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MEMORANDUM

Subject: Dicofol (List A, Case 0021, Chemical 010501).
Product Chemistry Chapter and Residue Chemistry Chapter
for the Reregistration Eligibility Decision Document. DP
Barcode D199110, CBRS No. 13185.

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Through: Andrew Rathman, Section Head *AR*
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To: Linda Propst/Judith Loranger, CRM 73
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and

Flora Chow/John Redden
Chemical Coordination Branch
Health Effects Division (7509C)

Attached are the Product Chemistry Chapter and the Residue Chemistry Chapter for the Dicofol Reregistration Eligibility Document (RED). The chapters were prepared by Dynamac Corporation under supervision of CBRS, HED. The assessment has undergone secondary review in the Branch and has been revised to reflect Branch policies.

Additional data are required for the following product chemistry



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guidelines for dicofol: 61-1; 62-2; 63-14; 63-15; 63-16; 63-17; 63-19; 63-20. These data requirements are considered confirmatory.

Additional residue data are required for the following residue chemistry guidelines: 171-3; 171-4(c); 171-4(d); 171-4(e); 171-4(k); 171-4(j); 165-1. The additional data requirements for all guideline residue chemistry categories are considered confirmatory, except field trial data for caneberries and strawberries.

GLN 171-3

Additional label amendments are required. In particular, a recently approved label for nuts is not supported by field trial data and conflicts with the label reviewed and accepted by CBRS. Also, rotational crop plantback intervals are required. Certain feeding/grazing restrictions are no longer acceptable and must be removed from the labels.

GLN 171-4(c)

A GC method for the determination of dicofol in plant matrices requires independent laboratory validation. When validated, the method will be submitted for inclusion in PAM for enforcement purposes. The current PAM method is colorimetric. This requirement is considered confirmatory, because multiresidue methods have been shown adequate for recovery of dicofol from plant matrices.

GLN 171-4(d)

A HPLC/GC method for the determination of dicofol and FW-152 in animal commodities, except eggs, requires independent laboratory validation for use as an enforcement method. A method for the determination of dicofol and FW-152 in eggs must be developed and validated. These requirements are considered confirmatory because PAM contains a HPLC method for the determination of dicofol residues in milk.

GLN 171-4(e)

Dicofol has been shown to be stable in various plant commodities for 1 to 2 years, except in cottonseed (3 months). Dicofol and FW-152 are stable in poultry and cattle tissue, milk, and eggs stored frozen for up to 7 months. Additional data are required on the stability of dicofol in certain plant commodities stored frozen for 2 years. These data are considered confirmatory, because the general stability for 1 year strongly implies stability through 2 years.

GLN 171-4(j)

A feeding study is required to ascertain the concentration of dicofol and FW-152 in milk and milk processed commodities. The feeding must be continued until residues are clearly demonstrated to plateau in milk. This requirement is considered confirmatory, because an anticipated residue can be estimated from an existing 100 ppm feeding study and from the nature of the residue in

ruminants study. An appropriate tolerance cannot be established without additional data.

GLN 171-4(k)

Field trials are required for strawberries, caneberries, and cotton gin byproducts. The strawberry and caneberry field trial studies are considered essential to tolerance evaluation, particularly in consideration of the need to raise the tolerance for a related small berry crop (grape) when new data were submitted. There are no existing data for caneberries or strawberries to support the existing label use. The requirement for cotton gin byproduct data is a recent development (*Pesticide Reregistration Rejection Rate Analysis Residue Chemistry: Follow-Up Guidance for Updated Livestock Feeds Tables* (06/94, EPA 738-K-94-001)), and fulfillment of the requirement will be considered confirmatory.

GLN 171-4(l)

Dicofol has been shown to concentrate in apple pomace, grape pomace, tomato pomace, raisin waste, raisins, prunes, citrus oil, and cottonseed oil. This raises issues under the Delaney clause.

GLN 165-1 and 165-2

The registrant will not propose the plantback intervals required by the existing confined rotational crop studies, and will pursue new studies. The data are considered confirmatory, because the plantback intervals may be imposed until new data are evaluated.

Anticipated residues for purposes of dietary exposure assessment will be addressed separately from this document. Adequate field trial and/or market basket survey data are available for all commodities except milk. Dicofol residues in milk will be estimated from available feeding and nature of the residue studies.

CBRS supports the reregistration of dicofol for use on beans, eggplant, peppers, pimentos, tomatoes, cucumbers, melons, pumpkins, squash, citrus, apples, crabapples, pears, quince, apricots, cherries, nectarines, peaches, nuts (excluding almonds), cottonseed, hops, and mint. Confirmatory data are required for cotton (gin trash). Because of a lack of field trial residue data, CBRS does not support the reregistration of dicofol for use on caneberries and strawberries. Proceedings are underway to revoke the tolerance for residues of dicofol in/on tea.

Please advise if additional information is needed.

Attachments: Task 2A: Reregistration Eligibility Document:
Product Chemistry Considerations (06/13/94).
Task 2B: Reregistration Eligibility Document: Residue Chemistry
Considerations (06/13/94).

cc: Dicofof List A File, Circ., Subject File, RF, Dynamac Corp., S. Funk, Deborah Hartman- PSPS (7501C).
RDI:A. Rathman:08/05/94:M. Metzger:08/12/94:E. Zager:08/15/94:
H7509C:CBRS:S.Funk:305-5430:CM#2:RM803:SF(0794.10):08/18/94.

Final Report

DICOFOL
Shaughnessy No. 010501
Case No. 0021
(CBRS No. 13185, DP Barcode
D199110)

TASK 2B
Reregistration Eligibility Decision:
Residue Chemistry Considerations

June 13, 1994

Contract No. 68-D2-0053

Submitted to:
U.S. Environmental Protection Agency
Arlington, VA 22202

Submitted by:
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The Dynamac Building
2275 Research Boulevard
Rockville, MD 20850-3268

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DICOFOL

REREGISTRATION ELIGIBILITY DECISION

RESIDUE CHEMISTRY CONSIDERATIONS

Shaughnessy No. 010501; Case 0021

(CBRS No. 13185; DP Barcode D199110)

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DICOFOL

REREGISTRATION ELIGIBILITY DECISION

RESIDUE CHEMISTRY CONSIDERATIONS

Shaughnessy No. 010501; Case 0021

(CBRS No. 13185; DP Barcode D199110)

TASK 2B

INTRODUCTION

Dicofol [1,1-bis(4-chlorophenyl)-2,2,2-trichloroethanol and 1-(2-chlorophenyl)-1-(4-chlorophenyl)-2,2,2-trichloroethanol] is a miticide registered for foliar application to a variety of food/feed crops. End-use products registered for use on food/feed crops include emulsifiable concentrates (EC), wettable powders (WP), a flowable concentrate (FIC), and a wettable powder/dust (WP/D) that may be applied as dilute or concentrated ground or aerial sprays.

REGULATORY BACKGROUND

Dicofol was the subject of a Reregistration Standard and Guidance Document dated 12/83 and the Dicofol Reregistration Standard Update dated 9/10/91.

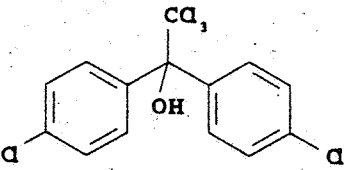
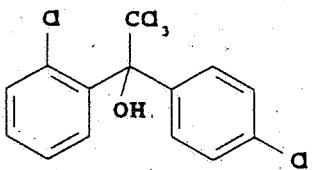
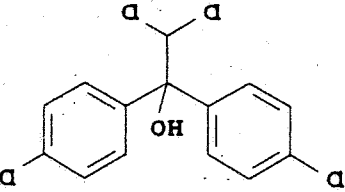
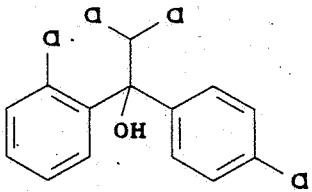
The Dicofol Special Review was initiated in 1984, owing to environmental concerns caused by the presence of DDT and related contaminants (DDTr). Registrations for dicofol-containing uses faced cancellation unless the upper limit for DDTr was certified at 0.1% by 7/1/87.

Tolerances for residues in/on food/feed crops are currently expressed in terms of dicofol *per se* [Source: 40 CFR §180.163]. There are no tolerances established for animal commodities. The HED Metabolism Committee (S. Funk, 9/29/92) determined that dicofol is the only residue of concern in/on plants and that dicofol and its metabolite 1,1-bis (4-chlorophenyl)-2,2-dichloroethanol (FW-152) are the residues of concern in animals. The chemical structures of dicofol and its metabolite FW-152 are depicted in Figure A.

Issues

EPA issued a Final Rule revoking the established tolerance for residues of dicofol in dried tea (59 FR 10993, 3/9/94) to be effective 5/9/94. The Dicofol Task force, consisting of Rohm and Haas Co. and Makhteshim-Agan, Inc., and the National Agricultural Chemical Association filed separate objections to the final rule and EPA is staying the effective date of the final rule (59 FR 23799, 5/9/94).

Figure A. The chemical structures of dicofol and the metabolites of concern.

Structure Metabolite: Chemical name	Structure Metabolite: Chemical name
 <p>p,p'-dicofol: 1,1-bis(4-chlorophenyl)-2,2,2-trichloroethanol</p>	 <p>o,p'-dicofol: 1-(2-chlorophenyl)-1-(4-chlorophenyl)-2,2,2-trichloroethanol</p>
 <p>p,p'-FW-152: 1,1-bis(4-chlorophenyl)-2,2-dichloroethanol</p>	 <p>o,p'-FW-152: 1-(2-chlorophenyl)-1-(4-chlorophenyl)-2,2-dichloroethanol</p>

SUMMARY OF SCIENCE FINDINGS

GLN 171-3: Directions for Use

There are five end-use products currently registered to Rohm and Haas, the primary producer of dicofol. These end-use products are listed below.

