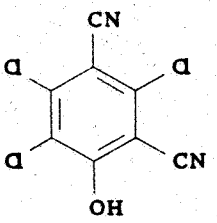
enforcement methods are available for the determination of these regulated compounds in/on plant commodities.

Figure A. The chemical structures of chlorothalonil and its 4-hydroxy metabolite.

Structure **Metabolite:** Chemical name	Structure **Metabolite:** Chemical name
 **chlorothalonil:** tetrachloroisophthalonitrile	 4-hydroxy-2,5,6-trichloroisophthalonitrile

SUMMARY OF SCIENCE FINDINGS

GLN 171-3: Directions for Use

There are 12 chlorothalonil end-use products (EPs) with food/feed uses registered to ISK Biosciences Corporation, the basic producer. These EPs are listed in Table A below.

Table A. Chlorothalonil Food/Feed Use Products Registered by ISK Biosciences Corp.

EPA Reg. No.	Acceptance Date	Formulation Class	Product Name
50534-8 [1]	3/17/94	4.17 lb/gal FlC	Bravo 500
50534-23 [2]	1/6/94	75% WP	Bravo W-75
50534-157 [3]	1/6/94	90% DF	Bravo 90DG
50534-159	3/18/94	2.08 lb/gal FlC	Bravo S
50534-161	1/15/90	4.16 lb/gal FlC	Bravo Flowable Fungicide
50534-188 [4]	3/17/94	6 lb/gal FlC	Bravo 720
50534-189	3/7/94	75% WP	Chlorothalonil 75 WP
50534-191	10/21/94	27% DF	Bravo C/M
50534-201	1/6/94	82.5% DF	Bravo 825
50534-203	1/21/94	4.16 lb/gal FlC	Reach Agricultural Fungicide
50534-204	3/18/94	4.17 lb/gal FlC	Bravo ZN
50534-205	6/21/94	75% WP	Bravo W-75 WSB

1. Includes SLN Nos. CA850066, OR810032, OR860005, PR830002, and TN840003.
2. Includes SLN No. CA850067.
3. Includes SLN No. CO880022.
4. Includes SLN Nos. AL900003, AR900001, CO880021, DE900003, FL900006, FL910018, KS910001, KS940003, LA900008, MA900001, MS900001, NE940002, NJ910003, NC920012, SC890007, TX880005, TX920022, VA900003, VA930007, and WI940002.

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Due to changes in Table II of the Pesticide Assessment Guidelines (Subdivision O, Residue Chemistry) chlorothalonil end-use product labels with uses on beans (snap and dry), corn (field, grown for seed, and sweet), and peanuts must be amended to remove livestock feeding restrictions. The restriction against treatment of sweet corn grown for processing must be removed from all pertinent product labels. A 45-day pregrazing interval must be imposed on all applicable labels for seed corn fodder.

In addition, all product labels must specify a maximum number of applications per season or a maximum seasonal rate for each crop. Label amendments to specify a 7-day PHI are required for broccoli, Brussels sprouts, cabbage, and cauliflower, passion fruit and potatoes. All label amendment proposals must be supported by adequate field residue data (see "Magnitude of the Residue in Plants").

The product label for a 75% WP formulation (EPA Reg. No. 50534-23, dated 1/6/94) lists diseases controlled in cucumbers, cantaloupes, honeydew melons, muskmelons, pumpkins, squash, and watermelon, but no specific directions are provided for these use sites. In addition, the product label for another 75% WP formulation (EPA Reg. No. 50534-205) lists a PHI for green onions but use directions for dry bulb onions only.

A comprehensive summary of the registered food/feed use patterns of chlorothalonil is available from BEAD in the LUIS 2.0 Report on Chlorothalonil.

A tabular summary of the residue chemistry science assessments for reregistration of chlorothalonil is presented in Table B. The conclusions listed in Table B regarding the reregistration eligibility of chlorothalonil food/feed uses are based on the use patterns registered by the basic producer, ISK Biosciences Corporation. When end-use product DCIs are developed (e.g., at issuance of the RED), the Agency 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's labels.

GLN 171-4 (a): Plant Metabolism

The qualitative nature of the residues in plants is adequately understood based on metabolism studies with carrots, celery, lettuce, snap beans, and tomatoes. The residues of concern are chlorothalonil and its 4-hydroxy metabolite. Chlorothalonil comprised ca. 90% of the total radioactive residues (TRR) in lettuce harvested 1-21 days following four foliar applications of [^{14}C]chlorothalonil. Chlorothalonil, at 70-95% of TRR, and its 4-hydroxy metabolite, at 2-8% of TRR, were the major residues identified in carrots harvested 1-21 days and tomatoes harvested 1-14 days following three foliar applications of [^{14}C]chlorothalonil. Chlorothalonil, at 20-31% of TRR, was the only residue identified in snap beans harvested 7 days following the last of four foliar applications of [^{14}C]chlorothalonil at ca. 1x the maximum registered single application rate. Chlorothalonil, at 24.1-76.9% of TRR, was also the only residue identified in celery foliage and stalks harvested 7 and 21 days following the last of 12 foliar applications of [^{14}C]chlorothalonil at 1x the maximum registered single application rate.

Although no polar metabolites were conclusively identified in the celery study, the data suggested that these residues were glutathione conjugates of chlorothalonil and related compounds in which the glutathione moiety had undergone further transformation. The chemical structures of chlorothalonil and its 4-hydroxy metabolite are presented in Figure A.

GLN 171-4 (b): Animal Metabolism

The qualitative nature of the residue in animals is adequately understood. The residues of concern in milk and ruminant tissues are chlorothalonil and its 4-hydroxy metabolite. Tolerances are not required for residues of chlorothalonil or its 4-hydroxy metabolite in poultry commodities.

The qualitative nature of the chlorothalonil residue and the 4-hydroxy chlorothalonil residue in ruminants is adequately understood based on goat metabolism studies. Little metabolism of the 4-hydroxy metabolite occurs in ruminants and the unchanged test substance accounted for 88-99% of the TRR in milk and edible tissues. The proposed pathway for chlorothalonil metabolism in ruminants involves substitution of one or more of the chlorine atoms with glutathione; these complexes may undergo further modification of the glutathione side chains to yield a variety of products.

Based on poultry metabolism studies using [^{14}C]chlorothalonil and 4-hydroxy-[^{14}C]chlorothalonil, CBRS concluded that there is no significant transfer of chlorothalonil to poultry tissues or eggs, and that the levels of transfer of the 4-hydroxy metabolite are too low to require feeding studies or tolerances for poultry commodities.

GLN 171-4 (c) and (d): Residue Analytical Methods - Plants and Animals

Adequate residue analytical methods are available for purposes of reregistration. The Pesticide Analytical Manual (PAM) Vol. II lists Method I, a GC method with electron capture detection (ECD), for the enforcement of tolerances for plant commodities. Residue data for plant commodities were collected using methods based on the enforcement method. A GC/ECD method is available for data collection of residues of chlorothalonil and its 4-hydroxy metabolite in animal commodities; this method has undergone a successful method trial at the Agency. The limit of detection for all of these methods is 0.01 ppm for both chlorothalonil and its 4-hydroxy metabolite. The registrant has proposed a GC/ECD method for enforcement of tolerances for peanuts, potatoes, and tomatoes which is a modification of the current enforcement method. Pending a successful Agency method trial, CBRS will consider this method for publication in PAM, Vol. II.

The FDA PESTDATA database dated 1/94 (PAM Vol. I, Appendix I) indicates that chlorothalonil is completely recovered (>80%) using multiresidue methods PAM Vol. I Sections 303 (Mills, Onley, Gaither method) and 304 (Mills fatty food method) and has a low recovery (<50%) using Section 302 (Luke method). The database also indicates that

the 4-hydroxy metabolite is recovered (no quantitative information available) using Sections 302 and 303 but is not recovered using Section 304.

GLN 171-4 (e): Storage Stability

All data pertaining to storage stability have been evaluated and deemed adequate except that complete information on sample storage intervals and conditions for all samples used to support the established tolerances must be submitted. These data are considered confirmatory to the existing evidence that residues of chlorothalonil, its 4-hydroxy metabolite and HCB are generally stable during frozen storage.

Residues of the 4-hydroxy metabolite and HCB are stable during frozen storage for up to 4 years in/on carrots, celery, cherries, cucumbers, peanuts, potatoes, soybeans, tomatoes, and wheat grain. Residues of chlorothalonil are stable under the same conditions in the above commodities except for an apparent decline of approximately 9% per year in peanuts.

GLN 171-4 (k): Magnitude of the Residue in Plants

The reregistration requirements for magnitude of the residue in plants are fulfilled for the following commodities: apricots; beans, dry and succulent; carrots; celery; cherries; field corn; field corn fodder; sweet corn(K+CWHR); sweet corn fodder; cranberries; cucumbers; garlic; grass seed screenings; melons; mint; nectarines; onions, dry bulb; papayas; parsnips; passion fruit; peaches; peanuts; plums; potatoes; pumpkins; soybeans; squash, summer and winter; and tomatoes. An increased tolerance must be proposed for green onions. Tolerances must be proposed for grass seed screenings and peanut hulls.

