

US EPA ARCHIVE DOCUMENT

DATA EVALUATION RECORD

1. CHEMICAL: Profenofos
2. FORMULATION: Technical - 90.6% active ingredient
3. CITATION: Surprenant, D. C. (1980) The chronic toxicity of CGA-15324 to the water flea (Daphnia magna), Research Report, Report # BW-80-2-611, EG&G, Bionomics, submitted by Ciba-Geigy Corporation under EPA Registration No. 100-598, 100-599, CDL Acc. # 246216, p. 257.
4. REVIEWED BY: Dennis J. McLane
Biologist
EEB/HED
5. DATA REVIEWED: 12-10-81
6. TEST TYPE: Invertebrate life cycle test - Daphnia magna
7. REPORTED RESULTS: Based on the reduce, survival of daphnids exposed to 2.3, 1.2, 0.56 and 0.33 ug/l and the reduced number of offspring produced by surviving daphnids exposed to 0.33 ug/l CGA-15324, the MTC of this compound for D. magna was >0.20 <0.33 ug/l.
8. REVIEWER'S CONCLUSIONS: This study is scientifically sound and meets the guideline requirements. Survival of the daphnids would be expected to be affected at concentrations of >0.33 ug/l of profenofos. Therefore, the toxicity of profenofos to D. magna is very highly toxic to this portion of the Daphnid lifecycle.



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9. METHODS/MATERIALS

A. Test Procedures

A solvent control and a control were prepared in addition to the following five concentrations, 0.20, 0.33, 0.56, 1.2, and 2.3 ug/l. The percent survival was recorded three times for both 1st and 2nd generations of the water flea at 7 day intervals.

B. Statistical Analysis

Survival data and offspring per female were subjected to analysis of variance according to Steel and Torrie (1960). If significant ($P < 0.05$) differences between treatments were observed, the Dunnett's procedure (Steel and Torrie, 1960) was used to determine if any treatments varied from the controls.

C. Discussion/Results (See attached tables)

10. REVIEWER'S EVALUATION

A. Test Procedures

The test procedures meet the guideline requirements.

B. Statistical Analysis

In both generations the percentage of survival dropped significantly at the mean measured concentration of 0.33 ug/l. Hence, statistical verification would only be redundant when the results are so apparent.

C. Discussion/Results

The study is scientifically sound and meets the guideline requirements.

D. Conclusion

1. Category - Core

EEB/HED:MC LANE:DCR-15972:WANG-0071E:pjb:RAVEN:479-2013:3/1/82

Weekly mean (standard deviation) percentage survival
of first generation water flea (Daphnia magna) continu-
ously exposed to concentrations of profenofos

Mean measured concentration (µg/l)	Day/	Percentage survival		
		7	14	21
control		100(0)	95(4)	92(6)
solvent control		98(3)	95(6)	92(10)
0.20		100(0)	100(0)	100(0)
0.33		91(11)	42(30)	29(34)
0.56		0(0)	0(0)	0(0)
1.2		0(0)	0(0)	0(0)
2.3		0(0)	0(0)	0(0)

Table 8. Weekly mean (standard deviation) percentage survival
of second generation water flea (Daphnia magna) continu-
ously exposed to concentrations of CGA-15324.

Mean measured concentration (µg/l)	Day/	Percent survival		
		28	35	42
control		100(0)	93(3)	95(4)
solvent control		99(2)	98(3)	94(2)
0.20		100(0)	99(2)	93(3)
0.33		64(45)	50(38)	30(36)
0.56		0(0)	0(0)	0(0)
1.2		0(0)	0(0)	0(0)
2.3		0(0)	0(0)	0(0)