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EEE BRANCH REVIEW

DATE: IN 7/12/78 OUT 2-19-79 IN ____ OUT ____ IN ____ OUT ____

FISH & WILDLIFE ENVIRONMENTAL CHEMISTRY EFFICACY

FILE OR REG. NO. 239-2404

PETITION OR EXP. PERMIT NO. ____

DATE DIV. RECEIVED ____

DATE OF SUBMISSION ____

DATE SUBMISSION ACCEPTED ____

TYPE PRODUCTS(S): (I,) D, H, F, N, R, S ____

DATA ACCESSION NO(S). 001565

PRODUCT MGR. NO. ____

PRODUCT NAME(S) Chevron Ortho Monitor 4 Spray (insecticide)

COMPANY NAME Chevron Chemical

SUBMISSION PURPOSE amendment to add the use on celery (Florida)

CHEMICAL & FORMULATION O,S-dimethyl phosphoramidothioate

Ecological Effects Branch Review

100.0 Pesticidal Use

Celery (Florida Only): Dipterous Leaf Miners - 1 to 2 pts. (o.5 to 1.0 lb. active) per acre. Apply as needed. Up to 5 applications may be at 7-day intervals. Do not apply within 21 days of harvest. Plants should be trimmed (tops removed) before shipping or use. Tops should not be used for feed or food.

101.0 Chemical and Physical Properties

The reader is referred to the review by Norm Cook, 8/30/78, for Monitor^{R} 4. Reg. No. 3125-280.

102.0 Behavior in the Environment

The reader is referred to the review by N. Cook, 8/30/78, for Monitor^{R} 4, Reg. No. 3125-280.

103.0 Toxicological Properties

The reader is referred to the review by N. Cook, 9/7/78, for Section 18/Monitor: Celery/Florida. Also, see attached Data Evaluation Review. A paper by J.G. Zinkl et. al. (see attached Data Evaluation Review) has been received by Ecological Effects Branch, (EEB) since the Section 18 request for Monitor on Florida celery. Although the major portion of these studies deal with Orthene because Monitor may be a degradate of Orthene the following information was developed:

1. The reported LD_{50} value to Dark-eyed juncos is 8.0 mg/kg of Monitor.
2. Both Orthene and Monitor may be metabolized to a third biologically active compound, perhaps the sulfoxide of Monitor.
3. Limited data suggest that brain ChE inhibition of at least 80% is required to kill birds with a single oral dose of Orthene but they died with only 50% inhibition when continuously exposed. On the other hand, the data suggest that a single oral dose of Monitor may only need to depress brain ChE about 55%, before the birds are in danger of dying.

104.0 Hazard Assessment

The reader is referred to the review by N. Cook, 9/7/78, for Section 18/Monitor: Celery/Florida.

The above studies (see 103.0 above) by Zinkl et. al. indicate Monitor is a very highly toxic chemical to avian species. The LD_{50} value (8.0 mg/kg) is the same as that determined for Bobwhite quail, and the percent of brain ChE inhibition necessary for mortality is much less than that for acephate (Orthene). Futhermore, prolonged brain ChE inhibition indicates that a biologically active degradate of Monitor may exist.

105.0 Conclusions

The Ecological Effects Branch recommends against concurrence with the amended registration to add the use on celery. The following studies are required to complete the hazard assessment:

1. Field study(ies) which address the potential hazards of typical use applications to avian species.
2. An avain reproduction study for Monitor^R technical using both an upland game bird (bobwhite quail) and waterfowl (mallard ducks).
3. The avain dietary LC_{50} for Monitor^R technical using on upland gamebird (bobwhite quail.
4. The 48-hour acute LC_{50} for an aquatic invertebrate (Daphnia magna) using Monitor^R technical.

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Phone Conversation

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Called Dr. Zinkl concerning the LD_{50} study on methamidophos in his unpublished paper entitled, "Toxicity of Acephate (Orthene) and Methamidophos (Monitor) to Dark-eyed (Junco hyemalis). The following list of items were discussed:

1. The test was on November 8, 1977.
2. The product used was a 73% technical Monitor.
3. The birds were fasted 15 hours prior to dosage and provided food after dosage. No food consumption records were kept.
4. The product was diluted with distilled water.
5. The birds were not weighed after treatment.
6. The birds were kept indoors in a room specifically designed to keep constant temperature and humidity.
7. All dosage levels were included in the calculation used to derive the LD_{50}.