1/24/78 (P)

EEE BRANCH REVIEW

DATE: IN 1/9/78 OUT 1/24/78 IN _____ OUT _____ IN _____ OUT _____

FISH & WILDLIFE ENVIRONMENTAL CHEMISTRY EFFICACY

FILE OR REG. NO. 297-GNRG

PETITION OR EXP. PERMIT NO. _____

DATE DIV. RECEIVED _____

DATE OF SUBMISSION _____

DATE SUBMISSION ACCEPTED _____

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

DATA ACCESSION NO(S). 096686 096699

PRODUCT MGR. NO. Mitchell (17)

PRODUCT NAME(S) Pounce Technical

COMPANY NAME FMC

SUBMISSION PURPOSE Registration (Technical only)

CHEMICAL & FORMULATION Permethrin: (3-pehnoxylphenyl)
Methyl (+) CIS - Trans - 3 - (2.2.-dichloroethenyl)-
2.2 - dimethyl - cyclopropane carboxylate----92%
Inert ---------- 8%

100.0 Pesticidal Use

For formulation of insecticides only - synthetic pyrethroids

100.1 Application Methods/Directions

NA. Formulation Only

101.0 Chemical and Physical Properties

101.1 Chemical Name

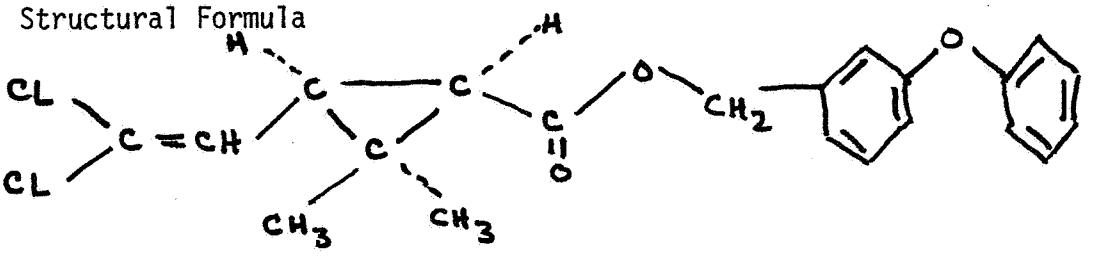
(3-phenoxyphenyl) methyl (±) CIS - Tran 3- (2, 2 - dichloro-ethenyl) - 2,2- dimethylcyclopropanecarboxylate

101.2 Common Name

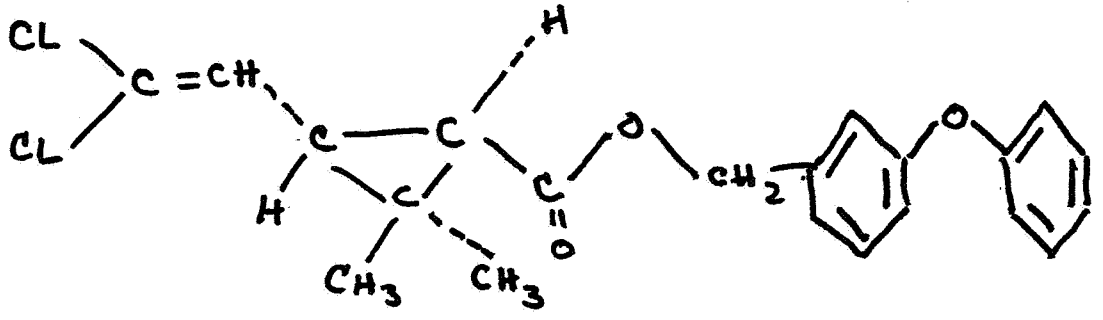
Permethrin
Pounce (FMC)
Matadan (FMC)
FMC 33297
= Ambush (ICI) = PP 557 = Ectiban (ICI)

101.3 Structural Formula

CIS



TRANS



$C_{21}H_{20}Cl_2O_3$

101.4 Molecular Weight

391.30

101.5 Physical State

Semi-solid
Color pale yellow to darkish reddish brown
Odor sweet ester-like

101.6 Solubility

101.6.1 Water = 0.07 $\pm$ 0.01 ppm

101.6.2 Acetone = > 50%

101.6.3 Ethanol = > 50%

101.6.4 Xylene = > 50%

101.6.5 Methanol= > 50%

102.0 Behavior in the Environment

NA For Registration of Technical FMC 33297 for formulation use only.

