

US EPA ARCHIVE DOCUMENT

109901

*Manure worm
Goldfish*

4

EEE BRANCH REVIEW

DATE: IN 4/6/78 OUT 4/19/78 IN _____ OUT _____ IN _____ OUT _____

FISH & WILDLIFE ENVIRONMENTAL CHEMISTRY EFFICACY

FILE OR REG. NO. _____

PETITION OR EXP. PERMIT NO. 3125 - EUP - 156 and 157

DATE DIV. RECEIVED _____

DATE OF SUBMISSION _____

DATE SUBMISSION ACCEPTED _____

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

DATA ACCESSION NO(S). 232489 - 231311

PRODUCT MGR. NO. L. Zink

PRODUCT NAME(S) Bayleton 25% Wettable Powder and 50% wettable powder.

COMPANY NAME Mobay Chemical Corp.

SUBMISSION PURPOSE EUP to collect product performance data,

on grass grown for seed

CHEMICAL & FORMULATION 1-(4-chlorophenoxy)-3,3-dimethyl-1

-(1H-1,2,4-triazol-1-yl)-2-butanone

100.0 Pesticidal Use

The pesticide is a fungicide and will be used to control various rust diseases on grass grown for seed.

100.1 Application method/Directions/Rates

& To be applied to grasses grown for seed to control rusts (Puccinia). Applications at the rate of

100.2 from 2-8 oz. a.i./acre, will be made with both formulations. Applications will be made using ground equipment only, however, aerial applications have been requested for some applications.

The instructions read as follows:

Apply using ground equipment only. Apply specified dosage per acre in at least 20 gallons of water per acre. Make first application when rust pustules become readily noticeable, preferably near jointing or boot stage of the grass. Apply as necessary to maintain control, but DO NOT APPLY MORE THAN 4 POUNDS OF BAYLETON 25% (2 POUNDS OF BAYLETON 50%) W. P. PER YEAR. Do not graze treated fields or use any part of crop or crop wastes for feed or bedding purposes. Do not plant food or forage crops on treated land within 18 months after application.

100.3 Precautionary Labeling

SEE ABOVE STATEMENTS.

Do not use on crops grown for food or forage. Keep out of lakes, streams, and ponds. Do not contaminate water by cleaning of equipment or disposed of wastes. Do not make applications when weather conditions favor drift from target area. Pesticide, spray mixture, or rinsate that cannot be used or chemically reprocessed should be disposed of in a landfill approved for pesticides or buried in a safe place away from water supplies.

Container Disposal:

Dispose of in an incinerator or landfill approved for pesticide containers, or bury in a safe place.

100.4 Proposed EUP Program.

100.4.1 Objectives:

The purpose of the EUP program is to evaluate a range of 2 to 8 oz. a.i./acre (for both formulations), for the control of various rust diseases attack the grass crop.

100.4.2 Duration/Date/Amount shipped.

Duration: No duration was specified.

Date: Date requested was April 1, 1978.

Amount shipped: 3000 pounds 25% W.P.
(750 pounds active)

1500 pounds 50% W.P.
(750 pounds active)

Area to be treated: Each formulation will be applied to 1,000 acres of grass. A total of 2,000 acres will be used.

100.4.3 Application procedures.

Pesticide to be applied at the rate of 2-8 oz. a.i./acre in at least 20 gal. of water via ground spray equipment. (Aerial spray has been requested for some applications where "growers may find it desirable to apply by air.")

Bayleton's performance will be measured by comparing product performance with that of standard products and control areas.

No mention was made of collecting environmental safety data.

101.0 Chemical and Physical Properties

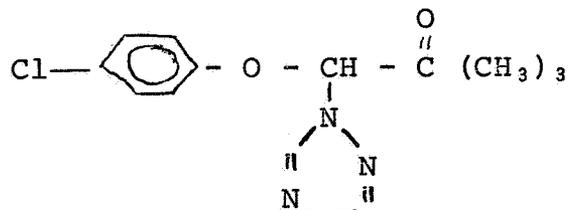
101.1 Chemical Name:

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

101.2 Common name:

Bayleton, also known as Bay MEB 6647.

101.3 Structural formula:



101.4 Molecular weight: 293.7

101.5 Physical state:

White to tan crystals, odorless to milk aromatic.

101.6 Solubility:

Water	260 ppm @ 20°C
Cyclohexanone	35%
Toluene	25%
Isopropanol	17%
Methylene Chloride	>50%
Ligroin	25%

102.0 Behavior in the Environment

No environmental chemistry is available at this time.

103.0 Toxicological Properties:

103.1 Acute toxicity:

Mammal:

The following (non-validated) studies have been submitted. Mammal studies used the technical material.

