

US EPA ARCHIVE DOCUMENT

DATA EVALUATION RECORD

1. Chemical: Metalaxyl (Shaughnessy #113501)
2. Formulation: Ridomil 2E-G (27.9% a.i.)
3. Citation: U.S. E.P.A. 1979. Biological report of analysis-static jar test #2411. OPP/BFSD/CBIB (Beltsville). 1p. [within Accession #244183].
4. Reviewed by: James D. Felkel
Wildlife Biologist
Ecological Effects Branch/HED
5. Date Reviewed: 3/17/81
6. Test Type: 96-hour fish LC₅₀
 - A. Test Species: Bluegill (Lepomis macrochirus)
7. Reported Results: 96-hour LC₅₀ for the test material (not adjusted for a.i.) is 27 ppm (95% confidence interval 23.6 - 30.8 ppm)
8. Reviewer's Conclusions: This study is scientifically sound and satisfies the requirement for a 96-hour LC₅₀ for this formulation and species. The "inerts" are apparently responsible for the increased toxicity of this product over the technical material, either by their own toxicity or by an interaction with the active ingredient. Therefore, any hazard assessment should be based on the amount of this formulation (rather than a.i.) applied and its toxicity. A formulation LC₅₀ of 27 ppm places this material in the "slightly toxic" category.

Materials/Methods

The test material was described as a liquid, sample #MB 575. The bluegills were obtained from the Harrison Lake Fish Hatchery and weighed an average of 0.7 grams. No diluent other than the test water was used. A control and three concentrations (25, 30, 35 ppm) were tested. Method #TSD 1.206 was followed. Ten fish were used per concentration at a loading rate of 0.5g fish/liter.

Results

Percent mortality was as follows:

Time	Slope	Chi 2	Concentration (ppm)			
			35	30	25	C
24 hrs.	1.239	0.15	100	70	30	0
48 hrs.			100	70	40	0
72 hrs.			100	70	40	0
96 hrs.	1.239	0.15	100	70	40	0

Reviewer's Evaluation

Methods

Methods used were generally consistent with approved protocols.

Statistics

Statistics were previously confirmed by J. Leitzke (see 1/21/80 EEB review).

Results

The 96-hour LC₅₀ of 27 ppm places this formulation in the "slightly toxic" range to the bluegill. This formulation is approximately ⁵5.5 times as toxic as the technical material to bluegills, despite the lower percent a.i.

Conclusions

1. Category: Core
2. Rationale: N/A
3. Repairability: N/A

79/11/30. 14.18.34.
BASIC PROGRAM S79LC50

113501

RIDOMEL 2E-G

BLUEGILL 24-HR LC50

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CONC.          NUMBER          NUMBER          PERCENT          BINOMIAL
                EXPOSED          DEAD            DEAD            PROB.(PERCENT
                10              10             100             9.76563E-2
35              10              7              70.             17.1875
30              10              3              30.             17.1875
25
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THE BINOMIAL TEST SHOWS THAT 0 AND 35 CAN BE USED AS STATISTICALLY SOUND CONSERVATIVE 95 PERCENT CONFIDENCE LIMITS SINCE THE ACTUAL CONFIDENCE LEVEL ASSOCIATED WITH THESE LIMITS IS GREATER THAN 95 PERCENT.

AN APPROXIMATE LC50 FOR THIS SET OF DATA IS 27.3861

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-----RESULTS CALCULATED USING THE MOVING AVERAGE METHOD
SPAN          G          LC50          95 PERCENT CONFIDENCE LIMITS
2              .272538      27.3861      23.8274      29.5538
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-----RESULTS CALCULATED USING THE PROBIT METHOD
ITERATIONS    G          H          GOODNESS OF FIT PROBABILITY
5              .396836      1          .421406
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SLOPE = 17.2998
95 PERCENT CONFIDENCE LIMITS = 6.40181 AND 28.1978

