1. Chemical: SC-0224

2. Formulation: Trimethylsulfonium carboxy - methylaminomethylphospahte 20% a.i. [1]

3. Citation: Fletcher, D.W. 1982. "Acute Oral Toxicity Study with SC-0224 Techncial in Mallard Ducks," Unpublished study prepared by Bio-Life Associates Ltd., Neillsville, Wisconsin, for Stauffer Chemical Co., Farmington, Conn.

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

5. Date Reviewed: June 27, 1983

6. Test Type: Acute Oral LD_{50}

Test Species: Mallard Duck

7. Reported Results: The results of the 21-day acute oral toxicity study conducted with SC-0224 technical in Mallard ducks showed the acute oral lethal dose (LD_{50}) of the test material to be 950 mg/kg (766-1178 mg/kg).

8. Reviewers Evaluation: This test appears to be scientifically sound, and with an LD_{50} = 950 mg/kg, SC-0224 appears to be slightly toxic to Mallard ducks. This study fulfills Guideline requirements.

1/ Test material was corrected to 100% activity.

9. Materials/Methods

Test birds were 20-24 week old mallard ducks received from Wagner's Game Farm. Housing consisted of 4' x 4' x 4' wire pens with 10 birds per pen. Lighting consisted of fluorescent fixtures and 8 hours of light per day. Environmental parameters were as follows: maximum temperature, 95.9°F (74-106°F); minimum temperature, 64.6°F (52-74°F); wet bulb temperature, 67.4 (54-76°F); dry bulb temperature, 75.1 (60-96°F); relative humidity 68.9% (40-86%).

All birds were fasted 16 ours prior to dosing on Test Day 0. Birds were permitted a standard laboratory diet (Purina Gamebird Conditioner) ad libitum. Test material was administered via disposable syringes on Test Day 0. Vehicle control birds received tap water.

At the end of the 21-day test period, the acute oral LD_{50} was calculated employing the method of Litchfield and Wilcoxon.[1] Mortality data is presented in Table 1.

Table 1. Acute Oral Toxicity Test for Mallard Ducks.
Test Material: SC-0224 Technical.

Dose level (mg/kg body weight)	number dead / number tested	percent dead
Control	0/10	0
464	0/10	0
681	2/10	20
1,000	4/10	40
1,470	9/10	90
2,150	10/10	100

Reviewers Conclusion: This test appears to be scientifically sound and will support Guideline requirements. The test material at 20% active was corrected to 100% active.

Category: Core

1/ Litchfield, J.T., Jr. and Wilcoxon, F., "A Simplified Method of Evaluating Dose-Effect Exeriments," J. Pharm. & Exp. Ther. 96, 96 (1949)

ANN AS-0224 ACUTE ORAL MALLARD

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CONC.	NUMBER EXPOSED	NUMBER DEAD	PERCENT DEAD	BINOMIAL PROB.(PERCENT)
2150	10	10	100	0
1470	10	9	90	0
1000	10	4	40	0
681	10	2	20	0
464	10	0	0	0

THE BINOMIAL TEST SHOWS THAT 1000 AND 1470 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 1072.73

RESULTS CALCULATED USING THE MOVING AVERAGE METHOD

SPAN	G	LC50	95 PERCENT CONFIDENCE LIMITS	
4	.113264	990.947	825.024	1187.1

RESULTS CALCULATED USING THE PROBIT METHOD

ITERATIONS	G	H	GOODNESS OF FIT PROBABILITY
3	.211541	1	.753026

SLOPE = 6.99073
95 PERCENT CONFIDENCE LIMITS = 3.77544 AND 10.206

LC50 = 993.938
95 PERCENT CONFIDENCE LIMITS = 825.818 AND 1195.87

LC10 = 654.169
95 PERCENT CONFIDENCE LIMITS = 430.25 AND 794.375

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