103.0 Toxicological Properties

103.1 Acute Toxicity

103.1.1 Mammal

NA For registration of Technical FMC 33297 for formulation use only.

103.1.2 Bird

103.1.2 Bird

DATA REVIEW NUMBER: ES C1

TEST: Avian Acute Oral LD_{50}

SPECIES: Mallard Duck (Anas platyrhynchos)

RESULTS: LD_{50} > 4640 mg/kg

With the exception of an incidental death at the 1000 mg/kg dosage level and a lack of coordination at the 4640 mg/kg dose level did not cause symptoms of toxicity or behavorial abnormalities at the dosage level tested. Body weight or food consumption did not differ significantly from negative controls.

CHEMICAL: FMC 33297 Technical (95%7% A.I.)

TITLE: Acute Oral LD_{50} - Mallard Duck FMC 33297 Final Report.

ACCESSION NO: 096699

STUDY DATE: July 21, 1975

RESEARCHER: Robert Fink
Wildlife Research Division
Truslow Farms Inc.

REGISTRANT: FMC Corporation

VALIDATION CATEGORY: Core

CATEGORY REPAIRABILITY: NA. This study deviated from present ESS standards for the avian acute oral, in that the birds were only 14 days of age rather than young adult birds at initiation of study. Study is acceptable for basic data requirements because birds at the highest dose level did not die, did not lose weight and consumed comparative amounts of feed.

VALIDATOR: Tom O'Brien 1/23/78

103.1.3 Fish

DATA REVIEW NUMBER: ES F1

TEST: Fish Acute 96 hour LC_{50} (Warmwater)

SPECIES: Bluegill Sunfish (Lepomis macrochirus)

RESULTS: 96 hour LC_{50} = 6.1 ppb (5.1-7.3 ppb) 95% C.L.

No discernible effect level = 3.2 ppb

Statistical analysis of data by Finney Probit gave the following results - The Chi^2 value indicates the data are not heterogenous and compare identically with the researchers results. Chi^2 df = 5 = 11.1 > 3.914.

6.255	M						
18.805	YINT	0.006	LD50	0.010	LD90	0.004	LD10
1.445	LW M	0.005	LOCL	0.008	LOCL	0.003	LOCL
3.914	CHI^2	0.007	UPCL	0.012	UPCL	0.005	UPCL

CHEMICAL: FMC - 33297 Technical (100% A.I.)

TITLE: Acute Toxicity of FMC - 33297 Technical to Bluegill (Lepomis Macrochirus) and Rainbow Trout (Salmo gairdneri)

ACCESSION NO: 096699

STUDY DATE: November,,1974

RESEARCHER: Bentley, Robert E.
Bionomics E. G. & G. Environmental Consultants
Wareham, Massachusetts

REGISTRANT: FMC Corporation

VALIDATION CATEGORY: Core

CATEGORY REPAIRABILITY: NA

VALIDATOR: Tom O'Brien 1/10/78

103.1.3 Fish

DATA REVIEW NUMBER: ES F2

TEST: Fish Acute 96 hour LC_{50} (Warmwater)

SPECIES: Bluegill Sunfish (Lepomis macrochirus)

RESULTS: 24 hour LC_{50} = 5.64 ppb (4.52-7.03 ppb) 95% C.L.

48 hour LC_{50} = 3.36 (2.78-4.05 ppb) 95% C.L.

✓ 96 hour LC_{50} = 2.52 (1.88-3.36 ppb) 95% C.L.

96 hour No Effect Level is < 1.00 ppb = Analysis Spearman Karber. Below is analysis of data by Finney Probit by this section which gave comparable results for 96 hour LC_{50}. Chi^2 3df = 7.81

3.543	M	2.487	LD50	1.059	LD10	5.608	LD90
3.629	YINT	1.822	LOCL	0.639	LOCL	3.553	LOCL
4.800	CHI^2	3.261	UPCL	1.755	UPCL	8.850	UPCL

CHEMICAL: FMC 33297 Technical (95.7% A.I.)

TITLE: Acute Toxicity of FMC 33297 Act 29.11, .12 to Bluegill Sunfish (Lepomis Macrochirus) Rafinesque and the Water Flea (Daphnia magna) straus.

