DP Barcode: D160485
Shaughnessy No.: 059101
Date Out of EFGWB: APR 4 1991

TO: Lois Rossi/J. Edwards
Product Manager #74
Registration Division (H7505C)

FROM: Akiva D. Abramovitch, Ph.D., Section Chief
Environmental Chemistry Review Section #3
Environmental Fate & Ground Water Branch/EFED (H7507C)

THRU: Hank Jacoby, Chief
Environmental Fate & Ground Water Branch
Environmental Fate and Effects Division (H7507C)

Attached, please find the EFGWB review of...

Reg./File # : Submission # S389243, Case #818975

Chemical Name: Chlorpyrifos

Type Product : Insecticide

Product Name : DURSBAN Turf Insecticide

Company Name : DowElanco

Purpose : Review protocol for field dissipation (warm season and cool season) of turgrass insecticide.

Date Received: 1/24/91 EFGWB#: 91-0366 Time (days): ____

Action Code: 310 Total Review Time (days): 1.0

Deferrals to:

____ EEB/EFED ____ DEB/HED ____ TB1/HED

____ SIPS/EFED ____ OREB/HED ____ TB2/HED

DP BARCODE: D160485 REREG CASE #

CASE: 818975 DATA PACKAGE RECORD DATE: 01/22/91
SUBMISSION: S389243 BEAN SHEET Page 1 of 1

* * * CASE/SUBMISSION INFORMATION * * *

CASE TYPE: REREGISTRATION ACTION: 660 GENERIC DATA REREGIS
CHEMICAL: 059101 Chlorpyrifos (O,O-diethyl O-(3,5,6-trichloro-2-pyridyl) ph
ID#: 059101
COMPANY: 74 LOIS ROSSI 8084 3J2
PRODUCT MANAGER: XXXXXXXXXXXXXXXXXX 703-308-XXXX ROOM: CST XXX
PM TEAM REVIEWER: JOANNE EDWARDS 703-308-8046 ROOM: CST 2D6
RECEIVED DATE: 01/14/91 DUE OUT DATE: 05/14/91

* * * DATA PACKAGE INFORMATION * * *

DP BARCODE: 160485 EXPEDITE: N DATE SENT: 01/22/91 DATE RET.: / /
DP TYPE: 001 Submission Related Data Package
ADMIN DUE DATE: 04/22/91 CSF: LABEL:

ASSIGNED TO	DATE IN	DATE OUT
DIV : EFED	01/24/91	/ /
BRAN: EFGB	/ /	/ /
SECT:	/ /	/ /
REVR :	/ /	/ /
CONTR:	/ /	/ /

* * * DATA PACKAGE REVIEW INSTRUCTIONS * * *

No instructions are written for this Data Package.

* * * ADDITIONAL DATA PACKAGES FOR THIS SUBMISSION * * *

DP BC	BRANCH/SECTION	DATE OUT	DUE BACK	INS	CSF	LABEL

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DowElanco

Protocol No.: 90126
Project No.: H91-01R

Date: November 26, 1990

The Field Dissipation of Chlorpyrifos Applied to Cool-Season Turfgrass

PROTOCOL

North American Environmental Chemistry Laboratory
DowElanco
9001 Building, Midland, Michigan 48641-1706

EPA Guideline Reference No. 164-1

Problem No. 17702

Proposed Dates: Start: 12/90 Complete: 5/92 Report: 10/92

Testing Facility: Heartland Technologies, Incorporated
6060 Castleway Drive West
Suite #130
Indianapolis, IN 46250

Sponsor: DowElanco
North American Environmental Chemistry Laboratory
9001 Building
Midland, MI 48641-1706

Signatures:

