8-25-92

MRID No. 417195-01

DATA EVALUATION RECORD

1. **CHEMICAL:** Kathon® 886 Biocide.
Shaughnessey No. 107104.

2. **TEST MATERIAL:** Kathon® 886 Biocide; 5-chloro-2-methyl-4-isothiazolin-3-one and 2-methyl-4-isothiazolin-3-one; CAS No.s 26172-55-4 and 2682-20-4; Lot No. 24088; TD No. 90-008; 14.17% purity; an amber-gold liquid.

3. **STUDY TYPE:** Avian Single Dose Oral LD_{50} Test. Species Tested: Bobwhite quail (*Colinus virginianus*).

4. **CITATION:** Pedersen, C.A. 1990. Kathon® 886 Biocide: 21-Day Acute Oral LD_{50} Study in Bobwhite Quail. Laboratory Study ID - BLAL No. 90 QD 148. Study performed by Bio-Life Associates, Ltd., Neillsville, WI. Submitted by Rohm and Haas Company, Spring House, PA. EPA MRID No. 417195-01.

5. **REVIEWED BY:**

6. **APPROVED BY:** Greg Linscombe EEB 8/18/92

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

Signature: Henry T. Craven 8/25/92

Date:

7. **CONCLUSIONS:** This study is scientifically sound and fulfills the requirements for an avian oral LD_{50} test using a formulated product. With an LD_{50} of 62.7 mg a.i./kg of body weight (based on nominal concentrations), Kathon® 886 Biocide is considered to be moderately toxic to bobwhite quail. The NOEL could not be determined due to signs of toxicity at the lowest treatment level.

8. **RECOMMENDATIONS:** N/A.

9. **BACKGROUND:**

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

11. **MATERIALS AND METHODS:**

A. **Test Animals:** The birds used in the study were adult bobwhite quail (*Colinus virginianus*) approximately 31 weeks of age. The birds were obtained from Oak Ridge Game Farm, Gravette, Arkansas, at approximately 17 weeks of age. All birds were phenotypically indistinguishable from wild birds. Birds were acclimated to test facilities for 15 days prior to test initiation. None of the 80 birds died during the quarantine period. All birds were normal and active throughout the quarantine period.

B. **Test System:** All birds were housed indoors in wire mesh pens maintained over steel racks. Pen dimensions were 61.0 cm x 53.3 cm x 38.1 cm. Fluorescent lights provided 10 hours of light per day. The temperature and the relative humidity of the animal room were recorded once daily. The temperature during the study ranged from 72°F to 88°F with relative humidity between 58% and 87%.

C. **Dosage:** Twenty-one-day single dose oral LD_{50} test. Based upon initial range-finding studies, the following geometric series of nominal dosages was selected for the study: 21.5 mg active ingredient (a.i.)/kg (T-I); 46.4 mg a.i./kg (T-II); 68.1 mg a.i./kg (T-III); 100 mg a.i./kg (T-IV); and 147 mg a.i./kg of body weight (T-V). The dietary concentrations were adjusted for purity of the test substance.

D. **Design:** Groups of ten birds (five males and five females) were randomly allocated to each of five treatment groups and one control group. Water was available at all times and food was offered *ad libitum* with the exception of a fasting period of approximately 18 hours prior to dosing. The birds were fed Purina® Duck Grower throughout the quarantine and study periods. The test substance was volumetrically measured and administered to each bird via a gelatin capsule. Control birds received an empty gelatin capsule.

Each bird was individually weighed at test initiation (Day 1) and on test days 3, 7, 14, and 21. Group feed consumption values were recorded on test days 3, 7, 14,

abdominal cavity. One bird in each of the T-II and T-III groups was severely emaciated. The T-III bird also had distended, gaseous intestines. Another bird in the T-III group had a pale liver. Results from the necropsies of the sixteen arbitrarily selected birds were unremarkable.

13. **STUDY AUTHOR'S CONCLUSIONS/QUALITY ASSURANCE MEASURES:** The acute oral LD_{50} of Kathon® 886 Biocide was determined to be 64.5 mg a.i./kg of body weight with 95% confidence limits of 51.6 to 80.6 mg a.i./kg of body weight. The no-observed-effect level (NOEL) was not determined.

The report stated that the study was conducted in conformance with EPA Good Laboratory Practice regulations. The statement was signed by the study director at Bio-Life Associates, Ltd., the sponsor, and the submitter. A Quality Assurance statement was included in the report.

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

A. **Test Procedure:** The test procedures were in accordance with Subdivision E and SEP guidelines with the following exception:

The author does not report the time of onset or duration of observed signs of clinical toxicity within each test group.

B. **Statistical Analysis:** The reviewer calculated the LD_{50} using EPA's Toxanal computer program (attached). Based on nominal dosage levels, the approximate LD_{50} calculated using the probit method is 62.7 mg ai/kg, with 95% confidence limits of 53.2 and 73.7 mg ai/kg of body weight. This value is slightly more conservative and the limits are narrower than the author's. Therefore, the reviewer's values will be taken to be the correct values.