ACCESSION NO: 096699

STUDY DATE: June 21, 1976

RESEARCHER: Aquatic Environemntal Sciences
Union Carbide Corporation
Tarrytown, New York

REGISTRANT: FMC Corporation

VALIDATION CATEGORY: Core

CATEGORY REPAIRABILITY: NA

VALIDATOR: Thomas O'Brien 1/16/78

103.1.3 Fish

DATA REVIEW NUMBER: ES G1

TEST: Fish Acute 96 hour LC_{50} (Coldwater)

SPECIES: Rainbow Trout (Salmo gairdneri)

RESULTS: 96 hour LC_{50} = 9.8 ppb (7.7-12.6 ppb) 95% C.L.

No discernible effect level = 3.2 ppb

Statistical analysis by Finney Probit gave the following results. Chi^2 = 5.967 < Chi^2 6df (12.6) indicated data are not heterogenous and compare favorably with reported values.

5.419	M						
15.556	YINT	0.011	LD50	0.019	LD90	0.007	LD10
1.529	LW M	0.010	LOCL	0.014	LOCL	0.005	LOCL
5.967	CHI^2	0.013	UPCL	0.026	UPCL	0.008	UPCL

CHEMICAL: FMC - 33297 Technical (100% A.I.)

TITLE: Acute Toxicity of FMC -33297 Technical to Bluegill Sunfish (Lepomis macrochirus) and Rainbow Trout (Salmo gairdneri)

ACCESSION NO: 096699

STUDY DATE: November, 1974

RESEARCHER: Bentley, Robert E.
Bionomics E. G. & G. Environemntal Consultants
Wareham, Massachusetts

REGISTRANT: FMC Corporation

VALIDATION CATEGORY: Core

CATEGORY REPAIRABILITY: NA

VALIDATOR: Tom O'Brien 1/10/78

103.1.4 Aquatic Invertebrate

DATA REVIEW NUMBER: ES HI

TEST: Aquatic Invertebrate Acute Toxicity

SPECIES: Water Flea (Daphnia magna)

RESULTS: 96 hour LC_{50} = 39 ppt (25-62 ppt) 95% C.L.
No discernible effect level 32 ppt.
48 hour LC_{50} = 75 ppt (54-103 ppt) 95% C.L.

Statistical analysis of data by Finney Probit gave the following results for the 96 hour LD_{50} Chi^2 3df = 7.81.

5.705	M						
13.033	YINT	0.039	LD50	0.023	LD10	0.066	LD90
1.497	LW M	0.033	LOCL	0.017	LOCL	0.053	LOCL
4.712	CHI^2	0.046	UPCL	0.033	UPCL	0.082	UPCL

CHEMICAL: FMC 33297 Technical (95.7% A.I.)

TITLE: Acute Toxicity of FMC - 33297 Technical to Water Flea (Daphnia Magna)

ACCESSION NO: 096699

STUDY DATE: December, 1975

RESEARCHER: Bentley, Robert E.
E. E. & G. Bionomics
Aquatic Toxicology Laboratory
Wareham, Massachusetts

REGISTRANT: FMC Corporation

VALIDATION CATEGORY: Core

CATEGORY REPAIRABILITY: NA. The aquatic invertebrate toxicity for this study reported for 48 hours did not produce favorable results for the Chi^2 analysis by Finney Probit. This study did supply values for 96 hour LC_{50} for Daphnia magna. This study used acetone solvent and had 7% mortality in the solvent control. The raw data was analyzed using Finney Probit after correcting for control mortality by Abbotts Formula. The value derived had an acceptable Chi^2 value (4.712 < 7.81)

and therefore the 96 hour LC_{50} will be used in the hazard assessment.

103.1.4 Aquatic Invertebrate

DATA REVIEW NUMBER: ES H2

TEST: Aquatic Invertebrate Acute Toxicity

SPECIES: Water Flea (Daphnia Magna)

RESULTS: 48 hour LC_{50} = .32 ppb (0.24-0.44 ppb) 95% C.L.
No discernible effect level 0.10 ppb.
Statistical analysis by Finney Probit gave the following results. Chi^2 for 8df = 15.5.

3.967	M						
6.685	YINT	0.376	LD50	0.792	LD90	0.179	LD10
1.787	LW M	0.319	LOCL	0.602	LOCL	0.134	LOCL
9.744	CHI^2	0.443	UPCL	10040	UPCL	0.238	UPCL

CHEMICAL: FMC 33297 Technical (% A.I.?)

TITLE: Acute Toxicity of FMC 33297 Technical to Daphnia Magna.