EPA Reg. No.	Acceptance		Product Name
	Date	Formulation	
707-201	6/8/89	4 lb/gal FIC	Kelthane 4F Flowable Agricultural Miticide
707-202	8/93	4 lb/gal EC ^a	Kelthane MF Agricultural Miticide
707-204	11/88	1.6 lb/gal EC	Kelthane EC Agricultural Miticide
707-205	8/93	35% WPD ^b	Kelthane 35 Agricultural Miticide
707-229	7/93	50% WP	Kelthane 50 Agricultural Miticide

^a Includes SLN Nos. CA77005300, GA88000600, LA88000700, MS90000400, and TX93001800.

^b Includes SLN Nos. AZ88001000, CA88002900, CA92002600, OR90001500, PA92000400, VA89000500, and WA90002200.

A comprehensive summary of the registered food/feed use patterns of dicofol, based on these product labels, is presented in Table A and reflects revisions proposed by the registrant and reviewed by the Agency (CBRS No. 12732, DP Barcode D196223, 12/21/93, CBRS No. 12734, DP Barcode D196335, 4/14/94, CBRS No. 13521, DP Barcode D201819, 6/23/94, CBRS No. 13520, DP Barcode D201807, 6/23/94, S. Funk, CBRS Nos. 10179 and 10180, DP Barcodes D180337 and D180418, 9/2/92, S. Knizner). A summary of the residue chemistry science assessments for reregistration of dicofol is presented in Table B. The conclusions listed in Table B regarding the reregistration eligibility of dicofol food/feed uses are based on the use patterns registered by the basic producer, Rohm and Haas Co.. When end-use product DCIs are developed (e.g., at issuance of the RED), RD should require that all end-use product labels (e.g., MAI labels, SLNs, and products subject to the generic data exemption) be amended such that they are consistent with the basic producer labels.

The feeding/grazing restrictions associated with the use directions for beans, cucurbits, cotton, hops, mint, peppers, and tomatoes are inappropriate and should be removed from the end-use product labels.

No pertinent field trial residue data exist to support use of dicofol on strawberries and caneberries. Therefore, use on strawberries and use on caneberries must be removed from the labels.

GLN 171-4 (a): Plant Metabolism

The qualitative nature of the residue in plants is adequately understood. Metabolism studies have been conducted with grapefruit, cottonseed, and tomato. Dicofol is not translocated and is not metabolized to an appreciable extent. A study on citrus seedlings indicated that <1% of leaf-applied [¹⁴C]dicofol was translocated from the leaf and <0.05% of soil-applied chemical was taken up by the plant.

In a grapefruit metabolism study, fruit harvested up to 150 days after foliar application of uniformly ring-labeled [¹⁴C]p,p'-dicofol at 4 lb ai/A contained >98% of the radioactivity in the peel, <1.4% in juice, and <0.6% in pulp. Dicofol accounted for >70% of the

radioactivity in peel collected 60 days after treatment and 50-60% in 150-day samples. The metabolite p,p'-dichlorobenzophenone (DCBP) accounted for <2%.

In the cottonseed metabolism study, dicofol comprised ~60% of the radioactivity in whole seeds harvested 15 days following two foliar applications of [¹⁴C]p,p'-dicofol totaling ~5 lb ai/A. DCBP accounted for 15% of the residues in whole cottonseed.

A tomato metabolism study showed dicofol at 86.5% of the radioactive residues in tomato fruits harvested 21 days after two foliar applications of [¹⁴C]p,p'-dicofol at 2.4 lb ai/A. DCBP accounted for ~1% of the residue and evidence of dichlorobenzhydrol (DCBH) at ~1% was detected. In a parallel study with [¹⁴C]o,p'-dicofol, DCBH and DCBP comprised 6.6 and 4.1% of the residue, respectively.

Metabolism in plants proceeds via hydrolysis and oxidation of the trichloroethanol moiety to form dichlorobenzophenone. However, the parent compound remains the predominant residue. The HED Metabolism Committee (S. Funk, 9/29/92) determined that dicofol is the only residue of concern in/on plants.

GLN 171-4 (b): Animal Metabolism

The qualitative nature of the residue in livestock is adequately understood, based on acceptable studies with goats and hens. Goats were dosed with [¹⁴C]dicofol at 15 ppm in the daily diet for 7 days and sacrificed 24 hours later. FW-152 was the major residue, comprising 27-67% of the radioactivity in milk and tissues; dicofol accounted for 10% in kidney and 24-46% in milk, fat, and muscle. Dicofol comprised <1% of the liver residues, whereas DCBP released by base hydrolysis constituted 15%. DCBP also comprised up to 17% of the residues in milk and 18% in fat.

In the poultry metabolism study, hens were dosed with [¹⁴C]dicofol for 7 days at 10 ppm in the daily diet. Dicofol accounted for 13-27% of the residue in whole eggs and 63-77% in fat and muscle. FW-152 constituted up to 17% of the residue in eggs and fat, 22% in muscle, and 33% in liver. DCBP comprised up to 50% of the residues in eggs, but <10% in tissues.

The HED Metabolism Committee (S. Funk, 9/29/92) determined that dicofol and FW-152 are the residues of concern in animals.

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

Three colorimetric methods for dicofol determination in/on plants are listed in PAM, Vol. II (Methods A, B, and C). PAM, Vol. II also includes a reference to a GLC method in PAM, Vol. I for the determination of chlorinated hydrocarbons. PAM, Vol. I (Section 211.13H) includes an HPLC method for the determination of dicofol residues in milk. The GC/EC Method TR-310-86-74 for plant matrices is to be validated by an independent laboratory for

inclusion in PAM. An HPLC/GC method for the determination of dicofol and FW-152 in animal commodities (except eggs) requires an independent laboratory validation, and an enforcement method is required for eggs.

p,p'-Dicofol and o,p'-dicofol are completely recovered (>80%) using FDA Multiresidue Protocol D (Section 302). p,p'-Dicofol is partially recovered (50-80%) using Multiresidue Protocol E for oily matrices (Section 304), whereas the recovery of the o,p'-isomer using this method is small (<50%). Recovery of both isomers using Protocol E for non-oily matrices (Section 303) is variable [Source: *PESTDATA, PAM, Vol. I Appendix I, 1994*].

GLN 171-4 (e): Storage Stability

Dicofol is stable in apples, strawberries, melons, string beans, and green peppers stored at -20 C for 12 months; 18- and 24-month data for these matrices are forthcoming. Dicofol is stable in citrus fruit stored frozen for 2 years and in cottonseed for ~3 months. Dicofol and FW-152 are stable in poultry and cattle tissues, milk, and eggs stored for up to 7 months at frozen temperatures.

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

All data requirements for magnitude of the residue in plants have been evaluated and deemed adequate to reassess the tolerances for residues of dicofol in raw plant commodities, with the exception of caneberries (blackberries, etc), strawberries, and figs. IR-4 intends to provide data to support the use on caneberries. Residue data requirements for strawberries remain outstanding. There are insufficient data to support the reregistration of dicofol use on caneberries and strawberries. The tolerances cannot be assessed. The use on figs is not being supported and will be revoked.

CBRS now requires residue data for cotton gin byproducts (commonly called gin trash) which includes burrs, leaves, stems, lint, immature seeds, sand, and dirt. As these data requirements are based on the *Updated Livestock Feeds Tables* for Subdivision O (Residue Chemistry) of the Pesticide Assessment Guidelines (06/94, EPA 738-K-94-001)), they are considered confirmatory data and will not impede the reregistration process.

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

All data requirements for magnitude of the residue in processed food/feed have been evaluated and deemed adequate to determine the extent to which residues of dicofol concentrate in food/feed items upon processing of the raw agricultural commodity. Residues tend to concentrate in dried, processed feed items (apple pomace, grape pomace, tomato pomace, and raisin waste) and in raisins, prunes, cottonseed oil, and citrus oil. Food/feed additive tolerances are required for these commodities.

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

No tolerances have been established for dicofol residues in livestock commodities. However, animal metabolism studies indicate that tolerances are needed for residues of dicofol and FW-152 in meat, milk, poultry, and eggs.

The re-calculated maximum theoretical dietary burden of dicofol for cattle is about 100 ppm, based on residues in apple pomace, raisin waste or tomato pomace, spent hops, and bean forage/hay. The existing ruminant feeding studies (100 ppm feeding level) have been recently re-evaluated and found adequate for determining tolerance levels in meat, liver, kidney, and meat byproducts, but not in milk. A new study is needed to determine when residues plateau in milk and to determine an appropriate tolerance for milk. For purposes of risk assessment an estimate of residue levels in milk can be obtained from the existing feeding studies and from the total radioactive residues in milk from the goat metabolism study, adjusted for feeding level.

The re-calculated theoretical dietary burden of dicofol for poultry is 6 ppm, based on residues in tomato pomace, bean seed, and cottonseed meal. The existing poultry feeding studies (5 ppm feeding level) have been recently re-evaluated and found adequate for determining tolerance levels in poultry meat, liver, fat, meat byproducts, and eggs. Data from the 5 ppm feeding level were adjusted for the relationship of theoretical to actual feeding levels to determine the appropriate tolerance recommendations.