<u>SPECIES</u>	<u>METHOD OF APPLICATION</u>	<u>OBSERVATIONS</u>
Rat	Oral intubation of an acetone-oil dilution	Acute oral LD ₅₀ Male 568 (507-668)mg/kg Female 363 (322-409)mg/kg
Mice	Oral intubation of an acetone-oil dilution	Acute oral LD ₅₀ Male 989 (817-1198)mg/kg Female 1071 (947-1233)mg/kg
Rabbit	Oral intubation of an acetone-oil dilution	Acute oral LD ₅₀ ~500mg/kg
Dog	Oral intubation of an acetone-oil dilution	Acute oral LD ₅₀ >500mg/kg
Rat	Acetone-oil dilution applied to shaved back	Acute dermal LD ₅₀ >1000mg/kg
Rabbit	Undiluted material applied to shaved and abraded back	Acute dermal LD ₅₀ >2000mg/kg

103.2

103.3

103.4

Bird, fish and aquatic invertebrates:

Table 1 contains a summary of studies that were validated by R. Fetthousen on 4/13/78.

Table 2 contains a summary of studies validated in this review.

TABLE 1.

TEST	SPECIES	RESULTS	ACCESSION #	RESEARCHER	STATUS/ REPAIR
Avian acute oral LD ₅₀	Mallard	♂ > 4000mg/kg ♀ > 4000mg/kg	231311	Lamb & Burke 5/11/77	Invalid/ Yes, core CORE
Avian acute oral LD ₅₀	Canary	est. > 1000mg/kg	231311	Inst. fur Tier.schad	Invalid/ No
Avian 8 day dietary LC ₅₀	Bobwhite Quail	est. > 4640 ppm	231311	Wildlife Int. 4/25/77	Core
Avian 8 day dietary LC ₅₀	Mallard Duck	> 10,000 ppm	231311	Wildlife Int. 4/25/77	Core
Fish Acute 96 lb LC ₅₀	Bluegill Sunfish Channal catfish Rainbow Trout	11 (9.7-12) ppm 15 (13-17) ppm 14 (12-16) ppm	231311	Lamb & Romey 5/3/77	Core Core Results Incorrect CORE
Acute 48 hr Aquatic invertebrate	<u>Daphnia</u> <u>magna</u>	1.6 ppm (1.2-2.1)	231311	Lamb & Burke 3/14/77	Invalid/ Yes, Core CORE

Review by R. Felthousen 4/15/78--manufacture use only.

The above studies can also be found in accession no. 232489.

TABLE 2
 OTHER SECONDARY TESTS
 (STUDY VALIDATION SHEETS INCLUDED)

TEST	SPECIES	RESULTS	ACCESSION #	RESEARCHER	STATUS/ REPAIR
Earthworm Toxicity	Manure worm (<u>Eisenia foetida</u>)	No apparent mortality at 50 ppm	232489	Inst. fur Tier. Schad.	Supp/no
96 lb fish acute	Goldfish (<u>Carassius auratus</u>)	Approx. LC ₅₀ = 10-50ppm	232489	Inst. fur Tier. Schad.	invalid/ no

STUDY VALIDATION

DATA REVIEW NUMBER: ES-GG, 1

TEST: Earthworm Toxicity

SPECIES: Manure worm (Eisenia foetida)

RESULTS: Estimated LC₅₀ > 50 ppm.

ABSTRACT: Eight 250 ml plastic pots were filled with 150g of sandy clay loam soil and maintained at test temperature (18°C) and humidity (90%) for the duration of the test. Bayleton was added to the soil dissolved in water to achieve the following concentrations: 0, 0.1, 2.5, 10 and 50 ppm. Ten earthworms were tested at each concentration (5 to a pot).

The worms were introduced into the soil substrate at days 0, 7, 21, and 35 and maintained "without food" for 10 days, before removal and observation.

Reported "LC₅₀ values ~~for all concentrations~~ on all age soils was > 50 ppm.

NOTE: Some deaths and damaged worms were noted but they did not appear to be concentration dependant.

CHEMICAL: Bayleton (25% W.P.)

TITLE: Earthworm Toxicity Report RgE-8

ACCESSION NO.: 232489 TAB, 39769

STUDY DATE: November 8, 1973

RESEARCHER: Hermann, Institut Für Tierische Schädlinge.

REGISTRANT: Chemagro Ag. Division
Mobay Chemical Corp.

VALIDATION CATEGORY: Supplemental

CATEGORY REPAIRABILITY: None

STUDY VALIDATION

DATA REVIEW NUMBER: ES-GG-2

TEST: 96 hr Fish acute toxicity

SPECIES: Goldfish, Carassius auratus

RESULTS: Two fish were used in each of 2 concentrations, 10 ppm and 50 ppm. Population density was 1.7 g of fish per l of experimental liquid and the temperature was 18°C.

No mortality was noted @ the 10 ppm concentration. 100% mortality was observed after 24 hours @ 50ppm.