C. **Discussion/Results:** With an LD_{50} of 62.7 mg a.i./kg (based on nominal concentrations), the test material is considered to be moderately toxic to bobwhite quail. The NOEL was not established due to signs of toxicity at the lowest treatment level.

This study is scientifically sound and meets the requirements for an avian oral LD_{50} test.

KATHON

Page_____ is not included in this copy.

Pages 4 through 5 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.

____ 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.

MAR 1 1991
1992

CERTIFIED MAIL

Ms. Wendy W. Bingaman
Rohm and Haas Company
Independence Mall West
Philadelphia, PA 19105

SUBJECT: Review of acute and chronic ecological studies and an acute toxicological study with Kathon 886F Biocide.

Dear Ms. Bingaman:

The Agency has reviewed the Fish Toxicity Bluegill, 72-1(a), two Fish Toxicities with Rainbow Trout, 72-1(c), the Invertebrate Toxicity, 72-2(a), the Life Cycle Invertebrate, 72-4(a), and an Acute Inhalation, 81-3 study in the rat with Kathon 886F Biocide and has reached the following decisions.

72-1(a) Acute Fish Toxicity with Bluegill Sunfish MRID 41718801

Kathon 886F Biocide is considered very highly toxic to bluegill sunfish with an LC50 of 0.30 mg ai/L. This study was categorized as supplementary because adequate sample of fish size (controls and test groups) were not provided and test concentrations were not measured every 24-hours. This study is reserved pending review of the higher Tier studies. A copy of the DER is enclosed.

72-1(c) Acute Fish Toxicity with Rainbow Trout MRID 41718802

Kathon 886F Biocide is considered very highly toxic to rainbow trout with an LC50 of 0.19 mg ai/L. This study was categorized as supplementary because adequate sample of fish size (controls and test groups) were not provided and test concentrations were not measured every 24-hours. This study is reserved pending review of the higher Tier studies. A copy of the DER is enclosed.

72-1(c) Acute Fish Toxicity (14-Day prolonged test) with Rainbow Trout MRID 41963503

Kathon 886F Biocide is considered very highly toxic to rainbow trout with an LC50 of 0.08 mg ai/L. This study was categorized as supplementary because adequate sample of fish size (controls and test groups) were not provided, test concentrations were not measured every 24-hours, and the temperature was higher than 12° C. This study is reserved pending review of the higher Tier studies. A copy of the DER is enclosed.

72-2(a) Invertebrate Toxicity-Daphnia magna MRID 41718803

This study does not fulfill the guideline requirements for an acute flow through test with daphnia. Daphnid size (controls and test groups) were not provided and test concentrations were not measured every 24-hours. In addition, these test results were inconsistent with results from the life cycle toxicity test for daphnia. The 48-hour acute LC50 value for Kathon 886F Biocide at 14.17% ai was 0.18 mg/L whereas, in the life cycle study daphnids were unaffected at the 0.18 mg/L level within 48 hours. A copy of the DER is enclosed. A new study is due by March 31, 1993.

72-4(b) Life Cycle in Aquatic Invertebrates MRID 41963502

This study does not fulfill the guideline requirements for an aquatic invertebrate life cycle test with daphnia. Daphnid growth and reproductive data were improperly recorded. In addition, these test results were inconsistent with results from the acute toxicity test for daphnia. The 48-hour acute LC50 value for Kathon 886F Biocide at 14.17% ai was 0.18 mg/L whereas, in the life cycle study daphnids were unaffected at the 0.18 mg/L level within 48 hours. A copy of the DER is enclosed. A new study is due by March 31, 1993.

81-3 Acute Inhalation Toxicity Study in Rats MRID 41963501

Under the conditions of the study, the LC50 for Kathon 886F Biocide (containing 13.71 or 13.99% ai) is 2.36 mg/L (combined sexes). When calculated for active ingredient, which consists of two active ingredients (5-chloro-2-methyl-4-isothiazolin-3-one and 2-methyl-4-isothiazolin-3-one), the LC50 is 0.33 mg/L. This study does not satisfy the guideline requirements for an acute

inhalation study in rats, but it can be upgraded with the submission of data/information on the percentage of the particles that were ≤ 1 um. You are required to submit additional data to upgrade this study within three months of receipt of this letter or if the study cannot be upgraded you must conduct a new study which is due March 31, 1994. A copy of the DER is enclosed.

If you do not submit the data within the specified time frames, I will pursue appropriate regulatory action to ensure compliance with our statutory goals. If you have any questions regarding this letter, please contact Tom Myers in the Accelerated Reregistration Branch at (703) 308-8074.

Sincerely yours,

Jay Ellenberger, Chief
Accelerated Reregistration Branch
Special Review and
Reregistration Division

Enclosures:

cc: John Lee, PM-17
Regina Hirsch, EEB
Linda Taylor, TB II

CONCURRENCES								
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DATE	3-10-92	3/10/92						