

US EPA ARCHIVE DOCUMENT

Crayfish
w/ TGA



2002029

DATA EVALUATION REPORT
ECOLOGICAL EFFECTS BRANCH

1. Chemical: Tilt

Shaughnessey Number: 122101

2. Formulation: 90.7%

MRID # 132935

3. Study ID: Data Accession No: 072209, Reference 16
Elwood, David and Larisa Altshul. 1981. Acute Toxicity of CGA-64250 to Crayfish (Procambrus sp.). Prepared by EG&G Bionomics for Ciba-Geigy Corp.

4. Study Type: 96-hour LC50, Crayfish (Procambrus sp.)

5. Review By: Daniel Rieder
Wildlife Biologist
Ecological Effects Branch

Daniel Rieder
Date: 9/11/84
Review Time: 3 Hrs

6. Results:

<u>Reported</u>	<u>Reviewer</u>
96-hour LC50=42 ppm*	: 49 ppm*
95% Confidence Limits=29-67 ppm*	: 35-88 ppm*
Slope=	: 3.5
No Observed Effect Level=16 ppm*	: 16 ppm*

*measured concentrations of CGA-64250 100% a.i.

7. Reviewers Conclusions:

This study is scientifically sound and provides useful supplemental information. However, it does not fulfill any guideline requirement because there is no requirement for a toxicity test on crayfish. The results show that Tilt is slightly toxic to crayfish.

8. Methods/materials

Test Material: Tilt, CGA-64250
Percent active ingredient: 90.7%
Test Organism: Crayfish

Species: Procambrus sp.
Size: length=19 mm (range 14-21 mm) weight=3 g (range 1.3-4.8 g)
Source: commercial supplier
Acclimation: held 9 weeks at test conditions

Number per concentration: 10
Test Containers: glass

Size: 20 liter
Replicates: 2
Organisms per container: 5
Aerated: yes

Test Conditions: "Methods for acute toxicity tests with fish, macroinvertebrates and amphibians" (USEPA, 1975)

Temperature: 22°C
Controls: untreated but no solvent control
Solvent: triethylene glycol
Way test was begun: crayfish added 30 minutes after test material
Test Solution: deioniaed well water

9. Results:

Reported : Reviewer
96-hour LC50=42 ppm* :
95% Confidence Limits=29-67 ppm* :
Slope= :
No Observed Effect Level=around 16 ppm* :

*measured concentration

CONCENTRATION PPM <u>Nominal/Measured</u>	MORTALITY PERCENT				CONDITIONS	
	24HRS	48HRS	72HRS	96HRS	DO%	pH (96HRS)
100 / 74	20	40	50	80	82-84	6.9-7.1
60 / 44	20	20	20	30	82-84	7.0-6.9
36 / 30	20	40	40	50	72-80	6.8-6.9
22 / 16	0	11*	11	11	73-85	6.8-7.0
control	0	0	0	10	76-89	6.9-7.0

*one crayfish escaped at this level so only 9

10. Statistical Analysis:

Reported: Probit analysis
Reviewer:

11. Reviewer Evaluation: This study does not fulfill any guideline requirement because there is no requirement for a crayfish study. It does provide useful supplemental information and shows that Tilt (CGA-64250) is slightly toxic to crayfish.

12. Conclusions:

Category: Supplemental
Rationale: The test species is not acceptable.
Repairability: Not repairable.

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NOTE: BECAUSE THERE WAS CONTROL MORTALITY, AND NONE OF THE LOWER CONCENTRATIONS PRODUCED ZERO MORTALITY, THE DATA HAS BEEN SUBJECTED TO ABBOTT'S CORRECTION.

122101 DATA ACC NO: 072209 REF 16 : TILT CRAYFISH LC50

CONC.	NUMBER EXPOSED	NUMBER DEAD	PERCENT DEAD	BINOMIAL PROB.(PERCENT)
74	9	7	77.7778	8.98437
44	9	2	22.2222	8.98437
30	9	4	44.4444	50
16	9	0	0	.195312

THE BINOMIAL TEST SHOWS THAT 16 AND +INFINITY 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 57.0614

RESULTS CALCULATED USING THE MOVING AVERAGE METHOD

SPAN	G	LC50	95 PERCENT CONFIDENCE LIMITS
2	2.04946	57.0614	0 +INFINITY

RESULTS CALCULATED USING THE PROBIT METHOD

ITERATIONS	G	H	GOODNESS OF FIT PROBABILITY
4	.432779	1	.103671

SLOPE = 3.47227
 95 PERCENT CONFIDENCE LIMITS = 1.18801 AND 5.75654

LC50 = 48.9764
 95 PERCENT CONFIDENCE LIMITS = 35.2248 AND 88.6768

LC10 = 21.0976
 95 PERCENT CONFIDENCE LIMITS = 5.25008 AND 30.539