Additional residue data are required to support reregistration of uses on beans, corn, and peanuts. These data include field residue trials to depict chlorothalonil residues in or on bean (dry and succulent) forage and straw/hay, sweet corn forage and peanut hay. These data are required as a result of changes to the livestock feeds table (Table II) in Subdivision O of the Pesticide Assessment Guidelines, and therefore should not delay a reregistration eligibility decision for chlorothalonil.

The product labels for all chlorothalonil end-use products with use directions on food/feed crops must be amended to specify a maximum number of applications per season or a maximum seasonal rate for each crop, which must be supported by appropriate field residue data.

The 7/31/91 DCI required residue data for HCB from field trials on eight representative crops for the purposes of risk assessment. CBRS has since recommended that these data requirements be waived. Based on additional information provided by ISK Biosciences, CBRS has concluded that for the purposes of estimating the dietary risk of HCB resulting from its presence as a contaminant in formulations of chlorothalonil, and in those cases where residues on crops are below the limit of detection of the analytical method, residues of

HCB should be estimated to be present in the same ratio relative to chlorothalonil as was present in the formulation applied to the crop.

A summary of the reregistration status by crop group is presented below.

Root and Tuber Vegetables Group

Carrots: Adequate field trial data have been submitted to support the established 1-ppm tolerance for carrots. Label amendments to establish a maximum number of applications per season or a maximum seasonal rate are required. The available data would support a maximum of 6 applications per season at 1.5 lb ai/A/application.

Parsnip roots: No field residue data for parsnip roots are available. The Residue Chemistry Chapter of the Chlorothalonil FRSTR concluded that no data are required for reregistration purposes since the existing data for carrots can be translated to parsnip roots.

Potatoes: Adequate field trial data have been submitted to support the established 0.1-ppm tolerance for potatoes, provided the registrant amends all pertinent product labels as intended to specify a 7-day PHI and a maximum seasonal rate of 9 lb ai/A.

Sugar beet roots: The Agency has determined that the use of chlorothalonil on sugar beets grown for seed under EPA SLN No. OR810032 is a non-food use; therefore, no supporting field residue data are required.

Bulb Vegetables Group

Onions, dry bulb, and Garlic: Adequate field trial data have been submitted for dry bulb onions to support the established 0.5-ppm tolerance, which also applies to garlic [40 CFR §180.1(h)]. Label amendments to establish a maximum number of applications per season or a maximum seasonal rate are required.

Onions, green, Leeks, and Shallots: The available field trial data for green onions indicate that the established 5-ppm tolerance, which also applies to leeks and shallots [40 CFR §180.1(h)], is too low. The registrant must propose either a higher tolerance for green onions or a longer PHI which is supported by appropriate field trial data.

Leafy Vegetables Group

Celery: Adequate field trial data have been submitted to support the established 15-ppm tolerance for celery. Label amendments to establish a maximum number of applications per season or a maximum seasonal rate are required. The available data would support a maximum of 16 applications per season at 2.3 lb ai/A/application.

Brassica (Cole) Leafy Vegetables Group

Broccoli (including Chinese broccoli): Adequate field trial data have been submitted to support the established 5-ppm tolerance for broccoli, provided the registrant amends product labels as intended to specify a 7-day PHI. In addition, label amendments to specify a maximum number of applications per season or a maximum seasonal rate are required. The available data would support a maximum of 8 applications per season at 1.1 lb ai/A/application.

Brussels sprouts: Adequate field trial data have been submitted to support the established 5-ppm tolerance for Brussels sprouts, including data for Brussels sprouts and data translated from broccoli, provided the registrant amends product labels as intended to specify a 7-day PHI. In addition, label amendments to specify a maximum number of applications per season or a maximum seasonal rate are required. The available data would support a maximum of 8 applications per season at 1.1 lb ai/A/application.

Cabbage (including Chinese cabbage): Adequate field trial data have been submitted to support the established 5-ppm tolerance for cabbage, provided the registrant amends product labels as intended to specify a 7-day PHI. Label amendments to specify a maximum number of applications per season or a maximum seasonal rate are required. The available data would support a maximum of 9 applications per season at 1.2 lb ai/A/application.

Cauliflower: Adequate field trial data have been submitted to support the established 5-ppm tolerance for cauliflower, provided the registrant amends product labels as intended to specify a 7-day PHI. Label amendments to specify a maximum number of applications per season or a maximum seasonal rate are required. The available data would support a maximum of 8 applications per season at 1.1 lb ai/A/application.

Legume Vegetables (Dry or Succulent) Group

Beans, dry: Adequate field trial data have been submitted to support the established 0.1-ppm tolerance for dry beans. The registrant has recently proposed label amendments for some formulations (82.5% DF, 6 lb/gal FlC,and 4.17 lb/gal SC/L) to change the PHI from 42 days to 14 days and to establish a maximum seasonal rate of 6.0 lb ai/A (maximum of four applications per season). CBTS has recommended for the proposed label amendments and noted that the labels for the 90% DF and 4.16 and 4.17 lb/gal FlC formulations may also be amended without additional review by CBTS.

Beans, succulent: Adequate field trial data have been submitted to support the established 5-ppm tolerance for succulent beans, provided the registrant amends all pertinent product labels as intended to specify a maximum seasonal rate of 9 lb ai/A.

Soybeans: Adequate field trial data have been submitted to support the established 0.2-ppm tolerance for soybeans. Labels for all chlorothalonil end-use products with uses on soybeans

must be amended to specify a maximum number of applications per season or a maximum seasonal rate.

Foliage of Legume Vegetables Group

Product labels currently contain a restriction against the grazing of treated areas or feeding of treated plant parts to livestock for dry and succulent beans and soybeans. It is now Agency policy that such feeding restrictions are impractical for dry and succulent beans. Therefore, all pertinent product labels must be amended to remove these feeding restrictions, and the registrant must propose tolerances, supported by appropriate field residue data, for the forage and straw/hay of dry and succulent beans.

Fruiting Vegetables Group

Tomatoes: Adequate field trial data have been submitted to support the established 5-ppm tolerance for tomatoes. Label amendments to specify a maximum number of applications per season or a maximum seasonal rate are required. The available data would support a maximum of 11 applications per season at 2.3 lb ai/A/application.

The 7/31/91 DCI required data depicting chlorothalonil residues of concern in/on greenhouse-grown tomatoes following application of a DF or Impr formulation. The registrant no longer has any registered uses of chlorothalonil on greenhouse-grown tomatoes; therefore, these data are no longer required.

Cucurbit Vegetables Group

Cucumbers: Adequate field trial data have been submitted to support the established 5-ppm tolerance for cucumbers. Label amendments to specify a maximum number of applications per season or maximum seasonal rate are required. The available data would support a seasonal application schedule of one application at vine formation at up to 6.3 lb ai/A plus 9 applications at 2.3 lb ai/A/application.

Melons: Adequate field trial data have been submitted to support the established 5-ppm tolerance for melons. Label amendments to specify a maximum number of applications per season or a maximum seasonal rate are required. The available data would support a maximum of 10 applications per season at 2.2 lb ai/A/application.

Pumpkins: Field trial data submitted to support the established 5-ppm tolerance for pumpkins were deemed inadequate in the Residue Chemistry Chapter of the Chlorothalonil Reregistration Standard. The Residue Chemistry Chapter of the Chlorothalonil FRSTR concluded that no additional data are required for reregistration purposes since the existing data for winter squash can be translated to pumpkins. Label amendments to establish a maximum number of applications per season or a maximum seasonal rate are required. The

available data for winter squash would support a maximum of 10 applications per season at 2.2 lb ai/A/application.

Squash, summer: Adequate field trial data have been submitted to support the established 5-ppm tolerance for summer squash. Label amendments to establish a maximum number of applications per season or a maximum seasonal rate are required. The available data would support a maximum of 10 applications per season at 2.2 lb ai/A/application.

Squash, winter: Adequate field trial data have been submitted to support the established 5-ppm tolerance for winter squash. Label amendments to establish a maximum number of applications per season or a maximum seasonal rate are required. The available data would support a maximum of 10 applications per season at 2.2 lb ai/A/application.

Stone Fruits Group

Apricots: Adequate field trial data have been submitted to support the established 0.5-ppm tolerance for apricots. Label amendments to establish a maximum seasonal rate are required.

Cherries: Adequate field trial data have been submitted to support the established 0.5-ppm tolerance for cherries. Label amendments to establish a maximum seasonal rate are required.

Nectarines: Adequate field trial data have been submitted to support the established 0.5-ppm tolerance for nectarines. Label amendments to establish a maximum seasonal rate are required.

Peaches: Adequate field trial data have been submitted to support the established 0.5-ppm tolerance for peaches. Label amendments to establish a maximum seasonal rate are required.

Plums: Adequate field trial data have been submitted to support the established 0.2-ppm tolerance for plums. Label amendments to establish a maximum seasonal rate are required.

Small Fruits and Berries Group

Cranberries: Adequate field trial data have been submitted to support the established 5-ppm tolerance for cranberries.