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

Data on confined rotational crops indicate that no additional data on dicofol rotational crop tolerances are required for rotational crops, provided the registrant revises the product labels to impose a 1-month plantback interval for legume vegetables, a 4-month plantback interval for cereal grains, and a 1-year plantback interval for all other rotated crops. Currently, there are no rotational crop restrictions. The registrant will pursue new confined rotational crop studies. In the interim, the rotational crop restrictions must be added to the labels.

Table A. Use patterns subject to reregistration for: Case 0021, Dicofof. *

Site	Application Type Application Timing Application Equipment	Form [EPA Reg. No.]	Max. Single Application Rate (ai)	Max. # Apps.	Min. Re- treatment Interval (Days)	PHI (Days)	Use Limitations
Apple	Broadcast or band application Ground or aerial equipment	35% WP/D [707-205]	2.8 lb/A	2	Not specified (NS)	7	No chemigation. Applications may be made in a minimum of 5 gal/A using aerial equipment.
		50% WP [707-229]	3 lb/A	2	NS	7	
		4 lb/gal FIC [707-201]	3 lb/A	2	NS	7	
Bean, dry							
Bean, dry	Broadcast or band application Ground or aerial equipment	4 lb/gal EC [707-202]	1.5 lb/A	2	NS	21	No chemigation. Applications may be made in a minimum of 5 gal/A using aerial equipment. The feeding of vines or crop residues to meat or dairy animals is prohibited.
		1.6 lb/gal EC [707-204]					
Bean, succulent							
Bean, succulent	Broadcast-or band application Ground or aerial equipment	4 lb/gal EC [707-202]	1.5 lb/A	2	NS	21	See "Bean, dry."
		1.6 lb/gal EC [707-204]					

(continued; footnotes follow.)

Table A (continued).

Site	Application Type Application Timing Application Equipment	Form [EPA Reg. No.]	Max. Single Application Rate (at)	Max. # Apps.	Min. Re- treatment Interval (Days)	PHI (Days)	Use Limitations
Blackberry^b							
Broadcast foliar application Postbloom Ground equipment		35% WP/D [OR90001500] [VA89000500]	1.225 lb/A	NS	NS	2	No chemigation. Application may be made alone or as a tank mix with other pesticides.
		35% WP/D [PA92000400] [WA90002200]	1.225 lb/A	2	NS	7	
Cherry/nectarine/plumcot							
Broadcast or band application Ground or aerial equipment		35% WP/D [707-205]	1.5 lb/A	1	NA	7	
		50% WP [707-229]					
		4 lb/gal FIC [707-201]					
Chestnut^c							
Broadcast or band application Ground or aerial equipment		1.6 lb/gal EC [707-204]	2 lb/A	2	NS	7	No chemigation. Applications may be made in a minimum of 5 gal/A using aerial equipment.
		Citrus					
Broadcast or band application Ground or aerial equipment		4 lb/gal EC [707-202]	6 lb/A	2	NS	7	No chemigation. Applications may be made in a minimum of 5 gal/A using aerial equipment.
		1.6 lb/gal EC [707-204]					

(continued; footnotes follow.)

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Table A (continued).

Site	Application Type Application Timing Application Equipment	Form [EPA Reg. No.]	Max. Single Application Rate (ai)	Max. # Apps.	Min. Re- treatment Interval (Days)	PHI (Days)	Use Limitations
Cotton							
	Broadcast or band application Ground or aerial equipment	4 lb/gal EC [707-202] 1.6 lb/gal EC [707-204]	1.5 lb/A	2	NS	30	No chemigation. Applications may be made in a minimum of 5 gal/A using aerial equipment. The feeding of stalks or trash to meat or dairy animals is prohibited.
Crabapple							
	Broadcast or band application Ground or aerial equipment	35% WP/D [707-205] 50% WP [707-229]	2.8 lb/A 3 lb/A	2 2	NS NS	7 7	See "Apple." See "Apple."
Cucumber (greenhouse grown)							
	Broadcast foliar application Ground equipment	35% WP/D [CA88002900]	0.58 lb/A	3	NS	2	Use limited to CA. No chemigation. Applications may be made in 40-100 gal/A using ground equipment. A restricted entry interval of 24 hours is in effect.
Cucurbits (including cantaloupe, cucumber, melon, pumpkin, squash, and watermelon)							
	Broadcast or band application Ground or aerial equipment	35% WP/D [707-205]	0.58 lb/A	2	7	2	No chemigation. Applications may be made in a minimum of 5 gal/A using aerial equipment. The feeding of vines, forage, or crop residues to meat or dairy animals is prohibited.

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(continued; footnotes follow.)

Table A (continued).

Site	Application Type Application Timing Application Equipment	Form [EPA Reg. No.]	Max. Single Application Rate (ai)	Max. # Apps.	Min. Re- treatment Interval (Days)	PHI (Days)	Use Limitations
Cucurbits (including cantaloupe, cucumber, melon, pumpkin, squash, and watermelon) (continued)							
Broadcast or band application Ground or aerial equipment		50% WP [707-229]	0.62 lb/A	2	NS	2	No chemigation. Applications may be made in a minimum of 5 gal/A using aerial equipment.
		4 lb/gal FIC [707-201]	0.63 lb/A	2	7	2	No chemigation. Applications may be made in a minimum of 5 gal/A using aerial equipment. The feeding of vines, forage, or crop residues to meat or dairy animals is prohibited.
Broadcast foliar application Aerial equipment		35% WP/D [AZ88001000] [CA92002600]	0.58 lb/A	NS (AZ) 2 (CA)	NS	2	Use limited to AZ and CA. No chemigation. Applications may be made in 5 gal/A (AZ) and 10-20 gal/A (CA) using aerial equipment. Application may be made alone or as a tank mix with other pesticides. The feeding of treated vines, forage, or crop residues to meat or dairy animals is prohibited.
Filbert							
Broadcast or band application Ground or aerial equipment		1.6 lb/gal EC [707-204]	2 lb/A	2	NS	7	See "Chestnut."

(continued; footnotes follow.)

Table A (continued).

Site Application Type Application Timing Application Equipment	Form [EPA Reg. No.]	Max. Single Application Rate (at)	Max. # Apps.	Min. Re-treatment Interval (Days)	PHI (Days)	Use Limitations
Grape						
Broadcast or band application Ground or aerial equipment	35% WP/D [707-205]	1.22 lb/A (WP/D)	2	NS	7	No chemigation. Applications may be made in a minimum of 5 gal/A using aerial equipment.
	50% WP [707-229]	1.2 lb/A (WP and FIC)				
	4 lb/gal FIC [707-201]					
Hickory nut						
Broadcast or band application Ground or aerial equipment	1.6 lb/gal EC [707-204]	2 lb/A	2	NS	7	See "Chestnut."
Hops						
Broadcast or band application Ground or aerial equipment	4 lb/gal EC [707-202]	1.1 lb/A	2	NS	7	No chemigation. Applications may be made in a minimum of 5 gal/A using aerial equipment. The feeding of vines or crop residues to meat or dairy animals is prohibited.
	1.6 lb/gal EC [707-204]	1.1 lb/A	1	Not applicable (NA)	7	
Mint						
Broadcast or band application Ground or aerial equipment	4 lb/gal FIC [707-201]	1.25 lb/A	1	NA	30	No chemigation. Applications may be made in a minimum of 5 gal/A using aerial equipment. The feeding of spent hay or fresh hay to meat or dairy animals is prohibited.
	4 lb/gal EC [707-202]	1.2 lb/A	1	NA	30	
	1.6 lb/gal EC [707-204]	1 lb/A	1	NA	30	

(continued; footnotes follow.)

Table A (continued).

Site	Application Type Application Timing Application Equipment	Form [EPA Reg. No.]	Max. Single Application Rate (at)	Max. # Apps.	Min. Re- treatment Interval (Days)	PHI (Days)	Use Limitations
Nectarine (see "Cherry/nectarine/plumcot")							
Peach							
	Broadcast or band application Ground or aerial equipment	35 % WP/D [707-205] 50 % WP [707-229] 4 lb/gal FIC [707-201]	3 lb/A	2	NS	7	
Pear							
	Broadcast or band application Ground or aerial equipment	35 % WP/D [707-205] 50 % WP [707-229]	2.8 lb/A 3 lb/A	2 2	NS NS	7 7	See "Apple." See "Apple."
Pecan							
	Broadcast or band application Ground or aerial equipment	4 lb/gal EC [707-202] 1.6 lb/gal EC [707-204]	2 lb/A	2	NS	7	No chemigation. Applications may be made in a minimum of 5 gal/A using aerial equipment.
	Broadcast foliar application Ground equipment	4 lb/gal EC [GA88000600] [LA88000700] [MS90000400] [TX93001800]	2 lb/A	2	NS	7	Use limited to GA, LA, MS, and TX. No chemigation. Applications may be made alone or as a tank mix.

(continued; footnotes follow.)

Table A (continued).

Site	Application Type Application Timing Application Equipment	Form [EPA Reg. No.]	Max. Single Application Rate (ai)	Max. # Apps.	Min. Re- treatment Interval (Days)	PHI (Days)	Use Limitations
Pepper							
	Broadcast or band application Ground or aerial equipment	4 lb/gal EC [707-202]	0.75 lb/A	1	NA	2	No chemigation. Applications may be made in a minimum of 5 gal/A using aerial equipment. The feeding of treated plants, forage, or crop residues to meat or dairy animals.
Plum (see "Peach/plum/prune")							
Plumcot (see "Cherry/nectarine/plumcot")							
Prune (see "Peach/plum/prune")							
Quince							
	Broadcast or band application Ground or aerial equipment	35 % WP/D [707-205]	2.8 lb/A	2	NS	7	See "Apple."
		50 % WP [707-229]	3 lb/A	2	NS	7	See "Apple."
Raspberry^b							
	Broadcast foliar application Postbloom Ground equipment	35 % WP/D [OR90001500] [VA89000500]	1.225 lb/A	NS	NS	2	See "Blackberry."
		35 % WP/D [PA92000400] [WA90002200]	1.225 lb/A	2	NS	7	

(continued; footnotes follow.)

