24 6-15-00

MRID No. 443735-09

DATA EVALUATION RECORD
§ 72-1 - ACUTE LC_{50} TEST WITH A WARMWATER FISH

1. **CHEMICAL:** Mesotrione PC Code No.: 122990

2. **TEST MATERIAL:** ZA1296 Purity: 95.1%

3. **CITATION:**

Authors:	H. Kelso, S.J. Kent, D.S. Morris, J.E. Caunter, and D.M. Vegh
Title:	ZA1296: Acute toxicity to Bluegill Sunfish (*Lepomis macrochirus*)
Study Completion Date:	September 30, 1994
Laboratory:	Brixham Environmental Laboratory, Brixham Devon, UK
Sponsor:	ZENECA Ag Products, Wilmington, DE
Laboratory Report ID:	BL5491
MRID No.:	443735-09
DP Barcode:	D245475

4. **REVIEWED BY:** Max Feken, M.S., Environmental Toxicologist, Golder Associates Inc.

Signature: [signature] **Date:** 8/25/98

APPROVED BY: Pim Kosalwat, Ph.D., Senior Scientist, Golder Associates Inc.

Signature: [signature] **Date:** 6/12/00

5. **APPROVED BY:**

Signature: James Woodyear **Date:** 6/15/00

6. **STUDY PARAMETERS:**

Age or Size of Test Organism:	29-44 mm
Definitive Test Duration:	96 hours
Study Method:	Static
Type of Concentrations:	Mean measured

7. **CONCLUSIONS:** This study is scientifically sound and fulfills the guideline requirements. The 96-hour LC_{50} was determined to be >130 ppm, the only concentration tested. ZA1296 is classified as practically non-toxic to the bluegill. The NOEC was determined to be 130 ppm.

Results Synopsis

LC_{50}: >124 ppm ai 95% C.I.: N/A

NOEC: 124 ppm ai Probit Slope: N/A

8. **ADEQUACY OF THE STUDY:**

A. Classification: Core

B. Rationale: Fulfills the guideline requirements

C. Repairability: N/A

9. **GUIDELINE DEVIATIONS:**

1. The pretest mortality, 48 hours prior to the test, was not reported.
2. The dilution water consisted of dechlorinated tap water.
3. The dilution water hardness (26.6 mg/L as $CaCO_3$) was below the guideline recommendations (40 - 200 mg/L as $CaCO_3$).

10. **SUBMISSION PURPOSE:**

11. **MATERIALS AND METHODS:**

A. Test Organisms

Guideline Criteria	Reported Information
Species Preferred species is the bluegill sunfish (*Lepomis macrochirus*)	*Lepomis macrochirus*
Mean Weight 0.1-5 g	Mean: 1.12 g
Mean Standard Length Longest not > 2x shortest	29-44 mm
Supplier	Osage Catfisheries Inc., Osage Beach, MO
All fish from same source?	Yes

Guideline Criteria	Reported Information
All fish from the same year class?	Not reported

B. Source/Acclimation

Guideline Criteria	Reported Information
Acclimation Period Minimum 14 days	23 days
Wild caught organisms were quarantined for 7 days?	N/A
Were there signs of disease or injury?	No
If treated for disease, was there no sign of the disease remaining during the 48 hours prior to testing?	Fish received a formalin bath (200 mg/L) 41 days prior to the test.
Feeding No feeding during the study	Fish were not fed during or for 48 hours prior to the test.
Pretest Mortality < 3% mortality 48 hours prior to testing	Not reported

C. Test System

Guideline Criteria	Reported Information
Source of dilution water Soft reconstituted water or water from a natural source, **not** dechlorinated tap water	Filtered tap water, dechlorinated with sodium thiosulphate
Does water support test animals without observable signs of stress?	Yes
Water Temperature 17°C or 22°C	21.9 - 22.1°C
pH Prefer 7.2 to 7.6	6.00 - 7.54