Strawberries: The Agency has determined that the use of chlorothalonil on nonbearing strawberries under EPA SLN Nos. CA850066 and CA860067 is a non-food use; therefore, no supporting field residue data are required.

Cereal Grains Group

Corn, field: Adequate field trial data have been submitted for field corn grain to support the registered use on corn grown for seed. A tolerance must be proposed for the combined

residues of chlorothalonil and its 4-hydroxy metabolite in/on field corn grain, and label amendments to specify a maximum number of applications per season or a maximum seasonal rate are required. The available data would support a tolerance of 0.05 ppm for field corn grain and a maximum of 7 applications per season at 1.5 lb ai/A/application.

Corn, sweet: Adequate field trial data have been submitted to support the established 1-ppm tolerance for sweet corn (K+CWHR). Label amendments to remove the restriction against the treatment of sweet corn grown for processing and to establish a maximum number of applications per season or a maximum seasonal rate are required. The available data would support a maximum of 8 applications per season at 1.4 lb ai/A/application.

Forage, Fodder, and Straw of Cereal Grains Group

Corn, field, forage and fodder: Adequate field trial data have been submitted for corn fodder to support the registered use on corn grown for seed. A tolerance must be proposed for the combined residues of chlorothalonil and its 4-hydroxy metabolite in/on field corn fodder; the available data indicate that a tolerance of 50 ppm would be appropriate. Label amendments to remove the restrictions against the grazing of treated areas, feeding of treated forage, or ensiling of treated corn are required. In lieu of a tolerance on the forage of seed corn a pregrazing interval of 45 days must be imposed on all applicable labels for feeding of fodder to livestock.

Corn, sweet, forage and fodder: Additional field trial data for sweet corn forage are required. Adequate field trial data have been submitted for corn fodder to support the registered use on sweet corn. Tolerances must be proposed for the combined residues of chlorothalonil and its 4-hydroxy metabolite in/on sweet corn forage and fodder; the available data indicate that a tolerance of 50 ppm would be appropriate for sweet corn fodder. Label amendments to remove the restrictions against the grazing of treated areas, feeding of treated forage, or ensiling of treated corn are required.

Grass Forage, Fodder, and Hay Group

Grass forage, hay, and seed screenings: Adequate field trial data have been submitted to support the registered use on grasses grown for seed. A tolerance must be proposed for grass seed screenings, and label amendments to specify a maximum number of applications per season or a maximum seasonal rate are required. The available data would support a tolerance of 75 ppm for grass seed screenings and a maximum of 3 applications per season at 1.5 lb ai/A/application. In addition, in the absence of data from the state of MO, product labels must be amended to restrict use of chlorothalonil on grasses grown for seed to the states of ID, OR, and WA. Product labels currently contain a restriction against the grazing of treated areas or feeding of treated plant parts to livestock. Although the Agency now considers feeding restrictions for grass forage and hay to be impractical, CBRS has concluded that the limitation of the use to grasses grown for seed makes it unlikely that

residues would occur on grass forage or hay not under grower control, and considers the feeding restriction to be acceptable.

Miscellaneous Commodities

Bananas: Adequate field trial data have been submitted from countries which export bananas to the U.S. to support the established 0.5-ppm tolerance for bananas and the established 0.05-ppm tolerance for banana pulp.

Cocoa beans: Adequate field trial data have been submitted from countries which export cocoa beans to the U.S. to support the established 0.05-ppm tolerance for cocoa beans.

Coffee beans: Adequate field trial data have been submitted from countries which export coffee beans to the U.S. to support the established 0.2-ppm tolerance for coffee beans.

Mint: Adequate field trial data have been submitted to support the established 2-ppm tolerance with regional registration for mint hay. Based on residue data, use of chlorothalonil is restricted to Indiana, Michigan and Wisconsin.

Papayas: Adequate field trial data have been submitted to support the established 15-ppm tolerance. Label amendments to specify a maximum number of applications per season or a maximum seasonal rate are required. The available data would support a maximum of 11 applications per season at 3 lb ai/A/application.

Passion fruit: Adequate field trial data have been submitted to support the established 3-ppm tolerance. Label amendments to specify a maximum number of applications per season, or a maximum seasonal rate, and a 7-day PHI are required. The available data would support a maximum seasonal rate of 7 lb ai/A (5 applications at 1.4 lb ai/A/application).

Peanuts: Adequate field trial data are available to support the registered uses on peanuts and the established 0.3-ppm tolerance for peanut nutmeats. A tolerance proposal for peanut hulls is required; the available data would support a tolerance of 3 ppm. In addition, because the Agency now considers feeding restrictions for peanut hay to be impractical, field residue data and a tolerance proposal for peanut hay are required. Label amendments to delete the restriction against the grazing of treated areas or the feeding of hay or threshings from treated fields and to establish a maximum number of applications per season or maximum seasonal rate are required. The available data would support a maximum of 7 applications per season at 1.1 lb ai/A/application.

GLN 171-4 (l): Magnitude of the Residue in Processed Food/Feed

All data for magnitude of the residue in processed food/feed have been evaluated and deemed adequate. Feed additive tolerances for processed potato waste at 5 ppm and soybean hulls at 0.5 ppm must be proposed.

GLN 171-4 (j): Magnitude of the Residue in Meat, Milk, Poultry, and Eggs

A ruminant feeding study remains outstanding; this study is in progress. The requirement for a poultry feeding study was waived based on the results of the poultry metabolism study.

The requirements for HCB poultry and ruminant feeding studies (7/31/91 DCI) have been waived. HCB feeding studies are available to the Agency. These feeding studies indicate that residues of HCB accumulate only in fatty matrices.

GLN 171-5: Reduction in Residues

All data pertaining to reduction in residues have been evaluated and deemed adequate. No additional data are required.

GLNs 165-1 and 165-2: Confined/Field Rotational Crops

All data pertaining to rotational crops have been evaluated and deemed adequate. In response to Agency evaluations of confined rotational crop data the registrant established a 12-month rotational crop restriction on all pertinent product labels and submitted several rotational crop studies. These data indicated that the only residue that was detected in rotated crops was the soil metabolite (SDS-46851). Because of the low toxicity of this metabolite, an exemption for the requirement of a tolerance for residues of the soil metabolite 3-carbamyl-2,4,5-trichlorobenzoic acid (SDS-46851) as inadvertent residues in rotated crops has been established (40 CFR §180.1110). In addition, the registrant's request to delete rotational crop restrictions from chlorothalonil labels was approved.

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

GLN: Data Requirements	Current Tolerances, ppm [40 CFR]	Must Additional Data Be Submitted?	References [1]
171-3: Directions for use		Yes [2]	See LUIS Report.,
171-4 (a): Plant Metabolism		No	00029409, 00087287, 00087294, 00087295, 00087333, 00138147 [3], 00143750 [4], 40183401 [5], 40684801 [5], 42554001-42554002 [6], 42944401 [7]
171-4 (b): Animal Metabolism		No	41576001-41576002 [8], 42174401 [9]
171-4 (c/d): Residue Analytical Methods		No [10]	00087282, 00087305, **00126732**, **00141398**, **00156523**, **40000101**, **40000102**, **40000103**, **40000104**, **40000105**, **40000106**, **40000107**, **40000108**, **40010109**, **40000110**, **40000111**, **40000112**, **40000113**, **40000114**, **40183402**, **40183403**, **40183404**, **40183405**, **40183406**, **40183407**, **40183408**, **40183409**, **40183410**, **40183411**, **40183412**, **40183413**, **40183414**, **40183417**, 42875908-42878909 [11]
171-4 (e): Storage Stability		Yes [12]	00039239, 00071752, 00087354, 42875910-42875918 [11]
171-4 (k): Magnitude of the Residue in Plants			
Root and Tuber Vegetables Group			
- Carrots	1 [§180.275(a)]	No [13]	00084828, 00087311, 00087323, 00114035, **00156523**, **40000101**, **40183402**
- Parsnips, roots	1 [§180.275(a)]	No [14]	
- Potatoes	0.1 [§180.275(a)]	No [15]	**00071616**, 00087314, 00087323, **00104656**, 00147973 [16], **00156523**, **40000102**, **40183403**
- Sugar beets, roots	None established	No [17]	
Bulb Vegetables Group			
- Garlic	0.5 [§180.275(a)]	No [18]	

(continued; footnotes follow)

Table B *(continued)*.

