

US EPA ARCHIVE DOCUMENT

1-22-90

Shaughnessy No.: 81901

Date Out of EFGWB: \_\_\_\_\_

TO: Joanne Miller  
Product Manager # 23  
Registration Division (H7505C)

FROM: Michael R. Barrett, Acting Head  
Ground-Water Technology Section  
Environmental Fate & Ground-Water Branch/EFED (H7505C)



THRU: Henry Jacoby, Chief  
Environmental Fate & Ground-Water Branch/EFED (H7507C)

Attached, please find the EFGWB review of:

Reg./File #: 50534-7

Chemical Name: chlorothalonil (Bravo®)

Type Product: fungicide

Product Name: Bravo, N-96, Daconile

Company Name: SDS Biotech Corp., Fermenta Plant Protection Co., and others

Purpose: Review letter (attached) and evaluate potential for leach-  
ing of chlorothalonil and degradates into ground water

Date Received : 11/21/89

Action Code: 400

Date Completed: January 22, 1990

EFGWB # (s): 90269

Monitoring study requested: X

Total Review Time: 7 days

Monitoring study voluntarily:     

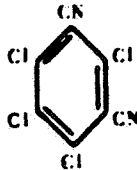
Deferrals To:      Ecological Effects Branch

  X   Health Effects Division

1. Chemical: Common names: chlorothalonil

Chemical name: 2,4,5,6-tetrachloroisophthalonitrile

Structure:



2. TEST MATERIAL: N/A

3. STUDY/ACTION TYPE: Review/evaluate data and determine mobility/persistence and potential for contaminating ground water. Respond to registrant's complaint of the enclosed EPA letter which confirms classification of chlorothalonil as a priority pesticide on the National Pesticide Survey.

4. STUDY IDENTIFICATION:

Capps, T.M. 1982. Adsorption and desorption of chlorothalonil to soils. Document No. 555-4EF-0216-001. Diamond Shamrock Corp., Painesville, OH. Acc. No. 259753. (No MRID)

Nelson, T.R. 1985. An aged soil leaching study with <sup>14</sup>C-chlorothalonil (2,4,5,6-tetrachloroisophthalonitrile). Document No. 720-3EF-85-0001001. SDS Biotech Corp., Painesville, OH. Acc. No. 259753 (No MRID)

5. REVIEWED BY:

John H. Jordan, Microbiologist  
OPP/EFED/EPGWB/Ground-Water Section

Signature:

Date: 1/22/90

6. APPROVED BY:

Michael R. Barrett, Acting Head  
OPP/EFED/EPGWB/Ground-Water Section

Signature:

Date: 1/23/90

7. CONCLUSIONS:

The Ground-Water Technology Section agrees with the January 5, 1989 EPA letter (enclosed) which confirmed the priority classification of chlorothalonil on the National Pesticide Survey.

Chlorothalonil is stable to hydrolysis and photolysis and has a 1/2 life in soil of from one to two months. The parent is a B<sub>2</sub> oncogen, has been detected in groundwater, and is moderately persistent and moderately mobile in sand soils. The major degradate, 4-hydroxy-2,5,6-trichloroisophthalonitrile, was mobile in soils ranging in textures from sand to silty clay loam.

MRID  
153730  
- 153732

The Toxicology Branch (HFA) indicated that the parent compound and the manufacturing contaminant, hexachlorobenzene (HCB), are of toxicological concern. HCB is classified as a B<sub>2</sub> oncogen and degrades at a slower rate than chlorothalonil. The chlorothalonil Health Advisory is 2.0 ppb. Partially acceptable mobility/leaching data indicate that small scale retrospective ground-water monitoring is necessary to determine the full potential of chlorothalonil to contaminate ground-water.

In the final (1990) chlorothalonil Registration Standard, the Agency concluded that chlorothalonil and several of its degradates have the potential to reach shallow ground water. The conclusion was based on monitoring data and environmental fate characteristics, and small scale retrospective parent and degradates ground-water monitoring was required. A field dissipation study has been completed but additional soils and degradate information are being required before acceptance by the Agency. If a long-term field dissipation study is required, it can be waived in lieu of the ground-water monitoring studies. The Registration Standard stated that additional data are required to fully evaluate the potential for chlorothalonil to contaminate ground water.

