

US EPA ARCHIVE DOCUMENT

CASE GS0071

BUTYLATE

PM 400 06/05/82

CHEM 041405

S-Ethyl diisobutylthiocarbamate

BRANCH ELB

DISC 40 TOPIC 05103043

FORMULATION 15 - SOLUBLE CONCENTRATE

FICHE/MASTER ID 00016552

CONTENT CAT 01

Kuc, W.J. (1977) The Acute Toxicity of Banvel 4S + Sutan 6.7EC to the Rainbow Trout, *Salmo gairdneri* Richardson: UCES Proj. # 11506-03-33. (Unpublished study received Mar 3, 1978 under 876-EX-33; prepared by Union Carbide Corp., submitted by Velsicol Chemical Corp., Chicago, Ill.; CDL:236667-0)

SUBST. CLASS = M; OTHER CHEMS: 029801

DIRECT RVW TIME = 2 hr (MH) START-DATE

END DATE 10-13-82

REVIEWED BY: Carol M. Natella
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DATE: 3-10-83

APPROVED BY:
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ORG:
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SIGNATURE:

DATE:

Conclusions

This study is scientifically sound and indicates that a mixture (proportions unspecified) of Banvel 4S (% a.i. unknown) and Sutan 6.7 EC (85.1% a.i.) is practically non-toxic (96 hour LC50 = 202.5 ppm) to rainbow trout. The study would only fulfill a requirement for a cold water fish LC50 on the mixture of the products in questions.

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MATERIALS/METHODSTest Procedures

Test Animals: Rainbow trout cultured in the Union Carbide Environmental Services laboratory and maintained at 13°C. At the time of testing, fish were approximately 3 months old (mean length 30 mm, mean weight 0.17 gms). Food was withheld 48 hours prior to testing. Loading was 0.11 g/l.

Water quality: Reconstituted well water; pH 7.41, total hardness 42 mg/l CaCO₃, total alkalinity 35 mg/l CaCO₃, and specific conductance 150 micromhos/cm. Temperature was maintained at 10.3° ± 2.2°C.

Test containers: 5 gallon glass jars containing 15 liters of water.

Exposure: 10 fish/test vessel/concentration. Toxicant was first added to test vessels, followed by the fish.

Statistical Analysis

LC₅₀'s were estimated by the Spearman-Kärber Estimator (Finney, 1971).

Discussion/Results

Mortality after 96 hours at each concentration was as follows:

<u>Conc. (ppm)</u>	320,	180,	100,	56,	32,	0
<u>% mortality</u>	100,	30,	0,	0,	0,	0

LC₅₀ values obtained are as follows:

24 hour LC₅₀ = 214.6 ppm (95% C.I. 184.0-250.2)
 48 hour LC₅₀ = 214.6 ppm (95% C.I. 184.0-250.2)
 96 hour LC₅₀ = 202.5 ppm (95% C.I. 169.8-241.6)

Trout exposed to concentrations of 180.0 ppm and higher became excitable, surfaced and exhibited twitching, gyrating and swimming on their sides. The no effect level was observed to be 100 ppm.

REVIEWER'S EVALUATIONA. Test Procedures

The test procedure generally complies with the recommended US EPA protocol except that fish were fasted for only 48 hours.

B. Statistical Analysis

The LC₅₀ value was verified with Stephan's computer program.

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C. Conclusions

1. Category: Supplemental
2. Rationale: Test material is a mixture of formulated products.
3. Repairability: Would fulfill any future data requirements on this mixture.

3-96

TROUT 16552

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CONC.	NUMBER EXPOSED	NUMBER DEAD	PERCENT DEAD	BINOMIAL PROB.(PERCENT)
320	10	10	100	0.09765625
180	10	3	30	17.1875
100	10	0	0	0.09765625
56	10	0	0	0.09765625
32	10	0	0	0.09765625

THE BINOMIAL TEST SHOWS THAT 100 AND 320 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 205.2643

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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