

US EPA ARCHIVE DOCUMENT

EEE BRANCH REVIEW

DATE: IN 9/16/77 OUT 2/6/78 IN _____ OUT _____
FISH & WILDLIFE ENVIRONMENTAL CHEMISTRY EFFICACY

FILE OR REG. NO. 6704-II

PETITION OR EXP. PERMIT NO. _____

DATE DIV. RECEIVED _____

DATE OF SUBMISSION _____

DATE SUBMISSION ACCEPTED _____

TYPE PRODUCTS(S): I, D, H, F, N, R, S AVICIDE

DATA ACCESSION NO(S). 231599

PRODUCT MGR. NO. Miller

PRODUCT NAME(S) DRC 1339 Gull Toxicant

COMPANY NAME U.S.D.I. Fish and Wildlife Service

SUBMISSION PURPOSE Data Submission

CHEMICAL & FORMULATION 3-Chloro-4-methyl Benzenamine Hydrochloride-----98%

100.0 Pesticidal Use

DRC - 1339 is an avicide intended for uses as a gull toxicant in prepared bread baits.

101.0 Chemical and Physical Properties

101.1 Chemical Name

3-Chloro-4-Methyl Benzenamine Hydrochloride

101.2 Common Name

DRC - 1339
Starlicide

103.0 Toxicological Properties

103.1.4 Aquatic Invertebrates

DATA REVIEW NUMBER: ES L & NT

TEST: Acute 96 hour LC₅₀ Estuarine and Marine Invertebrate

SPECIES: Shrimp (Penaeus duorarum)

RESULT: 96 hour TLM = 10.789 ppm

SPECIES: Shrimp (Penaeus setiferus)

RESULT: 96 hour TLM = 10.789 ppm

SPECIES: Blue Crab (Callinectes sapidus)

RESULT: 96 hour TLM = 15.991 ppm

CHEMICAL: DRC - 1339 Starling Toxicant (95% A.I.)

TITLE: Acute Toxicity of 3-chloro-4-Methyl Benzamine Hydrochloride to Shrimp and Crabs.

ACCESSION NO: 231599

STUDY DATE: May 25, 1977

RESEARCHER: Burke, W. D; A. R. Lawler and W. W. Walker
Gulf Coast Research Laboratory
Ocean Springs, Mississippi

REGISTRANT: U.S.D.I. Fish and Wildlife Service

VALIDATION CATEGORY: Unacceptable

CATEGORY REPAIRABILITY: No: This study had several noted discrepancies which make accepting the study as a fulfillment of acute shrimp and crab data requirements difficult.

- 1) Two species of shrimp were used in study.
- 2) Study vessels were apparently aerated during bioassay.
- 3) Shrimp suffered 16% mortality in the controls which is greater than the 10% allowable.
- 4) The ESS questions the method used to analyze shrimp LC₅₀ values. When raw data was analyzed by this section using Finney

Probit a much lower LC₅₀ (TLM) was derived. See attached additional information.

- 5) The TLM value for crabs can also be questioned. The research lab did not correct for control mortality by Abbotts Formula, and the statistical method used does not agree with values derived by using Finney Probit and testing all test concentrations.
- 6) Loading/test vessel not indicated.
- 7) The Research Lab did a residue percent-recovery study of the test concentrations and their results indicate that the material was not available to ~~the~~ organisms at levels which would coincide with TLM values reported. The research lab mentioned this possibility in its report, suggesting that the material may have absorbed to bioassay containers. The fact that the test lab questions its own results causes this reviewer to have serious reservations about accepting the values reported.
- 8) The mixing of the two species of shrimp in the test and then not separating or identifying the response of the species is not good scientific procedure.

ADDITIONAL INFORMATION

96 hour LC₅₀ data and statistical analysis by Finney Probit for Shrimp (Penaeus duorarum) the mortality values have not been corrected by Abbotts Formula for control mortality, calculated Chi² > tabular for 3 df (7.81). It should also be noted that test concentrations do not follow either an arithmetic or geometric progression.

TEST DATA

0.1 Dose	0.984	M
3. Response	4.529	YINT
25. Number	10.390	LW M
	12.102	CHI ²
1. Dose	3.011	LD50
7. Response	1.552	LOCL
25. #	5.839	UPCL
10. Dose	0.150	LD10
12. Response	0.043	LOCL
25. #	0.522	UPCL
25. Dose	60.530	LD90
25. Response	17.765	LOCL
25. #	206.244	UPCL

107.0 Conclusions

107.4 Data Adequacy.

This study has been reviewed by the Environmental Safety Section and has been determined unacceptable to use as fulfillment of data requirements for Shrimp and Crab acute toxicity tests. The reasons for this decision are based upon comparisons of acceptable protocols and are given below.

1. Two species of Shrimp were used in the study (Penaeus duorarum 19.3% and Penaeus setiferus 80.7%) and the results in the bioassay lumped the respective responses.
2. The test vessels used in the container were apparently aerated during the duration of the test.
3. Twenty five organisms were placed in 2 liter test vessels and the loading effect was not reported. The amount of grams/liter of organism may have been high enough to effectively reduce exposure to the individual organisms.
4. Statistical Methods on values derived are not adequate. The shrimp bioassay had 16% mortality in the control and this level of mortality invalidates test results. In addition the method used to achieve the 96 hour TLM did

not correct for this mortality by use of Abbotts Formula. The crab 96 hour TLM reported was also lacking in a correction by Abbotts Formula of the 2% mortality in the control. Test levels used did not have either an arithmetic or geometric progression.

5. The Research Lab that conducted this study also in effect invalidated their results by questioning the amount of material that was present in the test containers. The lab made this implied conclusion based upon a % recovery test that they conducted where by it was noted that from 55 to 66% of the material was present at the conclusion of the test compared to the amount at initiation. The lab theorized that the material may have been absorbing to the test vessel walls.

107.6 Special Notes

The registrant should contact the Environmental Safety Staff if there are any questions concerning our decisions.

107.7 Recommendations

The Environmental Safety Staff has reviewed the submitted shrimp and crab acute bioassay and have found it to be acceptable to use in the determination of hazard to non-target organisms in a hazard evaluation.

Thomas F O'Brien HTC

Thomas F. O'Brien 2/6/78
Environmental Safety Section HTC
EEEB - RD WH 567