10-31-88

DATA EVALUATION RECORD PAGE 1 OF

CASE: GS0062 ATRAZINE FRSTR

CONT-CAT: 01 GUIDELINES: 72-1

MRID: 147125

Buccafusco, R. (1976) Acute Toxicity of Atrazina Tecnica to Blue-gill (Lepomis macrochirus). Unpublished study prepared by EG & G, Bionomics. 11 p.

REVIEW RESULTS: VALID ✓ INVALID_____ INCOMPLETE_____

GUIDELINE: SATISFIED ✓ PARTIALLY SATISFIED _____ NOT SATISFIED___

DIRECT RVW TIME = START DATE: END DATE:

REVIEWED BY: Otto Gutenson

TITLE: Biologist

ORG: EEB

LOC/TEL: 557-3449

SIGNATURE: Otto Gutenson DATE: 10/31/88

APPROVED BY: Henry T. Craven

TITLE: Supervisory Biologist

ORG: EEB

LOC/TEL:

SIGNATURE: Henry T. Craven DATE: 10/31/88

Data Evaluation Record

1. Chemical: Atrazine

2. Test Material: Atrazina tecnica-100% ai

3. Study Type: Freshwater Fish Actue Static Test
   Species Tested: Lepomis macrachires

4. Citation: Buccafusco, R. 1976. Acute Toxicity of Atrazina Teanica to Bluegill. Unpublished study prepared by EG&G Bionomics, Wareham, Mass. MRID Number 147125.

5. Reviewed By:

   Otto Gutenson
   Biologist
   Ecological Effects Branch
   Environmental Fate & Effects Division

   Signature: Otto Gutenson
   Date: 10/26/88

6. Approved By:

   Harry Craven
   Supervisory Biologist
   Ecological Effects Branch
   Environmental Fate & Effects Division

   Signature:
   Date:

7. Conclusions: This study is scientifically sound and meets the guideline requirements for the freshwater fish acute test. With a 96-hour LC_{50} value of 57ppm, atrazine is considered slightly toxic to bluegill. The NOEL was determined to be 10ppm.

8. Recommendations: N/A

9. Background: Reviewed for Atrazine Registration Standard.

10. Discussion of Individual Tests: N/A

11. Materials and Methods:

    A. Test Animals:

    The bluegill were obtained from a commercial fish hatchery in Connecticut and had a mean wet weight of 1.0g and mean length of 35mm. The fish were acclimated to test conditions over a 48-hour period.

B. Test System:

Static bioassay was conducted in 19.6 liter glass jars containing 15 liters of test solution at 21 ± 1.0°C. Test solutions were not aerated during the test. The pH concentration ranged from 7.2 to 6.9 and D.O. ranged from 8.8 mg/L to 3.7 mg/L.

C. Dosage:

96-hour acute static LC_{50} test.

D. Design:

The nominal test concentrations were 10, 12, 18, 28, 32, 42, 65, 100, 140, 210, 320ppm. There was a single introduction of the test compound 30 minutes prior to exposing test fish. Ten fish were randomly assigned to each test level, actone control and dilution water control.

E. Statistics:

Test concentrations and corresponding observed percentage mortality were converted to logs and probits, respectively, and these values were utilized in a least squares regression analysis. The LC_{50}'s were calculated from the regression equation.

12. Reported Results:

The LC_{50} values were 185 ppm for 24 hours, 110 ppm for 48 hours and 57 ppm for 48 hours. The NOEL was 10 ppm. Fish generally became dark and lethargic, lost equilibrium and died. All fish displayed dark coloration at test concentrations equal to or greater than 12 ppm.

13. Study Author's Conclusions/Quality Assurance Measures:

No conclusion was made by the author and no quality assurance measures were reported.

14. Reviewer's Discussion and Interpretation of Study Results:

A. Test Procedure:

The test procedure generally followed guideline recommendations.

B. Statistical Analysis:

The reviewer agrees with the statistical methods used and results obtained.

C. Discussion/Results:

The 96-hour LC_{50} value of atrazine is 57ppm and is considered to be slightly toxic to bluegill. The NOEL was determined to be 10 ppm based on dark coloration of test fish.

D. Adequacy of the Study:

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

15. Completion of one-liner: Yes, October 1988.

Stenson atrazine bluegill 10-26-88

CONC.	NUMBER EXPOSED	NUMBER DEAD	PERCENT DEAD	BINOMIAL PROB. (PERCENT)
320	10	10	100	9.765625E-02
210	10	9	90	1.074219
140	10	7	70	17.1875
100	10	8	80	5.46875
65	10	8	80	5.46875
42	10	5	50	62.30469
32	10	6	60.00001	37.69531
28	10	1	10	1.074219
18	10	0	0	9.765625E-02
12	10	0	0	9.765625E-02
10	10	0	0	9.765625E-02

THE BINOMIAL TEST SHOWS THAT 28 AND 210 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 31.23069

RESULTS CALCULATED USING THE MOVING AVERAGE METHOD

SPAN	G	LC50	95 PERCENT CONFIDENCE LIMITS	
9	.1211759	54.51	41.81625	72.37365

RESULTS CALCULATED USING THE PROBIT METHOD

ITERATIONS	G	H	GOODNESS OF FIT PROBABILITY
6	9.359077E-02	1	.1432326

SLOPE = 2.705471
95 PERCENT CONFIDENCE LIMITS = 1.877797 AND 3.533145

LC50 = 51.52053
95 PERCENT CONFIDENCE LIMITS = 39.62071 AND 67.90363

LC10 = 17.4808
95 PERCENT CONFIDENCE LIMITS = 10.18423 AND 24.32819