

US EPA ARCHIVE DOCUMENT

File No. 128850

DATA EVALUATION RECORD

1. CHEMICAL: Monoammonium-2-amino-4-(hydroxymethyl phosphinyl) butanate
2. FORMULATION: HOE 39866 OH SL19 A127  
Soluble concentrate 200 g/L 19% a.i.
3. CITATION: Fisher R. 1983. The effect of HOE 039866 OH SL19 A127 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: December 3, 1984
6. TEST TYPE: Acute Toxicity to Freshwater Aquatic Invertebrate  
A. Daphnia magna, waterflea
7. REPORTED RESULTS: Replicate  
(DM 501) 48-hr LC<sub>50</sub> = 58.78 mg/L  
(DM 502) 48-hr LC<sub>50</sub> = 32.04 mg/L
8. REVIEWER'S CONCLUSIONS: The study is ~~not~~ scientifically sound as ~~reported~~ but The results produced an erratic dose-mortality response. This result should not be used because EEB was unable to validate the nominal exposures. This is essential because of the erratic dose-mortality response.

Some repaired -  
upgraded data - Supplemental  
-PB

Other problems: (a) No statement of % a.i. tested; (b) improper monitoring of physico-chemical parameters; and (c) no statement of test solution volume used in chambers.

The study does not satisfy a guidelines requirement.

9. MATERIALS/METHODS:

A. Test Procedures:

Two (2) replicate tests DM 501 and DM 502 were performed. Daphnids were 1st instars from laboratory stock, bred at 20°C and fed with monocellular green algae.

EPA "very hard" reconstituted deionized water was used as the test medium. The concentrations of toxicant were prepared by direct introduction of chemicals (based on assumed 100% purity) weighed out to precision of 0.1 mg.

Ten (10) daphnids were tested in each 200 ml test chamber (glass jar). D.O., pH, and water temperature were monitored in the control group in separate glass jars with the same water and same number of animals, but not in the jars used for mortality counts. pH water bath was used to keep temperatures at about 20°C.

Test criteria were death or immobilization.

B. Statistical Analysis:

The  $LC_{50}$  and 95% confidence interval (c.i.) were calculated by the computerized probit analysis by SAS.

10. RESULTS:

48 hr  $LC_{50}$  (+ 95% c.i.)

replicate

DM 501 58.78 mg/L (95% c.i. not determined)

DM 502 32.04 mg/L (11.8-111 mg/L)

Percent mortalities listed in Table 1

Physico-chemical parameters listed in Table 3

11. REVIEWER'S EVALUATION:

A. Test Procedure:

Several protocol deficiencies are involved in this test. The following points are not in compliance with the guidelines.

- EEB cannot validate the nominal exposures claimed. There was an inadequate description of the materials and methods used to prepare the toxicant solutions. There was no report of analytical (actual) concentrations determined during the study.
- The physico-chemical parameters were not measured in the test chambers used for mortality counts.
- The volume of test solutions was not stated
- The % active ingredient in the test solutions was not given.

B. Statistical Analysis:

Not validated.

C. Results:

The results are to be used cautiously since EEB cannot validate the exposure. It will be particularly important to validate the nominal exposures by analytical means because the erratic dose - mortality response.

D. Conclusions:

1. Category: ~~Invalid~~ *Supplemental*
2. Rationale:
  - ~~unable to validate exposure with erratic response~~
  - ~~no % a.i. given~~ *repaired Rec No. 256761*
  - ~~no test solutions volume given~~
3. Repair:
  - ~~provide analytical (actual) concentrations on each test chamber determined during the study.~~
  - state % a.i. of test material ✓
  - state toxicant solution volumes ✓

TABLE 1  
 Percent Mortalities  
 of  
 Hoe 039866 OH SL19 A127 (Hoe 039866 soluble concentrate 200 g/L)  
 on  
 Daphnia magna (Waterflea)

Test group Number	Concentr. mg/l	24 hours		48 hours	
		Dm501	Dm502	Dm501	Dm502
Control	-	0	0	0	0
I	1000	100	100	100	100
II	560	100	100	100	100
III	320	100	100	100	100
IV	180	70	100	100	100
V	100	20	30	80	100
VI	56	10	0	40	30
VII	32	0	0	0	10
VIII	18	0	0	0	0
IX	10	0	0	0	0
X	5.6	0	0	0	20
XI	3.2	0	0	0	20
XII	1.8	0	0	10	30
XIII	1.0	0	0	0	20
XIV	0.56	0	0	0	0
XV	0.32	0	0	0	0
XVI	0.18	0	0	0	0
XVII	0.10	0	0	0	0

TABLE 3

Physical and Chemical Water Parameters from Tests Dm501 and Dm502  
 Test water: a mixture of 80% filtered drinking- and 20% deionized water

TABLE 3a Chemical Water Parameters (test day zero)

analysed P A R A M E T E R S	Dm 501	Dm 502
Total Hardness mg/l as CaCO <sub>3</sub>	253.24	252.24
Carbonate Hard. mg/l as CaCO <sub>3</sub>	207.01	206.48
Magnesium Content mmol/l	0.57	0.57
Calcium Content mmol/l	1.91	1.90
Total Nitrite mg/l	< 0.01	< 0.01

TABLE 3b Physicochemical Water Parameters

Time	Temperature °C		Diss.Oxyg. mg/l		pH - values		Conductivity *	
	Control Dm501	Control Dm502	Control Dm501	Control Dm502	Control Dm501	Control Dm502	Control Dm501	Control Dm502
0 h	20.0	20.1	9.05	8.99	8.35	8.36	442	443
24 h	19.9	20.0	8.98	8.94	8.38	8.34	-	-
48 h	20.2	20.1	8.68	8.56	8.36	8.36	435	436

