(9-15-92)

MRID No. 418695-08

DATA EVALUATION RECORD

1. **CHEMICAL:** Cimectacarb.
Shaughnessey No. 112602.

2. **TEST MATERIAL:** CGA-163935 Technical; Batch No. FL 891393; 92.2% active ingredient; a dark amber liquid.

3. **STUDY TYPE:** Marine Shrimp Acute Flow-Through Toxicity Test. Species Tested: Mysid Shrimp (*Mysidopsis bahia*).

4. **CITATION:** Sousa, J.V. 1991. (CGA-163935 Technical) - Acute Toxicity to Mysid Shrimp (*Mysidopsis bahia*) Under Flow-Through Conditions. SLI Report No. 91-1-3603. Performed by Springborn Laboratories, Inc., Wareham, MA. Submitted by CIBA-GEIGY Corporation, Greensboro, NC. EPA MRID No. 418695-08.

5. **REVIEWED BY:**

Rosemary Graham Mora, M.S.
Associate Scientist
KBN Engineering and
Applied Sciences, Inc.

Signature: Rosemary Graham Mora
Date: 7/24/92

Brian Montague
EEB - 9/2/92

6. **APPROVED BY:**

Louis M. Rifici, M.S.
Associate Scientist
KBN Engineering and
Applied Sciences, Inc.

Signature: Louis M Rifici
Date: 7/24/92

Henry T. Craven, M.S.
Supervisor, EEB/EFED
USEPA

Signature: Henry T. Craven
Date: 9/15/92

7. **CONCLUSIONS:** This study is scientifically sound and meets the guideline requirements for an acute flow-through toxicity study using marine shrimp. Based on mean measured concentrations, the 96-hour LC_{50} of CGA-163935 Technical for *Mysidopsis bahia* was 6.5 mg a.i./l which classifies CGA-163935 Technical as moderately toxic to mysid shrimp. The NOEC could not be determined since toxicant-related effects were observed at all exposure concentrations.

8. **RECOMMENDATIONS:** N/A.

9. **BACKGROUND:**

10. **DISCUSSION OF INDIVIDUAL TESTS:** N/A.

D. **Design:** Ten shrimp (≤24 hours old) were randomly selected and distributed to each of two replicate 8 Liter glass aquaria (20 shrimp/treatment level). Aeration of the dilution water was begun on day 3 due to decreased dissolved oxygen concentrations. At any given time during the test, the organism loading rate was ≤1.0 mg/l/day. Live *Artemia salina* nauplii were added twice daily during the study.

Biological observations and observations of physical characteristics of the test solutions were noted at test initiation and every 24 hours. Dead shrimp were removed at each observation interval.

The dissolved oxygen concentration, pH, salinity, and temperature were measured daily. The temperature in one replicate of the control solution was monitored continuously.

Chemical analysis of CGA-163935 Technical was performed using high pressure liquid chromatography on each test solution collected on days 0 and 4 to verify the test concentrations.

E. **Statistics:** The author used a computer program by Stephan (1977, 1982) to calculate LC_{50} values.

12. **REPORTED RESULTS:** The mean measured concentrations were 3.4, 4.1, 5.9, 8.7, and 12.0 mg a.i./l (Table 2, attached). The coefficients of variation averaged 18% for all mean measured concentrations. No undissolved test material was observed in any test chamber, however some material was observed in the diluter mixing cells and the splitter cell of the highest test concentration.

Only five percent mortality was noted in the dilution water control and no mortality was observed in the solvent control (Table 3, attached). Sublethal effects were exhibited by several of the surviving shrimp at all exposure concentrations. No sublethal effects were noted in the solvent control.

The 96-hour LC_{50} for *Mysidopsis bahia* exposed to CGA-163935 Technical was 6.5 mg a.i./l measured concentration (95% confidence interval of 5.8-7.5 mg a.i./l). The slope of the concentration-response curve was 5.4. The NOEC was <3.4 mg a.i./l.

During the study, the daily temperature was 25°C, the pH was 7.7-8.0, the dissolved oxygen concentration was 3.0-7.3 mg/l

(44-106% of saturation), and the salinity was 31 ppt. The continuous temperature of the test solution ranged from 23 to 24°C.

13. **STUDY AUTHOR'S CONCLUSIONS/QUALITY ASSURANCE MEASURES:** "Based on criteria established by EPA (1985), CGA-163935 Technical is classified as moderately toxic to mysid shrimp (*Mysidopsis bahia*)."

Good Laboratory Practice Compliance and quality assurance statements were included in the report, indicating that the study was in accordance with GLP regulations (40 CFR, Part 160) except for the stability, characterization, and verification of the test substance identity.

14. **REVIEWER'S DISCUSSION AND INTERPRETATION OF STUDY RESULTS:**

A. **Test Procedure:** The test procedures were in accordance with the SEP, except for the following deviations:

Mortality of the test organisms prior to test initiation was not reported.

During the study, the temperature of the test solutions was 23-25°C. The SEP recommends a temperature at or around 22°C and that it should not deviate more than 1°C during the test.

The dissolved oxygen concentration ranged from 44 to 68% of saturation on test days 3 and 4; the SEP requires a dissolved oxygen concentration of 60-100% in each chamber at all times during a flow-through test. However, for this study it is probably acceptable since no control mortality was observed after day 1 and most exposure mortality occurred prior to day 3 of the test. *

B. **Statistical Analysis:** The reviewer used EPA's Toxanal computer program to calculate the LC_{50} value and obtained results similar to those of the author (printout, attached).

C. **Discussion/Results:** This study is scientifically sound and meets the guideline requirements for an acute flow-through toxicity study using marine shrimp. Based on mean measured concentrations, the 96-hour LC_{50} was 6.5 mg a.i./l which classifies CGA-163935 Technical as moderately toxic to mysid shrimp (*Mysidopsis bahia*). The NOEC could not be determined.

D. **Adequacy of the Study:**

* EEB Reviewer Comment: Cinecticarb appears to demonstrate O_2 reduction properties on a dosage reponse basis. Laboratory added additional aeration prior to introduction to mix chamber. Despite this effort O_2 still dropped. However mean averages were generally above 60% for [illegible] should be allowed. RT

(1) **Classification:** Core.

(2) **Rationale:** N/A.

(3) **Repairability:** N/A.

15. **COMPLETION OF ONE-LINER FOR STUDY:** Yes, July 20, 1992.

Page ___ is not included in this copy.

Pages 6 through 7 are not included in this copy.

The material not included contains the following type of information:

_____ Identity of product inert ingredients.

_____ Identity of product inert impurities.

_____ Description of the product manufacturing process.

_____ Description of quality control procedures.

_____ Identity of the source of product ingredients.

_____ Sales or other commercial/financial information.

_____ A draft product label.

_____ The product confidential statement of formula.

_____ Information about a pending registration action.

✓ FIFRA registration data.

_____ The document is a duplicate of page(s) _____.

_____ The document is not responsive to the request.

The information not included is generally considered confidential by product registrants. If you have any questions, please contact the individual who prepared the response to your request.