12/2/93

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MRID No. 419633-06

DATA EVALUATION RECORD

1. **CHEMICAL:** Acetochlor.
Shaughnessey No. 121601.

2. **TEST MATERIAL:** Acetochlor technical; 2-chloro-N-ethoxymethyl-6'-ethylacet-o-toluidide; Ref No. F1993; Preparation Ref. No. WRC 11691-36-01; 90.4% active ingredient w/w; a brown liquid.

3. **STUDY TYPE:** Freshwater Fish Static Acute Toxicity Test. Species Tested: Rainbow trout (*Oncorhynchus mykiss*).

4. **CITATION:** Tapp, J.F., S.A. Sankey, J.E. Caunter, P.A. Johnson, and D.S. Adams. 1990. Acetochlor: Acute Toxicity to Rainbow Trout (*Salmo gairdneri*). Report No. BL3960/B. Prepared by ICI Group Environmental Laboratory, Brixham, Devon, UK. Submitted by ICI Americas, Inc. EPA MRID No. 419633-06.

5. **REVIEWED BY:**

Mark A. Mossler, M.S.
Associate Scientist
KBN Engineering and
Applied Sciences, Inc.

Signature: Mark A. Mossler
Date: 11/18/91

6. **APPROVED BY:**

Pim Kosalwat, Ph.D.
Senior Scientist
KBN Engineering and
Applied Sciences, Inc.

Signature: P. Kosalwat
Date: 11/18/91

Henry T. Craven, M.S.
Supervisor, EEB/EFED
USEPA

Signature: William B. Robert 10/19/93
Date: H T Craven 12/2/93

7. **CONCLUSIONS:** This study is scientifically sound and satisfies the guideline requirements for a freshwater fish static acute toxicity test. The 96-hour LC_{50} of 1.2 mg/l (based on mean measured concentration of test material) classifies acetochlor technical as moderately toxic to rainbow trout. The NOEC was 0.50 mg/l.

8. **RECOMMENDATIONS:** N/A.

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9. **BACKGROUND:**

10. **DISCUSSION OF INDIVIDUAL TESTS:** N/A.

11. **MATERIALS AND METHODS:**

A. **Test Animals:** Rainbow trout (*Oncorhynchus mykiss*) were obtained from Upwey Trout Farm in Upwey, Weymouth, Dorset, UK. The fish were maintained in culture tanks for 21 days prior to testing at 12 ±1°C under daylight and artificial lighting. The fish were fed a commercially available fish food daily and were treated with malachite green 27 days before testing. The fish were in good condition at test initiation. The mortality during the 4 days prior to test initiation was less than 1%. Fish were not fed for 24 hours preceding or during the test.

Mean weight and length of the control fish were 0.60 g (range of 0.34-1.04 g) and 37 mm (range of 32-43 mm). Biomass loading rate in the control was 0.30 g/l.

B. **Test System:** Vessels used in the test were 30-liter glass containers (46 x 25.5 x 26 cm) filled with 20 l of water (control) or test solution. The vessels were kept in a temperature controlled room set to maintain 12 ±1°C. The illumination was natural sunlight supplemented with artificial lights on a 16-hour light/8-hr dark photoperiod with a 10-minute dawn/dusk transition period.

The dilution water was tap water that was passed through activated carbon, filtered to remove particulate material, UV sterilized, and dechlorinated with sodium thiosulfate. The water had a total hardness of 30.7 mg/l as $CaCO_3$, an alkalinity of 19.4 mg/l as $CaCO_3$, a conductivity of 141 µS/cm, a chlorine level of less than 4 µg/l, and an initial pH of 7.9. The test concentrations were prepared by adding appropriate amounts of test material directly to the test chambers.

C. **Dosage:** Ninety-six-hour static test. Six nominal concentrations (0.10, 0.18, 0.32, 0.56, 1.0, and 1.8 mg/l) and a dilution water control were used. The concentrations were based on total test material.

D. **Design:** Ten fish were randomly added to each test chamber. All chambers were observed once every 24

hours for mortality and sublethal effects. Samples of the test solutions were taken at 0, 48, and 96 hours for chemical analysis by gas chromatography (GC). Dissolved oxygen (DO), pH, and temperature were recorded daily. Water hardness, alkalinity, and conductivity were measured at the beginning of the test.

E. **Statistics:** The 96-hour median lethal concentration (LC_{50}) and associated 95% confidence interval (C.I.) were calculated using the moving average angle method.

