

DATA EVALUATION RECORD

1. CHEMICAL: Nuosept
2. FORMULATION: Nuosept - 95
3. CITATION: Truslow Farms, Inc. 1974. Eight-day dietary LC₅₀ mallard duck Nuosept-95 Final Report. Submitted to Tenneco Chemicals, Piscataway, N.J. Accession No. 247878.
4. REVIEWED BY: Mary L. Gessner
Fishery Biologist
HED/EEB
5. DATE REVIEWED: 8/17/82
6. TEST TYPE: Eight-day dietary LC₅₀
Test species:

mallard duck (Anas platyrhynchos)
7. REPORTED RESULTS: The acute LC₅₀ of Nuosept - 95 to mallard ducks was estimated to be greater than 10,000 ppm.
8. REVIEWER'S CONCLUSIONS:

This study is scientifically sound, but is not adequate to fulfill the guideline requirement pertaining to the dietary toxicity of the technical material to mallard ducks. The study would, however, be adequate to fulfill a data requirement pertaining to the toxicity of this particular formulation, as testing was conducted on the formulated product. With a dietary LC₅₀ >10,000 ppm, Nuosept-95 is practically non-toxic to mallards.

Materials/Methods

Test Procedure/Statistical Analysis

Mallard ducklings were hatched and maintained in thermostatically controlled battery brooders at 37.5°C until 14 days of age. The birds were then randomly assigned to negative control, positive control and experimental groups, as follows, without regard to sex.

<u>Treatment</u>	<u>#Pens</u>	<u>#Birds/Pen</u>	<u>Dietary Concentration (ppm)</u>
Negative control	5	10	Basal diet only
Dieldrin control	5	10	68,100,147,215 + 316
Nuosept - 95	5	10	464,1000,2150,4640, + 10,000

Prior to initiation of the study and during the eight-day LC₅₀, the basal diet was a standard game bird starter ration. Game bird diet and water were available ad libitum throughout the study.

Nuosept-95 and dieldrin were dissolved in corn oil in concentrations such that the addition of two parts (by weight) of each solution to 98 parts of the standard game bird starter ration resulted in the logarithmic series of dosage levels outlined above. For the purposes of diet preparation, the experimental material was assumed to be 100 percent active material.

The birds were exposed to appropriate dietary concentrations for five days, and then maintained on toxicant-free diet for an additional three-day observation period. The control birds received a basal diet throughout the study consisting of two parts corn oil and 98 percent basal diet.

Body weights were recorded by pen at initiation and termination of the study. Food consumption was recorded during the five-day exposure period. Food consumption was measured accurately, but is presented as an estimate due to the unavoidable wastage by the birds. Symptoms of toxicity and mortality were recorded daily throughout the study. Mortality was analyzed statistically by the method of Litchfield and Wilcoxon, 1949.

Discussion/Results

There was no mortality in the negative control groups, and the birds appeared normal throughout the study. No symptoms of toxicity or behavioral abnormalities occurred at any of the Nuosept - 95 dosage levels.

The following average body weights and food consumption were reported for treatment and control animals.

<u>Treatment</u>	<u>Concentration (ppm)</u>	<u>Avg. weight (g)</u>		<u>Avg. Food Consumption (g)</u>
		<u>Day 0</u>	<u>Day 8</u>	
Nuosept-95	464	178	355	4050
	1,000	192	347	3675
	2,150	180	357	3775
	4,640	165	352	3775
	10,000	204	390	3250
Negative Controls	0	172	370	3325
	0	192	385	3700
	0	192	380	3025
	0	173	375	3225
	0	175	350	3100
Dieldrin Controls	68	185	320	2600
	100	187	325	2600
	147	182	225	1825
	215	195	*	950
	316	187	*	800

* Data not available due to total mortality.

Reviewer's Evaluation

A. Test Procedure

Testing seems to have generally followed EPA-recommended protocols. Incomplete information pertaining to rearing history and housing conditions was provided. There is no indication that gross necropsies were performed on any of the birds. Testing was done on the formulated product, not the technical material.

B. Statistical Analysis

No statistical analysis was performed on these data because no mortality occurred at any of the test concentrations.

C. Discussion/Results

The reported LC₅₀ of greater than 10,000 ppm is acceptable for this formulated product (Nuosept 95).

D. Conclusions

1. Category: Supplemental
2. Rationale: Testing was conducted on the formulated product.
3. Repairability: None

B. Statistical Analysis

GESSNER NUOSEPT-95 LC50 BLUEGILL

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CONC.	NUMBER EXPOSED	NUMBER DEAD	PERCENT DEAD	BINOMIAL PROB. (PERCENT)
870	10	10	100	0.09765625
560	10	10	100	0.09765625
370	10	10	100	0.09765625
240	10	8	80	5.46875
180	10	5	50	62.30469
160	10	7	70	17.1875
120	10	1	10	1.074219
100	10	1	10	1.074219
87	10	0	0	0.09765625

THE BINOMIAL TEST SHOWS THAT 120 AND 370 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 146.2557

RESULTS CALCULATED USING THE MOVING AVERAGE METHOD

SPAN	G	LC50	95 PERCENT CONFIDENCE LIMITS	
8	0.08143742	176.3944	150.7768	208.4399

RESULTS CALCULATED USING THE PROBIT METHOD

ITERATIONS	G	H	GOODNESS OF FIT PROBABILITY
6	0.1581314	1	0.7838826

SLOPE = 6.812173
 95 PERCENT CONFIDENCE LIMITS = 4.103262 AND 9.521084

LC50 = 165.4487
 95 PERCENT CONFIDENCE LIMITS = 144.8033 AND 193.0576

LC10 = 107.7042
 95 PERCENT CONFIDENCE LIMITS = 80.10198 AND 125.8705

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