#### 8. RECOMMENDATIONS:

The persistence, mobility and toxicological data of chlorothalonil and its degradates indicate that small scale retrospective ground-water monitoring should be required. The registrant must submit their proposed study to EFGWB for review before the study is initiated. A long term field dissipation study will not be required, because ground-water monitoring will replace the need for the study. Additional data, i.e., photodegradation in water and on soil, aerobic soil metabolism, lab volatility, field dissipation, and ground-water monitoring are necessary to fully evaluate the potential for chlorothalonil to contaminate ground water. EFGWB recommends that chlorothalonil remain on the priority list of pesticides until all pertinent data are submitted and evaluated and evidence is presented to conclude otherwise.

#### 9. BACKGROUND:

Chlorothalonil is a broad spectrum nonsystemic protectant fungicide registered for use on various field and vegetable crops, orchard crops, greenhouse, ornamental (and turf), terrestrial nonfood, and industrial sites (incorporation in paints and stains). Chlorothalonil is also used as a cotton seed treatment. Application rates range from 0.75 to 12.25 lbs. ai/A. Chlorothalonil may be formulated with carbaryl, sulfur, dicofol, dinocap, diazinon, fenaminosulf, and aromatic petroleum derivatives. Applicators need not be certified or under the direct supervision of certified applicators.

Chlorothalonil and degradates were reported in the ground water of Suffolk County New York at the 16.3 ppb level; no range was given. Parent was found in Massachusetts ground-water ranging from 0.22 ppb to 0.38 ppb.

The Suffolk County Department of Health and the Fermenta Plant Production Co. recently cooperated in sampling private drinking water wells. The Suffolk County Health Department reported that 11 of 67 wells tested positive for chlorothalonil; the highest positive test was 12.6 ppb. Contamination was attributed to normal agriculture use practices.

EPA designated chlorothalonil as a priority on the National Pesticide Survey. The subject review evaluated the registrant's request to remove chlorothalonil from the Agency's list of priority pesticides which have a high potential for leaching into groundwater.

#### 10. DISCUSSION:

The registrant informed the Agency that their mobility data were misinterpreted and that chlorothalonil should not be placed as a priority on the National Pesticide Survey list. There was some confusion in the interpretation of adsorption data constants which give an indication of mobility, ( see Capps, T.M., 1982). The registrant reported mobility constants as Freundlich  $K_f$ , but the first EPA reviewer misinterpreted the  $K_f$  values as Koc values, and therefore mobility was misinterpreted. The correct interpretation of the adsorption constants shows that the mobility of parent is low to immobile in all soils except sands where it is moderately mobile. A second EF&GW reviewer corrected the mistake. [Please refer to page 3 of the 7/25/88 memorandum from Ricerea, Inc., (Attachment 1) for further clarification]

Annual use of chlorothalonil is estimated at about 9 million pounds ai. Approximately 88% of the total poundage is used on field and vegetable crops; two-thirds of the 88% (> 5 million lbs.) is applied to peanuts. Peanuts are traditionally grown on the sandier (vulnerable) soils of the Southeastern U.S., and multiple applications of Bravo® end use product could cause ground-water contamination in the peanut growing areas. The label application rate recommendation for peanuts is 1-1/2 pounds per acre of 75% ai Bravo® after 30 to 40 days growth and repeated applications at 10-14 day intervals, as needed, up to 14 days before harvest. Ground-water monitoring should include sufficient representative peanut use, and other use areas, to indicate the potential for ground-water contamination.

After re-reviewing the data, the Ground-Water Section agreed with the second EF&GW reviewer, and the registrant, that chlorothalonil parent is only slightly mobile to immobile except in sands where it is moderately mobil. However, because the parent is oncogenic and can leach in vulnerable (sandy) areas, and the contaminant, HCB, is also oncogenic and more persistent than chlorothalonil, the Ground-Water Section recommends that ground-water monitoring be required. We also recommend that chlorothalonil remain classified as "priority" on the National Pesticide Survey.

Use this form for individual studies & to submit pesticide applications.



