

US EPA ARCHIVE DOCUMENT

1-30-92

MRID No. 420553-16.

**DATA EVALUATION RECORD**

- 1. **CHEMICAL:** NTN 33893  
Shaughnessy No. ~~129059~~ 129099
- 2. **TEST MATERIAL:** Technical NTN 33893, 95.3%.
- 3. **STUDY TYPE:** Acute Toxicity Test for Freshwater Fish, Rainbow Trout (Salmo gairdneri), Static Test.
- 4. **CITATION:** Grau, R. 1988. "Acute Toxicity of NTN 33893 Technical to Rainbow Trout (Salmo gairdneri)". Bayer AG Institute for Environmental Biology, D-5090 Leverkusen-Bayerwerk, FRG. Laboratory Report No. 101303. Submitted by Mobay Corporation, Agricultural Chemicals Division, P.O. Box 4913, Kansas City Missouri 64120. US EPA MRID No. 420553-16.

5. **REVIEWED BY:**

Dana Lateulere, Biologist  
Ecological Effects Branch  
Environmental Fate and  
Effects Division

Signature: *Dana Lateulere*  
Date: 12/2/91

6. **APPROVED BY:**

Ann Stavola, Section Head, 5  
Ecological Effects Branch  
Environmental Fate and  
Effects Division

Signature: *Ann Stavola*  
Date: 1/30/92

7. **CONCLUSIONS:** The 96 hour LC50 based on mean measured concentrations of NTN 33893 technical to rainbow trout in a static system is 229.1 mg a.i./L as determined by the Binomial method. The LOEC was determined to be 96.2 mg a.i./L based on irregular swimming behavior. The NOEC was determined to be 52.1 mg a.i./L, the lowest concentration tested. NTN 33893 technical is classified as practically non-toxic to rainbow trout based on the 96 hour LC50. This study is classified as supplemental but may be upgraded if test vessel and loading data is submitted (see 14a).

8. **RECOMMENDATIONS:**

9. **BACKGROUND:** This study was submitted as part of registration and EUP requirements.

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**10. DISCUSSION OF INDIVIDUAL TESTS: N/A.****11. MATERIALS AND METHODS:**

- A. Test Animals:** Rainbow trout were obtained from Forellenzucht Linn, D-5940 Lennestadt, FRG. They were acclimatized in the test water and at the test temperature for at least 14 days. During this period they were fed a commercial fish diet. They were not fed for at least 48 hours before nor during the test. The average bodyweight at the beginning of the test was 1.3 +/- .6 g, the average body length 5.3 +/- .6 cm.
- B. Test System:** The test substance was directly applied to the test water without using solvents and was distributed as uniformly as possible by means of an Ultra-Turrax. One aquarium was used per concentration. 60 hours prior to initiation of the exposure the aquaria were filled with water and aerated with about 200 ml of air per minute. After addition of the test substance to the test water the test was started by introducing 10 fish into each aquarium in an order determined by a table of random numbers.
- C. Dosage:** The nominal concentrations tested were 50, 89, 158, 281 and 500 mg a.i./l and an untreated control without additives. All reported calculations refer to nominal values, because analytical control of the concentrations showed that the measured values were greater than 80% of the nominal values in all aquaria over the whole test period.
- D. Design:** The fish were examined daily for symptoms of intoxication and mortality. Symptoms of intoxication included swimming behavior slightly irregular, lying on side/back and staggering. Oxygen and pH were determined daily in each aquarium, the temperature was measured in the control aquarium.
- E. Statistics:** If possible the LC50 values with 95% confidence intervals were calculated for each 24-hour period according to the method of THOMPSON and WEIL.

- 12. REPORTED RESULTS:** The 96-hour LC50 of the technical active ingredient was calculated to be 211 mg a.i./L with an interval of 158 to 281 mg a.i./L. This range results from the two neighboring concentrations in which 0 and 100% mortality occurred and which are different by the factor of 1.8. The lowest lethal concentration (LLC) was 281 mg a.i./L. The highest concentration without toxic effect

(NOEC) was 50 mg a.i./L. All calculations refer to nominal values, because the analytical control of the active ingredient concentrations showed that the concentrations measured during the entire test period were greater than 80% of the nominal values.