GLN: Data Requirements	Current Tolerances, ppm [40 CFR]	Must Additional Data Be Submitted?	References [1]
- Leeks	5 [§180.275(a)]	No [19]	
- Onions, dry bulb	0.5 [§180.275(a)]	No [20]	00087365, **40000103**, **40183405**, 42875922 [11]
- Onions, green	5 [§180.275(a)]	Yes [19]	00087365, **40183406**
- Shallots	5 [§180.275(a)]	No [19]	
Leafy Vegetables Group			
- Celery	15 [§180.275(a)]	No [21]	**00084829**, 00087255, 00147973 [16], 00161154, **40000104**, **40183407**
Brassica (Cole) Leafy Vegetables Group			
- Broccoli	5 [§180.275(a)]	No [22]	00087324, 00114035, **40000105**, **40183408**, **40183409**, 42875923 [11]
- Brussels sprouts	5 [§180.275(a)]	No [23]	00087324, 00114035, **40183410**, 42875924 [11]
- Cabbage	5 [§180.275(a)]	No [24]	00087324, 00114035, **40183411**, 42875920-42875922 [11]
- Cauliflower	5 [§180.275(a)]	No [25]	00087324, **40000106**, 42875922 [11]
Legume Vegetables (Dry or Succulent) Group			
- Beans, dry	0.1 [§180.275(a)]	No [26]	00087338, **00126732**, **00156523**, 41844101 [27]
- Beans, succulent	5 [§180.275(a)]	No [28]	00087329, 00129178, 00147973 [16], **40000107**, **40183412**
- Soybeans	0.2 [§180.275(a)]	No [29]	00029905, 00087680
Foliage of Legume Vegetables Group			
- Beans, dry, forage and straw/hay	None established	Yes [30]	
- Beans, succulent, forage and straw	None established	Yes [30]	

(continued; footnotes follow)

Table B *(continued)*.

GLN: Data Requirements	Current Tolerances, ppm [40 CFR]	Must Additional Data Be Submitted?	References [1]
Fruiting Vegetables Group			
- Tomatoes	5 [§180.275(a)]	No [31]	00087326, 00114035, **00141398**, **40000108**, **40000109**
Cucurbit Vegetables Group			
- Cucumbers	5 [§180.275(a)]	No [32]	00087325, 00129178, 00147973 [16], **00156523**, **40183414**
- Melons	5 [§180.275(a)]	No [33]	00087325, 00114035, 00147973 [16], **40000110**
- Pumpkins	5 [§180.275(a)]	No [34]	00087325
- Squash, summer	5 [§180.275(a)]	No [35]	00087325, 00129178, **40000111**
- Squash, winter	5 [§180.275(a)]	No [35]	00087325, **40000112**
Stone Fruits Group			
- Apricots	0.5 [§180.275(a)]	No [36]	00098113
- Cherries	0.5 [§180.275(a)]	No [36]	00038929, 00098113, 00143113 [37]
- Nectarines	0.5 [§180.275(a)]	No [36]	00086628
- Peaches	0.5 [§180.275(a)]	No [36]	00038929, 00086628, 00098113, 00120273, **00124127**
- Plums	0.2 [§180.275(a)]	No [36]	00098113
Small Fruits and Berries Group			
- Cranberries	5 [§180.275(a)]	No	00130005 [38], 00153530 [39]
- Strawberries	None established	No [40]	
Cereal Grains Group			
- Corn, field	None established	No [41]	42944402 [42]
- Corn, sweet (K + CWHR)	1 [§180.275(a)]	No [43]	00087329, **40000113**

(continued; footnotes follow)

Table B *(continued)*.

GLN: Data Requirements	Current Tolerances, ppm [40 CFR]	Must Additional Data Be Submitted?	References [1]
Forage, Fodder, and Straw of Cereal Grains Group			
- Corn, field, forage and fodder	None established	No [44]	42944402 [42,45]
- Corn, sweet, forage and fodder	None established	Yes [46]	
Grass Forage, Fodder, and Hay Group			
- Grass forage and hay	None established	No [47]	42875926 [11]
Miscellaneous Commodities			
- Bananas	0.5 (bananas) 0.05 (banana pulp) [§180.275(a)]	No	00087275, 00147973 [16], **40000114**, 42875919 [11], 43251601 [48]
- Cocoa beans	0.05 [§180.275(a)]	No	00109661 [49]
- Coffee beans	0.2 [§180.275(a)]	No	00109661 [49]
- Mint hay	2 [§180.275(b)]	No	00071753, 00071754
- Papayas	15 [§180.275(a)]	No [50]	00087368
- Passion fruit	3 [§180.275(a)]	No [51]	00087353, 42059001 [52]
- Peanuts	0.3 [§180.275(a)]	Yes [53]	00087327, 00092412, **40000116**, **40183416**, 42875925 [11]
171-4(l): Magnitude of the Residues in Processed Food/Feed			
- Cacao beans	None established	No [54]	
- Coffee beans	None established	No [55]	00109661 [49]
- Corn, field	None established	No	42944403 [42]
- Mint hay	None established	No	00071753, 00071754
- Peanuts	None established	No	**40183417**
- Plums	None established	No	42875927 [11]
- Potatoes	None established	No [56]	**40183404**, 42800501 [57]

(continued; footnotes follow)

Table B *(continued)*.

GLN: Data Requirements	Current Tolerances, ppm [40 CFR]	Must Additional Data Be Submitted?	References [1]
- Soybeans	None established	No [58]	00029904, **40183413**
- Tomatoes	None established	No	00129178 [59]
171-4 (j): Magnitude of the Residue in Meat, Milk, Poultry, and Eggs			
- Cattle, goats, hogs, horses, and sheep	None established	Yes [60,61]	0087252, 00087677, 00114035
- Poultry	None established	No [62,61]	
171-5: Reduction in Residues		No	00029904, 00124128 [63], 00129178 [59], 00145400 [63], 00158892, 00158893, 00162389 [64], 40183404, 40183415, 40183417, 41630801, 41630802, 41819401 [65], 42272101 [66]
165-1: Rotational Crops (Confined)		No	00139550 [67]
165-2: Rotational Crops (Field)		No	00156477 [67], 41564832-41564846 [68], 42090109 [69]

1. References in **Bold type** were reviewed in the Residue Chemistry Chapter of the Draft Final Reregistration Standard and Tolerance Reassessment (FRSTR) dated 2/19/88. Other references were reviewed in the Residue Chemistry Science Chapter of the Registration Standard dated 11/4/83 or as otherwise noted.

2. Label amendments are required for some crops and are noted in the appropriate crop section.

3. PP#4F3025, 5/30/84, M. Kovacs.

4. CB No. 922, 9/10/85, M. Firestone.

5. CB No. 5006, 6/22/89, S. Willett.

6. CBRS No. 10960, DP Barcode D185139, 12/15/93, W. Smith.

7. CBRS No. 12657, DP Barcode D195755, 5/26/94, W. Smith.

8. CB No. 7112, 1/30/91, R. Perfetti.

9. CBRS No. 9417, DP Barcode D174779, 11/4/93, P. Deschamp.

10. The registrant has submitted a GC/ECD method for the enforcement of tolerances for chlorothalonil residues of concern in/on peanuts, potatoes, and tomatoes which is a modification of the current enforcement method. Contingent upon a successful Agency method trial, CBRS will consider this method for publication in PAM, Vol. II (Footnote 11).

Table B *(continued)*.

11. CBRS Nos. 12393, 12403, 12420-12423, 12428-12432, 12462, 12475-12480, and 12618, DP Barcodes D194461, D194462, D194480-D194488, D194685, D194690-D194693, D194695, D194696, and D195417, 8/5/94, W. Smith.

12. Complete information pertaining to sample storage intervals and conditions for all samples used to support existing tolerances remains outstanding (Footnote 11).

13. Labels for all chlorothalonil end-use products with uses on carrots must be amended to specify a maximum number of applications per season or a maximum seasonal rate. The available data would support a maximum of 6 applications per season at 1.5 lb ai/A/application.

14. Residue data were translated from carrots.

15. No additional field residue data are required, provided the registrant amends product labels as intended to specify a 7-day PHI and a maximum seasonal rate of 9 lb ai/A (Footnote 11).

16. CB No. 1277, 9/23/85, M. Firestone.

17. The Agency has determined that the use of chlorothalonil on sugar beets grown for seed under SLN No. OR810032 is a non-food use; therefore, no residue data are required.

18. Residue data were translated from dry bulb onions. Labels for all chlorothalonil end-use products with uses on garlic must be amended to specify a maximum number of applications per season or a maximum seasonal rate.

19. The registrant must propose either a higher tolerance for green onions or a longer PHI, which is supported by appropriate field trial data (Footnote 11).

20. Labels for all chlorothalonil end-use products with uses on dry bulb onions must be amended to specify a maximum number of applications per season or a maximum seasonal rate.

21. Labels for all chlorothalonil end-use products with uses on celery must be amended to specify a maximum number of applications per season or a maximum seasonal rate. The available data would support a maximum of 16 applications per season at 2.3 lb ai/A/application.

22. No additional residue data are required, provided the registrant amends all pertinent product labels as intended to specify a 7-day PHI for broccoli (Footnote 11). In addition, labels for all chlorothalonil end-use products with uses on broccoli must be amended to specify a maximum number of applications per season or a maximum seasonal rate. The available data would support a maximum of 8 applications per season at 1.1 lb ai/A/application.

23. No additional residue data are required provided the registrant amends all pertinent product labels as intended to specify a 7-day PHI for Brussels sprouts (Footnote 11). In addition, labels for all chlorothalonil end-use products with uses on Brussels sprouts must be amended to specify a maximum number of applications per season or a maximum seasonal rate. The available data would support a maximum of 8 applications per season at 1.1 lb ai/A/application.

