DATA EVALUATION RECORD

1. CHEMICAL: BAS 514 H Quinclorac.
Shaughnessey Number: Not available.

2. TEST MATERIAL: One part (by weight) BAS 514 H, Lot No. 150732 (a white powder containing 96.2% active ingredient) plus six parts (by weight) BAS 864 01S (a viscous yellow liquid).

3. STUDY TYPE: Acute Toxicity Test for Freshwater Fish.
Species Tested: Rainbow trout (Salmo gairdneri).

4. CITATION: Boeri, R.L. 1989. Static Acute Toxicity of BAS 514 H Plus the Surfactant to Rainbow Trout (Salmo gairdneri). Submitted by BASF Corporation Chemicals Division, Agricultural Chemicals, Parsippany, New Jersey. Study performed by Enseco Incorporated, Marblehead, MA. Laboratory Report No. BAS020. MRID No. 410635-54 and 410635-57.

5. REVIEWED BY:

Richard B. Shepard, Ph.D. — Signature:
Aquatic Ecologist — Date:
KBN Engineering and
Applied Sciences, Inc.

6. APPROVED BY:

Michael L Whitten, M.S. — Signature:
Staff Toxicologist — Date:
KBN Engineering and
Applied Sciences, Inc.

Henry T. Craven, M.S. — Signature: Henry T. Craven 7/12/90
Supervisor, EEB/HED — Date: Daniel Rieder 7-12-90
USEPA

7. CONCLUSIONS: This study appears scientifically sound and fulfills the requirements for a 96-hour static acute toxicity study. Based upon measured concentrations, the 96-hour LC50 of BAS 514 H plus BAS 864 01 S to rainbow trout was greater than 83.5 mg/L. This value classifies BAS 514 H

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5. **REVIEWED BY:**

Richard B. Shepard, Ph.D.
Aquatic Ecologist
KBN Engineering and
Applied Sciences, Inc.

Signature: Richard B. Shepard
Date: 1 Sept. 1989

6. **APPROVED BY:**

Michael L Whitten, M.S.
Staff Toxicologist
KBN Engineering and
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Signature: Michael L Whitten
Date: 9-1-89

Henry T. Craven, M.S.
Supervisor, EEB/HED
USEPA

Signature: Henry T. Craven 9/12/90
Date:

7. **CONCLUSIONS:** This study appears scientifically sound and fulfills the requirements for a 96-hour static acute toxicity study. Based upon nominal concentrations, the 96-hour LC50 of BAS 514 H plus BAS 864 01 S to rainbow trout was greater than 100 mg/L. This value classifies BAS 514 H

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as practically non-toxic to rainbow trout. The NOEC was also greater than 100 mg/L.

8. **RECOMMENDATIONS:** N/A

9. **BACKGROUND:**

10. **DISCUSSION OF INDIVIDUAL TESTS:** N/A

11. **MATERIALS AND METHODS:**

A. **Test Animals:** Rainbow trout (Salmo gairdneri) were obtained from a commercial supplier in New Hampshire. The fish were held in a 750 L polyethylene tank containing 100% dilution water for a minimum of 14 days; temperature was not specified. The fish were fed a commercial fish flake daily except during the 48 hours prior to testing and during the testing period. There was less than 1% mortality in the test fish population during the 48-hour period prior to testing and the rest of the fish showed no visible signs of stress or disease. Size and weight of the fish used for the experiment was reported for only control fish at the conclusion of the test. These fish had a mean blotted dry weight of 0.688 g (range of 0.453 to 0.917 g) and a mean total length of 43.7 mm (range 39 to 48 mm).

B. **Test System:** The test was conducted at a mean temperature of 11.9° C (range 11.1-13.0° C). The test was conducted in 19 L glass aquaria which contained 10 L of test solution. The test solution surface area was 800 cm^2. Test solutions were prepared by adding the desired amount of BAS 514 H (corrected for a purity of 96.2% active ingredient) to all glass aquaria containing 19 L of dilution water. Six times (by weight) the amount of BAS 864 01 S was weighed into a 500 ml graduate, brought up to a total volume of 500 ml with dilution water, and added to the aquaria. The graduate was again filled to 500 ml with dilution water and added to the aquaria to bring the total volume to 20 L. The surfactant control was prepared in the same manner by adding only BAS 864 01 S to the aquaria in an amount equal to the surfactant added to the highest tested concentration. Each aquarium was mixed on a magnetic stir plate for 48 hours. The contents of each aquarium was then divided into equal 10 L volumes. A control aquarium was established and maintained under

the same conditions as the test aquaria but contained neither BAS 514 H nor BAS 864 01 S.

