

US EPA ARCHIVE DOCUMENT

109901

EEB's File (12)

EEE BRANCH REVIEW

DATE: IN 5/9/80 OUT 6/6/80 IN _____ OUT _____ IN _____ OUT _____

FISH & WILDLIFE ENVIRONMENTAL CHEMISTRY EFFICACY

FILE OR REG. NO. 3125-318

PETITION OR EXP. PERMIT NO. OF 2349

DATE DIV. RECEIVED _____

DATE OF SUBMISSION _____

DATE SUBMISSION ACCEPTED _____

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

DATA ACCESSION NO(S) _____

PRODUCT MGR. NO. 21

PRODUCT NAME(S) Bayleton 25% Wettable Powder

COMPANY NAME Mobay Chemical Corporation

SUBMISSION PURPOSE Incremental Risk Assessment - For new uses.

GRAPES & MELONS

CHEMICAL & FORMULATION 1-4-Chlorophenoxy - 3,3-dimethyl-1-(H-1,2,4,
triazol-1-yl)-2-butanone 25%

Pesticide Name: Bayleton 25% WP
1-(4-chlorophenoxy)-3,3-dimethyl-1-(1 H -1,2,4-triazol-1-yl)-2-butanone

100.0 Pesticide Label Information

100.1 Pesticide Use

Under this request Bayleton is to be used for control of various, unspecified diseases on fresh market grapes and melons.

100.2 Formulation Information

Bayleton 25% W.P. contains 25% active ingredient

100.3 Application Methods, Directions, Rates

A. Dosage: Apply 5.7 to 8.6 ounces of Bayleton 25% Wettable Powder as a foliar spray in a minimum of 30 gallons of water to grapes. Apply 7 ounces of Bayleton 25% Wettable Powder as a foliar spray in a minimum of 10 gallons of water to melons.

B. Rates: A maximum of 3 applications of the specified dosage per acre may be made up to 3 days of harvest for grapes. A maximum of 3 applications of the specified dosage per acre may be made up to day of harvest for melons.

100.4 Target Organisms

Unspecified

101 Physical and Chemical Properties

101.1 Chemical Name

1-4(Chlorophenoxy)-3,3-dimethyl-1-(1H 1,2,4-triazol-1-yl)-2 butanone.

101.2 Structural Formula

101.3 Common Name(s)
Bayleton 25% W.P. Triadimefon
Bay 8634, MEB 6447

101.4 Trade Name
Bayleton 25% W.P.

101.5 Molecular Weight
293.7

101.6 Physical State
White to tan crystals, odorless to mild aromatic

101.7 Solubility
260 ppm in water at 20°C.

102.0 Behavior in the Environment

No additional data were supplied by the registrant. This section has been copied verbatim from the 2/7/80 EEB review by J.S. Leitzke who expanded his own review from EEB's 1/12/79 Turner's citation of K. Sampson/R. E. Ney Environmental Fate Review, 8/8/78.

102.1 Soil

In laboratory studies, the half-life of Bayleton was six days in aerobic soil and 15 days in anaerobic soil. Since there was no degradation in sterile soils, microbial action on Bayleton seems a likely route of degradation. In field studies the average half-life was five days, but the half-life of Bayleton plus its primary degradate (KWG-0519) was 225 days. KWG-0519 is considered persistent.

103 Toxicological Properties

103.1 As of this writing the Toxicology Branch (TB) has not reviewed this new use of Bayleton. The following information was totally obtained from previous reviews by EEB.

Mammal

(Reference: Toxicology Branch memo by J. D. Doherty, 1/15/78).

Rat acute oral LD ₅₀ (25% WP)	=	2828 mg/kg male
Rat acute oral LD ₅₀ (25% WP)	=	3668 mg/kg female
Rat acute oral LD ₅₀ (50% WP)	=	812 mg/kg male
Rat acute oral LD ₅₀ (50% WP)	=	1470 mg/kg female
Rat acute oral LD ₅₀ (92% Tech)	=	568 mg/kg male
Rat acute oral LD ₅₀ (92% Tech)	=	363 mg/kg female
Mouse acute oral LD ₅₀ (92% Tech)	=	987 mg/kg male
Mouse acute oral LD ₅₀ (92% Tech)	=	1071 mg/kg female
Rabbit acute oral LD ₅₀ (Tech)	=	500 mg/kg female
Dog acute oral LD ₅₀ (Tech)	=	500 mg/kg female

Note: Three studies (oral in rats, inhalation in rats and oral in rabbits) showed no indication of embryotoxicity or teratogenesis at 50 mg/kg.

