DATA EVALUATION RECORD

1. Chemical: CGA-64250 (Tilt fungicide) 1-[[2-(2,4-dichlorophenyl)-4-propyl-1,3-dioxolan-2-yl]methyl]-1H-1,2,4-triazole.

2. Test Material: 90.7% ai

3. Study Type: Marine and Estuarine Organism Toxicity Test (96-hr)
Species tested: Mysid shrimp (Mysidopsis bahia)

4. Study ID: Hollister, T. A. (1981). Acute Toxicity of CGA-64250 to Mysid Shrimp (Mysidopsis bahia) in a 96-hr flow-through test. Prepared by EG&G Bionomics, Pensacola, Florida; Submitted by Ciba-Geigy Corp., Greensboro, NC. Project No. R26, EG&G Report No. BP-81-8-138-R. Accession No. 260201.

5. Reviewed by: Thomas M. Armitage
Fishery Biologist
EEB/HED
Signature: Thomas M. Armitage
Date: 1-14-86

6. Approved by: Raymond W. Matheny
Supervisory Biologist
EEB/HED
Signature: Raymond W. Matheny
Date: 1-15-86

7. Conclusions:

The study is scientifically sound and with a 96-hr LC_{50} = 510 ug/L (95% c.i. = 370 to 670 ug/L) technical CGA-64250 is considered to be highly toxic to mysid shrimp.

The study fulfills the guidelines requirement for an acute toxicity determination on a marine or estuarine invertebrate (shrimp).

8. Recommendations:

N/A

9. Background:

The study, on acute toxicity determination for a marine or estuarine shrimp, was submitted in support of registration of Tilt fungicide for use on rice.

10. Discussion of Individual Test:

N/A

00133365

2007468

11. Materials and Methods:
(Definitive test)

a. Test animals - were mysid shrimp obtained from a Bionomics Marine Research laboratory culture. Shrimp were 6 to 8 days old at the time of the test.

System - Flowing seawater system. An intermittent-flow proportional diluter (Mont and Brungs, 1967) was constructed to deliver .5 L/cycle/test aquarium at a dilution rate of 50 percent. Each aquarium contained approximately 9 L of control seawater or test solution; the average number of cycles was approximately 6 per hour, providing approximately 8 volume additions every 24 hours. Water temperature was 26 °C. Salinity was 28 to 31 percent.

b. Dose - The chemical stock solution (11.4 grams of active ingredient of test material per 100 mL of reagent grade acetone) was delivered into a mixing chamber from a 50 mL glass syringe and from there it siphoned down into the chemical cells. pH was initially 7.8 and DO was > 72 percent saturation after 96 hours.

c. Design - Twenty mysids per level, 5 dose levels plus solvent control (188, 375, 750, 1500, and 3000 ppb). These are nominal levels. Concentrations were measured at the beginning and end of the test.

d. Statistics - A computer program (Stephan 1977) was used to calculate LC_{50} values. The moving average angle method was used for this calculation.

12. Reported Results:

"After 24 hours of exposure in the flow-through system, mortality of mysid shrimp ranged from 0% in test concentrations $\leq$ 753 ppb to 90% in the 2,900 ppb test concentration. After 96 hours of exposure, mortality ranged from 10% in the 158 ppb test concentrations to 100% in the 2,900 ppb test concentration. There was 5% mortality in the solvent control. The calculated 24-hour LC_{50}, based on measured test concentrations, was 1,700 ppb with 95% confidence limits of 1,500-2,100 ppb. The 96-hour LC_{50} was 510 ppb with 95% confidence limits of 370-670 ppb based on measured test concentrations."

2

13. Study Author's Conclusions/QA Measures:

96-hr LC_{50} (95% c.i.) = 510 ppb (370 to 670 ppb)

The following quality assurance audits were indicated:

Raw data audit:	August 13, 1981
Preliminary Report dated:	August 13, 1981
Final Report dated:	August 14, 1981

Alan G. Miller - Quality Assurance Unit.

14. Reviewer's Discussion and Interpretation of the Study:

a. Test Procedures - The procedures followed were in accordance with generally accepted protocol with the following exceptions:

1. Salinity (28 to 31%) exceeded recommended testing salinity for estuarine euryhaline shrimp species (10 to 17%).

2. Temperature (26 °C) exceeded the recommended testing temperature of 22 °C.

It is not expected that these deviations would affect test results with mysid shrimp.

b. Statistical Analysis - EEB statistical analysis, results attached, confirms the authors' reported result.

c. Discussion/Results - With a 96-hr LC_{50} = 510 ppb, technical CGA-64250 is highly toxic to mysid shrimp.

d. Adequacy of Study:

1. Classification: Core for technical CGA-64250

2. Rationale: Study was conducted in accordance with accepted protocol.

3. Repairability: N/A

15. Completion of One-liner for Study:

One-liner form completed January 2, 1986.

16. CBI Appendix:

N/A

3

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

ARMITAGE CGA-64250 MYSID SHRIMP 96-HR LC50

****

CONC.	NUMBER EXPOSED	NUMBER DEAD	PERCENT DEAD	BINOMIAL PROB.(PERCENT)
2900	19	18	94.7368	.0038147
1402	19	17	89.4737	.0364304
753	19	9	47.3684	50
456	19	9	47.3684	50
158	19	0	0	1.90735E-04

THE BINOMIAL TEST SHOWS THAT 158 AND 1402 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 779.46

RESULTS CALCULATED USING THE MOVING AVERAGE METHOD

SPAN	G	LC50	95 PERCENT CONFIDENCE LIMITS	
4	.0823831	623.451	468.823	807.552

RESULTS CALCULATED USING THE PROBIT METHOD

ITERATIONS	G	H	GOODNESS OF FIT PROBABILITY
3	.120558	1	.240095

SLOPE = 2.92383
95 PERCENT CONFIDENCE LIMITS = 1.90863 AND 3.93902

LC50 = 637.627
95 PERCENT CONFIDENCE LIMITS = 479.427 AND 823.548

LC10 = 234.533
95 PERCENT CONFIDENCE LIMITS = 120.733 AND 336.336

****