Table A (continued).

Site	Application Type Application Timing Application Equipment	Form [EPA Reg. No.]	Max. Single Application Rate (ai)	Max. # Apps.	Min. Re- treatment Interval (Days)	PHI (Days)	Use Limitations
Strawberry^b							
	Broadcast or band application Ground or aerial equipment	35 % WP/D [707-205]	2.4 lb ai/A	2	NS	7	No chemigation. Applications may be made in a minimum of 5 gal/A using aerial equipment.
		50 % WP [707-229]					
		4 lb/gal EC [707-202]					
		1.6 lb/gal EC [707-204]					
	Drench spray or spot treatment Spring (new growth) or foliar Ground or aerial equipment	4 lb/gal EC [CA77005300]	2.4 lb/A	3	10	2	Use limited to CA. No chemigation. Applications may be made in up to 400 gal/A using ground equipment.
Tomato							
	Broadcast or band application Ground or aerial equipment	4 lb/gal EC [707-202]	0.75 lb/A	1	NA	2	See "Pepper."
Walnut^c							
	Broadcast or band application Ground or aerial equipment	4 lb/gal EC [707-202] 1.6 lb/gal EC [707-204]	2 lb/A	2	NS	7	See "Pecan."

The use patterns presented are proposed revisions for Rohm and Haas product labels that have reviewed and approved by the Agency (CBRS No. 12732, DP Barcode D196223, S. Funk, 12/21/93 and CBRS No. 12734, DP Barcode D196335, S. Funk, 4/14/94), unless otherwise noted. These use patterns are currently not supported by residue data.

Table A (continued).

° The proposed revision (see a) differs from that on the current label: 4 lbs. a.i./A and no specified maximum number of applications. This pattern is NOT supported by residue data. (CBRS No. 13521, DP Barcode D201819, S. Funk, 06/23/94).

Table B. Residue chemistry science assessments for reregistration of dicofol.

GLN: Data Requirements	Tolerances, ppm [40 CFR]	Must Additional Data Be Submitted?	References ¹
171-3: Directions for Use		Yes ²	
171-4 (a): Plant Metabolism		No	00004275 00004321 05000993 05004877 05006219 05006528 40042003 ³ 40042004 ³ 40042005 ³ 40953701 40958002 41231901 ⁴ 42971402 ⁵
171-4 (b): Animal Metabolism		No	40042006 ³ 40042007 ³ 40958001 40958003 42276101 ⁶ 42276102 ⁶
171-4 (c/d): Residue Analytical Methods		Yes ⁷	00004420 00004341 00004371 00004426 05004945 05004951 05005141 05005165 05005167 05005274 05005537 05006312 05006330 05017942 05012262 05019781 40042008 ³ 40042030 ⁸ 40042031 ⁸ 40644601 ⁷ 40644603 40644605 40644606 40644607 40644608 40944602 40944603 40944604 41231902 41231903 41231904 41231905 41231906 41231907 41380401 42514802 ⁹ 42514803 ⁹ 43146501 ¹⁰
171-4 (e): Storage Stability		Yes ¹¹	40042009 ⁸ 40042010 ⁸ 40042011 ⁸ 40644605 40644607 40644608 42971403 ⁵ 42971404 ⁵ 42971405 ⁵ 43146503 ¹⁰ 43146504 ¹⁰ 43146505 ¹⁰

Table B (continued).

GLN: Data Requirements	Tolerances, ppm [40 CFR]	Must Additional Data Be Submitted?	References ¹
171-4 (k): Magnitude of the Residue in Plants			
<u>Legume Vegetables (Succulent/Dried) Group</u>			
- Beans (dry)	5 [§180.163]	No ^{12,13}	00004305 40042017 ⁸ 41231907 41380401
- Beans (succulent)	5 [§180.163]	No ^{13,14}	00004305 00019894 42297201 ¹⁵ 42971407 ⁵ 42971408 ⁵
- Beans (lima)	5 [§180.163]	No ¹⁶	00004305 00019894 42297201 ¹⁵ 42971407 ⁵ 42971408 ⁵
<u>Fruiting Vegetables Group</u>			
- Eggplant	5 [§180.163]	No ¹⁷	00004305
- Peppers	5 [§180.163]	No ¹⁸	00004305 40944602 40944603
- Pimentos	5 [§180.163]	No ¹⁹	00004305 40944602 40944603
- Tomatoes	5 [§180.163]	No ²⁰	00004305 40944604
<u>Cucurbit Vegetables Group</u>			
- Cantaloupes	5 [§180.163]	No ²¹	00004305 40042018 ⁸ 40042019 ⁸
- Cucumbers	5 [§180.163]	No ²¹	00004305 40042020 ⁸ 41231903
- Melons	5 [§180.163]	No ²¹	00004305 40042018 ⁸ 40042019 ⁸
- Pumpkins	5 [§180.163]	No ²¹	00004305 40042018 ⁸ 40042019 ⁸
- Summer squash	5 [§180.163]	No ²²	00004305 40042021 ⁸

Table B (continued).

GLN: Data Requirements	Tolerances, ppm [40 CFR]	Must Additional Data Be Submitted?	References ¹
- Watermelons	5 [§180.163]	No ²¹	00004305 40042018 ⁸ 40042019 ⁸
- Winter squash	5 [§180.163]	No ²¹	00004305 40042018 ⁸ 40042019 ⁸
<u>Citrus Fruits Group</u>			
- Grapefruit	10 [§180.163]	No	00004305 40042012 ⁸ 40042013 ⁸
- Lemons	10 [§180.163]	No	00004305 40042012 ⁸ 40042013 ⁸ 41231904
- Limes	10 [§180.163]	No	00004305 40042012 ⁸ 40042013 ⁸ 41231904
- Kumquats	10 [§180.163]	No	00004305 40042012 ⁸ 40042013 ⁸
- Oranges	10 [§180.163]	No	00004305 40042012 ⁸ 40042013 ⁸ 41231902
- Tangerines	10 [§180.163]	No	00004305 40042012 ⁸ 40042013 ⁸
<u>Pome Fruits Group</u>			
- Apples	5 [§180.163]	No ²³	00004305 40042014 ⁸ 41231905 43146502 ²⁷
- Crabapples	5 [§180.163]	No ²³	00004305 40042014 ⁸ 41231905
- Pears	5 [§180.163]	No ²⁴	00004305 40042015 ⁸ 40042016 ⁸
- Quinces	5 [§180.163]	No ²³	00004305 40042014 ⁸ 41231905
<u>Stone Fruits Group</u>			
- Apricots	10 [§180.163]	No ²⁵	00004305

Table B (continued).

GLN: Data Requirements	Tolerances, ppm [40 CFR]	Must Additional Data Be Submitted?	References ¹
- Cherries	5 [§180.163]	No ²⁶	00004305 42514806 ⁹ 43146504 ¹⁰
- Nectarines	10 [§180.163]	No ²⁵	00004305
- Peaches	10 [§180.163]	No ²⁵	00004305 42514804 ⁹ 43146503 ²⁷ 42975101 ²⁸ 43146503 ¹⁰ 43227803 ²⁹
- Plums/fresh prunes	5 [§180.163]	No ³⁰	00004305 42514805 ⁹
<u>Small Fruits and Berries Group</u>			
- Blackberries	5 [§180.163]	Yes ³¹	00004305
- Boysenberries	5 [§180.163]	Yes ³¹	00004305
- Dewberries	5 [§180.163]	Yes ³¹	00004305
- Grapes	5 [§180.163]	No ³²	00004305 40042024 ⁸
- Loganberries	5 [§180.163]	Yes ³¹	00004305
- Raspberries	5 [§180.163]	Yes ³¹	00004305
- Strawberries	5 [§180.163]	Yes ³³	00004305
<u>Tree Nuts Group</u>			
- Bushnuts	5 [§180.163]	No ³⁴	00004305
- Butternuts	5 [§180.163]	No ³⁴	00004305
- Filberts	5 [§180.163]	No ³⁴	00004305
- Hazelnuts	5 [§180.163]	No ³⁴	00004305
- Hickory nuts	5 [§180.163]	No ³⁴	00004305
- Pecans	5 [§180.163]	No ³⁴	00004305 40042022 ⁸

Table B (continued).

GLN: Data Requirements	Tolerances, ppm [40 CFR]	Must Additional Data Be Submitted?	References ¹
- Walnuts	5 [§180.163]	No ³⁴	00004305 40042023 ⁸
<u>Miscellaneous Commodities</u>			
- Cottonseed	0.1 [§180.163]	Yes ³⁵	00004305 40042025 ⁸ 40042027 ⁸ 41231906 42971406 ⁵
- Figs	5 [§180.163]	No ³⁶	00004305
- Hops	30 [§180.163]	No ³⁷	00004305 00022895 40944601 42160401 ¹⁵ 42971409 ⁵
- Mint	25 [§180.163]	No	00004272 00004322 00004323 00004324 00021700 00021701
171-4(l): Magnitude of the Residue in Processed Food/Feed			
- Apples	[none]	No ³⁸	40042026 ⁸
- Citrus	[none]	No ³⁹	40042029 ⁸
- Cottonseed	[none]	No ⁴⁰	40042027 ⁸ 42971410 ⁵
- Grapes	[none]	No ⁴¹	40042028 ⁸
- Mint	[none]	No	00004321 00021701
- Plums/prunes	[none]	No ⁴²	42514805 ⁹ 4314650510
- Tea	45 [§185.410]	No ⁴³	00021662 ⁴⁴ 00021680 00021682 00021683 00021668 00051013 00051015 42151101 ⁴⁵ 42214701 ⁴⁴ 42428001 ⁴⁶ 42611901 ⁴⁷
- Tomatoes	[none]	No ⁴⁸	42971411 ⁵

Table B (continued).