103.2.0 Minimum Requirements (from previous reviews)

103.2.1 Avian Acute Oral LD₅₀'s

Mallard duck - Tech. >4,000 mg/kg-CORE

103.2.2 Avian Dietary LC₅₀'s

Mallard duck - Tech. > 10,000 ppm - CORE

Bobwhite quail - Tech. > 4,640 ppm - CORE

103.2.3 Fish Acute LC₅₀'s

Bluegill 96-hr. - Tech. 11 ppm -CORE

Rainbow Trout 96-hr. - Tech. 14 ppm - CORE

Channel Catfish 96-hr. - Tech. 15 ppm - CORE

103.2.4 Aquatic Invertebrate LC₅₀

Daphnia magna 48-hr. - Tech. 1.6 ppm - CORE

103.3.1 Avian Reproduction Studies

Not available

103.3.2 Terrestrial Phytotoxicity

Not available

103.3.3 Toxicity to Non-target and Beneficial Invertebrates

Insects

Honey Bees (Apis mellifera)

Contact and Oral LD₅₀ (ug/bee) both greater than 25
Stevenson. 1978. Plant Pathol. 27(1):38-40

Reviewed by A. Vaughan, 11/5/79

Reviewer's Conclusions: This study is scientifically sound

Annelids

A previous EEB review by J. Tice (4/19/78) cited a study on manure worms (Eisenia foetida) by Hermann, 1978. However, members of the genus Eisenia are commonly called manure worms because they require manure to live in. Members of this genus are the worms that are usually sold by commercial operators because they reproduce faster and year-round as opposed to Lumbricus terrestris. Manure worms, e.g. E. foetida, are also very resistant to a number of pesticides that are quite toxic to L. terrestris, and thus the use of manure worms "is quite unwise if the results are to be applied to other earthworms" (Stickel, W.H., in Foreword to Davey, S. P. 1963). Effects of chemicals on earthworms: A review of the literature. Bur. Sport Fish. Wildl., Spec. Sci. Rep. - Wildl. No. 74; see also Gilman, A. P. and A. Vardanis. 1974. Carbofuran. Comparative toxicity and metabolism in the worms Lumbricus terrestris L. and Eisenia foetida S. J. Agric. Food Chem. 22(4):625-28).

104 Hazard Assessment

104.1 Discussion

Based on the proposed application rate of 0.13 lb. a.i./acre, one would expect a concentration of Bayleton in the top 0.5" - acre-layer of soil of 0.57 ppm following a single application. If sprayed directly on water the expected concentration of Bayleton in the top 6" - acre-layer of water would be 0.1 ppm.

While Bayleton, as the parent compound may not be very persistent in the environment, its primary degradate, KWG 0519, certainly is persistent. Little bioaccumulation, however, has been shown.

104.2 Likelihood of Adverse Effects to Non-target organisms

Bayleton is only slightly toxic to fish and birds and moderately toxic to mammals and aquatic invertebrates. Due to the proposed application rates and the apparent low potential for bioaccumulation of Bayleton, no acute toxicity problems are

likely to occur. Chronic and reproductive effects are possible however, due to multiple applications, leaching, and the persistence of Bayleton's primary degradate, KWG 0519. Of particular concern in this situation are various species of birds which feed on grapes. In summer the dense grape foliage also provides cover and nesting sites for birds, and grapevines are often used in nest building. Bayleton, if applied during the nesting season, could adversely affect reproductive success of some bird populations.

104.3 Endangered Species Considerations

None at present.

104.4 Adequacy of Toxicity Data

The six basic fish and wildlife tests have been submitted and found adequate to support registration.

104.5 Additional Data Required

Previous reviews by J. Leitzke (2/7/80) and A. Yamhure (3/31/80) have requested Daphnia life-cycle studies. In addition A. Yamhure (3/31/80) requested avian reproduction studies be conducted to support any future registration. In view of the increased hazard to birds with this proposed use pattern, it is necessary to reiterate the need for avian reproduction studies. Two Daphnia life-cycle tests should also be conducted as described by Yamhure (3/31/80).

107 Conclusions

107.3 Environmental Hazards Labeling

Do not use on other crops grown for food or forage. Keep out of lakes, streams, and ponds. Do not contaminate water by cleaning of equipment or disposal of wastes. Do not apply when weather conditions favor drift. Apply this product only as specified on this label.

107.4 Data Adequacy Conclusions

The six basic fish and wildlife requirements have been submitted and found adequate to support registration.

107.5 Data Requests

Any future conditional registration request, which presents a potential fish and wildlife hazard, will require prior submission of the data requested in section 104.5 of this review.

107.6 Special Notes

Note to PM:

Label submitted by registrant is too vague for purposes of making an adequate fish and wildlife hazard assessment. Information pertaining to specific diseases to be controlled, and time and frequency of applications should be requested.

107.7 Recommendations

The Ecological Effects Branch does not concur with the proposed conditional registration of Bayleton 25% W.P for use on grapes. Direct application of Bayleton to a primary food source of various species of birds may pose an unreasonable hazard to non-target organisms. Until such time as the registrant submits avian reproduction study data that proves otherwise, this registration request should be denied on the basis of potential unreasonable adverse effects.

EEB concurs with the conditional registration for use on melons provided that the registrant agrees in writing to:

- a. Submit the studies requested under section 104.5 of this review within two years of granting of the conditional registration, and
- b. Perform any additional tests or submit any additional data that may become necessary because of the results obtained from the tests requested under section 104.5 of this review.

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