13. **STUDY AUTHOR'S CONCLUSIONS/QUALITY ASSURANCE MEASURES:**

The acute toxicity of NTN 33893 technical to rainbow trout was determined to be 211 mg a.i./L with a range from 158 - 281 mg a.i./L. The lowest lethal concentration was 281 mg a.i./L and the NOEC was 50 mg a.i./L.

Quality Assurance Inspection was conducted for compliance verification by the Quality Assurance Unit. It was also stated that this study was conducted in compliance with the Good Laboratory Practice Standards, 40 CFR Part 160.

14. **REVIEWER'S DISCUSSION AND INTERPRETATION OF STUDY RESULTS:**

A. **Test Procedure:** The test procedures were in accordance with Subdivision E, and SEP guidelines except for the following deviations:

- The test aquaria were not described (dimensions, material).
- Measured concentrations, although taken, were not used for statistical analysis. During the exposure period the aquaria were aerated, therefore measured concentration should have been utilized.
- Recommended hardness is 40 to 48 mg/L, the test water had a hardness of 230 mg/L as CaCO<sub>3</sub>.
- Recommended temperature for rainbow trout is 12<sup>o</sup>C; the test temperature averaged 15.4<sup>o</sup>C.
- The temperature during the exposure period should not fluctuate more than 1<sup>o</sup>C; the temperature during this test fluctuated from 14.8 to 16.4<sup>o</sup>C (1.6<sup>o</sup>).
- Loading was not reported.

B. **Statistical Analysis:** Toxanol was used to determine the LC50 and the 95% confidence interval. Reviewer used mean measured concentration values for analysis.

C. Discussion/Results: The test concentrations were measured at 0 hour, 24 hour not agitated, 96 hour, and 96 hour not agitated. The reviewer determined the mean measured concentration based on these data: 52.1, 96.2, 169.8, 309.0, and 466.5 mg a.i./L. The 96 hour LC50 based on mean measured concentrations of NTN 33893 technical to rainbow trout in a static system is 229.1 mg a.i./L as determined by the Binomial method. The LOEC was determined to be 96.2 mg a.i./L based on irregular swimming behavior. The NOEC was determined to be 52.1 mg a.i./L, the lowest concentration tested. NTN 33893 technical is classified as practically non-toxic to rainbow trout based on the 96 hour LC50.

D. Adequacy of the Study:

- (1) Classification: Supplemental.
- (2) Rationale: Test aquaria was not described, loading was not reported.
- (3) Repairability: Yes, test aquaria material and dimensions, and loading data may be submitted to have study upgraded to core.

Immunology Review

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Pages 5 through 7 are not included.

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The material not included contains the following type of information:

- Identity of product inert ingredients.
- Identity of product impurities.
- Description of the product manufacturing process.
- Description of quality control procedures.
- Identity of the source of product ingredients.
- Sales or other commercial/financial information.
- A draft product label.
- The product confidential statement of formula.
- Information about a pending registration action.
- FIFRA registration data.
- The document is a duplicate of page(s) \_\_\_\_\_.
- The document is not responsive to the request.

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The information not included is generally considered confidential by product registrants. If you have any questions, please contact the individual who prepared the response to your request.

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LATEULERE NTN 33893 TECH RAINBOW LC50

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CONC.	NUMBER EXPOSED	NUMBER DEAD	PERCENT DEAD	BINOMIAL PROB. (PERCENT)
466.5	10	10	100	9.765625E-02
309	10	10	100	9.765625E-02
169.8	10	0	0	9.765625E-02
96.2	10	0	0	9.765625E-02
52.1	10	0	0	9.765625E-02

THE BINOMIAL TEST SHOWS THAT 169.8 AND 309 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 229.0594

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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