111801

12.9.80

1. Chemical: Baquacil

2. Formulation: Technical (20% a.i.)

3. Citation: Brown, D. (1980) 96-hour acute toxicity to Rainbow Trout; Study No. G 184/B; Product Name, Baquacil; Producer Name, ICI Americas, Inc; Prepared by ICI LTD., Freshwater Quarry, Brixham, Devon.

4. Reviewed By: Curtis E. Laird
Fishery Biologist
EEB/HED

5. Date Reviewed: December 9, 1980

6. Test Type: 96-hour LC50

A. Test Species: Rainbow Trout

7. Reported Result:

Finney Probit method was used to calculate the LC50, which was 3.2 mg/1 (2.8-3.6 mg/1)

Dissolved Oxygen

Oxygen levels ranged from 10.2 to 11.0 mg/1 in the fish exposure vessels.

PH

The pH values ranged from 7.75 to 8.05 pH units in the fish exposure vessels.

Temperature

Temperature values measured in the fish exposure vessels ranged from 11.7 to 12.9 C.

Water hardness

The total hardness of the dilution water was in the range of 67.0 to 73.0 mg/1 as CaC03 with a mean value of 71.2 mg/1 as CaC03.

8. Reviewer's Conclusion

This study is not scientifically sound and indicates that Baquacil is moderately toxic to rainbow trout. This study does not fulfill the guideline requirements in support of registration.

Material/Results

Test Procedure

The test procedure generally complies with the recommended protocol of 1978.

Statistical Analysis

Finney Probit Method was used.

Discussion/Results

The reported LC50 value was 3.2 mg/l (2.8 to 3.6 mg/l).

Reviewer's Evaluation

A. Test Procedure

The test procedure complied with the recommended EPA protocol of 1978, except the dosage level, statistic result, toxic symptoms and LT50

B. Statistical Analysis

The report indicated the Finney Probit method was used to calculate the LC50 value, but when there are less than two concentrations at which the percent dead is between 0 and 100, neither the moving average nor the probit method can give any statistically sound result.

One treatment other than the control must have killed or affected less than 35% of the organisms exposed to it and one treatment must have killed or affected more than 65% of organisms.

There were no survivals in concentration of 5.6 mg/l and above at the 96-hour exposure, therefore, it appears that the concentration levels should have ranged from 1.84 mg/l to 5.6 mg/l, which would have given mortalities in two or more concentrations after 96-hour exposure.

C. Conclusion

1. Category: invalid

2. Rationale: a) an LT50 and not an LC50 was performed.
   b) Dosage dilution series were not geometically progressive to obtain equal log spacing.

(Every dosage should be at least 80% of the next highest dosage.)

c) Two partial kills, which are needed to obtain accurate results, were not obtain

d) toxic symptoms were not reported.

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80/12/16. 08.03.31. TERMINAL:  32, P 26
UOFM CYBER 74 NOS 1.3 (12/11-BQ).
USER NUMBER: ZZZ6944,USEPA
TERMINAL:   32, P 26/TTY
RECOVER /SYSTEM: BASIC,OLD,S79LC50
READY.
9000 DATA 6
9001 DATA 13,10,7.5,5.6,3.2,1.0
9002 DATA 20,20,20,20,20,20
9003 DATA 20,20,20,20, 10,0
RUN

 80/12/16. 08.05.59.
BASIC     PROGRAM   S79LC50
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CONC.	NUMBER EXPOSED	NUMBER DEAD	PERCENT DEAD	BINOMIAL PROB.(PERCENT)
13	20	20	100	9.53674E-5
10	20	20	100	9.53674E-5
7.5	20	20	100	9.53674E-5
5.6	20	20	100	9.53674E-5
3.2	20	10	50	58.8099
1	20	0	0	9.53674E-5

THE BINOMIAL TEST SHOWS THAT 1 AND 5.6 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 3.2

WHEN THERE ARE LESS THAN TWO CONCENTRATIONS AT WHICH THE PERCENT
DEAD IS BETWEEN 0 AND 100, NEITHER THE MOVING AVERAGE NOR THE
PROBIT METHOD CAN GIVE ANY STATISTICALLY SOUND RESULTS.

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SRU   1.313 UNTS.

RUN COMPLETE.