

12-16-82

CASE GS0097

CHLOROTHALONIL

PM 400 08/03/82

CHEM 081901

Chlorothalonil (tetrachloroisophthalon

BRANCH EEB DISC 40 TOPIC 05103043

FORMULATION 01 - TECHNICAL CHEMICAL

FICHE/MASTER ID 00041439

CONTENT CAT 01

Shults, S.K.; Killeen, J.C., Jr.; Heilman, R.D.; et al. (1980)
Chlorothalonil (Technical) Acute Toxicity (LC50) Study in
Bluegill. (Unpublished study including report # BW-79-6-446,
received Feb 19, 1980 under 677-313; prepared in cooperation
with EG&G, Bionomics, submitted by Diamond Shamrock Agricul-
tural Chemicals, Cleveland, Ohio; CDL:099247-D)

SUBST. CLASS = S.

DIRECT RVW TIME =

(MH) START-DATE

END DATE

REVIEWED BY:

Daniel Rieder

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Wildlife Biologist

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12/16/82

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DATA EVALUATION SHEET

1. CHEMICAL: Bravo 500
2. FORMULATION: Chlorothalonil
3. CITATION:
Shults, S.K.; Killeen, J.C., Jr., Heilman, R.D.; et al.
(1980). Chlorothalonil Acute Toxicity Study in Bluegill.
An unpublished report prepared by EG & G Biohomics for
Diamond Shamrock Corporation. (Accession Number 099247).
4. REVIEWER: Daniel Rieder
Wildlife Biologist
EEB/HED
5. REVIEW DATE: March 11, 1980
6. TEST TYPE: 96-hour Acute Toxicity.
 - A. Test Species: Bluegill (Lepomis macrochirus)
 - B. Test Material: Chlorothalonil (Technical, 96%)
7. REPORTED RESULTS
The reported 96-hour LC₅₀ for bluegill exposed to
technical chlorothalonil is 62 ppb with 95% confidence
limits of 52-78 ppb.
8. REVIEWERS CONCLUSION
 - A. Validation Category: Core
 - B. Discussion
This study was conducted scientifically ^{and} ~~but~~ does
~~not~~ fulfill the requirements for an acute toxicity
test on fish. It does demonstrate that chlorotha-
lonil could be very highly toxic to bluegill.

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METHODS/RESULTSA. Test Procedures

Referenced testing procedure was "Methods for Acute Toxicity Tests with Fish, Macroinvertebrates, and Amphibians (U.S. EPA, 1975) and a protocol the testing laboratory received from the registrant. The procedure as described essentially followed the EPA proposed guidelines (July 10, 1978) for a static toxicity test. The DO was measured in the controls, and in the low, middle, and high test concentration. The fish were held for 14 days, but food was withheld only 48 hours prior to testing. Concentrations were nominal. Ten fish were tested per container.

B. Statistical Analysis

The reported 96-hour LC₅₀ for bluegill exposed to chlorothalonil, as estimated by the moving average angle, was 60 ppb. No 95% confidence limits were reported.

C. Results

The 96-hour LC₅₀ was 60 ppb. No deaths occurred in the control or in the test concentrations up to 10 ppb. However, one fish died in the solvent control. There was no 100% mortality, even at the highest concentration level (77 ppb). Partial mortality occurred at two concentration levels. DO dropped to 6.8%, 9.1%, and 16% in the 77, 17, and 3.6 ppm concentration levels respectively.

<u>Conc. (ppb)</u>	<u>Number Tested</u>	<u>96-hour</u>	
		<u>Mortality (%)</u>	<u>DO (% saturation)</u>
Control	10	0	41
Acetone Control	10	10	10
3.6	10	0	16
6.0	10	0	-
10	10	0	-
17	10	0	9.1
28	10	0	-
46	10	10	-
77	10	90	6.8

REVIEWERS EVALUATIONA. Test Procedure

The established protocols for acute toxicity tests in fish require that the fish be held without food for 96 hours before testing. It also indicates that DO be measured at the end of 48 and 96 hours. While the DO was measured at these times, it was not measured in all concentrations. Therefore, it is assumed that the DO was low in all test containers.

B. Statistical Analysis

The data provided with the report was used to generate an LC₅₀ with Stephens computer analysis; the results are attached to the original review on file. The LC₅₀ generated by the Branch terminal computer is essentially the same as the reported LC₅₀.

C. Discussion

The pesticide chlorothalonil is apparently very highly toxic to bluegill with an estimated LC₅₀ of 60 ppb.

The low DO represents a problem in that it could have been partially responsible for the mortality that occurred. However the measured DO in the solvent control was about as low as the test containers and no mortality occurred so it is safe to assume that the mortality in the test containers was caused by the test material.

D. Conclusion

Category: Core.