

US EPA ARCHIVE DOCUMENT

9-27-77

CB
Rushmore
File petition

EEE BRANCH REVIEW

DATE: IN _____ OUT _____ IN 3/30/77 OUT 9/27/77 IN _____ OUT _____
FISH & WILDLIFE ENVIRONMENTAL CHEMISTRY EFFICACY

FILE OR REG. NO. 454-448

PETITION OR EXP. PERMIT NO. 6F1786

DATE DIV. RECEIVED 5/12/76

DATE OF SUBMISSION _____

DATE SUBMISSION ACCEPTED 5/14/76

TYPE PRODUCT(S): (I) D, H, F, N, R, S

PRODUCT MGR. NO. 12-Sanders

PRODUCT NAME(S) Lorsban

COMPANY NAME Dow Chemical Co.

SUBMISSION PURPOSE New use on sweet potatoes.

CHEMICAL & FORMULATION Chlorpyrifos ([O,O-Diethyl-O-(3,5,6-Trichloro-2-Pyridyl)phosphorothioate] and aromatic petroleum derivative solvent) Lorsban

1.0 Introduction

1.1 Chlorpyrifos, Lorsban, Dursban, Dowco 179, ENT 2731.

1.2 EC formulation

Percent Active:

Chlorpyrifos	40.7
Aromatic petroleum solvent	22.8

Contains 4 lbs of Chlorpyrifos per gallon.

1.3 Submission for new use on Sweet Potatoes

2.0 Sweet Potatoes Pints Lorsban 4E per A.

Mix the specified dosage with sufficient water to obtain uniform coverage and apply as a coarse spray to the soil surface. After application, incorporate the insecticide into the soil to a depth of 4 to 6 inches using a rotary hoe, disc cultivator, or other suitable incorporation equipment. Plant the crop in the usual manner as soon as possible after treatment. Do not make more than one application per season.

2.1 Disposal

Keep out of lakes, streams, ponds, tidal marshes and estuaries. Do not apply where runoff is likely to occur. Do not apply when weather conditions favor drift from treated areas. Do not contaminate water by cleaning of equipment or disposal of wastes. Use this product only as specified on this label.

Do not reuse empty container for any purpose. Promptly crush or perforate and bury with wastes in a location away from water supplies. Follow official local pesticide container disposal regulations where applicable.

3.0 Discussion of Data

Data has been previously reviewed under the following numerical listings.

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6720-EAA	8/3/76
9782-LU	6/11/76
9198-GT	6/10/76
299-72	5/3/76
464-448, 449, 523	5/2/76
5G-1595	3/13/76
464-448	12/6/75
3F 1306	4/2/74
3F 1306	2/15/73
464-ULN	
464-LRT	8/13/75
464-368	8/13/75
6F 1673	10/6/75
464 EXP	3/5/74
464-EXP	3/26/74
464-LRN	3/4/74
464-EXP	3/20/74
4F 1445	3/4/74
3F 1370	5/18/73
464-448	10/12/76

No new EC data submitted or referenced.

4.0

Conclusions

The following studies have been submitted previously and accepted, we have not validated old data.

1. Hydrolysis
2. Microbial
3. Adsorption
4. Leaching persistence, degradation, and decomposition
5. Volatility
6. Photodegradation
7. Fish Accumulation
8. Stability in Dipped Vats
9. Lab Testing Soil
10. Dursban dripping into flowing water by drip method for irrigation.
11. Persistence in Salt Marsh Habitat
12. Insecticide in Temporarily Submerged Soils
13. Mosquito Control.

We note that this use in comparison to others is proportionally different. This use involves an incorporation method (4-6") of a nonplanted field, with the proposed treatment crop planted soon afterwards. We also note that the a.i. applied is two lbs; which is from 2-60X over rates used in other use patterns (turf-tree fruit).

Since the agricultural practice is for incorporation, we can delete the photodegradation on soil and on surfaces for this use. We note that there are no field dissipation, aged leaching, or rotational crop data submitted nor referenced. We have some data on isolated crops at 2 lbs ai/A, the ownership is not defined. Residues do occur 119 days from application to planting in wheat, sugar beets, and soybeans (not an actual use condition study). We also note that the previously accepted studies may not have been on the incorporation technique (leaching for sure); and based on the field dissipation, aged leaching, and rotational crop; these studies may not be germane if substantial differences in fate occur.

