SHAUGHNESSEY NO. REVIEW NO. 31

EEB BRANCH REVIEW

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PETITION OR EXP. PERMIT NO.

DATE OF SUBMISSION 2-16-83

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RD ACTION CODE/TYPE OF REVIEW 335/Amendment

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

DATA ACCESSION NO(S).

PRODUCT MANAGER NO. H. Jacoby (21)

PRODUCT NAME(S) Bayleton 50WP

COMPANY NAME Mobay Chemical Corporation

SUBMISSION PURPOSE Proposed Conditional Registration of Almonds Use

SHAUGHNESSEY NO.	CHEMICAL, & FORMULATION	% A.I.

100.0 Pesticide Use

Bayleton is a fungicide that is presently registered on azaelas, rye grasses, wheat, barley, apples, pears, pineapples, grapes, and pine seedlings.

100.1 Application/Method/Direction

Refer to label

101.1 Chemical and Physical Properties

Refer to previous reviews.

102 Behavior in the Environment (from Leitzke's review 2/7/80)

(Reference: Expanded from L. Turner's (1/12/79) citation of K. Sampson/R. E. Ney - Environmental Fate Review, 8/8/78).

102.1 Soil

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

"Aged" soil residues of triadimefon were substantially mobile in sandy clay loam and silty clay soils in column leaching and soil TLC experiments. In the column part 73% of the original 14^C activity was found below 5 cm. However, relatively low leaching ability of "fresh" triadimefon was noted in a different soil TLC study. Lack of experimental procedures prevented ascribing different results to aging or use of differently labeled parent compounds.

102.2 Water

Triadimefon is stable to hydrolysis at pH 3, 6, and 9 and temperatures of 25 C, 35 C, and 45 C. It will photolyze in water with a half-life of 10-12 hours. Addition of 2% acetone accelerated the half-life to 5.5 hours. 1,2,4- Triazole and CO_2 were the major photoproducts from triazole- and benzene ring-labeled studies.

In a simulated pond environment, triadimefon has a half-life of 6-8 days in the water and 18-20 days in the silt. The major degradate was again KWG-0519.

103 Toxicological Properties (from Leitzke's review 2/7/80)

103.1 Mammal

(Reference: Toxicology Branch memo by J. D. Doherty, 2/15/78).

Acute Oral LD50

Species		Formulation	LD50 (mg/kg)
Rat	(male)	92 % Technical	568 mg/kg
Rat	(female)	92 % Technical	363 mg/kg
Mouse	(male)	92 % Technical	987 mg/kg
Mouse	(female)	92 % Technical	1071 mg/kg
Rabbit		Technical	500 mg/kg
Dog		Technical	500 mg/kg
Rat	(male)	50 % WP	812 mg/kg
Rat	(female)	50 % WP	1470 mg/kg
Rat	(male)	25 % WP	2828 mg/kg
Rat	(female)	25 % WP	2828 mg/kg

Teratology

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

103.2 Fish and Wildlife (Combined from previous EEB reviews)

Species	Test Type	Formulation	Toxicity	Status
Mallard	Acute Oral LD50	Technical	>4,000 mg/kg	Core
Mallard	Dietary LC50	Technical	>10,000 ppm	Core
Bobwhite	Dietary LC50	Technical	>4,640 ppm	Core
Bluegill	96-Hour LC50	Technical	11 ppm	Core
Rainbow	96-Hour LC50	Technical	14 ppm	Core
Channel Catfish	96-Hour LC50	Technical	15 ppm	Core
Daphnia magna	48-Hour EC50	Technical	1.6 ppm	Core

103.3 Beneficial Invertebrates

Honey Bees (Apis mellifera)

Contact and oral LD50 —— both greater than 25 ug/bee.
Stevenson. 1978. Plant Pathol. 27(1):38-40.
Reviewed by: A. Vaughan, 11/5/79
Reviewer's conclusions: This study is scientifically sound.

104.0 Hazard Assessment

The registrant, Mobay, is proposing that Bayleton 50% WP be registered for use on almonds as a systemic fungicide. Presently, Bayleton 50% WP is registered on apples, pears, grapes, small grains, pine seedlings and grasses grown for seed.

The active ingredient of Bayleton is triadimefon with a half-life of 6-15 days in soil and 6-8 days in water. Acute test values for small mammals (rat LD_{50} = 363-1071 mg/kg) and birds (mallard LD_{50} >4000 mg/kg, bobwhite LC_{50} >4640 ppm) indicate moderate to practically no toxicity. Studies on fish (bluegill LC_{50} = 11 ppm) suggest slight toxicity, while, those on daphnids (Daphnia magna LC_{50} = 1.5 ppm) indicate moderate toxicity.

Bayleton 50% WP is to be applied at the maximum rate or 32 oz/A or 1 lb ai/A using aerial or ground equipment. The drift from this mode of application could result in residues of about .04 ppm onto an adjacent shallow (6") body of water (5% x .734 ppm = .04 ppm). This residue level is not expected to acutely effect aquatic organisms.

Bayleton does not appear to present a hazard to small mammals and birds. Expected residue levels are well below the acute toxicity values cited above. Theoretical levels for 1 lb ai/A on vegetation is as follows:

Expected residues (ppm)

short grass 240
long grass 110
leaves 125
seeds/small insects 58
fruit 7

104.1 Endangered Species

No potential hazard is expected.

105.0 Conclusions

EEB has completed an incremental risk assessment of the proposed conditional registration of triadimefon (Bayleton) for use on almonds. Based upon the available data the proposed use pattern should cause no significant increase in exposure or risk to non-target organisms.

The registrant has, also, submitted a request that Bayleton 50% WP in water soluble Packets be registered on almonds. No incremental risk or increased exposure to non-target organisms is anticipated with this new submission since formulation and application are the same as for Bayleton 50% WP.

Miachel Rexrode 4/11/83
Miachel Rexrode
Fishery Biologist
EEB/HED

Henry T. Craven 4/11/83
Harry Craven
Section Head
EEB/HED

Clayton Bushong
Chief
EEB/HED

Clayton D. Bushong 4/11/83