6/15/88

Accession Number 404892-01

**DATA EVALUATION RECORD**

1. **CHEMICAL**: Iprodione Technical

2. **TEST MATERIAL**: Iprodione Technical, an off-white powder; Tested as 100 percent active ingredient.

3. **STUDY TYPE**: Life Cycle Test with Freshwater Invertebrate. Species Tested: Daphnia magna

4. **CITATION**: Surprenant, D.C. 1988. The Chronic Toxicity of Iprodione Technical to Daphnia magna Under Flow-Through Conditions, Report #87-12-2573, Study Number 10566-1087-6116-130. Prepared by Springborn Life Sciences, Inc., Wareham, Massachusetts. Submitted to Rhone Poulenc Ag Company, Research Triangle Park, N.C. Accession Number 404892-01.

5. **REVIEWED BY**:

Kimberly D. Rhodes — Signature: Kimberly D. Rhodes
Aquatic Toxicologist
Hunter Environmental Services, Inc. — Date: 6/13/88

6. **APPROVED BY**:

Prapimpan Kosalwat, Ph.D. — Signature: Prapimpan Kosalwat
Staff Toxicologist
KBN Engineering and — Date: 6-15-88
Applied Sciences, Inc.

Henry T. Craven — Signature:
Supervisor EEB/HED
USEPA — Date:

7. **CONCLUSIONS**: This study appears to be scientifically sound, but can only be classified as supplemental because all data were not provided. As a result, validation of all statistical results could not be conducted, nor confirmation of the MATC and NOEL values. The reported MATC was >0.17 <0.33 mg/L.

8. **RECOMMENDATIONS**: N/A

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9. BACKGROUND:

10. DISCUSSION OF INDIVIDUAL TESTS: N/A

11. MATERIALS AND METHODS:

A. Test Animals: The daphnids (Daphnia magna) used in this toxicity test were obtained from populations cultured at the testing facility. Offspring produced during the 24-hour period prior to the start of the 21-day exposure were used to initiate the test. No information was provided on the parental daphnids.

B. Test System: The test was conducted in a modified proportional diluter system with a 0.50 dilution factor. The diluter delivered five concentratons of Iprodione Technical, a dilution water control and a solvent (48 microliters/Liter acetone) control to duplicate test aquaria. Each glass aquarium maintained a constant test volume of approximately 1.8 liters (L). The diluter provided for approximately 6.0 volume replacements per 24-hour period. Illumination was provided by fluorescent lights set on a 16-hour light and 8-hour dark photoperiod. Test temperature was maintained at 20 $\pm$ 1 $^{o}$C by control of water temperature via a water bath. The dilution water was a fortified well water filtered through carbon and an Amberlite XAD-7 resin. The dilution water possessed a total hardness and alkalinity of 160 - 180 mg/l and 110 - 130 mg/l as $CaCO_3$, respectively. The pH range was 7.9 to 8.3 and the specific conductivity range was 400 to 600 umhos/cm during the test.

C. Dosage: Twenty-one day flow-through life cycle test.

D. Design: Forty D. magna ($\leq$ 24 hours old) were impartially distributed to each test concentration (10 per replicate) to initiate the test. Each treatment was quadruplicated. A control, solvent control (acetone) and nominal Iprodione concentrations of 1.0, 0.50, 0.25, 0.13, and 0.063 mg/L were used. The mean measured test concentrations reported were 0.71, 0.33, 0.17, 0.085, and 0.042 mg/L. Adult survival and measurements of offspring production were made on test days 1, 2, 4, and three times per week, (Monday, Wednesday and Friday), from day 7 through 21. All offspring were removed, counted and discarded. Daphnids were fed a diet consisting of a suspension of Fleishmann's yeast (5 mg/mL), a suspension of green algae (Ankistrodesmus falcatus; 4.0 X $10^7$ cells/mL), ans Selco$^R$ (a commercial mixture of proteins and fatty acids, 0.6 mg/mL). The food was introduced at a rate of 0.5 mL of yeast suspension, and 3.0 mL of algal suspension and 1.0 mL of Selco$^R$ food supplement three times daily on weekdays and twice daily on weekends and holidays.

E. **Statistics**: All control and solvent data for each of the measured endpoints were compared for significant difference by analysis of variance (ANOVA). Since there were no differences, the control data were pooled to increase the power of the test.

Significant differences in the percentage survival were determined after angular (arcsine square-root percentage) transformation of the data. Differences were determined by analysis of variance (ANOVA). Statistical comparison between the results of the pooled controls and various concentrations of Iprodione was performed by William's method.

Reproduction measurements were entered individually and ANOVA performed with statistical comparison between the results of the pooled controls and the various concentrations of Iprodione Technical established through the William's method.

The Maximum Allowable Toxicant Concentration (MATC) was calculated by taking the geometric mean of the limits set by the lowest test concentration that showed a statistically significant effect (Lowest Observed Effect Concentration, LOEC) and the highest test concentration that showed no statistically significant difference from the control (No Observed Effect Concentration, NOEC).

