MRID 00147360

DATA EVALUATION RECORD

1. Chemical: Fosetyl-Al (Aliette)
   Aliminum tris (-O-ethyl phosphonate)

2. Test Material: 98.2% ai

3. Study Type: Acute toxicity for estuarine and marine organisms; estuarine fish 96-hr acute toxicity

   Species Tested Cyprinodon variegatus

4. Study ID: Sousa, J. (1985) Acute Toxicity of Fosethyl-Al to Sheepshead Minnow (Cyprinodan variegatus). Prepared by Springborn Bionomics, Inc., Aquatic Toxicology Laboratory, Wareham, MA. Submitted by RhonePoulenc Inc., Monmouth Junction, NJ. Bionomics Report No. BW-85-5-1777. Bionomics Study No. 10566.0385. 6100.500. EPA Accession No. 073641.

5. Reviewed by:

   Thomas M. Armitage
   Fisheries Biologist
   EEB/HED

   Signature: Thomas M. Armitage
   Date: 7-22-85

6. Approved by:

   Raymond W. Matheny
   Supervisory Biologist
   EEB/HED

   Signature: Raymond W. Matheny
   Date: 7-22-85

7. Conclusions:

   The study is scientifically sound and with a 95-hr LC_{50} = 120 ppm (95% ci 49 to 160 ppm), technical Aliette is practically nontoxic to (Cyprindon variegatus) on an acute basis.

   The study fulfills the guidelines requirement for a 96-hr marine fish acute toxicity determination.

8. Recommendations: N/A

9. Background: The study, a 96-hr LC_{50} determination using Cyprindon variegatus, was requested by EEB in order to complete a hazard assessment for the use of this product on citrus.

10. Discussion of Individual Test: N/A

11. Materials and Methods:

a. Test animals - were sheepshead minnows (Bionomics lot No. 85A7) obtained from a commercial fish supplier in Massachusetts. The mean (range, n = 30) net weight and total length of the test fish population was .43 (.13 to .64) grams and 27 (21 to 33) millimeters.

b. Test system - The toxicity test was conducted under static renewal conditions with solution renewals occurring at 24, 48, and 72 hrs of the exposure period. The test was conducted in 19 six-ℓ glass jars which contained 15 ℓ of test solution. The test solution depth was 27.5 cm with a surface area of 545 cm^2. The dilution water used was natural seawater collected from Cape Cod canal. The seawater was filtered through a 5 micrometer porosity polypropylene core filter an an activated carbon canister prior to use. Water had a salinity of 32 percent, a pH of 7.9 and a specific conductance of 32000 umhos/cm. All solution temperatures were maintained at 22 °C ± 1 °C.

c. Dose - Static renewal bioassay; 7 dose levels plus control. Ten fish per level. Mean measure concentrations (sampled at 0, 24, 48, 72, and 96 hrs) were 0, 20, 24, 39, 45, 115, and 160 parts per million.

d. Design - Static bioasay with renewal of water at 24, 48, and 72 hours.

e. Statistics - Computer program (Stephan, 1982), was used to calculate LC_{50} values.

12. Reported Results:

The 96-hr LC_{50} (based on measured concentrations) for sheepshead minnow exposed to fosetyl-al was estimated by nonlinear interpolation to be .20 mg/ℓ with a 95% confidence interval calculated by binomial probability to be between 49 and 160 mg/ℓ, the no discernible effect concentration through 96 hrs (mg/ℓ).

13. Study Author's Conclusions/QA Measures:

96-hr LC_{50} = 120 mg/ (95% ci = 49 to 160)

"The data contained in this report were audited by the quality assurance unit to assure compliance with the protocols, standard operating procedures and the pertinent EPA Good Laboratory Practice Regulations on the following dates 8, 16, and 17 May 1985. If discrepancies were found, reports were made immediately to the study director and management. It is the opinion of this unit that these data accurately reflect the raw data generated during this study."

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

a. Test Procedures - The procedures followed were in accordance with protocol recommended by the guidelines. There were no problems in this regard.

b. Statistical Analysis - EEB statistical analysis (results attached) confirms the authors reported conclusion.

c. Discussion/Results - With a 96-hr LC_{50} = 120 ppm (95% ci 49 to 160), technical Aliette is practically nontoxic to Cyprinodon variegatus.

d. Adequacy of Study:

1. Classification: Core for technical Aliette

2. Rationale: Study is scientifically sound and was conducted in accordance with accepted protocol.

3. Repairability: N/A

15. Completion of One-Liner For Study:

One-liner completed July 12, 1985.

16. CBI Appendix:

N/A

ARMITAGE ALIETTE MARINE FISH 96-HR LC50

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CONC.	NUMBER EXPOSED	NUMBER DEAD	PERCENT DEAD	BINOMIAL PROB. (PERCENT)
160	10	10	100	.0976563
115	10	3	30	17.1875
49	10	0	0	.0976563
45	10	0	0	.0976563
39	10	0	0	.0976563
24	10	0	0	.0976563
20	10	0	0	.0976563

THE BINOMIAL TEST SHOWS THAT 49 AND 160 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 124.005

WHEN THERE ARE LESS THAN TWO CONCENTRATIONS AT WHICH THE PERCENT DEAD IS BETWEEN 0 AND 100, NEITHER THE MOVING AVERAGE NOR THE PROBIT METHOD CAN GIVE ANY STATISTICALLY SOUND RESULTS.

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