CASE GS0328 TELONE PM PM# 05/18/84

CHEM 029001 1,3-Dichloropropene

BRANCH EEB DISC 40 TOPIC 05103043

FORMULATION 90 = FORMULATION NOT IDENTIFIED

FICHE/MASTER ID 00039692 CONTENT CAT 01

Bentley, R.E. (1975) Acute Toxicity of M-3993 to Bluegill (‡"Lepomis macrochirus"‡) and Rainbow Trout (‡"Salmo gairdneri"‡). (Unpublished study received Jul 22, 1980 under 464-EX-63; prepared by Bionomics, EG&G, submitted by Dow Chemical U.S.A., Midland, Mich.; CDL:099515-T)

SUBST. CLASS = S.

DIRECT RVW TIME = (MH) START-DATE END DATE

REVIEWED BY: Daniel Rider
TITLE: Biologist
ORG: EEB/HED
LOC/TEL:

SIGNATURE: [signature] DATE: 8/23/85

APPROVED BY:
TITLE:
ORG:
LOC/TEL:

SIGNATURE: H. T. Craven DATE: 8/27/85

029001

DATA EVALUATION SHEET

1. CHEMICAL: Telone II

2. FORMULATION: 1,3-dichloropropene.....92%.....Active Ingredient
8%.....Inert Ingredient

Shaughnessy Number: 029001

3. CITATION: Bentley, Robert. 1975. Acute toxicity of M-3993 (Telone II) to bluegill (Lepomis macrochirus) and rainbow trout (Salmo gairdneri). Received 7/22/80. An unpublished report prepared by EG&G Bionomics for Dow Chemical Company.

4. REVIEWED BY: Daniel Rieder
Wildlife Biologist
EEB/HED

5. DATE REVIEWED: 8/12/80

6. TEST TYPE: 96-hour acute toxicity

A. Test Species: bluegill (Lepomis macrochirus)
rainbow trout (Salmo gairdneri)

B. Test Material: Telone II (92% active ingredient)

7. REPORTED RESULTS:

	96-hour LC_{50}	95% Confidence Limits
Bluegill	7.09 ppm	5.16-9.75 ppm
Rainbow Trout	3.94 ppm	3.11-4.99 ppm

8. REVIEWERS CONCLUSION:

A. Validation Category: Core

B. Discussion: This study was scientifically conducted and fulfills guidelines requirements for an acute toxicity test with warm water and coldwater fish. According to the reported results, Telone II is moderately toxic to fish.

METHODS

A. Test Procedure

Procedures for static bioassays as described in the Methods for Acute Toxicity Tests with Fish, Macroinvertebrates, and Amphibians (EPA, 1975) were followed. Five test levels (2.4, 4.2, 5.6, 7.5 and 10 ppm), a control and solvent control were run with bluegill. Eight test levels (1.8, 2.4, 3.2, 4.2, 5.6, 7.5, 10, 18 ppm), a control and solvent control were run using rainbow trout. Ten fish were tested per concentration level. The test material was Telone II (92% active ingredient); the solvent was acetone. The report did not specify that the fish were held 96 hours before the test without food.

B. Statistical Analysis

The LC_{50} value and its confidence limits were calculated by converting the test concentrations and the corresponding observed percent mortalities to logs and probits, respectively. These values were then utilized in a least squares regression analysis, and the LC_{50} value was predicted from the calculated regression equation.

C. Results

The standard diluent had a pH of 7.1, dissolved oxygen values for the various test vessels ranged from 8.9 mg/l initially to 4.2 mg/l (40% saturation) at the end of the test.

The 96-hour LC_{50} for bluegill was reported as 7.09 ppm, with 95% confidence limits of 5.16 to 9.75 ppm. The no discernible effect level was 5.16 ppm.

The 96-hour LC_{50} for rainbow trout was reported as 3.94 ppm with 95% confidence limits of 3.11 to 4.99 ppm. The no discernible effect level was 1.8 ppm.

REVIEWERS EVALUATION

A. Test Procedure

Assuming the referenced protocol was followed, the test procedure is considered acceptable. The test material, 92% active ingredient, was considered equivalent to the technical grade.

B. Statistical Analysis

The mortality data from both the rainbow trout and bluegill tests were used to perform statistical analysis with Stephans computer program.

C. Discussion of Results

The probit method (Stephans program), using the rainbow trout mortality data yielded an LC_{50} of 4.6 ppm with 95% confidence limits of 3.8 and 5.8 ppm. The reported LC_{50} of 3.94 ppm is just within these confidence limits.

The bluegill mortality results were: at 2.4 ppm, 0 dead; at 4.2 ppm, 0 dead; at 5.6 ppm, 0 dead; at 7.5 ppm, 9 dead; and at 10 ppm, 10 dead. When there are less than two concentrations at which the percent dead is between and 0 and 100, neither the moving average nor the probit method can give statistically sound results. Since the concentration levels are close together, however, it is likely that the LC_{50} is within a narrow range (between 5.6 ppm and 7.5 ppm).

In both cases, Telone II is shown to be moderately toxic to fish.

The active ingredient of Telone II is highly soluble in water and has a vapor pressure only slight higher than water, so it is likely that the LC_{50}'s of these tests are a reflection of the true LC_{50}'s. Very little of the test material would have gone out of solution in 96 hours.

D. Conclusion

1. Category: Core

2. Rationale: N/A

3. Repairability: N/A