GLN: Data Requirements	Tolerances, ppm [40 CFR]	Must Additional Data Be Submitted?	References ¹
171-4 (j): Magnitude of the Residue in Meat, Milk, Poultry, and Eggs			
- Fat, meat, and meat byproducts of cattle, goats, hogs, horses, and sheep	[none]	No ⁴⁹	40042030 ⁸ 40644601 42971405 ⁵
- Milk	[none]	Yes ⁵⁰	40042030 ⁸ 40644601 42971405 ⁵
- Eggs, and the fat, meat, and meat byproducts of poultry		No ⁵¹	40042031 ⁸ 40644604 42971404 ⁵
165-1: Rotational Crops (Confined)		Yes ⁵²	40042042 ⁵³
165-2: Rotational Crops (Field)		Reserved ⁵⁴	

- References in **bold** were reviewed in the Dicofol Update of 9/10/91. Unbolded references were reviewed in the Residue Chemistry Science Chapter of the Reregistration Standard dated 12/83. Otherwise, references were reviewed as noted.
- Rohm and Haas has submitted proposed label revisions for their end-use products (EPA Reg. Nos. 707-201, 707-202, 707-204, 707-205, and 707-229), which were reviewed favorably by CBRS (CBRS No. 12732, DP Barcode D12732, 12/21/93, S. Funk), with the exception of the use on strawberries for which there are no supporting data. Label revisions for nuts that were reviewed favorably must be used on the labels. When end-use product DCIs are developed (e.g., at issuance of the RED), RD should require that all end-use product labels (e.g., MAI labels, SLNs, and products subject to the generic data exemption) be amended such that they are consistent with the basic producer labels.

Additional revisions are required for all end-use product labels. The grazing/feeding restrictions for uses on beans, cotton, cucurbits, hops, mint, peppers, and tomatoes must be deleted, as they are not enforceable or are otherwise inappropriate. Strawberries and caneberries must be removed from all labels.

The registrants must revise the product labels to impose a 1-month plantback interval for legume vegetables, a 4-month plantback interval for cereal grains, and a 1-year plantback interval for all other rotated crops.

- CBRS No. 1869, 5/27/87, S. Hummel.
- CBRS No. 6084, 5/9/90, R. Perfetti.

Table B (continued).

5. CBRS No. 12734, DP Barcode D196335, 4/14/94, S. Funk.
6. CBRS No. 9848, DP Barcode D178183, 8/13/92, S. Funk.
7. The proposed enforcement method for meat and milk adequately recovers dicofol and FW-152; this method must undergo independent laboratory validation. A method must be submitted for determination of dicofol and FW-152 in eggs (CBRS No. 12735, DP Barcode D196290, 3/16/94, S. Funk).

Method TR-310-86-74 for plant matrices must be validated by an independent laboratory.

8. CBRS No. 2578, 10/19/87, S. Hummel.
9. CBRS No. 11263, DP Barcode D186862, 8/27/93, S. Funk.
10. CBRS No. 13379, DP Barcode D200539, 4/14/94, S. Funk.
11. Sample storage information is required for some residue samples stored for 24 months.
12. The established tolerance for beans, dry, can be reduced from 5 to 0.5 ppm, based on maximum dicofol residues of 0.46 ppm in/on dry beans (MRID 41231907).
13. The feeding/grazing restriction on bean forage and hay is not practical and must be removed from the product labels. Consequently, tolerances are required for residues of dicofol in/on bean forage and hay. The available data (MRID 41231907) indicate that tolerances of 20 ppm for forage and 40 ppm for hay would be appropriate.
14. The established tolerance for beans, succulent, can be reduced from 5 ppm to 3 ppm, based on maximum dicofol residues of 2.09 ppm in succulent beans following registered use (MRID 42297201).
15. CBRS No. 9968, DP Barcode D178940, 9/23/92, F. Fort.
16. The established tolerance for lima beans should be revoked as lima beans are covered by the tolerance for beans, succulent.
17. The established tolerance for eggplant is supported by tomato and pepper residue data. Based on these data, the established tolerance for eggplant should be lowered from 5 ppm to 2 ppm. An amendment request to add eggplant to the Rohm and Haas Kelthane MF label (707-202) was reviewed favorably. CBRS No. 13520, DP Barcode D201807, 06/23/94, S. Funk.
18. The established tolerance for peppers can be lowered from 5 ppm to 2 ppm, based on a maximum residue of 1.15 ppm in/on peppers (MRID 40944603).

Table B (continued).

19. The tolerance for pimentos should be revoked, as pimentos are covered by the established tolerance for peppers. 40 CFR §180.34(f)(9)(viii). CBRS No. 13500, DP Barcode D201451, 05/21/94, S. Funk.
20. The established tolerance for tomatoes can be decreased from 5 ppm to 1 ppm, based on maximum residues of 0.46 ppm resulting from registered use (MRID 40944601).
21. The established tolerances for cantaloupes, cucumbers, melons, muskmelons, pumpkins, watermelons, and winter squash can be decreased from 5 ppm to 1 ppm, based on maximum residues of 0.45 ppm in/on cucumbers (MRID 40042020), and 0.35 ppm in melons (MRIDs 40042018 and -19) from registered uses. However, to achieve compatibility with the established Codex MRL, CBRS is recommending a tolerance of 2 ppm in/on cucumbers.
22. The established tolerance for summer squash can be lowered from 5 ppm to 2 ppm, based on maximum residues of 1.05 ppm in/on squash (MRID 40042021).
23. The established tolerances for apples, crabapples, and quinces should be increased from 5 ppm to 6 ppm, based on maximum dicofol residues in apples of 5.54 ppm (MRID 40042014).
24. The established 5 ppm tolerance pears should be increased to 10 ppm, based on maximum residues of 8.81 ppm (MRID 40042015 and -16).
25. The established tolerances for peaches, nectarines, and apricots can be lowered from 10 ppm to 5 ppm, based on maximum residues of 3.79 ppm in peaches (MRID 42975101). Residue data submitted for peaches will apply to apricots and nectarines.
26. The established tolerance for cherries can be lowered from 5 to 3 ppm, based on maximum residues of 2.82 ppm (MRID 42514806).
27. CBRS NO. 13379, DP Barcode D200539, 4/14/94, S. Funk.
28. CBRS No. 12735, DP Barcode D196290, 3/16/94, S. Funk.
29. CBRS No. 13711, DP Barcode D203428, 6/23/94, S. Funk.
30. The established tolerance for plums (fresh prunes) can be decreased from 5 ppm to 1 ppm, based on maximum residues of 0.84 ppm in plums (MRID 42514805).
31. IR-4 intends to provide residue data on caneberries. A minimum of five trials is required on blackberry or raspberry in the following geographic regions: region 2 (1), region 6 (1), and region 12 (3) for blackberry and region 1 (1), region 5 (1), and region 12 (3) for raspberry.

32. The established 5 ppm tolerance for grapes should be increased to 6 ppm, based on maximum residues of 5.19 ppm resulting from registered use (MRID 40042024).
33. The existing strawberry studies are inadequate. A total of eight trials must be conducted in the following regions: I (1), II (1), III or IV (1), V (1), X (3), and XII (1). The WP and EC formulations must each be tested at the maximum application rate in multiple applications and at the minimum PHI. A residue decline study must be conducted, and it may be one of the eight trials (CBRS No. 11945, DP Barcode D191597, 7/9/93, S. Funk; Pesticide Reregistration Rejection Rate Analysis Residue Chemistry; Follow-up Guidance for Number and Location of Domestic Crop Field Trials, 06/94, EPA 738-K-94-001.).
34. The data for pecans and walnuts will apply to bushnuts, butternuts, filberts, hazelnuts, and hickory nuts. The established tolerances for nuts can be decreased from 5 ppm to 0.1 ppm, based on nondetectable residues (<0.01 ppm) in pecans and walnuts (MRIDs 40042022 and -23). See Table A, footnote C, for label revision requirements.
35. CBRS now requires residue data for cotton gin byproducts (commonly called gin trash) which includes burrs, leaves, stems, lint, immature seeds, sand, and dirt. As these data requirements are based on Table II (06/94) for Subdivision O (Residue Chemistry) of the Pesticide Assessment Guidelines, they are considered confirmatory data and should not impede the reregistration process.
36. The use on figs is not being supported. All fig uses must be deleted from product labels and the tolerance must be revoked.
37. The currently established tolerance for hops (30 ppm) is based on data for green hops. However, the Agency now considers the RAC for hops to be hops, dried. The available residue data on dried hops (8.5% moisture) indicate dicofol residue levels of 5.52-64.3 ppm (MRID 42160401, CBRS No. 9968, DP Barcode D178940, 9/23/92, F. Fort). A revised tolerance of 65 ppm for residues in/on dried hops would be appropriate.
38. Residues concentrated ~9x in wet apple pomace. A feed additive tolerance of 60 ppm is needed for wet apple pomace, based on a tolerance for apples revised to 6 ppm.
39. Residues concentrated 88x in orange oil; therefore, a food additive tolerance of 900 ppm is needed.
40. Residues concentrated ~5x in crude and refined cottonseed oils; therefore food/feed additive tolerances of 0.5 ppm are needed.
41. Residues concentrated ~10x in raisins, ~6x in raisin waste, and ~1.3x in wet pomace; food/feed additive tolerances, respectively, of 60, 40, and 10 ppm are needed for these commodities.
42. Dicofol residues concentrated 4.3x in dried prunes. Therefore, a food additive tolerance of 5 ppm is needed for prunes.