United States Environmental Protection Agency  
Office of Pesticide Programs  
Washington, DC 20460  
**Data Review Record**  
Confidential Business Information - Does not contain  
National Security Information (E.O. 12065)

Pack Number  
**48867**  
Date Received  
**11/1/89**  
**11/21/89 JAT**

1. Product Name					Chemical Name <b>Chlorothalonil</b>
2. Identifying Number	3. Record Number	4. Action Code	5. MRID/ Accession Number	6. Study Guideline or Narrative	
<b>50534-7</b>	<b>237,667</b>	<b>400</b>			

7. Reference No. <b>28</b>	8. Date Rec'd (EPA) <b>11-28-88</b>	9. Prod/Review Mgr/DCI <b>ROSSI</b>	10. PM/RM Team No. <b>2/32 (F10)</b>	11. Date to HED/EFED/RD/BEAD <b>06/JAN/89</b>	12. Proj Return Date <b>07/06/89</b>	13. Date Returned to RD/SRRD
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Instructions  
*Please REVIEW attached letter w/ regards to leaching into groundwater*

*This Section Applies to Review of Studies Only*

14. Check Applicable Box	15. No. of Individual Studies Submitted
<input type="checkbox"/> Adverse 6(a)(2) Data (405) <input type="checkbox"/> Special Review Data (870) <input type="checkbox"/> Generic Data (Reregistration)(660) <input type="checkbox"/> Product Specific Data (Reregistration)(655)	
16. Have any of the above studies (in whole or in part) been previously submitted for review? <input type="checkbox"/> Yes (Please identify the study(ies)) <input type="checkbox"/> No	17. Related Actions

18.	To	Type of Review	19. Reviews Also Sent to	20. Data Review Criteria
HED		Science Analysis & Coordination	<input type="checkbox"/> SAC <input type="checkbox"/> PC	A. Policy Note No. 31 <input type="checkbox"/> 1 = data which meet 6(a)(2) or meet 3(c)(2)(B) flagging criteria <input type="checkbox"/> 2 = data of particular concern from registration standard <input type="checkbox"/> 3 = data necessary to determine tiered testing requirements
		Toxicology/HFA	<input type="checkbox"/> TOX/HFA <input type="checkbox"/> PL	
		Toxicology/IR	<input type="checkbox"/> TOX/IR	
		Dietary Exposure	<input type="checkbox"/> DEB <input type="checkbox"/> EA	
		Nondietary Exposure	<input type="checkbox"/> NDE <input type="checkbox"/> AC	
EFED	<input checked="" type="checkbox"/>	Ecological Effects	<input type="checkbox"/> EEB <input type="checkbox"/> BA	B. Section 18 <input type="checkbox"/> 1 = data in support of section 3 in lieu of section 18
	<input checked="" type="checkbox"/>	Environmental Fate & Groundwater	<input type="checkbox"/> EFGWB	
	<input checked="" type="checkbox"/>	Special Review		
SRRD		Reregistration	<input type="checkbox"/> SR	C. Inert Ingredients <input type="checkbox"/> 1 = data in support of continued use of List 1 inert
		Generic Chemical Support	<input type="checkbox"/> RER	
RD		Insecticide-Rodenticide	<input type="checkbox"/> GSC	
		Fungicide-Herbicide		
		Antimicrobial	<input type="checkbox"/> IR	
		Product Chemistry	<input type="checkbox"/> FH	
BEAD		Precautionary Labeling	<input type="checkbox"/> AM	
		Economic Analysis		
		Analytical Chemistry		
		Biological Analysis		

Confidential Statement of Formula (EPA Form 8570-4) Attached (Trade Secrets)  Label Attached

5

Use this form for individual studies & to submit pesticide applications.