DowElanco Study Director K.D. Racke — K.D. Racke — 12/3/90 — Date

Contract Investigator Wayne Olson — W.A. Olson — 11/27/90 — Date

Environmental Group Manager Dennis Laskowski — D.A. Laskowski — 11/30/90 — Date

Product Registration Manager G.R. Oliver — G.R. Oliver — 11/29/90 — Date

Product Development Manager M.C. Shaw — M.C. Shaw — 11/28/90 — Date

DowElanco Quality Assurance D.G. Keyes — D.G. Keyes — 12/3/90 — Date

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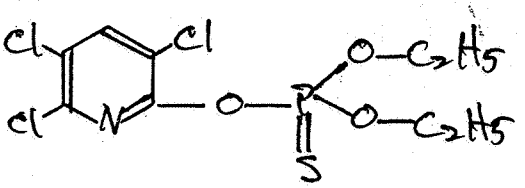
1.0 CHEMICAL:

Common Name- Chlorpyrifos

Chemical Name- O,O-diethyl O-(3,5,6-trichloro-2-pyridyl) phosphorothioate

Trade Name- Dursban

Chemical Structure-



2.0 TEST MATERIAL: Maximum label rate (4 lb AI/A) of DURSBAN Turf Insecticide.

3.0 STUDY/ACTION TYPE: Based upon expected data requirements for the Reregistration of Chlorpyrifos, the registrant has submitted protocols for Field Dissipation studies (164-1) of chlorpyrifos (in the End-Use product DURSBAN Turf Insecticide) applied to warm-season (FL) and cool-season (IN) turfgrass.

4.0 PROTOCOL/DOCUMENT IDENTIFICATION:

1. The Field Dissipation of Chlorpyrifos Applied to Warm-Season Turfgrass. Study Director: K. Racke. Protocol No. 90125. Dated Nov 26, 1990.

2. The Field Dissipation of Chlorpyrifos Applied to Cool-Season Turfgrass. Study Director: K. Racke. Protocol No. 90126. Dated Nov 26, 1990.

3. Letter from G.R. Oliver of DowElanco dated 10 Jan 1991 to PM 74 outlining request for review of protocols.

4. Letter from K. Racke of DowElanco, dated 4 Jan 1991, to G.R. Oliver of DowElanco describing some features of the protocols.

5.0 REVIEWED BY:

Herbert L. Manning, Ph.D.
Microbiologist, EFGWB/EFED

Signature: Herbert L. Manning
Date: APR 3 1991

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6.0 APPROVED BY:

Akiva D. Abramovitch, Ph.D., Chief
Section 3, EFGWB/EFED

Signature: Akiva Abramovitch
Date: APR 3 1991

7.0 CONCLUSION:

7.1 The EFGWB has no objections to the use of these protocols to conduct terrestrial, field dissipation studies, provided the soils are characterized according to the USDA classification system.

8.0 RECOMMENDATION:

8.1 Inform the registrant that the EFGWB has no objections to the use of these protocols to conduct terrestrial, field dissipation studies, provided the soils are characterized according to the USDA classification system.

9.0 BACKGROUND:

A. Introduction- See Section 3 and the attached information.

B. Direction for Use- Not applicable.

10.0 DISCUSSION OF INDIVIDUAL STUDY:

Application will be made in late spring of 1991 to two sites: a cool-season site in IN and a warm-season site in FL. The two sites allow the treatment of the two principal turfgrass varities. The two protocols are essentially identical, differing only slightly in the size of the plots. Both bare ground and turfgrass plots will be treated. A copy of the warm-season protocol is attached.

11.0 COMPLETION OF ONE-LINER: Not applicable.

12.0 CBI APPENDIX: There is no CBI in this review.

Page_____ is not included in this copy.

Pages 6 through 13 are not included.

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.

DowElanco
P.O. Box 1706, 9001 Building
Midland, MI 48641-1706
FAX: (517) 638-9232

January 4, 1991

DowElanco

George R. Oliver
DowElanco
Quad III Building
9002 Purdue Road
Indianapolis, IN 46268

Dear George:

I am writing in regard to two study protocols for chlorpyrifos field dissipation studies in turf:

The Field Dissipation of Chlorpyrifos Applied to Cool-Season Turfgrass
The Field Dissipation of Chlorpyrifos Applied to Warm-Season Turfgrass

These protocols deal with studies that will be conducted during late spring of 1991, and I am requesting that you send the protocols to the Environmental Protection Agency for their review and comment prior to study initiation. The purpose of these studies is to investigate the behavior of chlorpyrifos applied to turf and provide data for both our benefit and for reregistration of this compound. I have listed below some key characteristics of the design of these studies and the underlying rationale:

1. Site Selection. Because chlorpyrifos is widely used on turfgrass it is important to investigate its behavior in more than one geographical location. There are basically two varieties of turgrasses: cool-season and warm season species. To cover both of these different types of turfgrasses and to obtain information from different areas I selected 2 sites for the study. The first site will in Indiana on plots with cool-season turfgrass. The second site will be in Florida on plots with warm-season turfgrass.