Table B *(continued)*.

24. No additional residue data are required, provided the registrant amends all pertinent product labels as intended to specify a 7-day PHI for cabbage (Footnote 11). In addition, labels for all chlorothalonil end-use products with uses on cabbage must be amended to specify a maximum number of applications per season or a maximum seasonal rate. The available data would support a maximum of 9 applications per season at 1.2 lb ai/A/application.

25. No additional residue data are required, provided the registrant amends all pertinent product labels as intended to specify a 7-day PHI for cauliflower (Footnote 11). In addition, all chlorothalonil end-use products with uses on cauliflower must be amended to specify a maximum number of applications per season or a maximum seasonal rate. The available data would support a maximum of 8 applications per season at 1.1 lb ai/A/application.

26. The registrant has recently proposed label amendments for some formulations (82.5% DF, 6 lb/gal FlC,and 4.17 lb/gal SC/L) to change the PHI from 42 days to 14 days and to establish a maximum seasonal rate of 6.0 lb ai/A (maximum of four applications per season). CBTS has recommended for the proposed label amendments and noted that the labels for the 90% DF and 4.16 and 4.17 lb/gal FlC formulations may also be amended without additional review by CBTS (CBTS Nos. 14057-14059, DP Barcodes D205409, D205411, and D205412, 9/15/94, J. Stokes).

27. CB No. 7931, DP Barcode D163742, 5/22/91, J. Abbotts.

28. No additional residue data are required, provided the registrant amends all pertinent product labels as intended to specify a maximum seasonal rate of 9 lb ai/A (Footnote 11).

29. Labels for all chlorothalonil end-use products with uses on soybeans must be amended to specify a maximum number of applications per season or a maximum seasonal rate.

30. Product labels currently contain a restriction against the grazing of treated areas or feeding of treated plant parts to livestock for dry and succulent beans. It is now Agency policy that feeding restrictions are impractical. Therefore, all pertinent product labels must be amended to remove feeding restrictions, and the registrant must propose tolerances, supported by appropriate field residue data, for the forage and straw/hay of dry and succulent beans.

31. Labels for all chlorothalonil end-use products with uses on tomatoes must be amended to specify a maximum number of applications per season or a maximum seasonal rate. The available data would support a maximum of 11 applications per season at 2.3 lb ai/A/application.

    The 7/31/91 DCI required data depicting chlorothalonil residues of concern in/on greenhouse-grown tomatoes following application of a DF or Impr formulation. The registrant no longer has any registered uses of chlorothalonil on greenhouse-grown tomatoes; therefore, these data are no longer required.

32. Labels for all chlorothalonil end-use products with uses on cucumbers must be amended to specify a maximum number of applications per season or a maximum seasonal rate. The available data would support a seasonal application schedule of one application at vine formation at up to 6.3 lb ai/A plus 9 applications at 2.3 lb ai/A/application.

33. Labels for all chlorothalonil end-use products with uses on melons must be amended to specify a maximum number of applications per season or a maximum seasonal rate. The available data would support a maximum of 10 applications per season at 2.2 lb ai/A/application.

42

Table B *(continued)*.

34. Residue data were translated from winter squash. Labels for all chlorothalonil end-use products with uses on pumpkins must be amended to specify a maximum number of applications per season or a maximum seasonal rate. The available data would support a maximum of 10 applications per season at 2.2 lb ai/A/application.

35. Labels for all chlorothalonil end-use products with uses on squash (summer and winter) must be amended to specify a maximum number of applications per season or a maximum seasonal rate. The available data would support a maximum of 10 applications per season at 2.2 lb ai/A/application.

36. Labels for all chlorothalonil end-use products with uses on apricots, cherries, nectarines, peaches, and/or plums must be amended to specify a maximum seasonal rate.

37. CB No. 371, 3/7/85, M. Firestone.

38. PP#3E2939, 1/13/84, M. Kovacs.

39. CB No. 824, 5/31/85, J. Mayes.

40. The Agency has determined that the 24(c) registrations of chlorothalonil on non-bearing strawberries (CA850066 and CA850067) are non-food uses; therefore, no residue data are required.

41. A tolerance must be proposed for the combined residues of chlorothalonil and its 4-hydroxy metabolite in/on field corn grain; the available data would support a tolerance of 0.05 ppm. In addition, labels for all chlorothalonil end-use products with uses on corn grown for seed must be amended to specify a maximum number of applications per season or a maximum seasonal rate. The available data would support a maximum of 7 applications per season at 1.5 lb ai/A/application.

42. CBRS Nos. 12651 and 12653, DP Barcodes D195759 and D195757, 12/5/94, W. Smith.

43. Labels for all chlorothalonil end-use products with uses on sweet corn must be amended to remove the restrictions against the treatment of sweet corn grown for processing and to specify a maximum number of applications per season or a maximum seasonal rate. The available data would support a maximum of 8 applications per season at 1.4 lb ai/A/application.

44. Tolerances must be proposed for the combined residues of chlorothalonil and its 4-hydroxy metabolite in/on field corn fodder; the available data would support a tolerance of 50 ppm. Labels for all chlorothalonil end-use products with uses on corn grown for seed must be amended to impose a 45-day pregrazing interval for feeding of the fodder of treated corn to livestock (Footnote 45).

45. CBRS No. 15319, DP Barcode D213495, 5/23/95, W. Smith.

46. Additional residue data for sweet corn forage are required. Tolerances must be proposed for the combined residues of chlorothalonil and its 4-hydroxy metabolite in/on sweet corn forage and fodder; the available data would support a tolerance of 50 ppm for sweet corn fodder. Labels for all chlorothalonil end-use products with uses on sweet corn must be amended to remove the restrictions against the grazing of treated areas, feeding of treated forage, or ensiling of treated corn.

Table B *(continued)*.

47. A tolerance must be proposed for the combined residues of chlorothalonil and its 4-hydroxy metabolite in/on grass seed screenings; the available data would support a tolerance of 75 ppm (Footnote 11). Labels for all chlorothalonil end-use products with uses on grass must be amended to specify a maximum number of applications per season or a maximum seasonal rate. The available data would support a maximum of 3 applications per season at 1.5 lb ai/A/application. In addition, in the absence of data from the state of MO, product labels must be amended to restrict use of chlorothalonil on grasses grown for seed to the states of ID, OR, and WA.

48. CBRS No. 13888, DP Barcode D204405, 10/13/94, W. Smith.

49. PP#2E2744, 2/8/83, A. Smith.

50. Labels for all chlorothalonil end-use products with uses on papayas must be amended to specify a maximum number of applications per season or a maximum seasonal rate. The available data would support a maximum of 11 applications per season at 3 lb ai/A/application.

51. Labels for all chlorothalonil end-use products with uses on passion fruit must be amended to specify a maximum number of applications per season or a maximum seasonal rate, and a 7-day PHI. The available data support a maximum seasonal rate of 7 lb ai/A (Footnote 52).

52. CBRS No. 8840, DP Barcode D170695, 9/16/92, F. Fort.

53. A tolerance for the combined residues of chlorothalonil and its 4-hydroxy metabolite in/on peanut hulls must be proposed. Available data support a level of 3 ppm. In addition, field residue data and a tolerance proposal are required for peanut hay. Labels for all chlorothalonil end-use products with uses on peanuts must be amended to delete the restriction against the grazing of treated areas or the feeding of hay or threshings from treated fields and to specify a maximum number of applications per season or a maximum seasonal rate. The available data would support a maximum of 7 applications per season at 1.1 lb ai/A/application.

54. Based on the submitted data for cocoa beans, it was concluded that chlorothalonil residues of concern would likely reduce during processing (Footnote 49).

55. Based on the submitted data for coffee beans, it was concluded that chlorothalonil residues of concern would likely reduce during processing (Footnote 49).

56. A feed additive tolerance must be proposed for the combined residues of chlorothalonil and its 4-hydroxy metabolite in processed potato waste (Footnote 57).

57. CBRS No. 12047, DP Barcode D192291, 12/15/93, W. Smith.

58. A feed additive tolerance must be proposed for the combined residues of chlorothalonil and its 4-hydroxy metabolite in soybean hulls.

59. Appendix D to the Residue Chemistry Science Chapter of the Chlorothalonil Reregistration Standard, 10/24/83, E. Zager.

60. A chlorothalonil ruminant feeding study remains outstanding; a protocol for this study has been reviewed (CB No. 7760, DP Barcode D162243, 07/11/91, D. McNeilly).

Table B *(continued)*.

61. The requirements for HCB poultry and ruminant feeding studies (7/31/91 DCI) have been waived (CBRS No. 11686, DP Barcode D189849, 1/25/94, W. Smith).

62. The requirements for poultry metabolism and feeding studies (7/31/91 DCI) have been waived (CBRS No. 12821, DP Barcode D196755, 11/2/94, W. Smith). No tolerances are needed for poultry and eggs.

63. Reviewed in the FRSTR dated 3/11/88.

64. CBRS No. 1413, 2/2/87, L. Cheng.

65. This MRID and the previously listed MRIDs were considered in estimating Chlorothalonil anticipated residues for this RED.