5.0 Recommendations

5.1 We cannot concur with the proposed new use on sweet potatoes for Chlorpyrifos. (Lorsban 4E).

5.2 The following data which are required (data gaps) were not submitted nor referenced.

1. Aged leaching study.
2. Field Dissipation study.
3. Rotational crop study.

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PM Note:

- A. Photodegradation on soil surfaces is also required for this use, but the agricultural practice (incorporation to a depth of 4-6"), does not lend itself to be germane. We do not need this.

- B. Rotational crop data not submitted nor referenced. We have some data on file, the ownership is not defined. There are problems (residues in rotated crops [soybeans, sugarbeets, and wheat]) from the use of 2 lbs ai Lorsban 4E/A. The study was not done under actual use conditions.
- C. The use in comparison with other uses is proportionately different in:
 - 1. Incorporation.
 - 2. Active/A (2-60X depending on use).
 - 3. Old data may not have been done on the agricultural practice of incorporation.
 - 4. Based on data that we receive from section 5.2, old data may not be germane if significance ^{difference} in fate is shown.
- D. We have not validated previous (old) data. This type of review is pending upon concurrence from Mr. Compt. See memo From Dr. Rogoff to Mr. Compt - March 17, 1977.

5.3

The following paragraphs are examples of acceptable protocol for data which are required and have not been submitted nor referenced, for example:

- 1. Leaching. Leaching through soil is dependent upon pesticide formulation, physical and chemical properties of pesticide and soil and environmental conditions. Add pesticide to soil(s) corresponding to the highest recommended rate for a single application and study leaching using radioisotopic or comparable techniques to provide a quantitative estimate of mobility in soil. Each study will include soils as sand (agricultural), sandy loam, silt loam, clay or clay loam having a pH range of 4 to 8 with at least one soil having an organic matter content less than one percent. Use a minimum

of four soils to study pesticide leaching and elute each immediately with the equivalent of twenty acre-inches water. Use one of the above soils to study leaching of pesticide residues wherein the pesticide is aged in soil under aerobic conditions for thirty days prior to eluting with the equivalent of one-half acre-inches water per day for forty-five days. Two basic techniques for measuring leaching are soil column and soil thin-layer chromatography (soil TLC).

2. Field dissipation. A field dissipation study under actual use conditions is required. Continue analyses until a ninety percent loss of the pesticide occurs or until patterns of formation and decline of degradation products are established, or to the maximum time specified. Sampling times include pre-application, and shortly post-application for each single or multiple application. Succeeding samples are dependent upon degradation and metabolism characteristics and potential for reentry. Identification of residues comprising more than ten percent of initial application or 0.01 ppm is needed for the registrant to construct decline curves of residues. If multiple applications are anticipated then this use pattern must be reflected in the study.

Field and vegetable crop uses. Take soil samples in increments to a depth of 12 inches from sites in four agricultural use areas for a maximum test duration of eighteen months.

3. Rotational crops. Studies are required to establish if pesticide residue uptake occurs in rotational crops, emergency replanting, or in situations where crops receive water from treated areas. The applicant must identify crops that can be rotated in the proposed use areas. Treat a sandy loam soil with radiolabeled pesticide at a rate equivalent to that expected under actual use conditions. Following treatment, age the pesticide aerobically for a time approximating the

