EE BRANCH REVIEW

IN 3/3/80 OUT 3/11/80

FILE OR REG. NO. 239-2186, -2422

PETITION OR EXP. PERMIT NO. 7F1910

DATE DIV. RECEIVED 2/21/80

DATE OF SUBMISSION 2/6/80

DATE SUBMISSION ACCEPTED N/A

TYPE PRODUCT(S): I, D, H, F, N, R, S Herbicide

DATA ACCESSION NO(S). N/A

PRODUCT MGR. NO. (25) Taylor

PRODUCT NAME(S) Ortho Paraquat CL, Ortho Paraquat (L concentrate)

COMPANY NAME Chevron Chemical Company

SUBMISSION PURPOSE Submission of Data as per EEB's Request (Agency letter of 9/22/77).

CHEMICAL FORMULATION Paraquat dichloride

Materials and Methods

A. Test Procedure

Protocol generally followed EPA proposed guideline of July 10, 1978. Some specifics of note include:

Age of test birds - 20 weeks at beginning of test
Number of birds - 10 per treatment (5M + 5F)
Duration of test -14 days
Treatment levels - 100, 159, 251, 398, and 631 mg/kg plus a distilled water control.

Conditions - Birds were housed indoors in battery brooders at a temperature of 65-75°F with 14 hours of light per day

Test initiation - July 27, 1979

B. Statistical Analysis

Mortality was analyzed by the probit method.

C. Results and Discussion

Treatment (mg/kg)	Mortality
control	0
100	0
159	6
251	7
398	10
631	10

Birds in the two highest dose levels experienced lethargy before death, and lethargy was also observed in some birds at the 159 and 251 mg/kg levels. Surviving birds at the 159 mg/kg level were asymptomatic after day 6 as were all birds at the 100 mg/kg level. There was a dose-related loss of body weight observed on day 3, which was partially compensated for by the end of the study. There was also a dose-related decrease in feed consumption. An LD_{50} of 176 mg/kg was determined, with confidence limits of 144-213 mg/kg.

Necropsy of those birds which died during the course of the study revealed lesions associated with damage to the gastro-intestinal tract wall. Birds which died after a period of time also evidenced a progressive emaciation associated with a lack of feed intake. Necropsy of those birds which were sacrificed at the termination of the study showed evidence of gastro-intestinal tract damage, the severity of which appeared to be dose related.

Pesticide Name

Paraquat dichloride, technical (93.3%)

Submission Purpose

Submission of an Avian Acute Oral LD_{50} study in response to EEB request of 3/2/77.

101 Physical and Chemical Properties

101.1 Chemical Name

1,1'-Dimethyl-4,4'-bipyridinium dichloride

103 Toxicological Properties

103.2.1 Avian Acute Oral LD_{50}

Bobwhite Quail
176 (144-213) mg/kg - Technical (93.3%)
Core - Beavers (1979)

107 Conclusions

The Avian Acute Oral LD_{50} study reviewed here is scientifically sound, and satisfies this EPA requirement in support of registration.

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DATA EVALUATION RECORD

1. CHEMICAL: Paraquat dichloride

2. FORMULATION: Technical - 93.3%

3. CITATION: Beavers, J. (1979) Acute Oral LD_{50} - Bobwhite Quail. Paraquat Dichloride Technical Salt (SX-1142) - Final Report; received 2/21/80 under 239-3286 & 239-2422; unpublished report prepared by Wildlife International Ltd. for Chevron Chemical Co., Richmond, Calif. (Acc. #241819)

4. REVIEWED BY: Stephen M. Hopkins
Plant Physiologist
EEB/HED

5. DATE REVIEWED: 3/4/80

6. TEST TYPE: Avian Acute Oral LD_{50}
A. Test species: Bobwhite Quail

7. REPORTED RESULTS: The testing laboratory reported an Acute Oral LD_{50} for Paraquat dichloride to Bobwhite quail of 176 mg/kg, with a 95% confidence interval of 144-213 mg/kg.

8. REVIEWER'S CONCLUSION: This study is scientifically sound and meets EPA requirements for an Avian Acute Oral LD_{50} study.

Reviewer's Evaluation

A. Test Procedure:

The test procedure generally complied with the recommended EPA 1978 protocol. For the purposes of dosage administration and LD_{50} calculation, the test material was assumed to be 100% active ingredient. The LD_{50}, as reported, is therefore of the experimental material the laboratory received.

B. Statistical Analysis

Mortality was analyzed by the reviewer using the probit method. EEB analysis agreed closely with that performed by the testing laboratory.

C. Results

The acute oral LD_{50} of Paraquat dichloride technical to bobwhite quail is 176 (144-213) mg/kg. This is equivalent to 164 (134-199) mg/kg of the active ingredient.

D. Conclusions

1. Category - Core
2. Rationale - NA
3. Repairability - NA