LC50 = 27.1655
95 PERCENT CONFIDENCE LIMITS = 23.9211 AND 29.4082

LC10= 22.905
95 PERCENT ONFIDENCE LIMITS = 15.7788 AND 25.3229

RIDOMIL 2E-G

BLUEGILL

96-HR LC50

CONC.	NUMBER EXPOSED	NUMBER DEAD	PERCENT DEAD	BINOMIAL PROB.(PERCENT
35	10	10	100	9.76563E-2
30	10	7	70.	17.1875
25	10	4	40.	37.6953

THIS DATA SET DOES NOT MEET THE CRITERIA ESTABLISHED BY THE COMMITTEE ON METHODS FOR TOXICITY TESTS WITH AQUATIC ORGANISMS BECAUSE NO PERCENT DEAD IS LESS THAN 35 PERCENT.

THE BINOMIAL TEST SHOWS THAT 0 AND 35 CAN BE USED AS STATISTICALLY SOUND CONSERVATIVE 95 PERCENT CONFIDENCE LIMITS SINCE THE ACTUAL CONFIDENCE LEVEL ASSOCIATED WITH THESE LIMITS IS GREATER THAN 95 PERCENT.

AN APPROXIMATE LC50 FOR THIS SET OF DATA IS 26.5468

-----RESULTS CALCULATED USING THE MOVING AVERAGE METHOD

SPAN	G	LC50	95 PERCENT CONFIDENCE LIMITS
1	2.35283	26.5468	0 +INFINITY

-----RESULTS CALCULATED USING THE PROBIT METHOD

ITERATIONS	G	H	GOODNESS OF FIT PROBABILITY
6	.48578	1	.333681

SLOPE = 14.7672
95 PERCENT CONFIDENCE LIMITS = 4.47478 AND 25.0597

LC50 = 26.4744
95 PERCENT CONFIDENCE LIMITS = 21.6195 AND 28.8791

LC10= 21.6787
95 PERCENT CONFIDENCE LIMITS = 11.6641 AND 24.604

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RIDOMIL 2E-G

RAINBOW TROUT

96-HR LC50

CONC.	NUMBER EXPOSED	NUMBER DEAD	PERCENT DEAD	BINOMIAL PROB. (PERCENT)
25	10	10	100	9.76563E-2
15	10	4	40.	37.6953
9	10	0	0	9.76563E-2

THE BINOMIAL TEST SHOWS THAT 9 AND 25 CAN BE USED AS STATISTICALLY SOUND CONSERVATIVE 95 PERCENT CONFIDENCE LIMITS SINCE THE ACTUAL CONFIDENCE LEVEL ASSOCIATED WITH THESE LIMITS IS GREATER THAN 95 PERCENT.

AN APPROXIMATE LC50 FOR THIS SET OF DATA IS 16.0038

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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113501



UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

BIOLOGICAL REPORT OF ANALYSIS

1. SAMPLE NO.

MB 575

2. DATE COLLECTED

N/A

3. REGION

N/A

SAMPLE IDENTIFICATION

4. LOT OR CODE NO(S).

None

5. EPA REGISTRATION NO.

None

6. ESTABLISHMENT NO.

None

7. PRODUCT NAME

Ridomil ~~2 E-G~~ (2)

(27.9% AI)

8. PRODUCER NAME AND ADDRESS (Include ZIP code)

Ciba-Geigy
Greensboro, North Carolina

9. DEALER NAME AND ADDRESS (Include ZIP code)

10. PHYSICAL FORM

EMULS. CONC.

PRESS. SPRAY

DUST

GRANULAR

WET. POWDER

AEROSOL

BAIT

X

OTHER brown

11. INGREDIENTS

liquid

N-(2,6-dimethylphenyl)-N-(methoxyacetyl)-amine methyl ester

Ridomil ~~2 E-G~~ (2)

Metalaxyl

TEST

12. TYPE OF TEST

Static jar
Test #2416

13. TEST ORGANISM(S)

Daphnia magna
Source: TABU stock culture

14. METHOD NO. TSD 1.206

15. DURATION 48 hrs

16. CONCENTRATION 6 - 78 ppm

17. DILUENT Acetone

18. SUMMARY

Concentration based on total formulation.

