File No. 128850

DATA EVALUATION RECORD

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

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

3. CITATION: R. Fisher. 1982. The effect of HOE 39866 on Daphnia magna (Waterflea) 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: Aquatic Invertebrate (freshwater) LC_{50} (48-hr)

A. Daphnia magna (Waterflea)

7. REPORTED RESULTS: 24-hr LC_{50} = 896.16 mg/l

48-hr LC_{50} = 667.56 mg/l (595.72 - 747.11)

8. REVIEWER'S CONCLUSIONS: The study is scientifically sound. ~~However~~, at this time we are unable to validate the exposure and we ~~do not~~ know how many animals were tested. The study does ~~not~~ fulfill a guidelines requirements.

upgraded to fully acceptable -jb

9. MATERIALS/METHODS:

A. Test Procedures:

Daphnids used from laboratory culture - breeding temperature = 20°C - food was monocellular green algae and suspended yeast. 1st instars (24 hrs old) were used on test.

Dilution water was deionized, filtered, and reconstitiuted to EPA "soft" guidelines; pH = 7.57. Instrumentation was manufactured in Germany.

(Ref. report p. 4) "after 24 hrs the newborn daphnids were sampled at random with a glass tube and five animals were counted into each jar, containing water and test substance (ten animals for each concentration)."

"Nine concentrations and a control were tested. Replicate concentrations were not used."

The test was conducted in 200 ml glass jars (final volume of test solution not specified) - "calculated amounts" were added to dilution water in these vessels, then mixed, prior to introduction of daphnids. Content of a.i. was assumed to be 100%.

"Physico-chemical parameters were determined in separate glass jars" set up in the same manner as those for mortality counts. Measurements were not made in the actual chambers in which mortality was determined ("to avoid stress to the daphnids"). D.O. and pH were determined at 0, 24, and 48 hours, for the control, high, medium and low concentrations. Test temperatures were maintained by water bath at 20 ± 1°C.

The animals were counted as "dead" when, after agitation, they could not swim for 15 seconds.

B. Statistical Analysis:

LC_5, LC_{50} and LC_{95} and 95% confidence intervals were determined at 24- and 48-hours by SAS probit analysis.

10. RESULTS:

At 24-hours all daphnids in the highest concentration tested (1000 mg/l) were adversely affected but not all were counted "dead" by the above definition. By 48 hours all had died at 1000 mg/l and 80% were dead at 750 mg/l; 10% dead at 560 mg/l. The following concentrations had 100% survival: 420, 320, 240, 180, 135, 100 and 0 mg/l (control).

(Mg/l)	24 HRS	48 HRS
LC_{05}	416.13 * -601.42	534.60 375.78-598.20
LC_{50}	896.16 630.09 - *	667.56 (595.72-747.11)
LC_{95}	1929.95 1101.75 - *	833.59 (745.41-1182.10)

*Could not be calculated

D.O ranged from 8.35 ppm - 8.69 ppm and was satisfactory in all vessels tested at all times.

pH ranged from 7.11 - 7.74 and was satisfactory in all vessels tested at all times.

Initial Water - (EPA "soft)

total hardness	:	45 mg/l as $CaCO_3$
total alkalinity	:	32 mg/l as $CaCO_3$
conductivity	:	146 uhoms/cm
average pH	:	7.65
average temperature	:	20.7°C

(Temperatures in individual vessels not reported).

11. REVIEWER'S EVALUATION:

A. Test Procedure:

The following aspects of the test procedure were unacceptable.

- The study apparently did not establish the actual (analytical) concentrations of test material in the test vessels. This would be required because they did not describe the actual preparation of toxicant solutions to the amounts, volumes, etc.

- The study apparently did not report the temperatures in the test chambers.

- The description of the test design was inadequate. The number of animals per concentration was conflicting and gave at least two different values (5 and 10) - see attached sheet.

B. Statistical Analysis:

The statistical analysis was not validated because the number of animals tested per concentration is in question.

C. Results:

The results are to be used cautiously since the exposure is not validated.

D. Conclusions:

1. Category: ~~Supplemental~~ Core

2. Rationale: The study had deviations from guidelines (see above).

3. Repair: 1. In order to validate the exposure clarify specific methods and amounts, volumes, etc., used to prepare toxicant solutions and/or provide analytical chemistry on each vessel tested. ✓ Acc. No. 256761

2. Give temperature data for each vessel.

3. Explain why two different values are given for numbers of animals tested per vessel and clarify number tested. ✓

4. Show all raw data for each vessel - numbers tested, numbers dying, times, etc., per concentration.

raw data in Germany

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The material not included contains the following type of information:

____ Identity of product inert ingredients.

____ Identity of product impurities.

____ Description of the product manufacturing process.

____ Description of quality control procedures.

____ Identity of the source of product ingredients.

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____ The product confidential statement of formula.

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