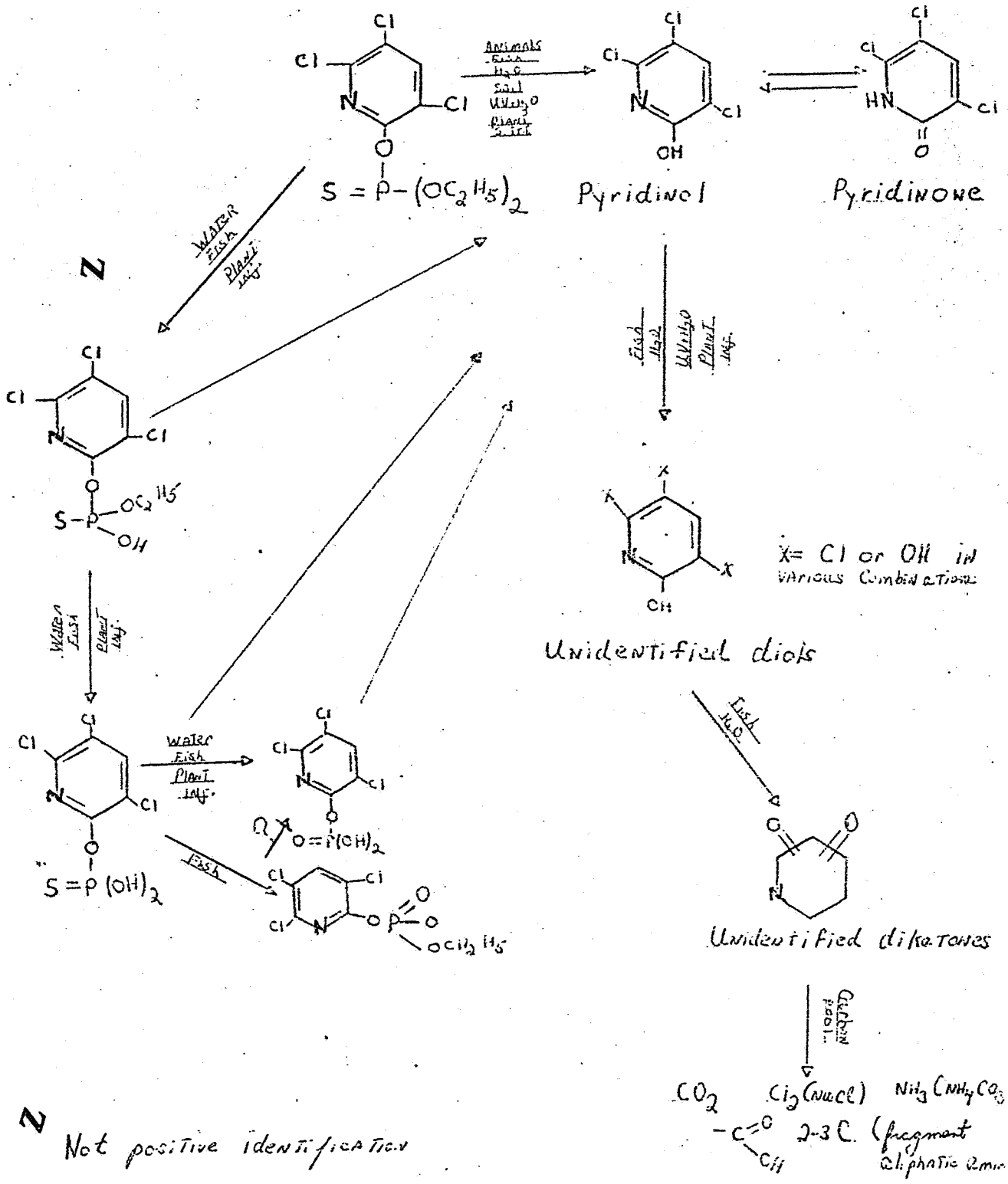
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anticipated cultural practice; for example, one year for crops rotated the following year, 120 days for crops rotated immediately after harvest, and 30 days for assessing circumstances of crop failure. Plant a root crop, small grain and leafy vegetable crop at the above times and periodically analyze to maturity. When residues are found, a field study using formulated products shall be undertaken to determine when residues would not occur in subsequent crops under actual use conditions is required for those practices where a subsequent crop is treated with the same active ingredient as the initial crop. This study is not required for a cover crop if typically plowed under and not grazed. A crop residue study under actual field use conditions is required where water from treated areas, including holding ponds or effluent and other discharges, is typically used to irrigate crops.

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Metabolism Chart Chlorpyrifos



Note: Reaction in water may be enhanced by presence of metallic ions (Cu).

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