

DATA EVALUATION RECORD

1. **CHEMICAL:** Triclopyr triethylamine.
Shaughnessey Number: 116002.
2. **TEST MATERIAL:** Triclopyr triethylamine salt;
purity: $64.7 \pm 2\%$ in water; a purple liquid with a slight odor.
3. **STUDY TYPE:** Avian dietary LC_{50} test.
Species Tested: Mallard duck (Anas platyrhynchos).
4. **CITATION:** Fink, R. 1977. Eight-day dietary LC_{50} - mallard duck, triclopyr triethylamine salt final report. Study performed by Wildlife International Ltd., Easton, Maryland. Laboratory study # 103-171. Submitted by Dow Chemical U.S.A., Midland, Michigan. MRID No. 92189004 (NR 403465-02).
5. **REVIEWED BY:**

Jeffrey Bigler Ecological Effects Branch Environmental Fate and Effects Division	Signature: <i>J. Bigler</i> Date: 3-6-91
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6. **APPROVED BY:**

Charles Lewis Ecological Effects Branch Environmental Fate and Effects Division	Signature: <i>Charles Lewis</i> Date: 3/14/91
Henry T. Craven, M.S. Supervisor, EEB/HED USEPA	Signature: <i>Henry T. Craven</i> Date: 3/15/91
7. **CONCLUSIONS:** The study is scientifically sound and fulfills the requirement for an avian dietary LC_{50} test. Based upon nominal concentrations, the LC_{50} of triclopyr triethylamine was greater than 10,000 ppm, the highest concentration tested. This value classifies triclopyr triethylamine as practically non-toxic to 14-day old mallard ducklings. The NOEC could not be determined, due to reduced body weight gain at all treatment concentrations.
8. **RECOMMENDATIONS:** N/A

9. BACKGROUND:

10. DISCUSSION OF INDIVIDUAL TESTS: N/A.

11. MATERIALS AND METHODS:

A. Test Animals: The birds used in the study were 14-day old mallard ducklings (Anas platyrhynchos) hatched from eggs obtained from Wildlife International's own production flock.

B. Test System: The pen facilities in which the birds were housed during the study were not described. The photoperiod was 14 hours of light per day. The brooder temperature was maintained at 72°F during the study.

C. Dosage: 8-day dietary LC₅₀ test. Nominal concentrations were 464, 1000, 2150, 4640, and 10,000 parts per million (ppm). "For the purposes of diet preparation, the experimental material was assumed to be 100 percent active material and the LC₅₀, as reported, is therefore of the experimental material as received."

D. Design: Groups of ten birds were randomly assigned, without regard to sex, to each of five control groups, five laboratory standard (dieldrin) groups, and five treatment groups. All birds were fed Wildlife International Ltd.'s game bird starter ration. Food and water were supplied ad libitum during the test.

The test substance and dieldrin were dissolved in corn oil and added to the basal feed. The concentration of the solutions in the treatment and dieldrin diets was 2%. The birds were fed the appropriate dietary concentrations for five days, and then given untreated food for three days. The control birds received the basal diet throughout the study.

Mortality and symptoms of toxicity were recorded daily throughout the study. Birds were weighed by pen at test initiation, and at termination of the test on day 8. Food consumption was recorded by pen during the five-day exposure period.

E. Statistics: Mortality was analyzed by probit analysis.

12. **REPORTED RESULTS:** There were no mortalities in the control groups. All birds in the control groups remained normal in appearance and behavior throughout the study.

The report provided results on mortality and symptoms of toxicity in the dieldrin group.

Mortality in the triclopyr triethylamine treatment groups during the study was limited to one bird in the 10,000-ppm group that died on day 6.

At 10,000 ppm, the birds became lethargic on day 5 and remained so until day 6. Birds at all other dose levels displayed no signs of toxicity during the test period.

Food consumption and body weight gain were reduced in the 10,000 and 4640 ppm groups; these effects were especially severe at 10,000 ppm (Table 1, attached). The birds in the 2150-, 1000-, and 464-ppm groups "...did show evidence of some reduction in body weight gain."

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

The author presented no conclusions, but included the following statement as a summary: "The acute LC₅₀ of Triclopyr-Triethylamine Salt in the Mallard duck is estimated to be greater than 10,000 ppm."

The report included no statements regarding quality assurance. One quality assurance measure was the inclusion of a laboratory standard treatment, commonly known as a positive, or reference control.

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

- A. **Test Procedure:** This study was conducted in December 1977, before the current SEP, ASTM, and Subdivision E Guidelines were published. However, the test procedures were in accordance with current guidelines except for the following deviations:

The birds were 14 days of age at initiation of the study; the recommended age is 5 to 10 days.

Body weights were measured by group. Individual body weights should have been measured.

Food consumption was recorded at the end of test day 5. Food consumption should also have been recorded at the end of the 3-day observation period.

The average ambient relative humidity was not reported.

A full description of the test facilities (construction material, dimensions) was not reported.

The concentration of test substance in the diet was not confirmed by chemical analysis. This is recommended, but not required.

A necropsy of the single mortality was not conducted. Necropsies are recommended, but not required, by guidelines.

The vehicle (corn oil) was not added to untreated diets. The control birds received the basal diet throughout the study.

B. Statistical Analysis: Since only one bird died during the study, the LC_{50} could not be calculated and is assumed to be greater than 10,000 ppm, the highest concentration tested.