Table B (continued).

43. EPA issued a Final Rule revoking the established tolerance (45 ppm) for residues of dicofol in dried tea (59 FR 10993, 3/9/94) to be effective 5/9/94. EPA is staying the effective date of the final rule (59 FR 23799, 5/9/94) owing to objections filed by the Dicofol Task force and the National Agricultural Chemical Association.

Rohm and Haas and Makhteshim-Agan have petitioned (PP#3E4218) for a RAC tolerance on "plucked tea" at 45 ppm. CBTS recommended against this petition, because the Agency considers dried tea leaves to be a processed commodity (CBTS No. 11835, DP Barcode D191011, 11/22/93, D. Davis).

44. These studies on tea (MRIDs 00021662 through 00051015) were not cited in the 1983 Guidance Document; these studies were reviewed in conjunction with PP#6H2025.

45. CBRS Nos. 9065/9467/9467/9469, DP Barcodes D171988/D174293/D174319, 4/7/92, J. Smith.

46. CBRS No. 10434, DP Barcode D181848, 9/25/92, S. Funk.

47. CBRS No. 11583, DP Barcode D189175, 4/26/93, S. Funk.

48. Residues concentrated 32x and 52x, respectively, in wet and dry tomato pomace. Therefore, a feed additive tolerance of 55 ppm is required for residues in tomato pomace, wet and dried, based on a revised tolerance for tomatoes at 1 ppm.

49. The re-calculated ruminant dietary burden is about 100 ppm. The 100 ppm feeding study has been evaluated (CBRS No. 12734, DP Barcode D196335, 4/14/94, S. Funk) for estimating appropriate ruminant tolerance levels. The data indicate that the following tolerances are appropriate for the combined residues of dicofol and FW-152 in ruminant tissues (but not milk):

Cattle, meat	6 ppm
Cattle, mbyp (excluding liver and kidney)	6 ppm
Cattle, kidney	4 ppm
Cattle, liver	4 ppm
Cattle, fat	75 ppm
Goats, meat	6 ppm
Goats, mbyp (excluding liver and kidney)	6 ppm
Goats, kidney	4 ppm
Goats, liver	4 ppm
Goats, fat	75 ppm
Hogs, meat	6 ppm
Hogs, mbyp (excluding liver and kidney)	6 ppm
Hogs, kidney	4 ppm
Hogs, liver	4 ppm
Hogs, fat	75 ppm
Horses, meat	6 ppm

Table B (continued).

Horses, mbyp (excluding liver and kidney)	6 ppm.
Horses, kidney	4 ppm
Horses, liver	4 ppm
Horses, fat	75 ppm
Sheep, meat	6 ppm
Sheep, mbyp (excluding liver and kidney)	6 ppm
Sheep, kidney	4 ppm
Sheep, liver	4 ppm
Sheep, fat	75 ppm

50. A new ruminant feeding study is required to determine the appropriate tolerance for milk. Lactating dairy cows must be fed dicofol at 1x, 3x, and 10x rates until dicofol plus FW-152 residues plateau in milk. After residues plateau, the distribution of dicofol and FW-152 in the separated components, skim milk and cream, must be determined. If the residue does not distribute exclusively in one component, then processing must be conducted to produce butter and cheese and the residues must be determined in these commodities (CBRS No. 12734, DP Barcode D196335, 4/14/94, S. Funk).

51. The recalculated dietary burden for poultry is 6 ppm and the highest feeding level in the existing studies is 5 ppm. Using the 5 ppm study and adjusting for the difference in theoretical and actual feeding levels, and assigning the fat residue concentrations to liver, for which no determinations were made, the following tolerances are deemed appropriate for the combined residues of dicofol and FW-152 in poultry tissues (CBRS No. 12734, DP Barcode D196335, 4/14/94, S. Funk):

eggs	2.0 ppm
poultry, fat	5.0 ppm
poultry, liver	5.0 ppm
poultry, mbyp (exc. liver)	1.0 ppm
poultry, meat	0.5 ppm

52. A new confined rotational crop study will be conducted. Existing data support a 1-month plantback interval for legume vegetables, a 4-month plantback interval for cereal grains, and a 1-year plantback interval for all other rotated crops (CBRS No. 12340, DP Barcode D193933, 2/24/94, S. Funk).

53. CBRS No. 12340, DP Barcode D193933, 2/24/94, S. Funk.
 CBRS No. 13713, DP Barcode D203431, 6/23/94, S. Funk.

54. Reserved, pending results of the confined rotational crop study. Plantback intervals in note #52 must be placed on labels.

TOLERANCE REASSESSMENT SUMMARY

Tolerances Listed Under 40 CFR §180.163:

The raw agricultural commodity tolerances listed under 40 CFR §180.163 are currently expressed in terms of dicofol *per se*. The listing of tolerances for residues in/on plant commodities should be designated 40 CFR §180.163(a), as a new section, 40 CFR §180.163(b), must be provided for the listing of animal tolerances expressed in terms of the combined residues of dicofol and its metabolite FW-152. Refer to Table C for modifications in commodity definitions.

Sufficient data are available to ascertain the adequacy of the established tolerances for the following commodities: apples, apricots, beans (dry), beans (succulent), beans (lima), bushnuts, butternuts, cantaloupes, cherries, chestnuts, cottonseed, crabapples, cucumbers, filberts, grapefruit, grapes, hazelnuts, hickory nuts, hops, kumquats, lemons, limes, melons, muskmelons, nectarines, oranges, peaches, pears, pecans, peppermint hay, peppers, pimentos, plums (fresh prunes), pumpkins, quinces, spearmint hay, summer squash, tangerines, tomatoes, walnuts, watermelons, and winter squash.

IR-4 will provide data for blackberries, boysenberries, dewberries, Loganberries, and raspberries. Data requirements for field tests on strawberries remain outstanding. Existing data are inadequate to evaluate the tolerances for caneberries and strawberries. There is no registered use for dicofol on figs; this tolerance should be revoked.

The established tolerances for bushnuts, butternuts, chestnuts, filberts, hazelnuts, hickory nuts, pecans, and walnuts can be lowered from 5 ppm to 0.1 ppm, based on nondetectable residues (<0.01 ppm) in/on pecans and walnuts following registered use.

The established tolerance for beans, dry, can be reduced from 5 to 0.5 ppm and the tolerance for beans, succulent, can be reduced from 5 ppm to 3 ppm. Maximum dicofol residues were 0.46 ppm in dry beans and 2.09 ppm in succulent beans following registered use. The established tolerance for lima beans should be revoked as lima beans are covered by the tolerance for beans, succulent.

The established tolerance for summer squash can be lowered from 5 ppm to 2 ppm and the established tolerances for cantaloupes, cucumbers, melons, muskmelons, pumpkins, watermelons and winter squash can be decreased from 5 ppm to 1 ppm. Maximum residues were 1.05 ppm in/on summer squash, 0.45 ppm in/on cucumbers, and 0.35 ppm in melons from registered uses. However, to achieve compatibility with the established Codex MRL, CBRS is recommending a tolerance of 2 ppm in/on cucumbers.

The established tolerance for peppers can be lowered from 5 ppm to 2 ppm, based on a maximum residue of 1.15 ppm in/on peppers, and the established tolerance for pimentos can be revoked as pimentos are covered by the tolerance on peppers. The established tolerance for tomatoes can be decreased from 5 ppm to 1 ppm, based on maximum residues of 0.46 ppm from registered use.

The established tolerances for peaches, nectarines, and apricots can be lowered from 10 ppm to 5 ppm, based on maximum residues of 3.79 ppm in peaches, and the established tolerance for plums (fresh prunes) can be decreased from 5 ppm to 1 ppm, based on maximum residues of 0.84 ppm in plums. The established tolerance for cherries can be lowered from 5 ppm to 3 ppm, based on maximum residues of 2.82 ppm in cherries.

The established tolerance for apples, crabapples, and quinces should be increased from 5 ppm to 6 ppm, based on maximum dicofol residues in apples of 5.54 ppm. The established 5 ppm tolerance for pears should be increased to 10 ppm, based on maximum residues of 8.81 ppm.

The established tolerance for grapes should be increased from 5 ppm to 6 ppm, based on maximum residues of 5.19 ppm in grapes resulting from registered use.

The currently established tolerance for hops is based on data for green hops. However, the Agency now considers the RAC for hops to be hops, dried (PR Notice 93-12, 12/23/93). The available residue data on dried hops (8.5% moisture) indicate dicofol residue levels of 5.52-64.3 ppm (CBRS No. 9968, DP Barcode D178940, 9/23/92, F. Fort). Therefore, the tolerance for hops, dried, as a RAC should be established at 65 ppm.

The feeding/grazing restriction on bean forage and hay is not practical and must be removed from the product labels. Consequently, tolerances are required for residues of dicofol in/on bean forage and hay. The available data indicate that tolerances of 20 ppm for forage and 40 ppm for hay would be appropriate.

In addition, CBRS now requires residue data for cotton gin byproducts (commonly called gin trash) which includes burrs, leaves, stems, lint, immature seeds, sand, and dirt. As these data requirements are based on the Updated Livestock Feeds Table for Subdivision O (Residue Chemistry) of the Pesticide Assessment Guidelines (6/94), they are considered confirmatory data and should not impede the reregistration process.

