

US EPA ARCHIVE DOCUMENT

3/12/91

DATA EVALUATION REVIEW

MRID No. 00097445

- 1. Chemical: Permethrin
- 2. Test Material: Compound 21Z
- 3. Study Type: 96-hour Flow-Through Acute Toxicity to Bluegill Sunfish
- 4. Study ID: Acute Toxicity of 21Z (WRL) to Bluegill Sunfish. Study author: R.G.Maddock; Performing Laboratory: Imperial Chemical Industries Ltd.; Date of test: July 1977; Manufacturer: ICI Americas Inc. Agricultural Products Wilmington, Delaware 19897: ID No.: HEFG 78-17

5. Reviewed by:

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Ecological Effects Branch (H7507C)

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3-5-91

6. Approved by:

Henry Craven, Head section IV
Ecological Fate and Effects Division
Ecological Effects Branch (H7507C)

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3/12/91

7. Conclusion:

This study appears to be scientifically sound but does not fulfill guideline requirements for an acute toxicity to bluegill sunfish study because a flow-through system was used and test concentrations were not measured to verify the accuracy of the metering system. Further, the test material was not adequately identified. However, the 96-hour LC50 for 21Z (WRL) is reported to be 0.032 ppm nominal concentrations and the no effect level was found to be 0.0068 ppm.

8. Recommendations: N/A

9. Background: N/A

10. Discussion of Individual Tests: N/A

11. Materials and Methods:

a. Test Animals - Bluegill Sunfish (Lepomis macrochirus)
Mean length: 51.5 mm; Source: Dutchland Laboratory Animals Inc, Denver, Pennsylvania.

b. Dosing - The test material was identified as 21-Z. It was a pale yellowish-amber colored soft waxy material. Acetone (diluted with a 80:20 acetone:water mixture) was used to prepare concentration stock solutions.

c. Design - Flow-through system with 22-27 liter glass test vessels containing 10 fish each. Some dosing lines were made of glass others were silicone tubing. Flow rate: 200 ml/min. Temperature: 23°C; pH: 7.35 - 7.7; Dissolved Oxygen: 97-100% saturation; The nominal test concentrations were (ppm): 0.22, 0.15, 0.10, 0.068, 0.047, 0.033, 0.022, 0.010, and 0.0068.

d. Statistics - A graph was constructed of the Geometric Mean survival Period values against concentrations using logarithmic scales.

12. Reported Results:

The 96-hour LC50 for 21 -Z was 0.032 ppm. The no effect level was found to be 0.0068 ppm.

13. Reviewers Discussion and Interpretation of the Study:

a. Test Procedures - The following discrepancies are noted:

- A flow-through system was used and test concentrations were not measured to verify the accuracy of the metering system.
- The test material is not adequately identified. The test material 21Z (WRL) is not stated in the report to be permethrin and the IUPAC name is not provided.
- No control vessels were used in the test
- No raw data were provided.

b. Statistical Analysis - Since no control test vessels were used in the study, the data could not be statistically analyzed.

c. Discussion/results - The 96-hour LC50 value of 0.032 ppm indicates that 21-Z is very highly toxic to bluegill sunfish.

d. Adequacy of Study

- 1) Classification: Supplemental
- 2) Rationale: Discrepancies listed above.
- 3) Repairability: N/A

PERMETHRIN

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