

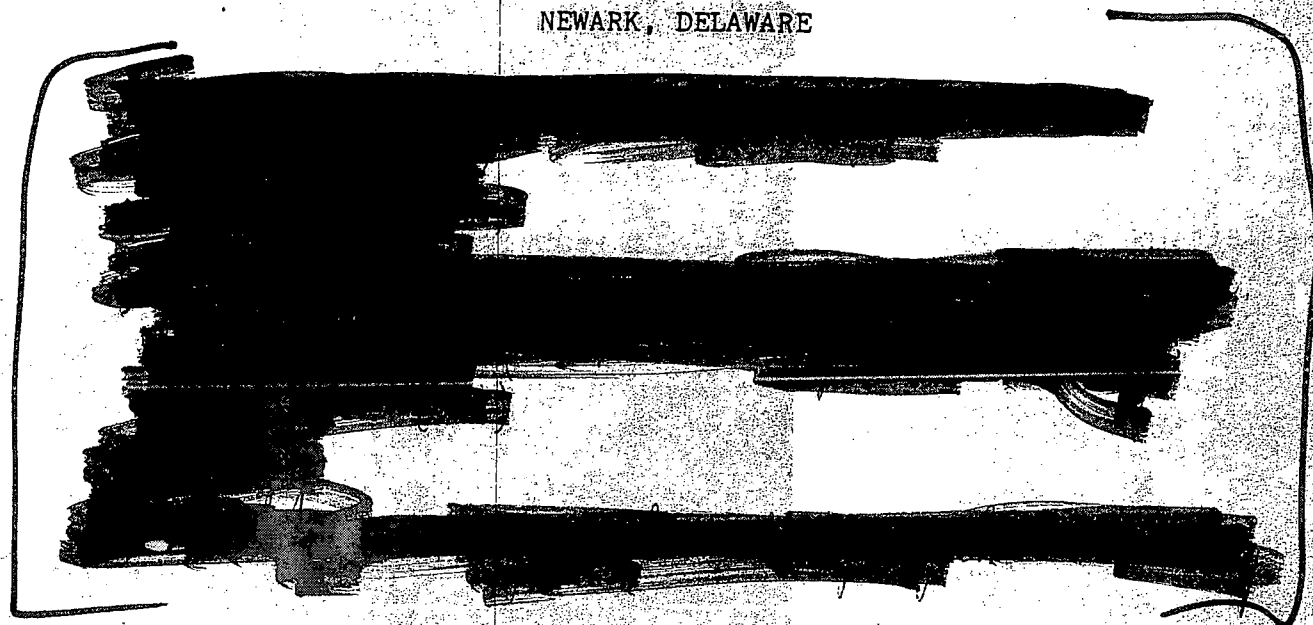
HLO 334 73

BIOASSAY REPORT

SUBMITTED TO

E. I. DUPONT DE NEMOURS & COMPANY

NEWARK, DELAWARE



Acute toxicity of 8231 to rainbow
trout (Salmo gairdneri).



Bionomics, Inc.
790 Main Street
Wareham, Massachusetts
June, 1973

RECEIVED

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METHODS AND MATERIALS

This investigation was performed at the aquatic toxicology laboratory of Bionomics, Inc., Wareham, Massachusetts. The susceptibility of rainbow trout (Salmo gairdneri) to 8231 (a light yellow liquid tested as [REDACTED]) was measured in terms of the median tolerance limit (TL_{50}), the nominal concentration of the chemical in water which causes 50 percent response (death) under the test conditions during a specified time interval. The prediction of a TL_{50} value, and its 95% confidence interval, was based on conversion of the concentrations tested and the corresponding observed percent mortalities to logs and probits respectively, and the subsequent mathematical calculation of a linear regression equation. The toxicity of the chemical tested was evaluated under static bioassay conditions for a 96-hour period.

The test procedures for the static bioassays are in complete accordance with the Fish Bioassay Procedure in the 1970 edition of Standard Methods (APHA) except for those conditions described below.

The rainbow trout used in these tests were obtained from a commercial fish hatchery in Massachusetts and had a mean weight of 1.3 g and a mean length of 58 mm. The test population was held in the laboratory hatchery facilities for at least 30 days prior to testing and during this period mortality was <2%. Static bioassays were conducted in 5-gallon glass vessels held in constant temperature water baths at 11°C ($\pm$ 1.0). The vessels were not aerated, and there was a single introduction of the test compound into the test vessels. A solvent control, containing the greatest amount of isopropyl alcohol contained in any test vessel, was conducted. Fish were acclimated to the test system containing reconstituted water as the standard diluent for at least 24 hours prior to testing. Ten fish were exposed in each test vessel. The reconstituted water used in the test system was prepared by adding the following chemicals to deionized water:

<u>Hardness</u>	mg of salt/liter water			
	NaHCO_3	CaSO_4	MgSO_4	KCl
38 mg/l	48	30	30	2

The pH of the standard diluent was 7.1, and the methyl orange alkalinity was 35 ppm as CaCO_3 . Dissolved oxygen values for the various test vessels ranged from 8.6 initially to 5.0 mg/l at the end of the tests.

RESULTS

The predicted TL_{50} values (95% confidence interval) are presented in Table 1. Table 2 presents a summary of observed mortality for the bioassay after 24 and 96 hours of exposure. Moribund fish generally became dark and lethargic, lost equilibrium, and expired.

SUBMITTED BY:

Bionomics, Inc.
790 Main Street
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June, 1973

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Table 1 -- Acute toxicity of 8231 to rainbow trout^a (Salmo gairdneri).

These data are based on results of bioassays conducted at the aquatic toxicology laboratory of Bionomics, Inc., Wareham, Massachusetts.

Compound	TL ₅₀ - milligram/liter		No Effect Level (mg/l)
	24 hour	96 hour	
8231	384(292-506) ^b	>100 <140	49

^a Assay conducted at 11°C ($\pm$ 1.0), mean weight of rainbow trout 1.3 g.

^b 95% confidence intervals.

Table 2 -- Concentrations of 8231 tested and corresponding observed percent mortality for rainbow trout (Salmo gairdneri) at 24 and 96 hours during a static bioassay.

Compound	Concentration (mg/l)	% mortality observed	
		24 hour	96 hour
8231	750	100	100
	560	90	100
	420	60	100
	210	0	100
	140	0	100
	100	0	0 ^a
	87	0	0 ^a
	49	0	0
	control	0	0
	control (isopropyl alcohol)	0	0

^a Fish exhibited loss of equilibrium.