

8-13-75

EEE BRANCH REVIEW

DATE: IN _____ OUT _____ IN 7/21/75 OUT 8/3/75 IN _____ OUT _____

FISH & WILDLIFE

ENVIRONMENTAL CHEMISTRY

EFFICACY

FILE OR REG. NO. 464 - LRT

PETITION OR EXP. PERMIT NO. _____

DATE DIV. RECEIVED 3/21/75

DATE OF SUBMISSION 3/13/75

DATE SUBMISSION ACCEPTED _____

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

PRODUCT MGR. NO. _____

PRODUCT NAME(S) Dursban 10CR insecticide

COMPANY NAME Dow Chemical

SUBMISSION PURPOSE New registration

CHEMICAL & FORMULATION Chlorpyrifos [O,O-diethyl O-(3,5,6-trichloro-2-pyridyl) phosphorothioate] Dursban

1.0 Recommendations

- 1.1 The use of this Dursban slow release product will pose minimal hazards to the environment and is acceptable for registration.
- 1.2 Additional uses of chlorpyrifos may require additional environmental chemistry data to assess hazards.

2.0 Introduction

- 2.1 Other names for chlorpyrifos are: Dursban, Dowco 179 and Phosphorothioic acid 0,0-diethyl 0-3,5,6,-trichloro-2- pyridyl ester
- 2.3 Percent active - 10%
- 2.4 Use - to control mosquito larvae in permanent or temporary aquatic non-cropland areas.
- 2.5 There are no other reviews for this registration.
- 2.6 Other environmental chemistry reviews for chlorpyrifos are:

5G1595 ((3/19/75)
3F1306 (5/02/74)
464-EXP (3/28/74)
464-EXP (3/20/74)
4F1445 (3/04/74)
3F1370 (5/18/73)
3F1306 (2/15/73)

3.0 Directions for Use

- 3.1 Apply Dursban 10CR to flooded areas at rate equivalent to 1.5 ppm Dursban in the total volume of water. (See chart on label)
- 3.2 Apply Dursban 10CR to non-flooded areas containing mosquito eggs at rate equivalent to 1.5 ppm Dursban in the total volume of water anticipated when flooding will occur. (Mosquitoes will hatch when flooding occurs).
- 3.3 Keep product out of lakes, streams, ponds, and tidal marshes (except when applied for mosquito larva control, then use only around the borders of these areas and in shallow water).
- 3.4 The product is toxic to fish, birds and wildlife. Shrimp and crab may be killed at recommended application rates. Do not apply where these are important resources.

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4.0 Discussion of Data

Entomological Special Study No. 44-022-73/75 Field Evaluation of the Larvicidal Effectiveness, Effects on Non-Target Species and Environmental Residues of a Slow Release Polymer Formulation of Chlorpyrifos.

Chlorpyrifos was applied to mosquito breeding areas (woodland pools and rice cultures) in a slow release formulation (chlorinated polyethylene pelletized formulation of 10.6% chlorpyrifos 1.55 x 1.37 mm and 2.4 ± 1.0 mg/pellet) at rates of 250-2000 ppb (based on immediate release of all chlorpyrifos).

Most of the bottom soils were classified as organic (15-75% OM) or different categories of loams. The rice cultrue soils were silt with 1.1% OM, pH=7.4, 6.5% sand, 82.2% silt and 11.3% clay.

Water and bottom soil samples were taken weekly and analyzed by GLC.

Conclusions

Persistence of chlorpyrifos cannot be assessed from this study because the aquatic system is constantly receiving more chlorpyrifos from the slow release pellet formulation.

Residues found in the water are on the average around 0.4 ppb for the 250 ppb treatment, around 0.5 ppb for the 500 ppb treatment and around 1.2 ppb for the 1000 ppb treatment. The residues of chlorpyrifos found in the bottom soil are generally 1-2 orders of magnitude higher.

Enough of the formulated material should be applied to maintain a concentration of 1-2 ppb in the water for effective control. The application of 1-2 ppm of ai (based on immediate release of all the ai) will provide a constant concentration of 1-2 ppb and this rate also agrees with the recommended rate of the label.

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5.0 Summary

By applying 1-2 ppm of this chlorpyrifos slow-release formulated product to an aquatic site (the rate is based on immediate release of all the active ingredient) a constant concentration of 1-2 ppb will be maintained in the water.

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