Guideline Criteria	Reported Information
Dissolved Oxygen Static: ≥ 60% during 1st 48 hrs and ≥ 40% during 2nd 48 hrs, flow-through: ≥ 60%	≥64% of saturation during the test
Total Hardness Prefer 40 to 200 mg/L as $CaCO_3$	26.6 mg/L as $CaCO_3$
Test Aquaria 1. Material: Glass or stainless steel 2. Size: Volume of 18.9 L (5 gal) or 30 x 60 x 30 cm 3. Fill volume: 15-30 L of solution	 Glass 120 L 105 L
Type of Dilution System Must provide reproducible supply of toxicant	Static test
Flow Rate Consistent flow rate of 5-10 vol/24 hours, meter systems calibrated before study and checked twice daily during test period	N/A
Biomass Loading Rate Static: ≤ 0.8 g/L at ≤ 17°C, ≤ 0.5 g/L at > 17°C; flow-through: ≤ 1 g/L/day	0.32 g/L
Photoperiod 16 hours light, 8 hours dark	16 h light, 8 h dark
Solvents Not to exceed 0.5 mL/L for static tests or 0.1 mL/L for flow-through tests	None

D. Test Design

Guideline Criteria	Reported Information
Range Finding Test If LC_{50} >100 mg/L with 30 fish, then no definitive test is required.	No range finding tests were conducted.
Nominal Concentrations of Definitive Test Control & 5 treatment levels; dosage should be 60% of the next highest concentration; concentrations should be in a geometric series	Negative control and 120 mg/L, not corrected for purity.
Number of Test Organisms Minimum 10/level, may be divided among containers	30 fish/treatment and control
Test organisms randomly or impartially assigned to test vessels?	Yes
Biological observations made every 24 hours?	Yes
Water Parameter Measurements 1. Temperature Measured constantly or, if water baths are used, every 6 hrs, may not vary > 1°C 2. DO and pH Measured at beginning of test and ever 48 h in the high, medium, and low doses and in the control	Temperature, DO, and pH were measured daily in the control and treatment test vessels. Temperature was also measured hourly in the control.
Chemical Analysis Needed if solutions were aerated, if chemical was volatile, insoluble, or known to absorb, if precipitate formed, if containers were not steel or glass, or if flow-through system was used	Solutions collected from each replicate of the control and treatment at 0, 48, and 96 hours were analyzed by HPLC.

12. REPORTED RESULTS:

A. General Results

Guideline Criteria	Reported Information
Quality assurance and GLP compliance statements were included in the report?	Yes
Recovery of Chemical	130 mg/L (108% of nominal)
Control Mortality Not more than 10% control organisms may die or show abnormal behavior.	0% mortality in control groups
Raw data included?	Yes
Signs of toxicity (if any) were described?	No signs of test material toxicity were observed.

Mortality

Concentration (mg/L)		Number of Fish	Cumulative Number Dead			
Nominal	Mean Measured		Hour of Study			
			24	48	72	96
Negative Control	<0.018	30	0	0	0	0
120	130	30	0	0	0	0

Other Significant Results: No sublethal signs of toxicity were observed.

B. Statistical Results

Statistical method: Visual observation; results based on nominal concentrations

LC_{50}: >120 mg/L 95% C.I.: N/A

NOEC: 120 mg/L Probit Slope: N/A

13. VERIFICATION OF STATISTICAL RESULTS:

Statistical method: Visual observation; results based on measured concentrations

LC_{50}: >130 mg/L 95% C.I.: N/A

NOEC: 130 mg/L Probit Slope: N/A

14. REVIEWER'S COMMENTS: This study is scientifically sound and fulfills the guideline requirements for an acute toxicity test using bluegill sunfish. The 96-hour LC_{50} was determined to be >130 ppm, which classifies ZA1296 as practically non-toxic to the bluegill. The NOEC was determined to be 130 ppm. This study is classified as **Core**.