The dilution water was dechlorinated tapwater with the hardness adjusted to 40-48 mg/L as $CaCO_3$. The dilution water had a pH of 7.3, NH_4-N of 0.1 mg/L, and total organic carbon of 1.2 mg/L; total suspended solids, residual chlorine, organochlorine pesticides, organophosphorus pesticides, and polychlorinated biphenyls were reported as "not detected above reporting limit".

All test solution temperatures were maintained at 12 ± 1°C. Test solutions were aerated beginning at 24 hr to maintain minimal dissolved oxygen levels. A photoperiod of 16 hours of light and 8 hours of darkness was provided each day.

C. **Dosage:** 96-hour acute static test.

D. **Design:** The screening test was conducted using bluegill sunfish (Lepomis macrochirus) with nominal concentrations of BAS 514 H of 5, 10, 50, and 100 mg/L.

The definitive test consisted of two controls (one dilution water, the other containing 600 mg/L BAS 864 01 S surfactant) and five nominal concentrations of 15, 25, 40, 60, and 100 mg/L were tested. Ten fish selected impartially from the holding tank were placed in each test aquarium 48 hours after the test solutions had been prepared. The resulting test organism loading was 0.3 g of biomass per liter of test solution. Fish were not fed during the test.

All aquaria were observed at 0, 24, 48, 72, and 96 hours of exposure for mortality and abnormal effects. Dissolved oxygen, pH, conductivity, and temperature were measured in all aquaria at each 24-hour interval.

E. **Statistics:** None were applied because the reported survival of fish exposed to the highest tested concentration (nominally 100 mg/L was equal to that in the solvent control (i.e., 95%).

12. **REPORTED RESULTS:** The only mortalities were one fish in the surfactant control (between 72 and 96 hours) and one fish in the highest concentration (100 mg/L) between 24 and 48 hours. All test vessels were initially clear, with no

visible precipitate or turbidity. Control test vessels remained clear throughout the 96-hour exposure period. After 24 hours of exposure, all other test vessels were cloudy, and they remained cloudy until the end of the testing period. After the aeration was begun, a slight foam was visible on all test vessels except for the controls, and the foam remained visible until the end of the test. Analyses of samples showed that the concentration of test material was stable throughout the test (Table III, attached). Mean measured concentrations were 86-94% of nominal values.

The 24-, 48-, 72-, and 96-hour LC50 values were greater than 100 mg/L, the highest nominal concentration tested. Based on the results of this study, BAS 514 H plus BAS 864 01 S surfactant is considered practically non-toxic to rainbow trout.

The dissolved oxygen concentrations, pH, conductivity, and temperature during the test are shown in Table A.1 (attached). The dissolved oxygen concentration remained at or above 5.0 mg/L at all times as each aquarium was aerated beginning at 24 hours. The pH ranged from 6.8 to 7.5. Conductivity ranged from 188 umhos/cm to 264 umhos/cm. The temperature ranged from 11.1°C to 13.0°C during the exposure period.

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

The author presented no conclusions other than that the no observed effect concentration is estimated to be greater than a nominal 100 mg/L and that no sublethal effects were observed during the test.

Quality Assurance and Good Laboratory Practice Regulation Statements were included in the report.

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

A. **Test Procedure:** The test procedures were in accordance with recommended protocols with the following exceptions:

The solubility of the test material is reported to be 64 mg/l in bidistilled water at 20 °C. At cooler temperatures the solubility may be less and thus a portion of the test material may not have been dissolved in the test solution. If the test material

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is suspended in solution, the availability to the test organism may be less then if the test material is completely dissolved. Therefore, samples should be filtered before they are analyzed, to determine the portion of dissolved and undissolved test material in the test vessels.

The SEP states that the fish should be added to the test chambers within 30 minutes after the test material has been added. In this test, the solutions were mixed for 48-hours prior to introduction of the fish.

