DATA EVALUATION RECORD

1. **Chemical:** HOE-33171 OH AT204

2. **Formulation:** 96.0%

3. **Citation:** Fischer, R. (1981). The Effect of HOE-33171 OH AT204 on Daphnia magna (waterflea), in a Static Test. Oekologisches Laboratorium, Pflanzenschutz Forschung Biologie. Frankfurt Hoechst, Federal Republic of Germany. Ref. OEK81/055E. Acc. # 071796.

4. **Reviewed by:** Carol M. Natella
   Wildlife Biologist
   EEB/HED

5. **Data Reviewed:** October 13, 1983

6. **Test Type:** Aquatic invertebrate 48-hour LC_{50} (Daphnia magna)

7. **Reported Results:** LC_{50} = 3.18 ppm (95% C.L. 1.79-7.36)

8. **Reviewer's Conclusions:** This study is scientifically sound and indicates that HOE-33171 is moderately toxic to Daphnia magna. The study does fulfill the requirements for an aquatic invertebrate 48-hour LC_{50}.

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MATERIALS/METHODS

Test Procedures

Test Animals: Daphnia magna, cultured in the fish maintenance room of the Oekologisches Laboratorium of Hoechst AG, Federal Republic of Germany. Daphnia were $\leq$ 24 hours old.

Test Water Quality: Filtered, deionized water was reconstituted according to EPA guidelines. The water had a pH of 7.85, a total hardness of 42 mg/l as $CaCO_3$, a total alkalinity of 21 mg/l as $CaCO_3$. During testing, Daphnia were maintained at 20°C.

Test Containers: 200 ml glass jars with a surface of 64 cm^2.

Exposure: 5 Daphnia per jar; 10 Daphnia per concentration. 21 concentrations, a control and a solvent control (DMF) were used.

Date of testing: 8/17/81 - 8/19/81.

Statistical Analysis

LC_{50} values were determined by probit analysis.

Discussion/Results

Percent mortality at 7 of the 21 concentrations tested was as follows (after 48 hours):

									solvent
ppm:	10,	5.6,	3.2,	1.8,	1.0,	0.56,	0.32,	control,	control
%:	90,	50,	40,	40,	30,	30,	0,	0,	0

The 48-hour observed no effect level was 0.32 ppm.

The following LC_{50} values were calculated:

24-hour LC_{50} = 3.56 ppm (95% C.L. 2.26-6.9)
48-hour LC_{50} = 3.18 ppm (95% C.L. 1.79-7.36)

In the test concentrations of 100, 56, 32, and 18 ppm, the substance appeared in drops on the bottom of the jars. Due to this effect there was nearly no mortality in these concentrations. In the concentrations between 10 and 1 ppm, some fallout also was observed. Nevertheless, in those concentrations the test compound showed a distinct effect. Under 1 ppm, no fallout was seen.

REVIEWER'S EVALUATION

    A.   Test Procedure

The test procedure complies with U.S. EPA protocol. A precipitate was noted between 10 and 1 ppm, however there is a good dose response curve at these levels. Since no precipitate occurred at levels below 1 ppm, it is clear from the mortality data that the LC_{50} could not be lower than 0.56 ppm and is most probably not below 1.0 ppm.

    B.   Statistical Analysis

The LC_{50} value was verified with Stephan's computer program.

    C.   Conclusions:

        1.   Category: Core

        2.   Rationale: Although there was a precipitate, an additional study will not be required because it has been shown that fish (LC_{50} = 0.31 ppm) are much more sensitive to the test material than are Daphnia. An additional test would not show an LC_{50} lower than 0.56 ppm.

        3.   Repairability: N/A

NATELLA HOE-33171 DAPHNIA
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CONC.	NUMBER EXPOSED	NUMBER DEAD	PERCENT DEAD	BINOMIAL PROB.(PERCENT)
10	10	9	90	1.07422
5.6	10	5	50	62.3047
3.2	10	4	40	37.6953
1.8	10	4	40	37.6953
1	10	3	30	17.1875
.56	10	3	30	17.1875
.32	10	0	0	.0976563

THE BINOMIAL TEST SHOWS THAT .32 AND 10 CAN BE
USED AS STATISTICALLY SOUND CONSERVATIVE 95 PERCENT
CONFIDENCE LIMITS, BECAUSE THE ACTUAL CONFIDENCE LEVEL
ASSOCIATED WITH THESE LIMITS IS GREATER THAN 95 PERCENT.

AN APPROXIMATE LC50 FOR THIS SET OF DATA IS 5.6

RESULTS CALCULATED USING THE MOVING AVERAGE METHOD

SPAN	G	LC50	95 PERCENT CONFIDENCE LIMITS	
5	.519436	3.05608	1.54597	10.2244

RESULTS CALCULATED USING THE PROBIT METHOD

ITERATIONS	G	H	GOODNESS OF FIT PROBABILITY
4	.257857	1	.404204

SLOPE   =   1.36987
95 PERCENT CONFIDENCE LIMITS = .674255   AND   2.06548

LC50 =   3.00915
95 PERCENT CONFIDENCE LIMITS = 1.73479 AND 6.70568

LC10 =   .355917
95 PERCENT CONFIDENCE LIMITS = .0489513 AND .754219
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