

DATA EVALUATION RECORD

1. **CHEMICAL:** Pyrazon
Shaughnessey No. 069601
2. **TEST MATERIAL:** Pyrazon Technical, 94.1%
3. **STUDY TYPE:** Freshwater Fish LC50 - Bluegill
Species used: Bluegill (Lepomis macrochirus)
4. **STUDY ID:** Munk, R. 1990. Acute toxicity of isomerenarm (pyrazon) on bluegill (Lepomis macrochirus RAF.). Conducted by BASF Aktiengesellschaft, Republic of Germany for BASF Corporation, Research Triangle Park, NC. EPA MIRD No. 416098-05.
5. **REVIEWED BY:**

Clyde R. Houseknecht
Wildlife Biologist
EEB/EFED

Signature: *Clyde Houseknecht*
Date: 11/6/90
6. **APPROVED BY:**

Henry T. Craven, Head
Review Section #4
EEB/EFED

Signature: *Henry T. Craven*
Date: 11/6/90
7. **CONCLUSIONS:** This study is scientifically sound and fullfills the guideline requirements. The 96-hour LC50 of pyrazon to bluegill sunfish was 89 mg/l (95% c.l. 66-142 mg/l) based on mean measured concentrations. The NOEC was 45.6 mg/l. Thus, pyrazon can be described as slightly toxic to bluegill sunfish.
8. **RECOMMENDATIONS:** N/A

9. **BACKGROUND:** N/A
10. **DISCUSSION OF INDIVIDUAL TESTS:** N/A
11. **MATERIALS AND METHODS:**
- A. **Test Animals:** Bluegill sunfish were obtained from a commercial supplier in the United States. They averaged 6.4 cm (range 5.6 - 7.4) in length and 3.4 g (range 2.1 - 4.8) in weight. The fish were kept under 16 hours of daylight in a flow-through tank containing tap water that had been filtered through activated carbon. They were acclimated for 14 days prior to testing. Mortality during the entire holding period prior to testing was 5.7%.
- B. **Test System:** Ten randomly selected test organisms were placed in each test chamber. The test aquaria had sides of glass and stainless steel frames with measurements of 80 cm x 35 cm x 46 cm. The loading (g. fish/l. test water) was 0.34. Water temperature was maintained at $22 \pm 1^{\circ}$ C. Test organisms were not fed 24 hours before or during the test. The authors do not indicate if aeration was used nor do they specify how oxygen and temperature were measured.
- C. **Dosage:** Based on a range finding test, the following nominal concentrations were chosen for this study; 21.5, 31.6, 46.4, 68.1, 100.0, and 147.0 mg/l. Mean measured concentrations were 20.9, 30.6, 45.6, 66.0, 96.9, and 141.6 mg/l, respectively.
- D. **Design:** Static, 96-hour LC50 freshwater fish toxicity test.
- E. **Statistics:** Probit analysis was used to calculate the LC50.
12. **REPORTED RESULTS:** The 96-hour LC50 was calculated as 93 mg/l.
13. **STUDY AUTHOR'S CONCLUSION/QUALITY ASSURANCE MEASURES:** This study does not meet the requirements for 40 CFR 160, Good Laboratory Practices. The study was performed in accordance with OECD Guidelines, Paris, 1981.
14. **REVIEWER'S DISCUSSION AND INTERPRETATION OF STUDY RESULTS:**
- A. **Test Procedures:** The procedures utilized in this study were in compliance with the ASTM's Standard Practice for Conducting Tests with Fishes, Macroinvertebrates, and Amphibians.
- B. **Statistical Analysis:** The EEB reviewer repeated the mortality analysis using Stephan's program for calculation of an LC50. Results were similar to those reported by the author except for differences resulting from the use of mean measured

C. Discussion/Results: The results demonstrate that pyrazon is slightly toxic to the bluegill sunfish.

D. Adequacy of the Study:

(1) Classification: Core.

(2) Rationale: N/A

(3) Repairability: N/A

15. COMPLETION OF ONE-LINER: Yes, October 30, 1990.

Shaughnessy No. 069601

Chemical Name PyRAZON

Chemical Class _____

Page 1 of 1

Study/Species/Lab/

Chemical
% a.i

Results

Reviewer/
Date

Validation
Status

14-Day Single Dose Oral LD50.

Species:

LD50 = mg/kg (95% C.L.) Contr. Mort.(%)=

Lab.:

Slope= # Animals/Level= Age(Days)=
Sex =

Acc. #:

14-Day Dose Level mg/kg/(% Mortality)

Comments:

14-Day Single Dose Oral LD50.