12. **REPORTED RESULTS:** The mean measured values ranged from 83 to 106% of nominal values in the test vessels (Table 1, attached) and were fairly consistent between sampling days. The measured concentrations were 0.10, 0.19, 0.28, 0.50, 0.97, and 1.5 mg/l.

The mortality responses of the rainbow trout are given in Table 2 (attached). The 96-hour LC_{50}, based on mean measured concentration of test material, was 1.2 mg/l (95% C.I. = 0.94-1.9 mg/l). The no-observed-effect concentration (NOEC), based on the lack of mortality and abnormal effects (Table 3, attached), was 0.5 mg/l after 96 hours (based on mean measured concentration of test material).

At test initiation, the DO was 10.2 mg/l or 94% of saturation. After 96 hours, oxygen levels ranged from 39-81% of saturation. The pH values ranged from 7.1 to 7.7. The temperature was 11.7-12.8°C throughout the test.

13. **STUDY AUTHOR'S CONCLUSIONS/QUALITY ASSURANCE MEASURES:** The authors presented no conclusions.

Quality Assurance and Good Laboratory Practice Regulation Statements were included in the report, indicating that the study was conducted in accordance with FIFRA Good Laboratory Practice Standards set forth in 40 CFR Part 160.

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

A. **Test Procedure:** The test procedures were generally in accordance with protocols recommended by the guidelines, but deviated from the SEP as follows:

Each selected nominal concentration was between 55% and 57% of the next highest concentration. The SEP recommends that each concentration be 60% of the next highest concentration.

The report did not state the time period between test solution preparation and fish addition.

Dechlorinated water was used as the dilution water. However, the reviewer feels this is acceptable in this test because residual chlorine measurements indicated the chlorine level to be below the detection limit. Additionally, no mortality or abnormal behavior was observed in the controls.

B. **Statistical Analysis:** The reviewer used EPA's Toxanal program to calculate the LC_{50} value and obtained the same results (see attached printout).

C. **Discussion/Results:** This study is scientifically sound and satisfies the guideline requirements for a static acute toxicity test using freshwater fish. The 96-hour LC_{50} of 1.2 mg/l (based on mean measured concentration of test material) classifies acetochlor technical as moderately toxic to rainbow trout. The NOEC was 0.50 mg/l (based on mean measured concentration of test material).

D. **Adequacy of the Study:**

(1) **Classification:** Core.

(2) **Rationale:** N/A.

(3) **Repairability:** N/A.

15. **COMPLETION OF ONE-LINER FOR STUDY:** Yes, 10-9-91.

ACETOCHLOR

Page_____ is not included in this copy.

Pages 5 through 7 are not included.

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.

X FIFRA registration data.

____ The document is a duplicate of page(s) _____.

____ The document is not responsive to the request.

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.

MOSSLER ACETOCHLOR RAINBOW TROUT 10-9-91

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CONC.	NUMBER EXPOSED	NUMBER DEAD	PERCENT DEAD	BINOMIAL PROB. (PERCENT)
1.5	10	7	70	17.1875
.97	10	3	30	17.1875
.5	10	0	0	9.765625E-02
.28	10	0	0	9.765625E-02
.19	10	0	0	9.765625E-02
.1	10	0	0	9.765625E-02

THE BINOMIAL TEST SHOWS THAT 0 AND +INFINITY CAN BE USED AS STATISTICALLY SOUND CONSERVATIVE 95 PERCENT CONFIDENCE LIMITS, BECAUSE THE ACTUAL CONFIDENCE LEVEL ASSOCIATED WITH THESE LIMITS IS GREATER THAN 95 PERCENT.

AN APPROXIMATE LC50 FOR THIS SET OF DATA IS 1.206234

RESULTS CALCULATED USING THE MOVING AVERAGE METHOD

SPAN	G	LC50	95 PERCENT CONFIDENCE LIMITS	
2	.272538	1.206234	.9406232	1.9003

RESULTS CALCULATED USING THE PROBIT METHOD

ITERATIONS	G	H	GOODNESS OF FIT PROBABILITY
7	.528629	1	.9975653

SLOPE = 6.321466

95 PERCENT CONFIDENCE LIMITS = 1.725325 AND 10.91761

LC50 = 1.214349

95 PERCENT CONFIDENCE LIMITS = .9380673 AND 1.752772

LC10 = .7646114

95 PERCENT CONFIDENCE LIMITS = .2369605 AND .9746852

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Raw data from Table 2 (attached).