

US EPA ARCHIVE DOCUMENT

DATA EVALUATION REPORT
ECOLOGICAL EFFECTS BRANCH

1. Chemical: Tilt
Shaughnessy No: 122101
2. Formulation: 90%
3. Study ID: Hitz, H.R. 1981. The Acute Toxicity of CGA-64240 to Bluegill, Prepared by Ciba-Geigy Ltd. Data Accession Number 072209. Ref 3.
4. Study Type: 96-hour LC₅₀ with Bluegill sunfish
5. Review By: Daniel Rieder
Wildlife Biologist
EEB/HED
Date: 11/17/84
Review Time 3 Hrs.
6. Reported Conclusions:
Calculated 96-hour LC₅₀ = 6.4 ppm
95% C.L.: 5.4 to 7.7 ppm
Reviewer calculated LC₅₀ = 5.5 ppm (Binominal Test)
95% C.L. = 2.5 to 9.5 ppm
7. Reviewer's Conclusions:
The study is scientifically sound and fulfills guideline requirements for a warm water fish test. It shows that Tilt is moderately toxic to warm water fish.

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8. Methods and Materials:

Ten fish were tested per concentration level and in a control. The test material was 90% pure Tilt. The fish were acclimated 20 days and test 96-hours. Test containers were glass 15 liter aquaria. Temperature was $23 \pm 2^\circ \text{C}$. Aquaria were aerated. Nominal concentrations: 1.8, 3.2, 5.8, 10 & 18 ppm.

9. Results:

96-hour LC50 = 6.4 ppm 95% C.L.: 5.4 to 7.7 ppm

<u>Measured Conc. ppm</u>	<u>No. Tested</u>	<u>Mortality</u>
control	10	0
solvent cont.	10	1
15.3	10	10
9.5	10	10
4.7	10	3
2.0	10	0
2.5	10	0

10. Statistical Calculation:

The LC50 values were calculated according to Spearman-Kaeber: 524-530 in D.J. Finney, London (1964).

11. Reviewer's Evaluation:

This study shows that Tilt is moderately toxic to warmwater fish. Normally aeration is not acceptable but since concentrations were measured in this study, it would not have an effect on the results. See the attached statistical printout for reviewer statistics. The results are similar to those reported.

12. Conclusion:

Category: Core

NOTE: THERE WAS CONTROL MORTALITY, BUT AT LEAST ONE OF THE LOWER CONCENTRATIONS HAD ZERO MORTALITY. THEREFORE, ABBOTT'S CORRECTION IS NOT APPLICABLE.

122101 TILT CGA-64250 BLUEGILL LC50

CONC.	NUMBER EXPOSED	NUMBER DEAD	PERCENT DEAD	BINOMIAL PROB. (PERCENT)
15.3	10	10	100	.0976563
9.5	10	10	100	.0976563
4.7	10	3	30	17.1875
2.5	10	0	0	.0976563
2	10	0	0	.0976563

THE BINOMIAL TEST SHOWS THAT 2.5 AND 9.5 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 5.51906

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.
