1. Chemical: SC-0224

2. Formulation: Trimethylsulfonium carboxymethylamino-methylphosphate 58.5% ai

3. Citation: Surprenant, D.C. 1982. "Acute Toxicity of SC-0224 to the water Flea (Daphnia magna)" Unpublished study prepared by EG & G Bionomics Aquatic Toxicology Laboratory, Wareham, Mass., for the Stauffer Chemical Co., Farmington Conn.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
OPPPP/HED/EEB

5. Date Reviewed: June 20, 1983

6. Test Type: Aquatic Invertebrate acute 48-hour LC_{50}

Test Species: Daphnia magna

7. Reported Results: The 48-hour LC_{50} for Daphnia exposed to SC-0224, was estimated to be 71(49-130) mg/l.

8. Reviewers Evaluation: This test is scientificallyl sound and with an LC_{50} = 71 mg/l SC-0224 appears to be slightly toxic to daphnids. This study fulfills Guideline requirements for registration.

9. Methods/Materials

Daphnids (<24 hours old) were obtained from laboratory stocks cultured at EG & G Bionomics. Testing was conducted in 250 ml glass beakers each of which contained 150 ml of test solution. Water parameters during testing were as follows: alkalinity as $CaCO_3$ of 160 ± 20 mg/l; total hardness as $CaCO_3$ 10F 120 ± 10 mg/l; dissolved oxygen ok greater than 60% saturation; specific conductance ok 400-600 umhos/cm; temperature of 21 ± 1°C.

Statistical analysis (LC_{50} value) was estimated using one of three methods, moving average, probit analysis and binomial probability. The computer program scanned the data base, identified the most appropriate statistical method and performed the analysis. The cnocentrations tested and the resulting percentage mortalities of daphnids exposed to SC-0224 are noted in Table 1.

Table 1. Concentration tested, corresponding observed mortalities during the exposure of Daphnia magna to SC-0224.

Nominal concentration mg/l	mortalities 24 hour	48 hour
100	0/15	12/15
60	0/15	4/15
36	0/15	5/15
22	0/15	3/15
13	0/15	4/15
8	0/15	2/15
5	0/15	1/15
Control	0/15	0/15

10. Reviewers Conclusion: This test appears to be scientifically sound, and will fulfill Guidelne requirements for the technical. The puriety of SC-0224 was verified at 58.5% a.i. (phone conversation with R. Carver Stauffer Chemical.

Category: Core

Repairability: N/A

Rationale: N/A

ANN AS-0224 ACUTE DAPHNIA

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CONC.	NUMBER EXPOSED	NUMBER DEAD	PERCENT DEAD	BINOMIAL PROB.(PERCENT)
100	15	12	80	0
60	15	4	26.6667	0
36	15	5	33.3333	0
22	15	3	20	0
13	15	4	26.6667	0
8	15	2	13.3333	0
5	15	1	6.66667	0

THE BINOMIAL TEST SHOWS THAT 60 AND 100 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 74.777

RESULTS CALCULATED USING THE MOVING AVERAGE METHOD

SPAN	G	LC50	95 PERCENT CONFIDENCE LIMITS	
2	.588324	71.44	49.2763	170.556

RESULTS CALCULATED USING THE PROBIT METHOD

ITERATIONS	G	H	GOODNESS OF FIT PROBABILITY
3	.245732	1	.250257

SLOPE = 1.33168
95 PERCENT CONFIDENCE LIMITS = .671547 AND 1.99181

LC50 = 64.5483
95 PERCENT CONFIDENCE LIMITS = 39.3399 AND 182.302

LC10 = 7.18125
95 PERCENT CONFIDENCE LIMITS = 1.62218 AND 13.0845

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