66. CBRS No. 10462, DP Barcode D181909, 11/13/92, W. Smith.

67. Reviewed in EFED, 4/26/84, S. Creeger.

68. CB No. 7840, DP Barcode D162931, 5/7/91., J. Stokes.

69. CBTS No. 9021, DP Barcode D172017, 2/26/92, J. Stokes.

TOLERANCE REASSESSMENT SUMMARY

Tolerances Listed Under 40 CFR §180.275(a):

The tolerances listed in 40 CFR §180.275(a) are for the combined residues of chlorothalonil and its 4-hydroxy metabolite. Sufficient data are available to ascertain the adequacy of the established tolerances for: apricots; bananas; beans, dry; beans, succulent; broccoli; Brussels sprouts; cabbage; carrots; cauliflower; celery; cherries; cocoa beans; coffee beans; corn, sweet (K + CWHR); cranberries; cucumbers; melons; nectarines; onions, dry bulb; papaya; parsnips, roots; passion fruit; peaches; peanuts; plums; potatoes; pumpkins; soybeans; squash, summer; squash, winter; and tomatoes.

The available field trial data indicate that the established tolerance for green onions is too low. The registrant must either propose a higher tolerance or a longer PHI

Tolerances must be proposed for the combined residues of chlorothalonil and its 4-hydroxy metabolite in/on field corn grain and fodder; sweet corn fodder and peanut hulls. In addition, upon submission of adequate residue data, tolerances must be proposed for the combined residues of chlorothalonil and its 4-hydroxy metabolite in/on bean forage and straw/hay; sweet corn forage; and peanut hay.

Tolerances for the combined residues of chlorothalonil and its 4-hydroxy metabolites have been proposed for almonds (0.05 ppm, PP#3F02875), almond hulls (0.2 ppm, PP#3F02875), asparagus (0.1 ppm, PP#2E04042), blueberries (1 ppm, PP#0E3899), filberts (0.1 ppm, PP#2E04113), mangos (1 ppm, PP#2E04018), mushrooms (7 ppm, PP#6E03410), and pecans (0.02 ppm, PP#7F03471). In addition, the registrant has proposed a new tolerance for peaches (3 ppm, PP#3F2815), and new tolerances for cherries (PP#5F03183) at 0.5 ppm for sweet cherries (the current tolerance) and 3 ppm for sour cherries to support a proposed amended use which would allow applications after shuck split.

Efforts are being made to obtain a tolerance for residues of chlorothalonil in/on snowpeas since chlorothalonil is used on snowpeas grown in Guatemala. FDA monitoring data from 93 samples of snowpeas imported from Guatemala during 1992 showed detectable residues in/on 48 samples with an average residue of 0.036 ppm and a high residue of 0.9 ppm (CBTS No. 11929, DP Barcode D191687, 8/16/93, M. Flood).

The established tolerance for prunes should be revoked since residues in/on fresh prunes are covered under the established tolerance for plums.

A ruminant feeding study remain outstanding. Therefore, the need for tolerances for residues of chlorothalonil and its 4-hydroxy metabolite in ruminant commodities cannot be determined. Tolerances for chlorothalonil residues of concern in poultry commodities are not required at this time.

Tolerances Listed Under 40 CFR §180.275(b):

The tolerance with regional registration listed in 40 CFR §180.275(b) is for the combined residues of chlorothalonil and its metabolite. Sufficient data are available to ascertain the adequacy of the established tolerance for mint hay.

A tolerance with regional registration must be proposed for the combined residues of chlorothalonil and its 4-hydroxy metabolite in/on grass seed screenings.

Feed Additive Tolerances to be Proposed (40 CFR § 186.275):

No food/feed additive tolerances have been established for the combined residues of chlorothalonil and its 4-hydroxy metabolite. Feed additive tolerances for processed potato waste (5 ppm) and soybean hulls (0.5 ppm) must be proposed. We note that Delaney clause issues may prevent the establishment of these tolerances.

Table C. Tolerance Reassessment Summary

Commodity	Current Tolerance (ppm)	Tolerance Reassessment (ppm)	Comment/*Correct Commodity Definition*
Tolerances listed under 40 CFR 180.275(a):			
Apricots	0.5	0.5	
Bananas (NMT 0.05 ppm in edible pulp)	0.5	0.5 0.05	*Bananas* *Bananas, pulp*
Beans (dry)	0.1	0.1	*Beans, dry*
Beans, snap	5	5	*Beans, succulent*
Broccoli	5	5	
Brussels sprouts	5	5	
Cabbage	5	5	
Carrots	1	1	
Cauliflower	5	5	
Celery	15	15	
Cherries (sweet and sour)	0.5	0.5	
Cocoa beans	0.05	0.05	
Coffee beans	0.20	0.20	*Coffee beans, green*
Corn, sweet (K - CWHR)	1	1	*Corn, sweet (K + CWHR)*
Cranberries	5	5	
Cucumbers	5	5	
Melons	5	5	
Nectarines	0.5	0.5	
Onions, dry bulb	0.5	0.5	
Onions, green	5	TBD [1]	The registrant must either propose a higher tolerance or increase the PHI.
Papayas	15	15	
Parsnips (root)	1	1	*Parsnips, roots*
Passion fruit	3	3	
Peaches	0.5	0.5	
Peanuts	0.3	0.3	
Plums	0.2	0.2	
Potatoes	0.1	0.1	
Prunes	0.2		Revoke
Pumpkins	5	5	
Soybeans	0.2	0.2	
Squash, summer	5	5	
Squash, winter	5	5	
Tomatoes	5	5	

(continued; footnotes follow)

Table C *(continued)*.

Commodity	Current Tolerance (ppm)	Tolerance Reassessment (ppm)	Comment/*Correct Commodity Definition*
Tolerances listed under 40 CFR 180.275(b):			
Mint hay	2	2	
Tolerances to be proposed under 40 CFR 180.275(a):			
Beans, straw/hay		TBD	Field residue data must be submitted.
Beans, forage		TBD	Field residue data must be submitted.
Corn, field, grain		0.05	
Corn, field, fodder		50	
Corn, sweet, forage		TBD	Field residue data must be submitted.
Corn, sweet, fodder		50	
Peanuts, hay		TBD	Field residue data must be submitted.
Peanuts, hulls		3	
Tolerances to be proposed under 40 CFR 180.275(b):			
Grass, seed screenings		75	
Tolerances to be proposed under 40 CFR 186.275:			
Potatoes, waste from processing [2]		5	
Soybeans, hulls [2]		0.5	

1. TBD = To be determined.

2. Delaney clause issues may prevent the establishment of a tolerance on this processed commodity.

CODEX HARMONIZATION

Numerous maximum residue limits (MRLs) for chlorothalonil residues in plant commodities have been established by Codex. Codex currently sets MRLs based on residues of chlorothalonil *per se* in plant commodities; however, the U.S. tolerance expression is for combined residues of chlorothalonil and its 4-hydroxy metabolite. The Codex MRLs and the applicable U.S. tolerances are presented in Table D.

Table D. Codex MRLs and Applicable U.S. Tolerances.

Commodity	MRL (mg/kg) [1]	U.S. Tolerance (ppm) [2]	Recommendation/ Comments [3]
Banana	0.2 (Step 8)	0.5	--
Blackberries	10	--	--
Broccoli	5	5	--
Brussels sprouts	5	5	--
Cabbages, head	5	5	--
Carrot	1	1	--
Cauliflower	5	5	--
Celery	15	15	--
Cereal grains	0.2 (Step 8)	(0.05; field corn grain) [4]	--
Cherries	10	0.5	--
Citrus fruits	5	--	--
Common bean (pods and/or immature seeds)	5	5	--
Cranberry	5	5	--
Cucumber	5	5	--
Currants, black, red, white	25	--	--
Endive	10	--	--
Grapes	10 (Step 7B)	--	--
Kale	10	--	--
Lettuce, head	10	--	--
Lima bean (dry)	0.5	0.1	--
Melons, except watermelon	5	5	--
Onion, bulb	5	0.5	--
Peach	25	0.5	--
Peanut	0.1	0.3	--
Peanut, whole	0.5	0.3	--
Peppers	10	--	--
Potato	0.1	0.1	--

Commodity	MRL (mg/kg) [1]	U.S. Tolerance (ppm) [2]	Recommendation/ Comments [3]
Pumpkins	5	5	--
Raspberries, red, black	10	--	--
Squash, summer	5	5	--
Sugar beet	1	--	--
Sweet corn (corn-on-the-cob)	1	1	--
Tomato	5	5	--
Winter squash	5	5	--
Witloof chicory (sprouts)	10	--	--

1. All chlorothalonil MRLs are based on residues of chlorothalonil *per se* and are final (CXL) unless otherwise indicated in parentheses.

2. Based on the combined residues of chlorothalonil and its 4-hydroxy metabolite.

3. As the tolerance definitions for Codex MRLs and U.S. tolerances are different, harmonization of Codex MRLs and U.S. tolerances is not currently possible.