United States Environmental Protection Agency  
Office of Pesticide Programs  
Washington, DC 20460

**Data Review Record**

Confidential Business Information - Does not contain  
National Security Information (E.O. 12065)

Pack Number

48867

Date Received

11/1/89  
11/21/89

1. Product Name					Chemical Name <i>Chlorothalonil</i>
2. Identifying Number	3. Record Number	4. Action Code	5. MRID/ Accession Number	6. Study Guideline or Narrative	
50534-9	237,667	400			

7. Reference No. 28	8. Date Rec'd (EPA) 11-28-88	9. Prod/Review Mgr/DCI ROSSI	10. PM/RM Team No. 2/32 (FIOL)	11. Date to HED/ EFED/RD/BEAD 06/JAN/89	12. Proj Return Date 07/06/89	13. Date Returned to RD/SRRD
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Instructions  
*Please REVIEW attached letter w/ responds to teaching unit  
groundwater*

*This Section Applies to Review of Studies Only*

14. Check Applicable Box <input type="checkbox"/> Adverse 6(a)(2) Data (405) <input type="checkbox"/> Special Review Data (870) <input checked="" type="checkbox"/> Generic Data (Reregistration) (660) <input checked="" type="checkbox"/> Product Specific Data (Reregistration) (655)	15. No. of Individual Studies Submitted
16. Have any of the above studies (in whole or in part) been previously submitted for review? <input type="checkbox"/> Yes (Please identify the study(ies)) <input type="checkbox"/> No	17. Related Actions

18.	To	Type of Review	19. Reviews Also Sent to	20. Data Review Criteria
HED		Science Analysis & Coordination	<input type="checkbox"/> SAC <input type="checkbox"/> PC	A. Policy Note No. 31 <input type="checkbox"/> 1 = data which meet 6(a)(2) or meet 3(c)(2)(B) flagging criteria <input type="checkbox"/> 2 = data of particular concern from registration standard <input type="checkbox"/> 3 = data necessary to determine tiered testing requirements
		Toxicology/HFA	<input type="checkbox"/> TOX/HFA <input type="checkbox"/> PL	
		Toxicology/IR	<input type="checkbox"/> TOX/IR	
		Dietary Exposure Nondietary Exposure	<input type="checkbox"/> DEB <input type="checkbox"/> EA <input type="checkbox"/> NDE <input type="checkbox"/> AC <input type="checkbox"/> BA	
EFED	<input checked="" type="checkbox"/>	Ecological Effects Environmental Fate & Groundwater	<input type="checkbox"/> EEB <input type="checkbox"/> EFGWB	B. Section 18 <input type="checkbox"/> 1 = data in support of section 3 in lieu of section 18 C. Inert Ingredients <input type="checkbox"/> 1 = data in support of continued use of List 1 inert
SRRD		Special Review Reregistration Generic Chemical Support	<input type="checkbox"/> SR	
RD		Insecticide-Rodenticide	<input type="checkbox"/> RER	
		Fungicide-Herbicide	<input type="checkbox"/> GSC	
		Antimicrobial	<input type="checkbox"/> IR	
		Product Chemistry Precautionary Labeling	<input type="checkbox"/> FH <input type="checkbox"/> AM	
BEAD		Economic Analysis Analytical Chemistry Biological Analysis		

Confidential Statement of Formula (EPA Form 8570-4) Attached (Trade Secrets)  Label Attached



November 16, 1988

Mr. Larry Schnaubelt (21)  
Acting Product Manager  
Fungicide-Herbicide Branch  
Registration Division (TS-767C)  
Office of Pesticide Programs  
U.S. Environmental Protection Agency  
Crystal Mall No. 2  
1921 Jefferson Davis Highway  
Arlington, VA 22202

Dear Mr. Schnaubelt:

**SUBJECT: CHLOROTHALONIL POTENTIAL FOR  
LEACHING INTO GROUNDWATER**

There has been a significant misinterpretation of results of studies which were submitted to EPA which have led to an invalid conclusion that there is a high leaching potential for chlorothalonil. Environmental fate data developed by our company for chlorothalonil over the years demonstrate a low potential for leaching. Thus, it is inconsistent for chlorothalonil to appear on the EPA list of priority pesticides which have a high potential for leaching into groundwater. We are requesting that the Agency reassess the data used to establish the mobility classification for chlorothalonil.

We are of the opinion that confusion has arisen due to the way in which the soil adsorption constants for chlorothalonil were interpreted. As discussed in Attachment 1 which accompanies this letter, the study titled "Adsorption and Desorption of Chlorothalonil to Soil" T.M. Capps 8/16/82, reported the adsorption measurements in terms of the Freundlich constants KF. The conclusions that at least one EPA reviewer drew from this study were that "chlorothalonil was mobile in silty clay loam, silt loam and sandy loam soils and very mobile in sandy soils." We think this conclusion may have arisen because the reviewer misinterpreted the KF values and used them on a scale intended for Koc. The potential for movement for chlorothalonil in fact, ranges from immobile to low mobility.

