

US EPA ARCHIVE DOCUMENT

12/13/88

DATA EVALUATION RECORD

- 1. CHEMICAL: Pyrinex® (chlorpyrifos) SN: 059101
- 2. TEST MATERIAL: TGAI 96.3%
- 3. STUDY/ACTION TYPE: Avian Acute Oral LD50 - Mallard Duck

4. STUDY IDENTIFICATION:
 Roberts, N., C.N.K. Phillips. 1987. The acute oral toxicity (LC50) of chlorpyrifos to the mallard duck. Prepared by Huntingdon Research Centre, Huntingdon, England. Submitted by Makhteshim-Agan New York, NY. Accession number: 408547-04.

5. REVIEWED BY:

David Johnson, Fishery Biologist
 Ecological Effects Branch
 Environmental Fate and Effects Division

Signature: *David Johnson*
 Date: 13 Dec 88

6. APPROVED BY:

Harry Craven, Head, Section 4
 Ecological Effects Branch
 Environmental Fate and Effects Division

Signature: *Harry Craven*
 Date: 12/13/88

7. CONCLUSIONS:

This study shows that when tested on Mallard ducks, Pyrinex (chlorpyrifos) has an LD50 of 476 mg/kg. This study is scientifically sound.

8. RECOMMENDATION: n/a

9. BACKGROUND:

10. DISCUSSION OF INDIVIDUAL STUDIES OR TESTS:

11. METHODS AND MATERIALS:

Test material. The technical grade of the active ingredient was administered in this test.

Species. mallard duck (Anas platyrhynchos L.)

Age. 14 months

Physical condition. All birds were healthy at the beginning of the test.

Source and rearing history. The birds were supplied by: County Game Farms, Hothfield, Ashford, Kent, England.

Source/Acclimation. The birds were acclimated 14 days prior to the test.

Test conditions.

Number of birds per concentration: 5 males + 5 females = 10

Pen facilities: Iron wire pens measuring 1.5 x 1.2m, with bottoms were used to house 5 ducks each.

Photoperiod: 7h-light/17h-dark

Body weights: 820-1245 g.

Food consumption and weight gain: The test animals showed no significant difference from the controls.

Dose preparation/administration: The test substance was dispersed in corn oil. Birds that had been fasted for 24 hours were administered the dose by gavage into the crop. No corrections for purity of the test compound were made.

Observation period: 14 days

Fasting: 24 hours

Controls: Only a corn oil carrier control was run.

Carrier: corn oil

Observable Effects Criteria

Morbidity and Mortality.

Treated birds exhibited a subdued appearance, and unsteadiness.

Dosing method. gavage

Concentrations nominal: carrier control, 50, 90, 162, 292, 525 mg/kg
analytical: n/a

Gross necropsy All birds were examined macroscopically. Signs of compound related changes were detected, including: swollen/puffy intestines that were red in color, or showed evidence of hemorrhaging.

Statistical analysis. Probit Analysis.

Calculated LD50 476 mg/kg (95% C.L.= 370-870 mg/kg)

Data The data were included with the report.

12. **REPORTED RESULTS:**

Six mortalities occurred at 525 mg/kg, and one occurred at 292 mg/kg. The LD50 value was calculated at a lower value by excluding two deaths that occurred on days 13 and 14 in the 162 mg/kg level. That LD50 was found to be 476 mg/kg.

LD50: 476mg/kg

13. **STUDY AUTHOR'S CONCLUSIONS/QUALITY ASSURANCE MEASURES:**

The LD50 was calculated as 476 mg/kg. Quality assurance inspections were performed on a routine basis. No deviations from recommended protocols were reported.

14. **REVIEWER'S DISCUSSION AND INTERPRETATION OF THE STUDY:**

A. Test Procedure.

The study was performed under conditions that generally comply with current guideline standards.

B. Statistical Analysis. Results are attached. EEB agrees with the procedures used.

C. Results/Discussion.

Ecological Effects Branch accepts an acute oral mallard duck LD50 of 476mg/kg. We note that Hudson (1984, MRID: 160000) reports a mallard LD50 of 112 mg/kg. This lower value shall be used in risk assessments.

D. Adequacy of the Study.

1. Category: core
2. Rationale:
3. Remedial action: none

15. **COMPLETION OF ONE-LINER** 13 December 1988