ACCESSION NO: 096699

STUDY DATE: October, 1976

RESEARCHER: LeBlanc, Gerald A.
E. G. & G. Bionomics
Aquatic Toxicology Lab
Wareham, Massachusetts

REGISTRANT: FMC Corporation

VALIDATION CATEGORY: Core

CATEGORY REPAIRABILITY: NA

VALIDATOR: Tom O'Brien 1/11/78

103.1.4 Aquatic Invertebrate

DATA REVIEW NUMBER: ES H3

TEST: Aquatic Invertebrate Acute Toxicity

SPECIES: Daphnia (Daphnia magna)

RESULTS: 24 hour LC_{50} = 2.21 ppb (20.1-24.3) ppb 95% C.L.

48 hour LC_{50} = 7.2 ppb (5.8-8.9) ppb 95% C.L.

The observed 48 hour NO effect is < 1.8 µg/l. (ppb). This analysis by Spearman Karber. Below is analysis by Finney Probit by this section which gave comparable results for 96 hour LC_{50}: Chi^2 3df = 7.81.

3.318	M						
2.163	YINT	7.164	LD50	2.943	LD10	17.439	LD90
2.002	LW M	5.761	LOCL	2.092	LOCL	11.939	LOCL
1.778	CHIC	8.877	UPCL	4.139	UPCL	25.474	UPCL

CHEMICAL: FMC 33297 Technical (95.7% A.1.)

TITLE: Acute Toxicity of FMC 33297 Act 29.11, .12 to Bluegill Sunfish (Lepomis macrochirus) Rafinesque and the Water Flea (Daphnia magna) Straus

ACCESSION NO: 096699

STUDY DATE: June 21, 1976

RESEARCHER: Aquatic Environmental Sciences
Union Carbide Corporation
Tarrytown, New York

REGISTRANT: FMC Corporation

VALIDATION CATEGORY: Core

CATEGORY REPAIRABILITY: NA

VALIDATOR: Tom O'Brien 1/16/78

103.3.1 Bird

DATA REVIEW NUMBER: ES D1

TEST: Avian Subacute Dietary LC_{50} (Upland gamebird)

SPECIES: Bobwhite Quail (Colinus Virginianus)

RESULTS: LC_{50} > 10,000 ppm

With the exception of wing droop at the 10,000 ppm dosage level on day 3 of the study, FMC 33297 did not cause symptoms of toxicity or behavorial abnormalities at the dosage levels tested. There was no mortality at any dosage level.

CHEMICAL: FMC 33297 Technical (95.7% A.I.)

TITLE: Eight-day Dietary LC_{50} Bobwhite Qaail FMC 33297 Final Report

ACCESSION NO: 096699

STUDY DATE: July 21, 1975

RESEARCHER: Robert Fink
Wildlife Research Division
Truslow Farms Inc.

REGISTRANT: FMC Corporation

VALIDATION CATEGORY: Core

CATEGORY REPAIRABILITY: NA

VALIDATOR: Tom O'Brien 1/23/78

1031311 Bird

DATA REVIEW NUMBER: ES E1

TEST: Avian Subacute Dietary LC_{50} (Wildwater Fowl)

SPECIES: Mallard Duck (Anas platyrhynchos)

RESULTS: LC_{50} > 10,000 ppm
FMC 33297 did not cause symptoms of toxicity or behavorial abnormalities.

CHEMICAL: FMC 33297 Technical (95.7% A.I.)

TITLE: Eight-Day Dietary LC_{50} - Mallard Duck FMC 33297 Final Report

ACCESSION NO: 096699

STUDY DATE: July 21, 1975

RESEARCHER: Robert Fink
Wildlife Research Division
Truslow Farms Inc.

REGISTRANT: FMC Corporation

VALIDATION CATEGORY: Core

CATEGORY REPAIRABILITY: NA

VALIDATOR: Tom O'Brien 1/23/78

104.0 Hazard Assessment

104.1. Discussion

104.1.1 Likelihood of Exposure to Endangered Species

NA

104.1.2 Endangered Species Considerations

NA

104.1.3 Adequacy of Toxicity Data

The registrant has submitted all six basic data requirements for the technical ingredient. These studies have been reviewed and determined to be acceptable.

105.0 Classification

Manufacturing Use.

107.0 Conclusions

107.4 Data Adequacy

The six basic studies required to support registrant have been reviewed and have been determined acceptable by the Environmental Safety Section.

107.7 Recommendations

The registrant has fulfilled all Environmental Safety Section data requirements for registration of FMC 33297 Technical for manufacturing use.

Thomas F O'Brien

Thomas F. O'Brien 1/24/78
Environmental Safety Section
EEEB - RD WH 567