#### **ADSORPTION/DESORPTION EXPERIMENTS**

The adsorption and desorption of <sup>14</sup>C-chlorothalonil in soils were investigated. The soil types utilized were silty clay loam, silt, sand, and sandy loam soils. The equilibration times were determined for each soil with a 0.5 ug/g (ppm) solution of <sup>14</sup>C-chlorothalonil.



November 16, 1988  
Page 2

The adsorption/desorption study was conducted at four <sup>14</sup>C-chlorothalonil concentrations (0.5, 0.4, 0.2, and 0.1 ppm). The adsorption and desorption of a standard reference compound (<sup>14</sup>C-DDT) were determined on the same soils.

The average Koc values for the adsorption of chlorothalonil to soil over the concentration range 0.1 ppm to 0.5 ppm were 3,300 for silty clay loam, 14,000 for silt, 1,300 for sandy loam, and 1,600 for sand. These show there is little potential for chlorothalonil to leach.

#### FIELD STUDY

An aquatic field study was conducted to determine the potential for runoff and movement of chlorothalonil and/or its metabolites to an adjacent pond. The results showed that although some chlorothalonil was detected in runoff water (almost entirely bound to soil particles carried with the runoff water) there was no degradation of the quality of the water or sediment in the pond as no accumulation of chlorothalonil or its metabolites occurred over the season of use. On golf courses, the movement of soil particles with runoff water is virtually nonexistent.

In summary, chlorothalonil has been shown to present little potential for environmental contamination through volatility, leaching or accumulation in soils.

It would be appreciated if EPA would correct their records to these facts. Chlorothalonil should certainly be removed from the Agency's list of priority pesticides which have a high potential for leaching into groundwater.

Very truly yours,

FERMENTA PLANT PROTECTION COMPANY,



Jerry R. Lucietta  
Manager, Regulatory Affairs

JRL/jmh

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Page \_\_\_\_\_ is not included in this copy.

Pages 9 through 11 are not included.

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The material not included contains the following type of information:

- Identity of product inert ingredients.
  - Identity of product impurities.
  - Description of the product manufacturing process.
  - Description of quality control procedures.
  - Identity of the source of product ingredients.
  - Sales or other commercial/financial information.
  - A draft product label.
  - The product confidential statement of formula.
  - Information about a pending registration action.
  - FIFRA registration data.
  - The document is a duplicate of page(s) \_\_\_\_\_.
  - The document is not responsive to the request.
- 

The information not included is generally considered confidential by product registrants. If you have any questions, please contact the individual who prepared the response to your request.

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CASE GS0097      CHLOROTHALONIL      STUDY 3      PM 400 08/03/82

CHEM 081901      Chlorothalonil

BRANCH EAB      DISC --

FORMULATION 00 - ACTIVE INGREDIENT

FICHE/MASTER ID No MRID      CONTENT CAT 01  
Capps, T.M. 1982. Adsorption and desorption of chlorothalonil to soils.  
Document No. 555-4EF-81-0216-001. Diamond Shamrock Corporation, Painesville,  
OH. Acc. No. 259753.

SUBST. CLASS = S.

DIRECT RVW TIME =      (MH) START-DATE      END DATE

REVIEWED BY: K. Patten  
TITLE: Staff Scientist  
ORG: Dynamac Corp., Rockville, MD  
TEL: 468-2500

APPROVED BY: H. Boyd  
TITLE: Chemist  
ORG: EAB/HED/OPP.  
TEL: 557-7463

DATE:

SIGNATURE:

CONCLUSIONS:

Mobility - Leaching and Adsorption/Desorption

1. This study is scientifically valid.
2. [14C]chlorothalonil (radiochemical purity >97%) was mobile in silty clay loam, silt loam, and sandy loam soils, and very mobile in sand soil. Freundlich Kads values were 26 for a silty clay loam soil, 29 for a silt soil, 20 for a sandy loam soil, and 3 for a sand soil equilibrated with 0.1-0.5 ppm of [14C]chlorothalonil (radiochemical purity >97%) in a 1:4 soil: 0.03 N calcium sulfate slurry. The soils had been sieved through 250 μ (silty clay loam and silt soils) and 590 μ (sandy loam and sand soils) screens prior to use. Between 1.8 and 28.4% of the adsorbed chlorothalonil was desorbed from the soils.
3. This study partially fulfills EPA Data Requirements for Registering Pesticides by providing information on the adsorption and desorption of chlorothalonil in four soils.