\* in µmhos/cm (corrected against temperature)

File No. 128850

DATA EVALUATION RECORD

1. CHEMICAL: Monoammonium-2-amino-4-(hydroxymethyl phosphinyl) butanate
2. FORMULATION: HOE 39866 OH SL19 A127  
Soluble concentrate 200 g/L
3. CITATION: Fisher R. 1983. The effect of HOE 039866 OH SL19 A127 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. Baschetto  
Wildlife Biologist  
Ecological Effects Branch/HED
5. DATE REVIEWED: December 3, 1984
6. TEST TYPE: Acute Toxicity to Freshwater Aquatic Invertebrate  
A. Daphnia magna, waterflea
7. REPORTED RESULTS: Replicate  
(DM 501) 48-hr LC<sub>50</sub> = 58.78 mg/L  
(DM 502) 48-hr LC<sub>50</sub> = 32.04 mg/L
8. REVIEWER'S CONCLUSIONS: The study is not scientifically sound as reported. The results produced an erratic dose-mortality response. This result should not be used because EEB was unable to validate the nominal exposures. This is essential because of the erratic dose-mortality response.  
  
Other problems: (a) No statement of % a.i. tested; (b) improper monitoring of physico-chemical parameters; and (c) no statement of test solution volume used in chambers.  
  
The study does not satisfy a guidelines requirement.

9. MATERIALS/METHODS:

A. Test Procedures:

Two (2) replicate tests DM 501 and DM 502 were performed. Daphnids were 1st instars from laboratory stock, bred at 20°C and fed with monocellular green algae.

EPA "very hard" reconstituted deionized water was used as the test medium. The concentrations of toxicant were prepared by direct introduction of chemicals (based on assumed 100% purity) weighed out to precision of 0.1 mg.

Ten (10) daphnids were tested in each 200 ml test chamber (glass jar). D.O., pH, and water temperature were monitored in the control group in separate glass jars with the same water and same number of animals, but not in the jars used for mortality counts. pH water bath was used to keep temperatures at about 20°C.

Test criteria were death or immobilization.

B. Statistical Analysis:

The LC<sub>50</sub> and 95% confidence interval (c.i.) were calculated by the computerized probit analysis by SAS.

10. RESULTS:

48 hr LC<sub>50</sub> (+ 95% c.i.)

replicate

DM 501 58.78 mg/L (95% c.i. not determined)

DM 502 32.04 mg/L (11.8-111 mg/L)

Percent mortalities listed in Table 1

Physico-chemical parameters listed in Table 3

11. REVIEWER'S EVALUATION:

A. Test Procedure:

Several protocol deficiencies are involved in this test. The following points are not in compliance with the guidelines.



- EEB cannot validate the nominal exposures claimed. There was an inadequate description of the materials and methods used to prepare the toxicant solutions. There was no report of analytical (actual) concentrations determined during the study.
- The physico-chemical parameters were not measured in the test chambers used for mortality counts.
- The volume of test solutions was not stated
- The % active ingredient in the test solutions was not given.

B. Statistical Analysis:

Not validated.

C. Results:

The results are to be used cautiously since EEB cannot validate the exposure. It will be particularly important to validate the nominal exposures by analytical means because the erratic dose - mortality response.

D. Conclusions:

1. Category: Invalid
2. Rationale:
  - unable to validate exposure with erratic response
  - no % a.i. given
  - no test solutions volume given
3. Repair:
  - provide analytical (actual) concentrations on each test chamber determined during the study.
  - state % a.i. of test material
  - state toxicant solution volumes

TABLE 1  
 Percent Mortalities  
 of  
 Hoe 039866 OH SL19 A127 (Hoe U39866 soluble concentrate 200 g/l)  
 on  
 Daphnia magna (Waterflea)

Test group Number	Concentr. mg/l	24 hours		48 hours	
		Dm501	Dm502	Dm501	Dm502
Control	-	0	0	0	0
I	1000	100	100	100	100
II	560	100	100	100	100
III	320	100	100	100	100
IV	180	70	100	100	100
V	100	20	30	80	100
VI	56	10	0	40	30
VII	32	0	0	0	10
VIII	18	0	0	0	0
IX	10	0	0	0	0
X	5.6	0	0	0	20
XI	3.2	0	0	0	20
XII	1.8	0	0	10	0
XIII	1.0	0	0	0	20
XIV	0.56	0	0	0	0
XV	0.32	0	0	0	0
XVI	0.18	0	0	0	0
XVII	0.10	0	0	0	0

TABLE 3

Physical and Chemical Water Parameters from Tests Dm501 and Dm502  
 Test water: a mixture of 80% filtered drinking-and 20% deionized water

TABLE 3a Chemical Water Parameters (test day zero)

analysed P A R A M E T E R S	Dm 501	Dm 502
Total Hardness mg/l as CaCO <sub>3</sub>	253.24	252.24
Carbonate Hard. mg/l as CaCO <sub>3</sub>	207.01	206.48
Magnesium Content mmol/l	0.57	0.57
Calcium Content mmol/l	1.91	1.90
Total Nitrite mg/l	< 0.01	< 0.01

TABLE 3b Physicochemical Water Parameters

Time	Temperature °C		Diss.Oxyg. mg/l		pH - values		Conductivity *	
	Control Dm501	Control Dm502	Control Dm501	Control Dm502	Control Dm501	Control Dm502	Control Dm501	Control Dm502
0 h	20.0	20.1	9.05	8.99	8.35	8.36	442	443
24 h	19.9	20.0	8.98	8.94	8.38	8.34	-	-
48 h	20.2	20.1	8.68	8.56	8.36	8.36	435	436

\* in µmhos/cm (corrected against temperature)