DATA EVALUATION RECORD

1. Chemical: Pydrin: cyano (3-phenoxyphenyl)methyl-4-chloro-alpha-(methylethyl)benzeneacetate.

2. Test Material: SD-43775: Technical 94% ai.

3. Study Type: 96-hour fish LC_{50} Bluegill

4. Study ID: Thompson, C.M.; Griffin, J.; Boudreau, B. (1980) Acute Toxicity of SD 43775 Technical to Bluegill Sunfish (Lepomis macrochirus). Conducted by ABC Lab., Inc., for Shell, Modesto, California.

5. Reviewed by: Miachel Rexrode
Fisheries Biologist
EEB/HED
Signature: Miachel Rexrode
Date: 6/25/86

6. Approved by: Norm Cook
Head, Section 4
EEB/HED
Signature: Norman Cook
Date: 6-25-86

7. Conclusions:

This study appears scientifically sound and will support registration. At an LC_{50} =0.70 ug/L Pydrin is very highly toxic to bluegill sunfish.

8. Materials and Methods:

a. Test Species:

Bluegill sunfish (Lepomis macrochirus). Fish were obtained from Osage Catfisheries in Osage Beach, Missouri and had a mean weight of 0.12 g and a mean standard length of .18 mm.

b. Test System:

The static fish bioassay was conducted in 5-gallon glass vessels containing 15 liters of soft reconstituted water. Water parameters were as follows: total hardness of 45 mg/L as $CaCO_3$, a total alkalinity of 35 mg/L as $CaCO_3$, an initial pH of 7.4, dissolved oxygen of 8.9 mg/L, and temperature of 22 °C (± 1.0).

c. Dose: Static bioassay using nominal concentrations. Seven test concentrations (5.6, 3.2, 1.8, 1.0, 0.56, 0.32, 0.18 ug/L), and a negative control. Ten fish per concentration.

d. Statistics: Statistical analysis of the concentration vs. effect data was obtained by employing a computerized LC_{50} progam developed by Stephan et al.

9. Reported Results:

The results of the 96-hour toxicity test are presented in Table 1. The 24-, 48-, and 96-hour LC_{50} values for SD 43775 technical were 1.1, 0.88, and 0.70 ug/L, respectively.

Table 1. Concentrations Tested and Corresponding Observed Percent Mortalities for Bluegill (Lepomis macrochirus) Exposed to SD 43775

Concentration ug/L	Mortality 24 hr	48 hr	96 hr
Control	0	0	0
0.18	0	0	0
0.32	0	0	0
0.56	0	0	10
1.0	40	70	100
1.8	100	100	100
3.2	100	100	100
5.6	100	100	100

10. Reviewer's Discussion

a. Test Procedure: Testing follows guidelines

b. Statistical Analysis: Binomial analysis by EPA's "Toxanal" program yielded a 96-hour LC_{50} = .70 ug/L with a 95 percent confidence limit of .56 to 1.0 ug/L.

c. Discussion/Results: This study appears to be scientifically sound and will support registration. At 0.70 ug/L, Pydrin appears to be very highly toxic to bluegill.

d. Adequacy of Study: Classification: Core

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PYDRIN SD 43775 96-hr LC50 Bluegill ug/L

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CONC.	NUMBER EXPOSED	NUMBER DEAD	PERCENT DEAD	BINOMIAL PROB. (PERCENT)
5.6	10	10	100	9.765625E-02
3.2	10	10	100	9.765625E-02
1.8	10	10	100	9.765625E-02
1	10	10	100	9.765625E-02
.56	10	1	10	1.074219
.32	10	0	0	9.765625E-02
.18	10	0	0	9.765625E-02

THE BINOMIAL TEST SHOWS THAT .56 AND 1 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 .7039438

WHEN THERE ARE LESS THAN TWO CONCENTRATIONS AT WHICH THE PERCENT DEAD IS BETWEEN 0 AND 100, NEITHER THE MOVING AVERGE NOR THE PROBIT METHOD CAN GIVE ANY STATISTICALLY SOUND RESULTS.