MATERIALS AND METHODS:

Air-dried silty clay loam and silt soils were sieved through a 250 μ screen, and air-dried sand and sandy loam soils were sieved through a 590 μ screen

2. TEST MATERIAL:

See individual studies.

3. STUDY/ACTION TYPE:

Addendum to a Standard.

4. STUDY IDENTIFICATION:

The following studies are new submittals:

Capps, T.M. 1982. Adsorption and desorption of chlorothalonil to soils. Document No. 555-4EF-81-0216-001. Diamond Shamrock Corporation, Painesville, OH. Acc. No. 259753. (No MRID)

Nelsen, T.R. 1985. An aged soil leaching study with <sup>14</sup>C-chlorothalonil (2,4,5,6-tetrachloroisophthalonitrile). Document No. 720-3EF-85-0001001. SDS Biotech Corporation, Painesville, OH. Acc. No. 259753. (No MRID)

Szalkowski, M.B. 1981. Determination of vapor pressure of 2,4,5,6-tetrachloroisophthalonitrile (chlorothalonil, DS-2787). Document No. 416-3EI-800162-001. Diamond Shamrock Corporation, Painesville, OH. Acc. No. 259753. (No MRID)

5. REVIEWED BY:

Hudson Boyd  
Chemist  
EAB/HED/OPP

Signature: Hudson Boyd

Date: 7/3/86

6. APPROVED BY:

Emil Regelman  
Supervisory Chemist  
Review Section #3, EAB/HED/OPP

Signature: Emil Regelman

Date: AUG 1 1986

7. CONCLUSIONS:

7.1 Mobility/Leaching

Aged residues of chlorothalonil as judged by column leaching studies are slightly mobile in sandy loam, silt loam, and clay loam soils and mobile in sand soils. The degradates 3-carboxy-2,5,6-trichlorobenzamide (SDS-46851), 2-hydroxy-5-cyano-3,4,6-trichlorobenzamide (SDS-47525), and 4-hydroxy-2,5,6-trichloroisophthalonitrile (SDS-3701) are mobile in all four soils; 3-cyano-2,5,6-plus 3-cyano-2,4,5-trichlorobenzamide (SDS-47524/3) are mobile in sandy loam, silt loam, and sand soils.

Unaged chlorothalonil is only slightly mobile in silty clay, silt, and sandy soil as shown by Freundlich  $K_{ads}$  values of 26, 29, and 20, respectively. Less than 4% of the adsorbed pesticide was desorbed from silty clay loam and less than 7% from the silty soil upon each of two dilutions. In contrast, the Freundlich  $K_{ads}$  value for sand soil was shown to be 3, and up to about 28% was desorbed upon dilution, indicating a fairly high mobility in sand.

→ ✓ These studies fulfill the EPA requirements for leaching (adsorption/desorption) and for mobility of aged residues of chlorothalonil in soils, per Sec. 163-1.

## 7.2 Volatility

→ With a vapor pressure of  $5.72 \times 10^{-7}$  @ 25°C (Szalkowski, 1981, Study 2 attached) and LD<sub>50</sub> of > 10,000 mg/kg (Farm chemicals Handbook) chlorothalonil is unlikely to cause adverse effects on man or the environment through vaporization. By providing data on vapor pressure the registrant has fulfilled EPA Guidelines requirements for volatility studies on chlorothalonil per Sec. 163-2,3.

## 8. RECOMMENDATIONS:

- ✓ 8.1 Accept the data from the column leaching and adsorption/desorption studies for the requirements of Subdivision N, Sec. 163-1.
- ✓ 8.2 Accept the data from the vapor pressure study in conjunction with published data on toxicity in fulfillment of the requirements of Subdivision N, Sec. 163-2,3.

