

US EPA ARCHIVE DOCUMENT

1. Chemical: Aquatreat DNM-30
2. Formulation:

Sodium dimethyldithiocarbamate	15%
Nabam (disodium ethylene-bis-dithiocarbamate)	15%
Inert Ingredient	70%

3. Citation

Luy, T, 1973. Report on Fish Toxicity (using Bluegill). An unpublished report prepared by Wells Laboratories, Inc. for Alco Chemical Corporation. (Accession No. 241378)

4. Reviewed By: Daniel Rieder  
Wildlife Biologist

5. Date Reviewed: June 3, 1980

6. Test Type: 96-hour acute toxicity with fish

A. Test Species: Bluegill (Lepomis macrochirus)

B. Material: Aquatreat DNM-30 (30% active ingredient)

7. Reported Results

96-hour  $LC_{50}$  = 180 ppb with 95% confidence limits of 150 - 200 ppb.

8. Reviewer's Conclusion

This study does not meet the requirements for an acute toxicity test for fish, nor is it scientifically sound. It would appear that Aquatreat is highly toxic to fish, but because of deficiencies in the report, the results of the test are not conclusive. This test is not considered scientifically sound because the procedure and materials used in the test were not described.

*[Handwritten signature]*

## METHODS

### A. Test Procedure

The method that was referenced is from the American Public Health Association Standards. Essentially nothing is mentioned about the test procedures, materials or organisms. Missing information includes:

- description of the dilution water;
- source, age and history of test fish;
- acclimation period;
- description of test containers and environmental test conditions; and
- number of fish per container and loading factor.

### B. Statistical Analysis

The method for calculating the 96-hour  $LC_{50}$  was not identified.

### C. Results

The reported 96-hour  $LC_{50}$  for bluegill exposed to Aquatreat (30% active ingredient) was 180 ppb with 95% confidence limits of 150 to 200 ppb.

## Reviewer's Evaluation

### A. Test Procedure

Even though an acceptable method was referenced, there is not adequate descriptive information to concur that the referenced method was followed or that test variables were within acceptable limits (i.e. test temperatures, test solution characteristics, loading factor, dissolved oxygen, or general environmental conditions).

### B. Statistical Analysis

The data provided were used to calculate a 96-hour  $LC_{50}$  using Stephens computer analysis. The result is an  $LC_{50}$  of 173 ppb. The printout is attached to the original review on file with the EEB.

### C. Discussion

It appears that the formulated product could be highly toxic to bluegill.

The use of the formulated product would not cause the test to be considered less than core since Aquatreat could be discharged into waterways with the dumping of drilling mud and cuttings, or accidentally spilled.

D. Conclusion

1. Validation Category: Invalid

2. Rationale

The report fails to include many essential factors and apparently no controls were used.

3. Repairability

This test could be repaired to supplemental or core if additional data were provided.

AQUATREAT DNM-30  
 96-HOUR TOXICITY TEST WITH BLUEGILL  
 D. Rieder (6/4/80)

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CONC.	NUMBER EXPOSED	NUMBER DEAD	PERCENT DEAD	BINOMIAL PROB. (PERCENT)
300	20	19	95.	2.00272E-3
250	20	16	80.	.590897
200	20	13	65.	13.1588
150	20	5	25	2.06947
100	20	3	15.	.128841

THE BINOMIAL TEST SHOWS THAT 150 AND 250 CAN BE USED AS STATISTICALLY SOUND CONSERVATIVE 95 PERCENT CONFIDENCE LIMITS SINCE THE ACTUAL CONFIDENCE LEVEL ASSOCIATED WITH THESE LIMITS IS GREATER THAN 95 PERCENT.

AN APPROXIMATE LC50 FOR THIS SET OF DATA IS 179.881

-----RESULTS CALCULATED USING THE MOVING AVERAGE METHOD

SPAN	G	LC50	95 PERCENT CONFIDENCE LIMITS	
3	.213829	177.574	150.604	212.017

-----RESULTS CALCULATED USING THE PROBIT METHOD

ITERATIONS	G	H	GOODNESS OF FIT PROBABILITY
4	.119634	1	.494689

SLOPE = 5.59769  
 95 PERCENT CONFIDENCE LIMITS = 3.66156 AND 7.53383

LC50 = 172.862  
 95 PERCENT CONFIDENCE LIMITS = 150.38 AND 194.682

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