6-16-83

1. Chemical: SC-0224

2. Formulation: Trimethylsulfonium carboxymethylaminomethylphosphate 58.5% ai

3. Citation: Sousa, J.V. 1982. "Acute Toxicity of SC-0224 to Rainbow Trout" Unpublished study prepared by EG & G Bionomics Aquatic Toxicology Laboratory, Wareham, Mass., for The Stauffer Chemical Co., Farmington, Conn.

4. Reviewed by: Miachel Rexrode
Fishery Biologist
OPP/HED/EEB

5. Date Reviewed: June 16, 1983

6. Test Type: Fish acute 96-hour LC_{50}

Test Species: Rainbow Trout (Salmo gairdneri)

7. Reported Results: The 96-hour LC_{50} for rainbow trout exposed to SC-0224 estimated by binomial probability was 1800 (1100-3000) mg/l.

8. Reviewers Evaluation: This study is scientifically sound and with an LC_{50} = 1800 mg/l, SC-0224 appears to be practically non-toxic to rainbow trout. This study fulfills Guideline requirements for registrations.

9. Methods/Materials

Rainbow Trout with a mean wet weight of 0.28 (0.18 - 0.42) grams and length of 35(30-38) millimeters were obtained from a commercial fish supplier in Maryland. Test fish were maintained for 14 days prior to testing. Water parameters during testing were as follows: total hardness and alkalinity ranges as calcium carbonate ($CaCO_3$) of 44 mg/l and 30 mg/l, respectively; specific conductance of 150 micromhos per contimeter; pH of 7.6; dissolved oxygen range of 94% - 100% of saturation; Temperature of 11-12°C; photoperiod of 16 hours of light and 8 hours of dark. The specific conductance was measured with a YSI Model #33 salinity-conductivity-temperature meter and probe, the pH was measured with an Instrumentation Laboratory Model #175 pH meter and combination electrode, the DO was measured with a YSI Model #57 dissolved oxygen meter and piobe and the temperature was measured with a Brooklyn alcohol thermometer.

Test containers consisted of 19.6 L glass jars which contained 15L of test solution. Test solutions were not aerated. Ten rainbow trout were randomly distributed to each test jar within 30minutes after the test solutions had been prepared. All jars were capped and vented under continuous vacuum.

Statistical analysis amounting to estimating LC_{50} values using moving averages, probit analysis and binomial probability. The concentrations tested and the corresponding percentage mortalities of rainbow trout exposed to SC-0224 are noted in Table 1.

Table 1. Concentrations tested and corresponding percentage mortalities of rainbow trout (Salmo gairdneri) exposed to SC-0224 for 34, 48, 72, and 96 hours.

Nominal Concentration (mg/l)	Cumulative % mortality			
	24 hour	48 hour	72 hour	96 hour
5,000	30	50	80	100
3,3000	0	20	60	100
1,800	0	0	0	50
1,100	0	0	0	0
650	0	0	0	0
control	0	0	0	0

10. Reviewers Conclusion: This study appears to be scientifically sound and will support Guideline requiements for the technical. Test material was confirmed as the technical at 58.5% ai.

Category: Core

Rationale: NA

Repairability: NA

ANN AS-0224 ACUTE TROUT

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CONC.	NUMBER EXPOSED	NUMBER DEAD	PERCENT DEAD	BINOMIAL PROB.(PERCENT)
5000	10	10	100	0
3000	10	10	100	0
1800	10	5	50	0
1100	10	0	0	0
650	10	0	0	0

THE BINOMIAL TEST SHOWS THAT 1800 AND 1800 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 1800

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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