## 9. BACKGROUND:

### A. Introduction

#### Information on Previously Reviewed Studies

The agency has issued the Chlorothalonil Registration Standard.

A previous addendum was finalized November 26, 1985.

### B. Directions for Use

Chlorothalonil is a broad spectrum nonsystemic protectant fungicide registered for use on various field and vegetable crop, orchard crop, greenhouse, ornamental (including turf), terrestrial nonfood, and industrial sites (incorporated into paints and stains). Chlorothalonil is also used as a cotton seed treatment. Of the chlorothalonil used in the United States, ~ 88% is applied to field and vegetable crops, with ~ 66% of this applied



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

WASHINGTON, D.C. 20460

JAN 5 1989

*1/13 -  
EPA files - please  
return when review  
is completed. Patrick*

OFFICE OF  
WATER

Mr. Jerry R. Lucietta  
Manager, Regulatory Affairs  
Fermenta Plant Protection Company  
5966 Heisley Road  
P.O. Box 8000  
Mentor, Ohio 44061-8000

Dear Mr. Lucietta:

This is in response to your letter of November 16, 1988, to Gerald Kotas concerning the characterization of chlorothalonil as a priority pesticide. Please excuse the delay in responding as Jerry has moved to another office.

We are in agreement on the adsorption data on chlorothalonil. The EPA review attached to your letter did incorrectly describe chlorothalonil as "mobile" in silty clay loam, silt loam, and sandy loam soils, and "very mobile" in sand soil. However, we did not use this reviewer's qualitative interpretation of the data during the selection of analytes for the National Pesticide Survey (NPS). The selection of NPS analytes took place between 1984 and 1985. In that effort, the adsorption partition coefficient (overall  $K_d$ ) for chlorothalonil was characterized as 3.0-29.0, with the lower values indicating slight mobility in sandy soils. This is essentially equivalent to the range of 5.5-24.0 derived for sand and sandy loam soils in your letter.

Chlorothalonil was added to the list because of data indicating persistence in soil and water, as well as its toxicity profile. Data available in 1984 indicated a terrestrial field dissipation half-life of greater than 4 weeks. The terrestrial field dissipation study as well as the aerobic soil metabolism study are currently identified as data gaps for chlorothalonil. The hydrolysis data indicated no degradation during the 30-day experimental period at pHs 5 and 7, and only 10% degradation at pH 9. These persistence characteristics are typical of leaching pesticides. During the selection of NPS analytes, its rating as a Class B2 carcinogen with a  $10^{-6}$  cancer risk concentration of 2.0 ppb made chlorothalonil a candidate for inclusion in the Survey.

Additionally, there was some indication that the 4-OH metabolite may have more mobility than parent chlorothalonil. However, during NPS analytical methods development, it was determined that this metabolite could not be accurately measured with NPS methods, and was subsequently dropped from consideration.

As you aware, the Fermenta Plant Protection Company recently cooperated with the Suffolk County Department of Health in Long Island in sampling of private drinking water wells. The wells were specifically targeted as being near dacthal use areas: sod farms and onion fields, for example. As chlorothalonil also has similar uses as dacthal, a subset of samples were additionally analyzed for chlorothalonil. The results indicated that 11 of 67 samples tested positive for chlorothalonil with a high positive of 12.6 ppb. The Suffolk County Department of Health attributes these findings to normal use practices. Even though Long Island is legitimately a worst-case hydrogeologic environment, these data do indicate some mobility of chlorothalonil.

The "\*Priority" designation of National Pesticide Survey analytes originated in 1986. The selection of analytes in 1984-85 resulted in a list of approximately 60 pesticides that can be best described as pesticides of most concern to the EPA Offices of Pesticide Programs and Drinking Water (cosponsors of the NPS) in regard to ground water. Pesticides appeared on this list primarily because their environmental fate characteristics were judged conducive to leaching (i.e., mobility and persistence typical of "leachers"), but also because of documented appearance in ground water, toxicity concerns, and other related considerations.

Because of this data from Long Island, and the persistence and toxicity profiles of chlorothalonil, we feel that the "priority" criteria as described above has been met. If I can assist you in any other way, please do not hesitate to call or write.

Sincerely,



James J. Boland, Acting Director  
National Pesticide Survey