The following additional changes in established tolerances, although not specifically recommended in Table C, are appropriate:

Crop group tolerances of 10 ppm for the citrus fruits group and 2 ppm for the cucurbit vegetables group are appropriate. The establishment of these crop group tolerances would be concomitant with revocation of the individual established 10 ppm (citrus) tolerances for grapefruits, kumquats, lemons, limes, oranges, and tangerines and the individual established 5 ppm (cucurbit) tolerances for cantaloupes, cucumbers, melons, muskmelons, pumpkins, summer squash, watermelons, and winter squash.

The established tolerance for nectarines can be revoked, as nectarines are covered by the tolerance on peaches.

Tolerances needed under 40 CFR §180.163(b). The available livestock feeding studies have been evaluated and the data indicate that tolerances are needed on livestock commodities.

The maximum theoretical dietary burdens for cows and beef cattle, based on the reevaluated tolerances (Table C), are calculated to be 76 ppm and 95 ppm respectively. The theoretical diet is composed of apple pomace, spent hops, bean forage, and tomato pomace or raisin waste. Apple pomace is the largest contributor to the exposure (39% of cow exposure, 63% of beef exposure).

Maximum Theoretical Dietary Burden for Cows and Beef Cattle

Feed Item	Reassessed Tolerance (ppm)	% Dry Matter	Cow		Beef	
			% in Diet	Contribution (ppm)	% in Diet	Contribution (ppm)
Apple pomace (wet)	60	40	20	30	40	60
Bean, Forage	20	35	60	34	30	17
Bean, Hay	40	89	10	4.5	15	6.7
Citrus pulp (dry)	10	91	20	2.2	25	2.7
Cottonseed meal and seed	0.1	88	40	0.04	35	0.04
Hops, spent	55	86	10	6.4	30.5	13.2
Raisin waste	40	79	10	5.1	25	13
Tomato pomace (dry)	55	92	10	6.0	25	15
TOTAL			100	76	100	95

Recommendations for ruminant commodity tolerances are based on a 100 ppm feeding study (~1 - 1.3x the maximum theoretical dietary intake). Recommended poultry tolerances are based on data from a 5 ppm feeding study (~0.8x), adjusted for the difference between actual and theoretical feeding levels. A new section designated, 40 CFR §180.163(b), must be added to provide listings for the new tolerances required for the combined residues of dicofol and its metabolite FW-152 in meat, fat, and meat byproducts of cattle, goats, hogs, horses, sheep; and poultry, milk, and eggs. Sufficient data are available to determine appropriate tolerance levels for all animal commodities, except milk. The recommended tolerances are presented in Table C. Additional data are required on milk.

Tolerances Listed Under 40 CFR §185.410:

The food additive tolerance listed under 40 CFR §185.410 are currently expressed in terms of dicofol *per se*. EPA issued a Final Rule revoking the established food additive tolerance for residues of dicofol in dried tea (59 FR 10993, 3/9/94) to be effective 5/9/94. EPA is staying the effective date of the final rule (59 FR 23799, 5/9/94) owing to objections filed by the Dicofol Task force and the National Agricultural Chemical Association.

Additional food additive tolerances needed under 40 CFR §185.410. The available data from processing studies indicate that the following food additive tolerances are needed under 40 CFR §185.410: (i) citrus oil at 900 ppm, based on the 10 ppm tolerance for citrus fruits and

a concentration factor of 88x; (ii) prunes at 5 ppm, based on a recommended tolerance of 1 ppm for plums and a concentration factor of 4.3x; (iii) raisins at 60 ppm, based on a 6 ppm tolerance recommended for grapes and a concentration factor of 9.6x; and (iv) cottonseed oil, refined at 0.5 ppm, based on the 0.1 ppm tolerance for cottonseed and a concentration factor of ~5x.

Feed additive tolerances needed under 40 CFR §186.410. Sufficient data are available to determine that the following feed additive tolerances are needed: (i) apple pomace (wet) at 60 ppm, based on a recommended 6 ppm tolerance for apples and a concentration factor of ~9x in wet pomace; (ii) grape pomace (wet and dried) at 10 ppm, based on a recommended 6 ppm tolerance for grapes and a concentration factor of 1.3x; (iii) raisin waste at 40 ppm, based on a concentration factor of 5.8x; and (iv) tomato pomace (wet and dried) at 55 ppm, based on a recommended 1 ppm tolerance for tomatoes and a concentration factor of 52x in dried pomace. A new section, 40 CFR §186.410, must be added to provide for the listing of these feed additive tolerances.

Table C. Tolerance Reassessment Summary

Commodity	Current Tolerance (ppm)	Tolerance Reassessment (ppm)	Comment/Correct Commodity/Definition
Tolerances Listed Under 40 CFR §180.163 ^a			
Apples	5	6	
Apricots	10	5	
Beans (dry form)	5	0.5	<i>Beans, dry</i>
Beans, snap (succulent form)	5	3	<i>Beans, succulent</i>
Beans, lima (succulent form)	5	Revoke	Covered by tolerance for beans, succulent.
Beans, forage	None	20	Required by changes in Table II (06/94).
Beans, hay	None	40	Required by changes in Table II (06/94).
Blackberries	5	TBD ^b	Additional data required.
Boysenberries	5	TBD	Additional data required.
Bushnuts	5	0.1	
Butternuts	5	0.1	
Cantaloups	5	1	
Cherries	5	3	
Chestnuts	5	0.1	
Cottonseed	0.1	0.1	<i>Cotton, seed</i>
Cotton Gin Byproducts	None	TBD	Required by changes in Table II (06/94).
Crabapples	5	6	
Cucumbers	5	2	
Dewberries	5	TBD	Additional data required.
Eggplants	5	2	
Figs	5	Revoke	No registered use exists.
Filberts	5	0.1	
Grapefruit	10	10	
Grapes	5	6	
Hazelnuts	5	0.1	
Hickory nuts	5	0.1	
Hops	30	65	<i>Hops, dried</i>
Kumquats	10	10	
Lemons	10	10	
Limes	10	10	
Loganberries	5	TBD	Additional data required.

Table C (continued).

Commodity	Current Tolerance (ppm)	Tolerance Reassessment (ppm)	Comment/Correct Commodity/Definition
Melons	5	1	
Muskmelons	5	1	
Nectarines	10	5	
Oranges	10	10	
Peaches	10	5	
Pears	5	10	
Pecans	5	0.1	
Peppermint, hay	25	25	
Peppers	5	2	
Pimentos	5	Revoke	Covered by tolerance for peppers.
Plums (fresh prunes)	5	1	
Pumpkins	5	1	
Quinces	5	6	
Raspberries	5	TBD	Additional data required.
Spearmint, hay	25	25	
Strawberries	5	TBD	Additional data required.
Summer squash	5	2	<i>Squash, summer</i>
Tangerines	10	10	
Tomatoes	5	1	
Walnuts	5	0.1	
Watermelons	5	1	
Winter squash	5	1	<i>Squash, winter</i>
Tolerances Needed Under 40 CFR §180.163(b)			
Cattle, meat	None	6	
Cattle, mbyp (excluding liver and kidney)	None	6	
Cattle, kidney	None	4	
Cattle, liver	None	4	
Cattle, fat	None	75	
Eggs	None	2	
Goats, meat	None	6	
Goats, mbyp (excluding liver and kidney)	None	6	

Table C (continued).

Commodity	Current Tolerance (ppm)	Tolerance Reassessment (ppm)	Comment/Correct Commodity/Definition
Goats, kidney	None	4	
Goats, liver	None	4	
Goats, fat	None	75	
Hogs, meat	None	6	
Hogs, mbyb (excluding liver and kidney)	None	6	
Hogs, kidney	None	4	
Hogs, liver	None	4	
Hogs, fat	None	75	
Horses, meat	None	6	
Horses, mbyb (excluding liver and kidney)	None	6	
Horses, kidney	None	4	
Horses, liver	None	4	
Horses, fat	None	75	
Milk	None	TBD	Additional data required.
Poultry, fat	None	5	
Poultry, liver	None	5	
Poultry, mbyb (excluding liver)	None	1	
Poultry, meat	None	0.5	
Sheep, meat	None	6	
Sheep, mbyb (excluding liver and kidney)	None	6	
Sheep, kidney	None	4	
Sheep, liver	None	4	
Sheep, fat	None	75	
Tolerances Listed Under 40 CFR §185.410			
Dried tea	45	45	EPA is currently considering objections to revoking this tolerance./ <i>Tea, dried</i>
Tolerances Required Under 40 CFR §185.410			
Citrus, oil, refined	None	900	

Table C (continued).

Commodity	Current Tolerance (ppm)	Tolerance Reassessment (ppm)	Comment/Correct Commodity/Definition
Cottonseed oil, refined	None	0.5	
Grapes, raisins	None	60	
Prunes	None	5	
Tolerances required Under 40 CFR §186.410			
Apples, pomace, wet	None	60	
Grapes, pomace, wet and dried	None	10	
Grapes, raisin waste	None	40	
Tomatoes, pomace, wet and dried	None	55	

^a The listing of tolerances for residues in/on plant commodities should be designated 40 CFR §180.163(a), as a new section, 40 CFR §180.163(b), must be provided for the listing of animal tolerances expressed in terms of the combined residues of dicofol and its metabolite FW-152.

^b TBD = To be determined when all data requirements are satisfied.

