File No. 128850

DATA EVALUATION RECORD

1. CHEMICAL: Monoammonium-2-amino-4-(hydroxymethyl phosphinyl) butanate

2. FORMULATION: (HOE 39866) technical; 97.4 % a.i.

3. CITATION: R. Fisher. 1983. The effects of HOE 39866 on Lepomis gibbosus (Pumpkinseed sunfish), in a static test. Performed by Hoechst AG, Frankfurt, FRG; submitted by American Hoechst Corp., Somerville, NJ; Registration No. 8340-EUP-RN; Accession No. 072967.

4. REVIEWED BY: John J. Bascietto
Wildlife Biologist
Ecological Effects Branch/HED

5. DATE REVIEWED: November 27, 1984

6. TEST TYPE: Freshwater Fish LC_{50} (96-HR)

A. Pumpkinseed sunfish, Lepomis gibbosus

7. REPORTED RESULTS: 96-hr LC_{50} > 320 mg/l

8. REVIEWER'S CONCLUSIONS: The study is scientifically sound. ~~However~~, EEB is ~~un~~able at this time to validate the LC_{50} estimate of > 320 mg/l.

The study does ~~not~~ satisfy a guideline requirement because the report did ~~not~~ give necessary data on the preparation of stock and working toxicant solutions, thus EEB could ~~not~~ validate the nominal exposures in the excessively large (300 L) test chambers. In order to reconsider this study EEB requires:

a. amounts of toxicant and volumes used to prepare the toxicant solutions.

upgraded to fully acceptable 4-29-85 - John Bascietto

b. ~~actual (analytical)~~ concentrations of toxicant in each vessel ~~at beginning, middle and end of the study.~~ NOT required

c. temperature in each vessel at 0, 24, 48, 72 and 96 hours. ✓ OK

See Acc. No. 256761

9. MATERIALS/METHODS:

A. Test Procedures:

Pumpkinseed sunfish stock were obtained from "ZOO - Zentrum Hoechst, Fed. Republic of Germany. Mortality over a period of 9 weeks was 1 percent. At the time of testing the fish were 4 months old- mean length = 4.39 cm; mean weight = 2.05 g (n = 10).

Test water laboratory supply (tap) filtered by ultrafiltration and deionization unit of charcoal filter before use in tests. Water used in tests was first reconstituted to EPA "soft": pH = 7.71; total hardness = 41 mg/l as $CaCO_3$; total alkalinity = 31 mg/l as $CaCO_3$; conductivity = 143 umhos/cm. Instrumentation used was from Wissenschaftlich Technische Werkstaetten Weilhein, Fed. Rep. of Germany.

Test used three (3) concentrations: 320, 180, and 100 mg/l plus a negative control. Replicates were not used. Fresh stock solutions of test substance were prepared with precision to 0.1 mg and diluted to volume in volumetric glass with dilution water.

Test chambers were 300 L stainless steel tanks containing 300 L of test solution. Fish were randomly introduced into these chambers, to which the toxicant solutions had already been added, mixed. Fish had acclimated to test conditions for 120 hours, and had been fasted for 96 hours prior to start of test (no report as to acclimation period mortality, if any). Ten (10) individuals were placed in each tank; ten fish per concentration (no replicates). Biological loading was 0.14 g/l.

D.O. and pH were determined initially and at 24-hours intervals for the control and each test vessel. Temperature was recorded continuously. Observations of behavior were made at 24-hour intervals. Death was established by "no visible movements of their gills." Test temperature was 22.7 - 23.0°C.

B. Statistical Analysis:

None.

10. RESULTS:

No mortality was observed in any control or treatment vessel. The 96-hour LC_{50} was estimated at >320 mg/l. Signs of intoxication of any fish "could not be recorded".

Water Chemistry:

Initial -	total hardness	= 41 mg/l as $CaCO_3$
	total alkalinity	= 31 mg/l as $CaCO_3$
	conductivity	= 143 umhos/am
	$\bar{X}$ pH	= 7.42
	$\bar{X}$ temperature	= 22.8°C
End of test -	total hardness	= 42 mg/l as $CaCO_3$
	total alkalinity	= 32 mg/l as $CaCO_3$
	conductivity	= 148 umhos/cm
	pH	= 7.24

D.O. did not fall below 6.95 ppm in any vessel during the test, but most fell in the 7.5-8.5 range.

pH remained in the 7.1-7.5 range in most vessels during the test.

11. REVIEWER'S EVALUATION:

A. Procedures: mostly followed EPA Pesticide Assessment Guidelines except for the following deviations.

- Pumpkinseed sunfish is not a preferred test species.
- Did not report the temperature of individual test chambers at specified times.
- Test carried out in 300 L. vessels with 300L. test solutions. EPA protocols recommend 19 L. vessels with 15 L. test solutions. The larger volumes used would be acceptable if actual (analytical) concentrations of toxicant were determined at the beginning, middle and end of the exposure, in each test chamber.
- The author did not report the actual amounts of toxicants used in the preparation of the test toxicant solutions.

B. Statistical Analysis:

None necessary; no mortality

C. Results

The LC_{50} estimate is to be used cautiously in hazard assessment because EEB is unable, at this time, to validate the exposure.

D. Conclusions

1. Category: ~~Supplemental~~ CORE - JB. 4-29-85

2. Rationale: - Did not report actual amounts of toxicant used in preparing the test solutions.

   - Use of excessively large chambers without reporting actual (analytical) concentrations in the chambers during the exposure.

   - Did not report temperatures in individual chambers OK per rec no 256761

3. Repair: Provide the missing data. OK ✓ →

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8. REVIEWER'S CONCLUSIONS: The study is scientifically sound. However, EEB is unable at this time to validate the LC_{50} estimate of > 320 mg/l.

The study does not satisfy a guideline requirement because the report did not give necessary data on the preparation of stock and working toxicant solutions, thus EEB could not validate the nominal exposures in the excessively large (300 L) test chambers. In order to reconsider this study EEB requires:

a. amounts of toxicant and volumes used to prepare the toxicant solutions.

b. actual (analytical) concentrations of toxicant in each vessel at beginning, middle and end of the study.

c. temperature in each vessel at 0, 24, 48, 72 and 96 hours.

9. MATERIALS/METHODS:

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B. Statistical Analysis:

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10. RESULTS:

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B. Statistical Analysis:

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C. Results

The LC_{50} estimate is to be used cautiously in hazard assessment because EEB is unable, at this time, to validate the exposure.

D. Conclusions

1. Category: Supplemental

2. Rationale: - Did not report actual amounts of toxicant used in preparing the test solutions.

   - Use of excessively large chambers without reporting actual (analytical) concentrations in the chambers during the exposure.

   - Did not report temperatures in individual chambers

3. Repair: Provide the missing data.