

US EPA ARCHIVE DOCUMENT

Shaughnessy No.: 59101

Date Out of EFGWB: JUL 11 1990

TO: Edwards/Andreasen  
Product Manager #12  
Registration Division (H7505C)

FROM: Henry Nelson, Ph.D., Acting Section Head *H. Nelson*  
Environmental Chemistry Review #3  
Environmental Fate and Groundwater Branch/EFED (H7507C)

THRU: Hank Jacoby, Chief *Hank Jacoby*  
Environmental Fate and Groundwater Branch  
Environmental Fate and Effects Division (H7507C)

Attached, please find the EFGWB review of:

Reg./File #(s): 464-404

Common Name: Chlorpyrifos

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

Type of Product: Insecticide

Product Name: Dursban

Company Name: Dow Chemical

Purpose: Photodegradation on soil and in air protocols

Date Received: 3/27/90

Action Code: 352

EFGWB #(s): 90-0476

Total Reviewing Time: 1.0

Deferrals to:  Ecological Effects Branch/EFED  
 Science Integration & Policy/EFED  
 Non-Dietary Exposure Branch/HED  
 Dietary Exposure Branch/HED  
 Toxicology Branch I/HED  
 Toxicology Branch II/HED

1. CHEMICAL:

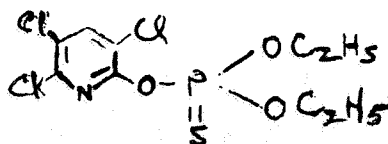
Common Name: Chlorpyrifos

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

Type of Product: Insecticide

Trade Name: Durbsan

Chemical Structure:



Physical/Chemical Properties

molecular weight: 350.6

physical state: white solid

aqueous solubility: 0.5-2 ppm

vapor pressure:  $1.9 \times 10^{-5}$  mm of Hg.

2. TEST MATERIAL:

See attached protocols.

3. STUDY/ACTION TYPE:

Protocols for conducting photodegradation on soil and in air studies.

4. STUDY IDENTIFICATION:

The following protocols attached to a letter dated 3/9/90 from G. Oliver of Dow Elanco to D. Edwards of RD/OPP:

(1) Havens PL. 1990. Design for studying the photochemical degradation of chlorpyrifos on soil by natural sunlight.

(2) Havens PL. 1990. Design for studying the photochemical degradation of chlorpyrifos in the vapor phase by natural sunlight.

5. REVIEWED BY:

Henry Nelson, Ph.D., Acting Section Head  
Environmental Chemistry Review Section #3  
Environmental Fate and Groundwater Branch/EFED

*H Nelson*  
Date: 7/5/90

6. APPROVED BY:

Emil Regelman, Supervisory Chemist  
Environmental Chemistry Review Section #2  
Environmental Fate and Groundwater Branch/EFED

*E Regelman*  
Date: JUL 11 1990

7. CONCLUSIONS:

The protocols for conducting photodegradation on soil (161-3) and photodegradation in Air (161-4) studies are acceptable with the following revisions:

(1) The provision of material balances is implied but not explicitly stated in either protocol. Material balances should be provided for each sampling interval.

(2) At least one of the proposed 5 sampling intervals after time 0 in both protocols should be after the half-life which can be crudely estimated from preliminary runs.

(3) A 60 degree angle from horizontal (not vertical based upon the diagram) is proposed for the photochamber in the photodegradation in air protocol " to match the sun's position at high light intensity periods." That is acceptable if the 60° angle does match the sun's position at high light intensity periods, but additional information should be provided in the study report to support the choice of 60 instead of 90°.

(4) If material balances significantly decrease during the photodegradation in air study, the walls of the photochamber should be extracted with organic solvents at the conclusion of the study to determine if adsorption of the parent and/or degradates to the chamber walls may be responsible.

8. RECOMMENDATIONS:

See conclusions

9. BACKGROUND:

Chlorpyrifos is an insecticide used to control a wide variety of insects. Various formulations containing chlorpyrifos as the active ingredient are registered for use on field and vegetable crops (corn accounts for 57% of use), tree fruit and nut crops, ornamentals, turf, domestic indoor and outdoor uses, commercial establishments, aquatic non-food uses, terrestrial non-food uses, animal housing, beef cattle, and dogs.

10. DISCUSSION:

See conclusions.

11. COMPLETION OF ONE-LINER:

Not applicable.

12. CBI INDEX:

Not applicable.

# DOWELANCO

March 9, 1990

P.O. Box 1706  
Midland, Michigan 48641-1706

Mr. Dennis Edwards  
Product Manager (12)  
Registration Division (H7504C)  
U.S. Environmental Protection Agency  
Room 202, Crystal Mall #2  
1921 Jefferson Davis Highway  
Arlington, VA 22202

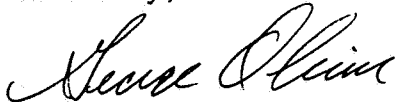
Dear Mr. Edwards:

**SUBJECT: REQUEST FOR AGENCY REVIEW OF TESTING PROTOCOLS  
CHLORPYRIFOS  
PHOTOLYSIS-AIR, SOIL**

Enclosed are copies of the draft protocols for planned soil and vapor-phase photolysis studies with chlorpyrifos. We will be submitting the results from these studies to fulfill expected data requirements for the registration/re-registration of products containing the active ingredient chlorpyrifos. Since according to the Scientific Reviews associated with the draft version of the second round of the Registration Standard for Chlorpyrifos, previously submitted studies in these test areas were considered unacceptable due to the procedures used, we would appreciate the Agency's review of the enclosed protocols prior to our initiating the studies.

Thank you for your assistance. If any questions arise during the review, please do not hesitate to contact Dr. Patrick Havens, the Study Director, at (517)636-3041 or myself at (517)636-8158.

Sincerely,



George R. Oliver  
Product Registration Manager

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Pages 5 through 15 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.
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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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