

DATA EVALUATION RECORD

1. Chemical: α -butyl- α -(4-chlorophenyl)-1 H-1,2,4-triazole-1-propane nitrile

Shaughnessy Number 128857

2. Test Material: RH-53,866 technical, Lot LSPL 83/0017E, 84.5% a.i.
3. Study Identification: Forbis, A.D.. et al. 1984. Acute Toxicity of RH-53,866 to Daphnia magna. Report #30727. Analytical Bio-chemistry Laboratories Inc. Columbia, MO. EPA EUP Nos. 707-EUP-RNL and 707-EUP-RNU, Acc. No. 072894
4. Study Type: Acute toxicity for freshwater Aquatic Invertebrates
5. Reviewed by: Robert W. Pilsucki *Robert W. Pilsucki* 1/2/85
Microbiologist
Ecological Effects Branch/HED
6. Approved by: ^{for} Raymond Matheny *Demi Matheny*
Head, Review Section 1
7. Reported Conclusions: The acute 48-hour LC₅₀ for Daphnia magna was 11 (95% C.L. = 9.5 - 13) mg/L.
NOEL = 3.2 mg/L
8. Reviewer s conclusions: This study is scientifically sound and with a LC₅₀ of 11 mg RH 3866 is slightly toxic to Daphnia magna. This study does fulfill the requirement for an LC₅₀ to freshwater aquatic invertebrates.
- Sum*
- 1

9. Materials/MethodsSpecies: Daphnia magnaAge: 1st instarSource: Analytical Biochemistry Inc. Laboratory StockTest Vessel: Size/Volume: 250 ml containing 200 ml. of test water.Construction: GlassTest Water:

Temperature: 20 + 2.0 C

Source and water chemistry. Well water was used as test water and had the following characteristics: hardness as CaCO₃, 225-275 mg/l; alkalinity as CaCO₃, 325-375 mg/L; conductivity, 700 umhos/cm; D.O., 9.2-10.2 ppm; pH, 7.8-8.3.

The water was also analyzed for organophosphorous and organochlorine pesticides (see attached tables).

Aeration: None

D.O.: During the test, the dissolved oxygen measurements were (mg/L)

Time (hr)	Control	Low Conc.	Middle Conc.	High Conc.
0	7.3	*	*	*
48	7.3	7.2	7.2	7.1

* = not measured

pH: During the test, the pH measurements were:

Time (hr)	Control	Low Conc.	Middle Conc.	High Conc.
0	8.0	*	*	*
48	8.2	8.5	8.5	8.5

* = not measured

Solvent: Acetone. The maximum amount of solvent did not exceed 0.5 ml/L.

Control/Solvent control: Both negative and solvent controls were run concurrent with the test material. There was no mortality in either control.

Number of invertebrates/concentration: 20

Concentrations - Mortalities

Acute LC50 Daphnia magna

Conc. ^a mg/L	Number Exposed	Number Dead	Percent Mortality
18	20	18	90
10	20	9	45
5.6	20	0	0
3.2	20	0	0
1.8	20	0	0

^a Dose adjusted to yield 100% a.i.

Toxic symptoms: At 5.6, 10 and 18 mg/L, 35%, 55% and 100% of the Daphnia respectively settled to the bottom.

10. Statistical Analysis: The LC₅₀ and 95% confidence limits were calculated using the computer program of Stephan et al. The LC₅₀ and confidence limits reported were those obtained using the binominal test.
11. Discussion: There is no Discussion section in this report
12. Reviewer s Evaluation:

Test procedure: This study generally follows EPAs guidelines for an acute toxicity test for freshwater aquatic invertebrates.

Statistical Analysis: EEB verification of the results gave the following LC₅₀s and 95% confidence limits:

Method	LC50	95% C.L.
binomial test	10.5989	5.6 and 18
moving acreage	10.9459	9.5147 and 12.777
probit method	11.05	9.4466 and 12.977

Discussion: The results of this study generally coincide with those obtained by EEB and show that RH-3866 is slightly toxic to Daphnia magna under these conditions.

13. Conclusions:
 1. Category: Core
 2. Rationale: This study generally follows EPA s guidelines for an acute toxicity test for freshwater aquatic invertebrates.
 3. Repairability: N/A

PILSUCKI RH-3866 ACUTE TOXICITY FOR DAPHNIA MAGNA

CONC.	NUMBER EXPOSED	NUMBER DEAD	PERCENT DEAD	BINOMIAL PROB.(PERCENT)
18	20	18	90	.0201225
10	20	9	45	41.1901
5.6	20	0	0	9.53674E-05
3.2	20	0	0	9.53674E-05
1.8	20	0	0	9.53674E-05

THE BINOMIAL TEST SHOWS THAT 5.6 AND 18 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 10.5989

RESULTS CALCULATED USING THE MOVING AVERAGE METHOD

SPAN	G	LC50	95 PERCENT CONFIDENCE LIMITS	
2	.0760279	10.9459	9.51465	12.777

RESULTS CALCULATED USING THE PROBIT METHOD

ITERATIONS	G	H	GOODNESS OF FIT PROBABILITY
8	.160638	1	.795421

SLOPE = 6.83239
95 PERCENT CONFIDENCE LIMITS = 4.09399 AND 9.57078

LC50 = 11.05
95 PERCENT CONFIDENCE LIMITS = 9.44662 AND 12.9776

LC10 = 7.20248
95 PERCENT CONFIDENCE LIMITS = 5.15369 AND 8.57916

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