Estimated LC₅₀ = 10-50 ppm (96 hrs)

CHEMICAL: Bayleton (93.4%)

TITLE: Fish Toxicity Test Report no. FG-104

ACCESSION NO.: 232489, Tab 38720

STUDY DATE: --

RESEARCHER: Hermann, Institut Für Tierische Schädlinge

REGISTRANT: Chemagro Agricultural division
Mobay Chemical Corp.

VALIDATION CATEGORY: Invalid

CATEGORY REPAIRABILITY: None

THE STUDY DID NOT:

1. use a control group.
2. use an acceptable test species.
3. use adequate number of fish per concentration.

104.0 Hazard Assessment

104.1 Discussion:

The EUP entails the application of Bayleton to grass grown for seed at the rate of no more than 1 lb. a.i./acre per year. The maximum single application is 8 oz. a.i./acre. Maximum expected residues on short grasses after an application of from 2-8 oz. a.i./acre is 30.0-120 ppm respectively. These residues are far below the toxicity values for mammals and birds.

The use pattern is primarily terrestrial however, in anticipation of an eventual application over water, these residues were also estimated. An application of from 2-8 oz. a.i. per acre over 6" of water would result in residues of from 73.4 ppb to 0.367 ppm. These values are also below the LC₅₀ values reported for test species of fish and aquatic invertebrates.

104.2 Likelihood of Exposure to nontarget organisms:

Label precautions are so written to prevent the consumption of grass seed by products by cattle thus precluding livestock involvement. It is anticipated that avian and mammalian species frequent the areas however, as discussed in section 104.1. The impact on these animals is not expected to be significant.

104.3 Endangered Species Consideration:

Only one endangered species (Aleutian Canada Goose) is known to be in the area of grass seed farms. Several game refuges, designed to protect geese are located in the general area where seed is farmed. Due to the anticipated low crop residue levels and high avian dietary values, an adverse impact on the Aleutian Canada Goose is not expected.

104.1.3 Adequacy of Toxicity data:

A. The following studies have been determined adequate to support registration of Bayleton:

1. Avian 8-day dietary LC₅₀ on Bobwhite Quail by Wildlife International, project no. 149-105.
2. Avian 8-day dietary LC₅₀ on Mallard Duck by Wildlife International, project no. 149-106.
3. 96 hr. fish acute LC₅₀ for Bluegill Sunfish and Channel catfish by Lamb and Roney, Ref. 74-211 dated May 3, 1977.

B. The following studies have been determined inadequate to support registration of Bayleton, however, when the requested information is supplied, the study will be re-evaluated and may be found adequate.

1. Avian acute oral LD₅₀, Mallard duck by Lamb and Burke, Ref. 74-103 dated May 11, 1977. Needed are
 - a. Testing conditions (i.e., temperature, lighting, housing) and
 - b. food consumption and body weight data.
2. 96 hr. fish acute LC₅₀, Rainbow Trout by Lamb and Roney, Ref. 74-211 dated May 3, 1977. Needed is an accurate statistical determination of the LC₅₀ value.
3. 48 hr. acute aquatic invertebrate LC₅₀ (Daphnia Magna) by Lamb and Burke, Ref. 74-211 dated March 14, 1977. Needed are
 - a. Test conditions such as water temperature, pH, D.O., hardness, etc.
 - b. statistical method used to analyze the test results.

C. The following study will be considered supplemental information:

Earthworm Toxicity by Herman, Report no. RgE 8, dated 8 November, 1973.

D. The following fish and wildlife studies cannot meet protocol requirements to support registration:

1. Avian acute oral LD₅₀, Canary, by Hermann Report no. VK31, dated August 1, 1973.
2. 96 hr. fish acute LC₅₀, Goldfish, by Hermann, Report no. FG 104, (no date).

104.1.4 Additional Data Required:

The following minimum fish and wildlife studies must be submitted, referenced or upgraded prior to registration:

1. An avian acute oral LD₅₀ for one species of waterfowl (Mallard duck) or a species of upland game bird (bobwhite quail).
2. A 96 hr. acute LC₅₀ for a cold water species of fish (rainbow trout).
3. An acute 48 hr LC₅₀ for an aquatic invertebrate (Daphnia).

107.0 Conclusions

The environmental safety section has no objectionable comments to the E.U.P. as presented.

107.1 Environmental Fate and Toxicology:

No environmental chemistry data is available at this time.

107.2 Classification:

Classification of the product will be done during the registration review.

107.3 Labeling:

No change is necessary at this time.

107.4 Data Adequacy:

See Section 104.1.3.

107.5 Data Requests:

For minimum data requirements see section 104.1.4 .

Since repeat applications are to be used, avian reproduction studies may be required.

John Tice
Environmental Safety Section
EEEB-RD WH-567
4/19/78