ANTICIPATED RESIDUES

Anticipated residues for dietary risk for acute and chronic exposure will be determined and reported separately. Adequate field trial and/or survey data exist to determine anticipated residues of dicofol in all plant commodities with a registered dicofol use. Additionally, adequate feeding study data exist to determine residues of dicofol and FW-152 in all animal commodities except milk. Additional feeding studies have been requested for milk. Dicofol and FW-152 levels in milk will be estimated from existing feeding studies and the nature of the residue in ruminants study.

CODEX HARMONIZATION

Several maximum residue limits (MRLs) for dicofol have been established by Codex in various commodities. Codex MRLs and corresponding U.S. tolerances, both currently expressed in terms of dicofol *per se*, are listed in Table D.

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

Commodity	MRL (mg/kg) ^a	U.S. Tolerance (ppm) ^b	Recommendation/Comments
Cucumber	2	5	A U.S. tolerance of 2 ppm is recommended.
Fruit ^c	5	5; 10	The U.S. tolerances for some fruits cannot be lowered to 5 ppm.
Gherkin	2	None	

Table C (continued).

Commodity	MRL (mg/kg) ^a	U.S. Tolerance (ppm) ^b	Recommendation/ Comments
Hops (dry)	5	30	The U.S. tolerance cannot be lowered to 5 ppm. Increased to 65 ppm is recommended.
Strawberry	1	5	Although compatibility currently does not exist, data are needed to assess the U.S. tolerance.
Tea, green, black	5	45	Revocation of U.S. tolerance in process.
Tomato	1	5	The U.S. tolerance can be lowered to 1 ppm.
Vegetables ^c	5	5	Compatibility currently exists, although lowered U.S. tolerances are recommended for beans, cucurbit vegetables, and fruiting vegetables.

^a All dicofol MRLs are final (CXL). ^b Based on dicofol *per se*.

^c The 22nd CCPR agreed to consider deletion of the general CXL if requested information is not available to the next session (22.268).

The following conclusions can be made regarding efforts to harmonize U.S. tolerances with the Codex MRLs:

The U.S. tolerance for tomatoes can be lowered to 1 ppm, thereby achieving compatibility with the Codex MRL.

Additional data are required to assess the U.S. tolerance for strawberries.

Compatibility currently exists between the Codex MRL for "Vegetables" and applicable U.S. tolerances. However, as the CCPR is considering deletion of this general CXL, CBRS is recommending for the lowering of the U.S. tolerances.

Based on the currently registered use pattern, dicofol residues in/on dried hops would exceed the Codex MRL. The U.S. tolerance cannot be lowered to achieve compatibility.

Compatibility currently exists between the Codex MRL for "Fruits" and some of the applicable U.S. tolerances. However, based on the currently registered use pattern, dicofol residues would exceed the Codex MRL in some fruits and these U.S. tolerances cannot be lowered to achieve compatibility.

The U.S. tolerance for tea, dried, is currently facing revocation.

AGENCY MEMORANDA CITED IN THIS DOCUMENT

CBRS No.: 13379
DP Barcode: D200539
Subject: Upgrades for Peach, Cherry, and Plum/Prune Field trials. Apple Field Trials.. Analytical Method for Citrus.
From: S. Funk
To: L. Propst
Dated: 04/14/94
MRID(s): 43146501 through -05

CBRS No.: 12734
DP Barcode: D196335
Subject: Registrant Response to Subject Registration Standard Update
From: S. Funk
To: L. Propst
Dated: 04/14/94
MRID(s): 42971402 and 42971411

CBRS No.: 12735
DP Barcode: D196290
Subject: Enforcement Analytical Method for Animal Commodities. Additional Peach Field Trials.
From: S. Funk
To: L. Propst
Dated: 03/16/94
MRID: 40644601 and 42975101

CBRS No.: 12340
DP Barcode: D193933
Subject: Confined Rotational Crop Study.
From: S. Funk
To: L. Propst and J. Loranger
Dated: 02/24/94
MRID(s): 40042042

CBRS No.: 12732
DP Barcode: D196223
Subject: Reregistration of Dicofol (Kelthane); List A, Case.0021, Chemical 010501
From: S. Funk
To: L. Propst
Dated: 12/21/93
MRID: None

CBRS No.: 11835
DP Barcode: D191011
Subject: Dicofol in/on Plucked Tea. Evaluation of Commodity Definition Change and Residue Data.
From: D. Davis
To: M. Johnson and D. Edwards
Dated: 11/22/93
MRID(s): None

CBRS No.: 11263
DP Barcode: D186862
Subject: Dicofol (Chemical 010501; List A; Case 0021): Plant Analytical Methods (171-4(c)) and Magnitude of the Residue In/On Stone Fruit (171-4(k)).
From: S. Funk
To: L. Propst
Dated: 08/27/93
MRID(s): 42524802 and 42514806

CBRS No.: 11945
DP Barcode: D191597
Subject: Reregistration of Dicofol (Kelthane); List A, Case 0021, Chemical 010501. Registrants' Progress Report and SRRD Requests.
From: S. Funk
To: L. Rossi and L. Propst
Dated: 07/09/93
MRID: 42514800

CBRS No.: 11583
DP Barcode: D189175
Subject: Dicofol: Amendment #1 to Magnitude of the Residue in Black Tea, Green Tea, Instant Tea, and Brewed Tea. Case No. 0021. Chemical No. 010501.
From: S. Funk
To: N. Zahedi and J. McQueen
Dated: 04/26/93
MRID(s): 42611900 and 42611901

CBRS No.: None
Subject: The Metabolism Committee Meeting Held on September 2, 1992:
Dicofol Plant and Animal Metabolism
From: S. Funk
To: The Metabolism Committee, HED
Dated: 09/29/92
MRID: None

CBRS No.: 10434
Subject: Dicofol: Magnitude of the Residue in Black Tea, Green Tea, Instant
Tea, and Brewed Tea.
From: S. Funk
To: A. Sibold and J. Kariya
Dated: 09/25/92
MRID(s): 4242800 and 4242801

CBRS No.: 9968
DP Barcode: D178940
Subject: Dicofol. Case No. 0022. 90-Day Response to the DCI, dated
September 30, 1991.
From: F. Fort
To: H. Toma and L. Propst
Dated: 09/23/92
MRID(s): 42160401 and 42297201

CBRS No.: 10179
DP Barcode: D180337
Subject: Dicofol. Amended Label for Kelthane EC.
From: S. Knizner
To: M. Johnson and H. Toma
Dated: 09/02/92
MRID: None

CBRS No.: 10180
DP Barcode: D180418
Subject: Dicofol. Amended Label for Kelthane MF.
From: S. Knizner
To: M. Johnson and H. Toma
Dated: 09/02/92
MRID: None

CBRS No.: 9848
DP Barcode: D178183
Subject: Reregistration of Dicofol. 171-4(b). Nature of the Residue in Laying Hens and Lactating Goats: Supplemental Data.
From: S. Funk
To: L. Rossi
Dated: 08/13/92
MRID(s): 42276100, 42275101, and 42276102

CBRS No.: 9065, 9467-9469
DP Barcode: D171988, D174293, D174319
Subject: Dicofol on Tea. Data from Residue Field Trail Conducted in Japan in 1974; Protocol and Preliminary Data from on-going trails in India; Makhteshim-Agan Response to EPA's proposal to Revoke the Food Additive Tolerance for Dicofol on TEA.
From: J. Smith
To: A. Siebold
Dated: 04/07/92
MRID: 42214701 and 42151101

CBRS No.: None
Subject: Dicofol Product and Residue Chemistry Reregistration Standard Updates.
From: E. Zager
To: L. Rossi and W. Burnam
Dated: 09/10/91
MRID: None

CBRS No.: 6870
Subject: EPA Reg. No. 707-205 Dicofol on Raspberries WA90-00022 24(c) Request for Kelthane 35WP State of Washington Dept. Agriculture Letter of 7/6/90.
From: S. Hummel
To: D. Edwards and M. Johnson
Dated: 10/12/90
MRID: None

CBRS No.: 6084
Subject: Rohm and Haas Co. and Makhteshim-Agan (America) Response to the Dicofol Reregistration Standard: Tomato Metabolism Study
From: R. Perfetti
To: R. Engler and L. Rossi
Dated: 05/09/90
MRID(s): 41231900 and 41231901

CBRS No.: 2578
Subject: 010501 - Dicofol. Rohm and Haas Response to Registration Standard Residue Data and Feeding Studies
From: S. Hummel
To: D. Edwards
Dated: 10/19/87
MRID(s): 40042001 to -02 and -09 to -31

CBRS No.: 1869
Subject: 010501 - Dicofol. Rohm and Haas Response to Registration Standard
Metabolism, Methodology, and Residue Data.
From: S. Hummel
To: D. Edwards
Dated: 05/27/87
MRID(s): 40042001 to -31

MASTER RECORD IDENTIFICATION NUMBERS

References (used to support established tolerances):

00004272 Rohm and Haas Company (1961) Report: Analytical Results of Residue on Peppermint Hay. (Unpublished study received Jun 17, 1965 under PP0390; CDL:090422-B)

00004275 Gordon, C.F. (1962) Dichlorobenzhydrol in Mint Oil. Includes method dated Dec 4, 1962. (Unpublished study received Jun 17, 1965 under PP0390; submitted by Rohm & Haas Co., Philadelphia, Pa.; CDL:090422-M)

00004305 Rohm and Haas Company (1957) Explanatory Notes on Residue Data. (Unpublished study received Oct 12, 1957 under PP0154; CDL: 090180-K)

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00004322 Lawrence, S.C. (1964) Analytical Results of 4,4'-Dichlorobenzophenone (DCBP) Residue. (Unpublished study received Jan 28, 1966 under 6F0472; submitted by Rohm & Haas Co., Philadelphia, Pa.; CDL:090524-L)

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