2/27/90

4.

DATA EVALUATION RECORD

1.) CHEMICAL: XRM-5019 (sulfonylurea herbicide)

2.) TEST MATERIAL: XRD-498, 99.6% active ingredient. The formulated product XRM-5019 contains 74.9% active ingredient.
EPA No. 464-EUP-RNG; PM-23.

3.) STUDY TYPE: Acute toxicity to the freshwater fish bluegill (96 hour LC50).

4.) CITATION: Dill, D. C., E. A. Bartlett and K. M. Lehr. 1988. XRD-498 Herbicide: Evaluation Of The Toxicity To The Bluegill, (Lepomis macrochirus Rafinesque). Dow Chemical Corp. Laboratory, Midland, Mi. MRID 412632-22.

5.) REVIEWED BY:
Richard C. Petrie
Agronomist
EEB/EFED

Signature: Richard C. Petrie

Date: 2/27/90

6.) APPROVED BY:
Ann Stavola
Head, Section 3
EEB/EFED

Signature:

Date:

7.) CONCLUSIONS:
This study is scientifically sound and is acceptable for use in hazard assessments (CORE). No mortalities or sub-lethal effects were found at any test level. Solubility above 300 ppm was not achieved for the test material. The LC50 level of >300 mg/L was determined for bluegill. XRD-498 is categorized as "practically non-toxic" to bluegill.

8.) RECOMMENDATIONS:
N/A

9.) BACKGROUND:
No background information was found in EEB files.

10.) DISCUSSION OF INDIVIDUAL TESTS:

11.) MATERIALS AND METHODS:

A. TEST ANIMALS

Bluegill (Lepomis macrochirus Rafinesque) were obtained from Osage Catfisheries, Osage Beach, MO. Test fish were held for 48 hours without food before testing, acclimated to 17 degrees C for more than 3 days before testing. Mortality of test lot was <3% in the 5 days before testing. Synthetic fish food was fed daily during the holding period, similar to that described by Alexander et.al. No food was given during the test period.

B. DOSAGE

Zero and 96 hour concentrations were measured with HPLC.

DOSAGES

Nominal:	1002,600,360,221,130 mg/L
Measured 0hr:	313,323,303,189,103 mg/L
Measured 96hr:	315,316,263,193,110 mg/L
Stability 96h/0h:	1.0,.98,.87,1.0,1.1

Average final concentrations were 98% of starting concentrations.

C. STUDY DESIGN

Twelve liter glass beakers holding 10 liters of test solution were used for this static test. No solvents were used. Test temperature ranged from 16.9 to 17.1 degrees C; pH ranged from 5.8 to 7.7; DO saturation from 0 to 48 hrs. was >73% of saturation and from 48 to 96 hrs. was >63% of saturation. The test water was sand filtered, pH adjusted, and hardness adjusted. The DO, pH, and water temperature were recorded daily. There were 10 bluegill per vessel. Mean fish length was 2.4 cm and mean weight was 0.23 grams. Photo-period was 16 hrs. light/ 8 hrs. dark. Fish were not fed during the test. Mortality was defined as no response to gentle prodding, and no opercular movement. Test vessels were not aerated during the test.

D. STATISTICAL ANALYSIS

LC50 was by inspection of data.

12.) REPORTED RESULTS:

The measured concentrations at day 0 ranged from 130 to 313 mg/L with a pH range of 5.7 to 7.7. The test substance was stable with final concentrations 98% of first day measured concentrations. The LC50 was determined to be greater than the maximum water solubility value of 300 mg/L. No mortalities or sublethal effects were observed at any test level. XRD-498 is classified as "practically non-toxic" to bluegill.

TEST CONC.	pH	% DEAD 24hr.	48hr.	72hr.	96hr.
1002 (314)*	6.0	0	0	0	0
600 (319)	6.0	0	0	0	0
360 (283)	6.2	0	0	0	0
220 (191)	7.5	0	0	0	0
130 (106)	7.7	0	0	0	0
water cont.	7.7	0	0	0	0

* Measured Concentration (Average).

There was much undissolved test substance at the 3 highest test levels. All fish looked normal at all times during the exposure.

13.) STUDY AUTHOR'S CONCLUSIONS/QUALITY ASSURANCE MEASURES:
Due to the low mortality, statistical analysis was not possible. By observation, the XRD-498 technical LC50 for bluegill is >300 mg/L. This level is categorized as "practically non-toxic" to bluegill. The highest attained solubility level appeared to be 300 ppm.

14.) REVIEWER'S DISCUSSION AND INTERPRETATION OF STUDY RESULTS:
A. Test Procedure:
This study was performed under conditions of compliance with EPA GLP standards.

B. Statistical Analysis:
No statistical analysis was possible because no mortalities occurred at the highest dose tested. The LC50 is greater than 100 ppm.

C. Discussion/Results:
This study is judged scientifically sound and acceptable for use in a hazard assessment.

D. Adequacy Of The Study:
(1) Classification: Core
(2) Rationale: N/A
(3) Repairability: N/A