C. Discussion/Results: The birds were 14 days of age at initiation of the study while the recommended age is 5 to 10 days. In the ASTM guideline entitled "Standard Practice for Conducting Subacute Dietary Toxicity Tests With Avian Species", the recommended age for mallards is 5 days. ASTM points out that "Tests with younger or older birds also can be used to determine the LC_{50} ", but warns that "...If data from one test are to be comparable with data from another test, the ages of birds between the two tests should deviate no more than one or two days." Therefore, the use of these data in a risk assessment must be done with caution, since younger birds might have responded differently.

Other discrepancies noted in Section 14.A (above) probably did not affect the validity of the study.

The test material appears to be relatively non-toxic, at least with regard to the LC_{50} . However, body weight gain was reduced in all treatment groups, and food consumption was reduced in the two highest concentration groups. These effects should be considered in any risk assessment of this chemical. Altered growth or development of birds caused by exposure to these concentrations in the wild might result in reduced survival rates.

Since historical dieldrin values were not given, the reviewer could not assess the results reported from the laboratory standard (dieldrin) group.

The dietary LC₅₀ of triclopyr triethylamine for 14-day old mallard ducklings could not be determined, and is assumed to be greater than 10,000 ppm, the highest concentration tested. This value classifies triclopyr triethylamine as practically non-toxic to 14-day old mallard ducklings. The no-observed-effect concentration could not be determined, due to reduced body weight gain at all treatment concentrations.

The use of 14-day old test birds will not, in this case, significantly adversely impact the validity of the study due to the relatively high doses tested and subsequent LC₅₀ of greater than 10,000 ppm.

D. Adequacy of the Study:

- (1) Classification: Core.
- (2) Rationale: N/A.
- (3) Repairability: N/A.

15. COMPLETION OF ONE-LINER: Yes; January 24, 1991.

Table 1

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- 7 -

Material	Concentration ppm	Average Body Weight (g)		Total Estimated Food Consumption During Five-Day Exposure Period	
		Day 0	Day 5	Δ	g
Triclopyr Triethylamine Salt	464	211	406	193	3839
	1,000	232	436	204	3958
	2,150	228	417	189	3654
	4,640	212	312	100	2814
	10,000	213	284	71	1115
Laboratory Standard	72	215	411		3756
	100	206	403		3289
	139	221	348		417
	193	201	*		382
	269	218	*		138
Controls	0	203	443	240	3846
	0	217	453	236	3996
	0	201	450	249	3461
	0	226	484	260	3400
	0	234	480	246	3433

*Data not available due to total mortality.

PREPARED BY Joseph B. Beavers
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SUBMITTED BY Robert Fink
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JBB/RF:ada
Attachments

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Shaughnessy No. 116002

Chemical Name Triclopyr Chemical Class _____

Page 1 of 1

Study/Species/Lab/
Accession _____

Chemical
& a.i.

triethylamine

Results

Reviewer/
Date _____

Validator
Status _____

14-Day Single Dose Oral LD50

LD50 = mg/kg (95% C.L.) Contr. Mort. (X) = _____

Species _____

Slope = _____ # Animals/Level = _____ Age (Days) = _____
Sex = _____

Lab _____

14-Day Dose Level mg/kg/(X Mortality)
() () () () () ()

Acc. _____

Comments: _____

14-Day Single Dose Oral LD50

LD50 = mg/kg (95% C.L.) Contr. Mort. (X) = _____

Species _____

Slope = _____ # Animals/Level = _____ Age (Days) = _____
Sex = _____

Lab _____

14-Day Dose Level mg/kg/(X Mortality)
() () () () () ()

Acc. _____

Comments: _____

8-Day Dietary LC50

LC50 > 1900 ppm (95% C.L.) Contr. Mort. (X) = 0

Species Anas platyrhynchos

Slope = N/A # Animals/Level = 10 Age (Days) = 14
Sex = UNKNOWN

Lab Wildlife International Ltd

64.7 ± 2%

8-Day Dose Level ppm/(Mortality)
464 (0) 1,000 (0) 2,150 (0) 4,640 (0) 19,000 (10%)

Acc. MRID 92189004 (NR 463465-02)

Comments: * Nominal concentrations plus NOEC = N/A
Body wt. gain reduced at all concentrations

M.L. Whitten

1/24/91

Supplemental

8-Day Dietary LC50

LC50 = ppm (95% C.L.) Contr. Mort. (X) = _____

Species _____

Slope = _____ # Animals/Level = _____ Age (Days) = _____
Sex = _____

Lab _____

8-Day Dose Level ppm/(Mortality)
() () () () () ()

Acc. _____

Comments: _____

48-Hour LC50

LC50 = PP (95% C.L.) Contr. Mort. (X) = _____
Sol. Contr. Mort. (X) = _____

Species _____

Slope = _____ # Animals/Level = _____ Temperature = _____

Lab _____

48-Hour Dose Level pp/(Mortality)
() () () () () ()

Acc. _____

Comments: _____

96-Hour LC50

LC50 = PP (95% C.L.) Con. Mort. (X) = _____
Sol. Con. Mort. (X) = _____

Species _____

Slope = _____ # Animals/Level = _____ Temp. = _____

Lab _____

96-Hour Dose Level pp/(Mortality)
() () () () () ()

Acc. _____

Comments: _____

96-Hour LC50

LC50 = PP (95% C.L.) Con. Mort. (X) = _____
Sol. Con. Mort. (X) = _____

Species _____

Slope = _____ # Animals/Level = _____ Temp. = _____

Lab _____

96-Hour Dose Level pp/(Mortality)
() () () () () ()

Acc. _____

Comments: _____