4. A tolerance must be proposed on corn grain. Data indicate that this level would be appropriate.

AGENCY MEMORANDA CITED IN THIS DOCUMENT

CB No.:	None
Subject:	PP#2E2744 - Tolerance for Residues of Chlorothalonil in Cocoa Beans and Coffee Beans.
From:	A. Smith
To:	
Dated:	02/08/83
MRID(s):	00109661

CB No.:	None
Subject:	50534-8. Appendix D to Residue Chemistry Chapter of The Chlorothalonil Registration Standard. Chlorothalonil-Residue Estimates in Processed Foods.
From:	E. Zager
To:	H. Jacoby
Dated:	10/24/83
MRID(s):	00129178

CB No.:	None
Subject:	PP#3E2939 - Tolerance for Residues of Chlorothalonil in Cranberries
From:	M. Kovacs
To:	
Dated:	01/13/84
MRID(s):	00130005

CB No.:	None
Subject:	PP#4F3025 - Tolerance for Residues of Chlorothalonil
From:	M. Kovacs
To:	
Dated:	5/30/84
MRID(s):	00138147

CB No.:	371
Subject:	PP#5F3183 - Increase in the Tolerance for Chlorothalonil in Cherries
From:	M. Firestone
To:	
Dated:	03/07/85
MRID(s):	00143113

CB No.:	824
Subject:	PP#3E2939 - Tolerance for Residues of Chlorothalonil in Cranberries
From:	J. Mayes
To:	
Dated:	05/31/85
MRID(s):	00153530

CB No.:	922
Subject:	Chlorothalonil - EPA Registration No. 50534-7. SDS Biotech's Response of March 28, 1985, to Product Chemistry and Residue Chemistry Data Gaps Cited in the Chlorothalonil Registration Standard Dated September 30, 1984 (Accession Numbers 257516 and 257517).
From:	M. Firestone.
To:	H. Jacoby and A. Rispin
Dated:	09/10/85
MRID(s):	00143748-00143753

CB No.: 1277
Subject: Chlorothalonil - EPA Registration Number 50534-7. SDS Biotech's Response of July 22, 1985, to Residue Chemistry Data Gaps Cited in the 09/30/84 Chlorothalonil Registration Standard (Accession Number 258778).
From: M. Firestone
To: H. Jacoby and A. Rispin
Dated: 09/23/85
MRID(s): 00146943, 00147971, 00147973

CB No.: 1413
Subject: 50534-7. Chlorothalonil on Tomatoes. Response to Registration Standard. SDS Biotech's Submission dated August 18, 1986. Accession Number 264353
From: L. Cheng
To: H. Jacoby/R. Forrest
Dated: 02/02/87
MRID(s): 00162389

CB No.: None
Subject: Request for Toxicology Input on PCBN (Manufacturing Impurity in Chlorothalonil).
From: C. Trichilo
To: T. Farber
Dated: 07/08/88
MRID(s): None

CB No.: 5006
Subject: PP#6E3410 and Chlorothalonil Reregistration Requirements. Evaluation of Amendments Dated November 8, 1988 and February 7, 1989.
From: S. Willett
To: H. Jamerson and Toxicology Branch; and L. Rossi
Dated: 06/22/89
MRID(s): 40183401 and 40684801

CB No.: 7112
Subject: Fermenta ASC Corporation: Response to the Chlorothalonil Reregistration Standard: Metabolism Studies in Goats.
From: R. Perfetti
To: R. Engler, HED, and L. Rossi
Dated: 01/30/91
MRID(s): 41576001 and -02

CBTS No.: None
DP Barcode: None
Subject: PP#2E4050. Chlorothalonil. Reevaluation of RD Request for Exemption from Tolerance for Metabolite SDS-3701 in Rotational Crops and of Request to Delete Label 12-Month Rotational Crop Restriction.
From: J. Stokes
To: C. Giles-Parker and B. Doyle, TOX, HED
Dated: 03/26/91
MRID(s): None

CB No.: 7840
DP Barcode: D162931
Subject: Chlorothalonil. Response to RD Expedite Request to Review Data for Rotated Crops From Chlorothalonil-Treated Fields.
From: J. Stokes, HED
To: S. Lewis, RD, and B. Doyle, HED
Dated: 05/07/91
MRID(s): 415648-32, -34, -35, -37, -38, -40, -41, -43, -44, and -45

CB No. :	7931
DP Barcode:	D163742
Subject:	NE-900004; 24(c). Chlorothalonil (Bravo 620, EPA Reg. No. 50534-188) on dry beans.
From:	J. Abbotts
To:	S. Lewis/J. Stone
Dated:	05/22/91
MRID(s):	41844100 and 41844101

CB No.:	7760
DP Barcode:	D162243
Subject:	Chlorothalonil; ruminant feeding study protocol.
From:	D. McNeilly
To:	J. Mitchell and Toxicology Branch I
Dated:	07/11/91
MRID(s):	None

CB No.:	8436
DP Barcode:	D167864
Subject:	KS-910001; Section 24(c). Chlorothalonil (Bravo 720, EPA Reg. No. 50534-188) on Dry Beans.
From:	J. Abbotts
To:	C. Lewis
Dated:	08/29/91
MRID(s):	None

CBRS No.:	None
Subject:	Chlorothalonil Metabolites SDS-3701 and SDS-46851 - Consideration of the Toxicologic Basis for Inclusion in the Chlorothalonil Tolerance Expression.
From:	E. Doyle
To:	J. Stone/C. Giles-Parker
Dated:	02/21/92
MRID(s):	None

CBTS No.:	9021
DP Barcode:	D172017
Subject:	PP#2E4050. Chlorothalonil. Evaluation of Request for Exemption From Tolerances for Metabolites SDS-3701 and SDS-46851 in Rotational Crops, and of Request to Delete Label 12-Month Rotational Crop Restriction.
From:	J. Stokes
To:	C. Giles-Parker and B. Doyle, Toxicology Branch
Dated:	02/26/92
MRID:	42090109

CBRS No.:	8840
DP Barcode:	D170695
Subject:	Chlorothalonil. Magnitude of the Residue Studies on Passion Fruit.
From:	F. Fort
To:	A. Ertman/W. Waldrop
Dated:	09/16/92
MRID:	42059001

CBRS No(s).: 9562 and 9806
DP Barcodes: D175650 and D177592
Subject: Chlorothalonil and HCB: ISK Biotech Waiver Requests in Response to Chlorothalonil DCI Dated 7/31/91.
From: W. Smith
To: L. Rossi/A. Ertman
Dated: 11/10/92
MRID: 42272101

CBRS No.: 10462
DP Barcode: D181909
Subject: Chlorothalonil and HCB: ISK Biotech Response to 07/31/91 Chlorothalonil DCI: Guideline 171-5, Reduction in Residues.
From: W. Smith
To: L. Rossi/A. Ertman
Dated: 11/13/92
MRID(s): None

CBRS No.: 10814
DP Barcode: D183991
Subject: Chlorothalonil: ISK Biotech Response to 07/31/91 DCI: Guideline 174-A-SS, Rotational Crops Data.
From: W. Smith
To: L. Rossi/A. Ertman
Dated: 11/21/92
MRID(s): None

CBTS No.: 11929
DP Barcode: D191687
Subject: Chlorothalonil in/on Guatemalan Snow Peas. Requirement for Tolerance with Expiration Date.
From: M. Flood
To: C. Giles-Parker/J. Stone
Dated: 08/16/93
MRID(s): None

CBRS No.: 9417
DP Barcode: D174779
Subject: Reregistration of Chlorothalonil. Ruminant Metabolism Study Upgrade. List A Case No. 0097. Chemical No. 081901.
From: P. Deschamp
To: L. Rossi
Dated: 11/04/93
MRID: 42174401

CBRS No.: 12047
DP Barcode: D192291
Subject: Chlorothalonil: Case No. 0097. Chemical No. 081901: ISK Biotech Response to 07/31/91 Chlorothalonil DCI: 171-4(l), Magnitude of the Residue in Potato Processed Commodities.
From: W. Smith
To: A. Ertman/W. Waldrop
Dated: 12/15/93
MRID(s): 42800501

CBRS No.: 10960
DP Barcode: D185139
Subject: Chlorothalonil Reregistration: List A Case No. 0097: Chemical No. 081901: ISK-Biotech's Response to Residue Chemistry Data Requirements.
From: W. Smith
To: W. Waldrop/A. Ertman
Dated: 12/15/93
MRID(s): 42554001 and 42554002

CBRS No.: 11686
DP Barcode: D189849
Subject: Chlorothalonil & HCB: List A Case No. 0097: Chemical No. 081901: ISK Biotech Submission of information in support of waivers.
From: W. Smith
To: L. Rossi/A. Ertman
Dated: 01/25/94
MRID(s): None

CBRS No.: 12657
DP Barcode: D195755
Subject: Chlorothalonil Reregistration: List A Case No. 0097: Chemical No. 081901: ISK-Biotech's Submission of Snapbean Metabolism Data
From: W. Smith
To: W. Waldrop/A. Ertman
Dated: 05/26/94
MRID(s): 42944401