12. **REPORTED RESULTS**: "During the in-life phase of the study weekly analyses of the test solutions demonstrated that based on mean measured concentrations of Iprodione Technical an exposure concentration gradient of approximately 50% was maintained during the 21-day study." "Analyses of the five treatment levels resulted in mean measured concentrations which averaged 67% of the nomimal concentrations." The mean measured concentrations of Iprodione Technical during the 21-day exposure ranged from 0.042 mg/L to 0.71 mg/L. Aquaria concentrations achieved were stable and consistent throughout the study. No insoluble test material was observed in any exposure solution.

A summary of the biological results of the exposure of daphnids to Iprodione Technical is provided in the attached Tables 3, 4 and 5.

13. **STUDY AUTHOR'S CONCLUSIONS/QUALITY ASSURANCE MEASURES**: Following 21 days of exposure to Iprodione Technical, daphnid survival was significantly lower than the survival of control daphnids at exposure concentrations $\geq$0.33 mg/L. The number of offspring produced per female exposed to mean measured Bromoxynil butyrate test concentrations of 0.33 and 0.71 mg/L was significantly lower than the number of offspring produced by control animals.

"Based on these data the maximum acceptable toxicant concentration (MATC) of Iprodione Technical to D. magna was > 0.17 mg/L and < 0.33 mg/L (geometric mean MATC = 0.24 mg/L)."

The data were audited by the laboratory's Quality Assurance Unit to assure compliance with the protocols, standard operating procedures and pertinent EPA Good Laboratory Practice (GLP) Regulations. A GLP compliance statement was included and signed by the Quality Assurance Unit.

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

A. Test Procedure: The overall procedures appear to be in accordance with the Guidelines. However, the SEP specifies that "A report of the results of a test must include data on the survival of first generation daphnids, production of young by first generation daphnids at various times for each treatment, and the length of first generation daphnids at the end of the test. The report only provided weekly mean percentage survival of daphnids, mean cumulative number of offspring per female and mean total body length of D. magna.

B. Statistical Analysis: Validation of statistical methods utilized could not be conducted because all the raw data necessary for those calculations were not provided.

C. Discussion/Results: The study results appear scientifically valid. However, lack of all replicate survival and reproduction raw data prevents the validation of the MATC and NOEC.

D. Adequacy of the Study:

(1) **Classification**: Supplemental.

(2) **Rationale**: The survival and reproduction data could not be statistically validated because the raw data for these measurements were not provided. Therefore, the MATC and NOEL could not be validated.

(3) **Repairability**: Submission of appropriate raw data for statistical evaluation.

15. COMPLETION OF ONE-LINER FOR STUDY: Yes. 6-13-88

Chemical Name Iprodione Technical Chemical Class _____ Page 2 of _____

| Study/Species/Lab/ Succession | Chemical % Active | Results | | | | | Reviewer/ Date | Validatic Status |
|---|---|---|---|---|---|---|---|---|
| Avian Reproduction, | | Group | Dose(ppm) | Effected/Parameters | Mort.(%) | %Che Inh. | | |
| Species: | | Control | | | | | | |
| | | Treatment I | | | | | | |
| Lab: | | Treatment II | | | | | | |
| | | Treatment III | | | | | | |
| Acc*; | | Study Duration: | | | | | | |
| | | Comments: | | | | | | |
| Field Study(Simulated/Actual) | | Group | Rate(ai/a) | Treatment Interval | Total # Treatments | Mor.(%) | | |
| Species: | | Control | | | | | | |
| | | Treatment I | | | | | | |
| Lab: | | Treatment II | | | | | | |
| | | Treatment III | | | | | | |
| Acc.*; | | Crop/Site: | | Study Duration: | | | | |
| | | Comments: | | | | | | |
| Chronic fish, | | Concentrations Tested (pp__)= | | | | | | |
| Species | | MATC = >___ <___ pp__. | | Effected Parameter = | | | | |
| Lab: | | Contr. Mort.(%)= | | Sol. Contr. Mort.(%)= | | | | |
| Acc.*; | | Comments: | | | | | | |
| Chronic invertebrate | | Concentrations Tested (ppm)= 0.042, 0.085, 0.017, 0.33, 0.71 | | | | | | |
| Species Daphnia Magna | | MATC => 0.17< 0.33 ppm. | | Effected Parameter(s) Survival &reproducti | | | | |
| Lab Springborn Life Sciences, Inc. | not reported | Contr. Mort.(%)= 7 | | Sol. Contr. Mort.(%)= 2 | | | KDR 6/13/88 | SUP |
| Acc.* 404892-01 | | Comments: Mean measured concentrations reported | | | | | | |

IPRODIONE

Page_____ is not included in this copy.

Pages 6 through 8 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.

X FIFRA registration data.

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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.