8-11-95

DATA EVALUATION RECORD
ACUTE LC_{50} TEST WITH AN ESTUARINE/MARINE FISH
§ 72-3(A)

1. **CHEMICAL:** Sulfentrazone (129081)

2. **TEST MATERIAL:** Sulfentrazone technical; 94.2%

3. **CITATION**

Authors:	Boeri, R.L., J.P. Magazu, and T.J. Ward
Title:	F6285 technical: acute toxicity to the silverside, *Menidia beryllina*
Date:	1994
Laboratory:	T.R. Wilbury Laboratories, Inc., Marblehead, MA
Lab. Report #:	495-FM
Sponsor:	FMC Corporation, Princeton, NJ
MRID No.:	435886-02

4. **REVIEWED BY:**

William Erickson
Biologist
EEB/EFED

Signature: W. Erickson
Date: 8/09/95

5. **APPROVED BY:**

Harry Craven
Section Head 4
EEB/EFED

Signature: Harry Craven
Date: 8/11/95

6. **STUDY PARAMETERS/RESULTS SYNOPSIS:**

Age/size of Test Organism:	0.31 g
Test Duration:	96 hours
Study Method:	flow through
Concentrations:	mean measured
LC_{50}:	114 mg/l
95% C.I.:	67.8 to >114 mg/l
NOEC:	67.8 mg/l

7. **CONCLUSIONS:** The study is scientifically sound and satisfies the guideline requirement for an acute marine/estuarine fish toxicity test.

8. **ADEQUACY OF THE STUDY:** Core.

9. **MAJOR GUIDELINE DEVIATIONS:** None.

10. MATERIALS AND METHODS:

Test Organisms:

Guideline Criteria	Reported Information
Species Preferred species are the sheepshead minnow (*Cyprinodon variegatus*) or the Silverside (*Menidia sp.*).	Silverside
Mean Wet Weight 0.5 - 5 g	x = 0.31 g (range not reported)
Mean Standard Length Longest not > 2x shortest	x = 38 mm (range not reported)
Supplier	Aquatic Research Organisms, Hampton, NH
All fish from same source?	yes
All fish from the same year class?	yes

Source/Acclimation:

Guideline Criteria	Reported Information
Acclimation Period minimum 14 days	14 days
Wild caught organisms were quarantined for 7 days?	n/a
Were there signs of disease or injury?	none
If treated for disease, was there no sign of the disease remaining during the 48 hours prior to testing?	n/a
Feeding No feeding during the study	last fed 48 h prior to test
Pretest Mortality <3% mortality 48 hours prior to testing	<3%

Test System:

Guideline Criteria	Reported Information
Source of dilution water Soft reconstituted water or water from a natural source, **not** dechlorinated tap water	carbon-filtered, natural seawater
Does water support test animals without observable signs of stress?	yes
Salinity 30-34 ‰ salinity, weekly range < 6 ‰	16-17 ‰
Water Temperature 22 ± 1 °C	21.9-22.7 °C
pH 8.0-8.3 for marine-stenohaline fishes, 7.7-8.0 for estuarine-euryhaline fishes, monthly range <0.8	7.2-8.2
Dissolved Oxygen Static: ≥ 60% during 1st 48 hrs and ≥ 40% during 2nd 48 hrs, flow-through: ≥ 60%	>60%
Test Aquaria 1. Material: Glass or stainless steel 2. Size: Volume of 19 L (5 gal) or 30 x 60 x 30 cm 3. Fill volume: 15-30 L of solution	glass 20 l 15 l
Type of Dilution System Must provide reproducible supply of toxicant	proportional diluter
Flow Rate Consistent flow rate of 5-10 vol/24 hours, meter systems calibrated before study and checked twice daily during test period	5.8 vol/24 hours

Guideline Criteria	Reported Information
Biomass Loading Rate Static: ≤ 0.8 g/L at ≤ 17°C, ≤ 0.5 g/L at > 17°C; flow-through: ≤ 1 g/L/day	0.04 g/l/day
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	DMF

Test Design:

Guideline Criteria	Reported Information
Range Finding Test If LC_{50} >100 mg/L with 30 fish, then no definitive test is required.	100% survival at 1-50 mg/l; 60% mortality at 120 mg/l
Nominal Concentrations of Definitive Test Control & 5 treatment levels; each conc. should be 60% of the next highest conc.; concentrations should be in a geometric series	17, 30, 48, 72, 120 mg/l and negative and solvent controls
Number of Test Organisms Minimum 10/level, may be divided among containers	20/level; 10/rep.
Test organisms randomly or impartially assigned to test vessels?	yes
Biological observations made every 24 hours?	yes

Guideline Criteria	Reported Information
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 every 48 h in the high, medium, and low doses and in the control	recorded at least every 6 h DO, pH, and salinity measured daily in each test chamber
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	yes

10. **REPORTED RESULTS**

General Results:

Guideline Criteria	Reported Information
Quality assurance and GLP compliance statements were included in the report?	yes
Recovery of Chemical % of nominal	91-95%
Control Mortality Not more than 10% of control organisms may die or show abnormal behavior.	2.5% (1 of 40)
Raw data included?	yes
Signs of toxicity (if any) were described?	yes

Mortality:

Concentration (ppm)		Number of Fish	Cumulative Number Dead			
			Hour of Study			
Nominal	Mean Measured		24	48	72	96
Control	-	20	0	1	1	1
Solvent Control	-	20	0	0	0	0
17	15.5	20	0	0	0	0
30	28.5	20	0	0	0	0
48	44.4	20	0	0	0	0
72	67.8	20	0	0	0	0
120	114	20	6	10	10	10

Other Findings: No sublethal effects were observed during the testing.

Statistical Results:

Methods: Binomial (LC_{50})
NOEC based on visual inspection of data

LC_{50}: 114 mg/l
95% C.I.: 67.8->114 mg/l
NOEC: 67.8 mg/l

11. **REVIEWER'S VERIFICATION OF STATISTICAL RESULTS:**

Methods: visual inspection of data (statistical tests were not appropriate for the data, based on 50% at the highest concentration and no mortality at any other concentration)

LC_{50}: 114 mg/l
95% C.I.: 67.8->114 mg/l
NOEC: 67.8 mg/l

12. **REVIEWER'S COMMENTS:** The study is scientifically sound and satisfies the guideline requirement for an acute marine/estuarine fish toxicity test.

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