CBRS Nos.: 12393, 12403, 12420-12423, 12428-12432, 12462, 12475-12480, 12618, 13586-13590
DP Barcodes: D194461, D194462, D194480-D194488, D194685, D194690-D194693, D194695, D194696, D195417, D202280, D202282, D202285, D202288, D202290
Subject: Chlorothalonil Reregistration: ISK-Biotech's Submission of Residue Chemistry Data in Response to 7/91 DCI: Analytical Methods, Storage Stability, Label Amendments, Field Trial Data and Processing Study
From: W. Smith
To: W. Waldrop/A. Ertman and C. Giles-Parker/J. Stone
Dated: 08/05/94
MRID(s): 42875908-42875927

CBRS No.: 13236
DP Barcode: D199108
Subject: Chlorothalonil Reregistration: List A Case No. 0097; Chemical No. 081901: ISK-Biotech's Submission of English Translations of Foreign Labels
From: W. Smith
To: W. Waldrop/ A. Ertman
Dated: 09/07/94
MRID(s): None

CBTS Nos.: 14057, 14058, 14059
DP Barcodes: D205409, D205411, and D205412
Subject: Chlorothalonil on Dry Beans. Amended Use. Decrease in PHI.
From: J. Stokes
To: C. Giles-Parker/J. Stone
Dated: 09/15/94
MRID(s): None

CBRS No.: 13888
DP Barcode: D204405
Subject: Chlorothalonil Reregistration: List A Case No. 0097; Chemical No. 081901: ISK-Biotech's Submission of Banana Field Trial Data.
From: W. Smith
To: W. Waldrop/A. Ertman
Dated: 10/13/94
MRID(s): 43251601

CBRS No.: 13275
DP Barcode: D199685
Subject: Chlorothalonil Reregistration: List A Case No. 0097; Chemical No. 081901: ISK Biotech Submission Concerning Meat and Milk Issues.
From: W. Smith
To: W. Waldrop/A. Ertman
Dated: 10/13/94
MRID(s): None

CBRS No.: 12821
DP Barcode: D196755
Subject: Chlorothalonil Reregistration: List A Case No. 0097; Chemical No. 081901: ISK Biotech Data Waiver Request for Poultry Metabolism.
From: W. Smith
To: W. Waldrop/A. Ertman
Dated: 11/01/94
MRID(s): None

CBRS Nos.: 12651 and 12653
DP Barcodes: D195759 and D195757
Subject: Chlorothalonil Reregistration: List A Case No. 0097: Chemical No. 081901: ISK- Biotech's Submission of Corn Field Trial and Processing Data.
From: W. Smith
To: W. Waldrop/A. Ertman
Dated: 12/05/94
MRID(s): 42944402 and 42944403

CBRS No.: 14830
DP Barcode: D210209
Subject: Chlorothalonil: Case No. 0097: Chemical No. 081901: ISK Biotech Letter Concerning Potato Processing Studies.
From: W. Smith
To: N. Nazmi
Dated: 12/22/94
MRID(s): None

CBRS No.: 15319
DP Barcode: D213495
Subject: Reregistration of Chlorothalonil. Registrant's response to requirements for corn forage residue trials, tolerance proposals and label amendments.
From: W. Smith
To: W. Waldrop/A. Ertman
Dated: 5/23/95
MRID(s): None

MASTER RECORD IDENTIFICATION NUMBERS

References (used to support established tolerances):

00029409 Szalkowski, M.B.; Stallard, D.E.; Bachand, R.T., Jr. (1979) Absorption and Translocation of 2,4,5,6-Tetrachloroisophthalonitrile (chlorothalonil) Metabolites in Soil by Leafy, Root and Fruiting Crops--A Laboratory Rotational Crop Study: Research Report R-78-0020. (Unpublished study received Feb 19, 1980 under 677-313; Diamond Shamrock Agricultural Chemicals, Cleveland, Ohio; CDL: 099248-G)

00029904 Ballee, D.L.; Szalkowski, M.B.; Stallard, D.E. (1979) Distribution of 2,4,5,6-Tetrachloroisophthalonitrile (Chlorothalonil, DS-2787) and 4-Hydroxy-2,5,6-trichloroisophthalonitrile (DS-3701) among the Products of Soybean Processing. (Unpublished study received Feb 19, 1980 under 677-313; prepared in cooperation with WARF Institute, Inc., submitted by Diamond Shamrock Agricultural Chemicals, Cleveland, Ohio; CDL:099245-C)

00029905 Ballee, D.L.; Szalkowski, M.B.; Stallard, D.E. (1980) Residues of 2,4,5,6-Tetrachloroisophthalonitrile (Chlorothalonil, DS-2787), Hexachlorobenzene (HCB) and Pentachlorobenzonitrile (PCBN) on Soybeans. (Unpublished study received Feb 19, 1980 under 677-313; submitted by Diamond Shamrock Agricultural Chemicals, Cleveland, Ohio; CDL:099245-D)

00038929 Ballee, D.L. (1976) Results of Tests on the Amount of Residue Remaining Including a Description of the Analytical Method Used: [Chlorothalonil]. (Unpublished study received Feb 25, 1976 under 6F1749; submitted by Diamond Shamrock Agricultural Chemicals, Cleveland, Ohio; CDL:096453-B)

00039239 University of Hawaii (19??) Bravo--Passion Fruit Project: Analytical Procedure for Daconil 2787 (Chlorothalonil) and DAC-3701 (4-Hydroxy-2,5,6-trichloroisophthalonitrile) Residues in Passion Fruit. Undated method. (Unpublished study received Nov 11,1974 under 5E1569; prepared by Agricultural Biochemistry Dept., Pesticide Laboratory, submitted by Interregional Research Project No. 4, New Brunswick, N.J.; CDL:095562-A)

00071616 Ciba-Geigy Corporation (1981) [Study of Various Compounds for Residue Tolerances in Potatoes]: AG-A 4601. (Compilation; unpublished study, including AG-A 4614, 4615, 4903..., received Apr 15, 1981 under 100-607; CDL:070020-A)

00071752 Interregional Research Project Number 4 (1976?) Introduction: [Chlorothalonil]. Includes undated method entitled: Residue method: Chlorothalonil and metabolite in spearmint and in mint oil. (Unpublished study received Feb 10, 1981 under 1E2473; CDL:099910-B)

00071753 Green, R.J., Jr. (1978) [Residue Data: Chlorothalonil in Mint Hay]. (Unpublished study, including letter dated Aug 30, 1977 from R. J. Green, Jr. to Richard Leavitt, received Feb 10, 1981 under 1E2473; prepared by Michigan State Univ., Pesticide Research Center, Pesticide Analytical Laboratory in cooperation with Purdue Univ., submitted by Interregional Research Project No. 4, New Brunswick, N.J.; CDL:099910-C)

00071754 Green, R.J., Jr. (1977) [Residue Data: Chlorothalonil in Spearmint Oil and Hay]: IR-4 Project 76.399. (Unpublished study, including letter dated Aug 11, 1976 from R.J. Green, Jr. to Richard Leavitt, received Feb 10, 1981 under 1E2473; prepared by Michigan State Univ., Pesticide Research Center, Pesticide Analytical Laboratory in cooperation with Purdue Univ., submitted by Interregional Research Project No. 4, New Brunswick, N.J.; CDL:

00084828 Ballee, D.L.; Stallard, D.E.; Ignatoski, J.A. (1981) Residues of 2,4,5,6-Tetrachloroisophthalonitrile (Chlorothalonil, DS-2787), Hexachlorobenzene (HCB) and Pentachlorobenzonitrile (PCBN) on Carrots Resulting from Applications of Formulated Chlorothalonil by Sprinkler Irrigation: Document No. 336-3CR-81-0156-001. Unpublished study; 34 p.

00084829 Ballee, D.L.; Stallard, D.E.; Ignatoski, J.A. (1981) Residues of 2,4,5,6-Tetrachloroisophthalonitrile (Chlorothalonil, DS-2787), Hexachlorobenzene (HCB) and Pentachlorobenzonitrile (PCNB) on Celery Resulting from Application of Formulated Chlorothalonil by Sprinkler Irrigation: Document No. 336-3CR-81-0083-001. Unpublished study; 36 p.

00086628 Diamond Shamrock Agricultural Chemicals (1981) [Residue of Chlorothalonil on Stonefruits]. (Compilation; unpublished study including document nos. 126-3CR-80-0173-001, 126-3CR-80-0107-001, 063-3CR-80-0183-001..., received Nov 12, 1981 under 677-313; CDL:070462-B)

00087252 Wolfe, A.L.; Stallard, D.E. (1968?) Residues in Milk from Cows Fed 2,4,5,6-Tetrachloroisophthalonitrile. (Unpublished study received Sep 3, 1971 under 1F1024; submitted by Diamond Shamrock Agricultural Chemicals, Cleveland, Ohio; CDL:091901-J)

00087255 Stallard, D.E. (1971) [Residues of Daconil 2787 in Carrots, Peanuts and Celery]. (Unpublished study received Sep 3, 1971 under 1F1024; submitted by Diamond Shamrock Agricultural Chemicals, Cleveland, Ohio; CDL:091901-N)

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