Species:

LD50 = mg/kg (95% C.L.) Contr. Mort.(%)=

Lab.:

Slope= # Animals/Level= Age(Days)=
Sex =

Acc. #:

14-Day Dose Level mg/kg/(% Mortality)

Comments:

8-Day Dietary LC50.

Species:

LC50 = ppm (95% C.L.) Contr. Mort.(%)=

Lab.:

Slope= # Animals/Level= Age(Days)=
Sex =

Acc. #:

8-Day Dose Level ppm/(% Mortality)

Comments:

8-Day Dietary LC50.

Species:

LC50 = ppm (95% C.L.) Contr. Mort.(%)=

Lab.:

Slope= # Animals/Level= Age(Days)=
Sex =

Acc. #:

8-Day Dose Level ppm/(% Mortality)

Comments:

96-hour LC50.

Species: Bluegill Swash

Lab: BASF

Acc. #: 416098-05

LC50 = 89 ppm (95% C.L.) Contr. Mort.(%)= 0

Slope= # Animals/Level= 10 Sol. Contr. Mort.(%)= 0

96-Hour Dose Level pp/(% Mortality)

20.9 (0), 30.6 (10), 45.6 (0), 66.0 (0), 96.9 (70)

Comments:

Temperature = 22°C

CRH

CORE

10/30/90

141.6(100)

96-hour LC50.

Species:

LC50 = PP (95% C.L.) Con. Mor.(%)=

Lab.:

Slope= # Animals/Level= Sol. Con. Mor.(%)=

Acc. #:

96-Hour Dose Level pp/(% Mortality)

Comments:

Temp. =

48-hour Invertebrate.

Species:

LC50 = PP (95% C.L.) Con. Mort.(%)=

Lab.:

Slope= # Animals/Level= Sol. Con. Mort.(%)=

Acc. #:

96-Hour Dose Level pp/(% Mortality)

Comments:

Temp. =

Bluejill

pyrazon

CONC.	NUMBER EXPOSED	NUMBER DEAD	PERCENT DEAD	BINOMIAL PROB. (PERCENT)
141.6	10	10	100	9.765625E-02
96.9	10	7	70	17.1875
66	10	0	0	9.765625E-02
45.6	10	0	0	9.765625E-02
30.6	10	1	10	1.074219
20.9	10	0	0	9.765625E-02

THE BINOMIAL TEST SHOWS THAT 66 AND 141.6 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 88.76706

THE MOVING AVERAGE METHOD CANNOT BE USED WITH THIS DATA SET BECAUSE NO SPAN WHICH PRODUCES MOVING AVERAGE ANGLES THAT BRACKET 45 DEGREES ALSO USES TWO PERCENT DEAD BETWEEN 0 AND 100 PERCENT.

RESULTS CALCULATED USING THE PROBIT METHOD

ITERATIONS	G	H	GOODNESS OF FIT PROBABILITY
12	2.965753	6.757659	0

A PROBABILITY OF 0 MEANS THAT IT IS LESS THAN 0.001.

SINCE THE PROBABILITY IS LESS THAN 0.05, RESULTS CALCULATED USING THE PROBIT METHOD PROBABLY SHOULD NOT BE USED.

SLOPE = 5.974605
 95 PERCENT CONFIDENCE LIMITS = -4.314478 AND 16.26369

LC50 = 84.41411
 95 PERCENT CONFIDENCE LIMITS = 0 AND +INFINITY

LC10 = 51.74266
 95 PERCENT CONFIDENCE LIMITS = 0 AND +INFINITY

PAGES 6.6 THROUGH _____ HAVE BEEN REMOVED FROM THIS DOCUMENT. THOSE PAGES
CONSIST OF REGISTRANT-SUBMITTED DATA.

14F0174/885155
BLUEGILL
(LEPOMIS MACROCHIRUS RAF.)

PAGE 10
BASF AKTIENGESELLSCHAFT
DEPARTMENT OF TOXICOLOGY

RESULTS :

NOMINAL CONC. (MG/L)	ANALYTICALLY DETECTED CONCENTRATIONS (MG/L)						X
	1 H	4 H	24 H	48 H	72 H	96 H	
21.5	20.92					20.93	20.9
31.6	30.58					30.53	30.6
46.4	45.41					45.83	45.6
68.1	66.0					65.93	66.0
100.0	96.6					97.2	96.9
147.0	140.8					142.5	141.6
0.0	-					-	

89/0186 0013