48 hr EC50 is 12.5 ppm (95% confidence interval 9.9 to 15.8 ppm)

19. RESULTS

Concentration in ppm (percent mortality given below)

Time	Slope	Chi 2	78	47	28	17	10	6	SC	C
24 hrs			100	90	70	50	10	0	0	0
48 hrs	1.303	0.022	100	100	100	90	20	0	0	0

Ten organisms/concentration.

Daphnia bioassays conducted in reconstituted deionized water with pH 7.8, total alkalinity (bicarbonate) 105 ppm; total hardness (ppm CaCO₃) 215 ppm.

20. TESTER'S INITS.

M.M

21. SIGNATURE OF LAB SUPERVISOR

John A. ...

22. LABORATORY

Terrestrial & Aquatic Biology

23. DATE

7/24/79

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RIDOMIL 2E-6

DAPHNIA MAGNA 24-HR EC50

CONC.	NUMBER EXPOSED	NUMBER DEAD	PERCENT DEAD	BINOMIAL PROB.(PERCENT)
78	10	10	100	9.76563E-2
47	10	9	90.	1.07422
28	10	7	70.	17.1875
17	10	5	50	62.3047
10	10	1	10.	1.07422
6	10	0	0	9.76563E-2

THE BINOMIAL TEST SHOWS THAT 10 AND 47 CAN BE USED AS STATISTICALLY SOUND CONSERVATIVE 95 PERCENT CONFIDENCE LIMITS SINCE THE ACTUAL CONFIDENCE LEVEL ASSOCIATED WITH THESE LIMITS IS GREATER THAN 95 PERCENT.

AN APPROXIMATE LC50 FOR THIS SET OF DATA IS 17

-----RESULTS CALCULATED USING THE MOVING AVERAGE METHOD

SPAN	G	LC50	95 PERCENT CONFIDENCE LIMITS	
5	.1108	20.1445	15.1299	26.3181

-----RESULTS CALCULATED USING THE PROBIT METHOD

ITERATIONS	G	H	GOODNESS OF FIT PROBABILITY
5	.17221	1	.909947

SLOPE = 4.03519
 95 PERCENT CONFIDENCE LIMITS = 2.36066 AND 5.70972

LC50 = 19.8204
 95 PERCENT CONFIDENCE LIMITS = 15.0037 AND 26.0555

LC10= 9.53855
 95 PERCENT CONFIDENCE LIMITS = 5.1405 AND 12.9919

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RIDOMIL 2E-G

DAPHNA MAGNA 48-HR EC50

CONC.	NUMBER EXPOSED	NUMBER DEAD	PERCENT DEAD	BINOMIAL PROB.(PERCENT)
78	10	10	100	9.76563E-2
47	10	10	100	9.76563E-2
28	10	10	100	9.76563E-2
17	10	9	90.	1.07422
10	10	2	20.	5.46875
6	10	0	0	9.76563E-2

THE BINOMIAL TEST SHOWS THAT 6 AND 17 CAN BE USED AS STATISTICALLY SOUND CONSERVATIVE 95 PERCENT CONFIDENCE LIMITS SINCE THE ACTUAL CONFIDENCE LEVEL ASSOCIATED WITH THESE LIMITS IS GREATER THAN 95 PERCENT.

AN APPROXIMATE LC50 FOR THIS SET OF DATA IS 12.4531

-----RESULTS CALCULATED USING THE MOVING AVERAGE METHOD

SPAN	G	LC50	95 PERCENT CONFIDENCE LIMITS	
3	.111498	12.3916	10.0313	15.1135

-----RESULTS CALCULATED USING THE PROBIT METHOD

ITERATIONS	G	H	GOODNESS OF FIT PROBABILITY
7	.338809	1	.999926

SLOPE = 9.4143
 95 PERCENT CONFIDENCE LIMITS = 3.93449 AND 14.8941

LC50 = 12.3561
 95 PERCENT CONFIDENCE LIMITS = 10.0984 AND 15.1735

LC10= 9.03106
 95 PERCENT CONFIDENCE LIMITS = 5.4817 AND 10.8295

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