The active ingredient was added to the water in the test aquaria before adding the surfactant. Obviously, this is not the way the materials will be introduced into the environment during licensed use. The author provided no rationale for this method nor an evaluation of whether or not it would have made a difference to the results of the test.

The SEP states that individual fish should weigh between 0.5 and 5 g. The weights prior to testing were not reported. At the end of the study, some fish weighed as low as 0.45 g. The weights prior to testing were not reported.

The range finding test used the warm water species Lepomis macrochirus while the definitive test used the cold water species Salmo gairdneri. Although rather unusual, the results of this test were not affected by the use of a separate species in the range finding test.

B. **Statistical Analysis:** None applied by either the author or the reviewer.

C. **Discussion/Results:** The 96-hour no-observed-effect concentration (NOEC) was >100 mg/L (based upon nominal concentrations) which classifies BAS 514 H plus BAS 864 01 S surfactant as practically non-toxic to rainbow trout (Salmo gairdneri).

The measured concentrations of test material show that aeration, cloudiness of solutions, and 48 hour mixing prior to adding fish did not seriously reduce the actual concentration of the material.

The test is scientifically valid and meets the requirements of an acute toxicity test using freshwater fish.

D. Adequacy of the Study:

(1) **Classification:** Core.

(2) **Rationale:** N/A.

(3) **Repairability:** N/A.

15. COMPLETION OF ONE-LINER: Yes; 8-28-89.

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Page_____ is not included in this copy.

Pages 8 through 11 are not included.

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.

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.

Shaughnessey No. NOT AVAIL Chemical Name BAS 514 H QUINCHLORAC Chemical Class ____ Page ____ of ____

Study/Species/Lab/ Accession	Chemical & a.i.	Results	Reviewer/ Date	Val St
14-Day Single Dose Oral LD_{50} Species ____ Lab Acc.		LD50 = mg/kg (95% C.L.) Contr. Mort.(%) = Slope = # Animals/Level = Age(Days) = Sex = 14-Day Dose Level mg/kg/(% Mortality) ( ), ( ), ( ), ( ), ( ) Comments:	____	—
14-Day Single Dose Oral LD_{50} Species ____ Lab Acc.		LD50 = mg/kg. (95% C.L.) Contr. Mort.(%) = Slope = # Animals/Level = Age(Days) = Sex = 14-Day Dose Level mg/kg/(% Mortality) ( ), ( ), ( ), ( ), ( ) Comments:	____	—
8-Day Dietary LC_{50} Species Lab ____ Acc.		LC50 = ppm (95% C.L.) Contr. Mort.(%) = Slope = # Animals/Level = Age(Days) = Sex = 8-Day Dose Level ppm/(%Mortality) ( ), ( ), ( ), ( ), ( ) Comments:	____	—
8-Day Dietary LC_{50} Species Lab ____ Acc.		LC50 = ppm (95% C.L.) Contr. Mort.(%) = Slope = # Animals/Level = Age(Days) = Sex = 8-Day Dose Level ppm/(%Mortality) ( ), ( ), ( ), ( ), ( ) Comments:	____	—
48-Hour LC_{50} Species Lab ____ Acc.		LC50 = pp__ (95% C.L.) Contr. Mort.(%) = 0 Slope = # Animals/Level = Sol. Contr. Mort.(%) = 10 Temperature = 48-Hour Dose Level pp /(%Mortality) 15 ( ), ( ), ( ), ( ), ( ) Comments:	____	—

96-Hour LC_{50}
Species Salmo gairdneri 96.29.
Lab Enesco Inc
Acc. 410635-54 410.635-57
		LC50 > 100 ~~pp~~ mg/L (95% C.L.)
		Slope = / # Animals/Level = 10 Con. Mor.(%) = 0 Sol. Con. Mor.(%) = 10
		Temp. = 11-13°C
		96-Hour Dose Level ~~pp~~ mg/L * /(%Mortality)
		15 (0), 25 (0), 40 (0), 60 (0), 100 (5)
		Comments: NOMINAL CONCENTRATIONS
			R.S. 8-28-89 CORE	—

96-Hour LC_{50} Species Lab ____ Acc.		LC50 = pp__ (95% C.L.) Con. Mort.(%) = Slope = # Animals/Level = Sol. Con. Mort.(%) = Temp. = 96-Hour Dose Level pp /(%Mortality) ( ), ( ), ( ), ( ), ( ) Comments:	____	—

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