2. Plot Design. Due to the density of turfgrass sod, under normal conditions very little chlorpyrifos would reach the soil following an application. However, to encompass both typical and worst-case scenarios two treatments will be used at both the Indiana and the Florida site: turf plots treated with chlorpyrifos and bare soil plots treated with chlorpyrifos. The plot design includes triplicate plots of each treatment as well as both untreated turf and untreated bare soil control plots. Soil samples from each replicate will be analyzed separately to provide both an estimate of dissipation pattern and its associated variability.

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3. Application and Management.
Chlorpyrifos will be applied to all treated plots at the maximum label application rate by ground spray equipment. The plots will be irrigated, fertilized, and mowed according to standard turf practice so as to accurately simulate typical use conditions.

4. Sampling Regime.
A number of studies have been conducted to investigate the persistence of chlorpyrifos in turf. Two of the most sound studies have reported dissipation half-lives of around 2 weeks (Kuhr and Tashiro, 1978. *Bull. Environ. Toxicol.* 20:652-656; Sears and Chapman, 1979. *J. Econ. Entomol.* 72:272-274). Therefore, the majority of soil sampling will occur within the first 8 weeks (4 half-lives), although longer term samples (8 and 12 months) will be taken so that the fall and decline of the major metabolite, 3,5,6-trichloro-2-pyridinol, may be elucidated. Neither previous turf study detected significant movement of chlorpyrifos into the soil profile. Chlorpyrifos is strongly sorbed to soil (K_{OC} = 8000) and previous field dissipation studies have revealed that chlorpyrifos does not leach. Therefore, sampling depth will be limited to 90 cm.

I trust that the above discussion will explain some of the rationale behind the design of these turf studies. I look forward to receiving any helpful comments or ideas the EPA reviewer might offer.

Sincerely,

Kenneth D. Racke

Kenneth D. Racke, Ph.D.
Environmental Fate Group
Phone: 517-636-6090

DowElanco
9002 Purdue Road
Indianapolis, IN 46268-1189

January 10, 1991

DowElanco

Joanne Edwards
Special Review and Reregistration Division (H7508C)
U.S. Environmental Protection Agency
Westfield Bldg., 3rd Floor
Crystal Station #1
2805 Jefferson Davis Highway
Arlington, VA 22202

Dear Ms. Edwards:

**SUBJECT: CHLORPYRIFOS REREGISTRATION (DOCKET NO. 2921-88-2)
REQUEST FOR REVIEW OF PROTOCOLS FOR FIELD DISSIPATION STUDIES ON TURF**

Based on the comments contained in the draft second round Reregistration Standard for chlorpyrifos (dated August, 1989), we believe one type of study which will be requested in the final Standard is field dissipation on turf. We plan to initiate these studies in 1991 and would appreciate the Agency's review of the following two protocols.

1. The Field Dissipation of Chlorpyrifos Applied to Warm-Season Turfgrass. Study Director: K. Racke. Protocol No. 90125. Dated November 26, 1990.

2. The Field Dissipation of Chlorpyrifos Applied to Cool-Season Turfgrass. Study Director: K. Racke. Protocol No. 90126. Dated November 26, 1990.

In addition to the protocols, I have attached to each protocol a copy of a letter (dated January 4, 1991) from Dr. Ken Racke, who will serve as study director, explaining the rationale for the proposed study designs. We are requesting the Agency's review of these protocols since the proposed designs deviate somewhat from the typical crop field dissipation study due to the nature of the use and the properties of the compound.

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