Shaughnessy Number: 28201

Date out of EFGWB: APR 26 1989

To: R.J. Taylor/Joanne Miller
Product Manager 25
Registration Division (H7505C)

From: Emil Regelman, Supervisory Chemist
Environmental Fate Review Section #2
Environmental Fate and Ground Water Branch
Environmental Fate and Effects Division (H7507C)

Thru: Hank Jacoby, Acting Chief
Environmental Fate and Ground Water Branch
Environmental Fate and Effects Division (H7507C)

Attached, please find the EFGWB review of...

Reg./File #: 56077-33

Chemical Name: Propanil

Type Product: fungicide

Product Name: n.a.

Company Name: Propanil task force

Purpose: request for waiver of aerobic soil metabolism, anaerobic soil metabolism, terrestrial field dissipation, aged leaching

Date Received: 1/10/89

Action Code: 650

EFGWB#(s): 90264

Total Reviewing Time (decimal days): 5

Deferrals to: ___Ecological Effects Branch, EFED

___Science Integration and Policy Staff, EFED

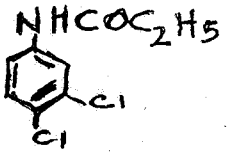
___Non-Dietary Exposure Branch, HED

___Dietary Exposure Branch, HED

___Toxicology Branch

1. CHEMICAL:

chemical name: 3,4-dichloropropionanilide, N-(3,4-dichlorophenyl) propanamide
common name: propanil
trade name: n.a.
structure:



CAS #: 709-98-8
Shaughnessy #: 28201

2. TEST MATERIAL: n.a.

3. STUDY/ACTION TYPE: request for waivers and substitutions of data requirements

4. STUDY IDENTIFICATION: n.a.

5. REVIEWED BY:

Typed Name: E. Brinson Conerly
Title: Chemist, Review Section 2
Organization: EFGWB/EFED/OPP

E.B. Conerly 4/25/89

6. APPROVED BY:

Typed Name: Emil Regelman
Title: Supervisory Chemist, Review Section 2
Organization: EFGWB/EFED/OPP

APR 26 1989

7. CONCLUSIONS:

The applicant proposes to do the following studies to support the use of propanil on rice only:

aqueous hydrolysis
aqueous photolysis
anaerobic aquatic metabolism
aerobic aquatic metabolism
aquatic field dissipation
confined accumulation irrigated rotational crops -- [note: "confined" is the applicant's description of the study. See further discussion below -- EBC.]

These are appropriate for the use pattern. The studies testing accumulation on irrigated crops must represent all the crops which might be affected.

Other information is also necessary due to the unusual nature of this use:

1) Due to reported propanil damage to non-target terrestrial crops, the applicant must also submit laboratory volatility, spray drift, and downwind crop deposition data. These are unusual requirements, but will help to establish whether propanil migrates as vapor, spray, or dust. Field volatility data may be required, based on evaluation of the laboratory volatility study.

2) EFGWB needs further information on the nature and magnitude of rotation to other crops in order to determine what studies are needed in this category.

Propanil meets the criteria for waiver of fish bioaccumulation data. EFGWB waives these data.

EFGWB reserves anaerobic soil metabolism and aged leaching requirements.

Aerobic soil and terrestrial field dissipation requirements do not apply to the rice use.

8. RECOMMENDATIONS:

The applicant should do the following:

1) proceed with the proposed studies on aqueous hydrolysis, aqueous photolysis, anaerobic aquatic metabolism, aerobic aquatic metabolism, and aquatic field dissipation.
2) explain the nature of the proposed confined irrigated crop studies, since they would normally be done in the field. EFGWB strongly recommends that the applicant submit protocols for approval before performing the studies, which should include all affected crop types.
2) in addition to the proposed studies, submit lab volatility spray drift, and downwind crop deposition data. A protocol for the crop deposition data must be approved in advance.
3) clarify the nature and extent of possible rotation of treated land to other crops, so EFGWB can determine what confined rotational crop studies are necessary

RD should confirm the cancellation of uses other than rice.

EFGWB reserves requiring certain other studies pending receipt and evaluation of the studies and information listed above, and waives the fish bioaccumulation requirement.

9. BACKGROUND:

According to the 1987 Registration standard, 95% of the manufactured product is used on rice. In this submission, the applicant group says that they do not intend to support the terrestrial food uses (i.e. the 5% which is not rice). No amended label was submitted to EFGWB for examination.

Rice is rotated to other crops in most growing areas in the United States as described in Crop Production: Principles and Practice, Metcalf and Atkins, 1980. Typical rotations are rice/soybeans/fall oats/spring lespedeza (AK); rice/pasture for beef cattle (Gulf Coast); rice/plowed fallow/wheat, oats, or vetch (CA). Based on this, crop rotational data and/or tolerances for these follow crops are needed unless a suitable label restriction is incorporated, limiting the treated land to rice growing.

Data requirements for aquatic food use and their status is as follows:

hydrolysis -- applicant commits to perform the study

photolysis in water -- applicant commits to perform the study

anaerobic aquatic metabolism -- applicant commits to perform the study

aerobic aquatic metabolism -- applicant commits to perform the study

leaching/adsorption/desorption -- waiver requested for aged residues, discussed in this review

aquatic field dissipation -- applicant commits to perform the study

confined accumulation on rotational crops -- conditionally required for most aquatic food crop uses -- in this case, tolerances for the primary rice crop would also apply to a rice follow crop

field accumulation on rotational crops -- conditionally required for most aquatic food crop uses if confined studies show accumulation -- in this case, tolerances for the primary rice crop would also apply to a rice follow crop

confined accumulation on irrigated rotational crops -- conditionally required, discussed in this review

fish bioaccumulation -- conditionally required -- waiver requested, discussed in this review

The University of California at Davis has reported informally that propanil applied to rice subsequently reached and damaged non-target crops, especially prune trees. EFGWB does not have appropriate data to determine whether propanil migrates as vapor, spray drift, dust particles, or some combination of these. Moreover, formulation type may influence the rate of migration. Therefore, in addition to the above studies, EFGWB requires the following studies, which are not usually imposed for aquatic uses:

lab volatility

spray drift -- EFGWB believes some studies have already been done. If this is the case, they should be submitted and evaluated before additional work is initiated

downwind monitoring of deposition on other crops -- for this special study, a protocol must be submitted and approved in advance. It should be designed to identify formulation type(s), if any, which inhibit or enhance migration of propanil from the target crop.

Field volatility data requirements are reserved pending results of the lab volatility study. Additional spray drift studies might be required, but should not be initiated until any existing studies are evaluated.

Other studies discussed in this review are as follows:

aerobic soil metabolism -- waiver requested

anaerobic soil metabolism -- waiver requested

terrestrial field dissipation -- waiver requested

10. DISCUSSION OF INDIVIDUAL TESTS OR STUDIES:

WAIVER REQUEST -- aerobic soil metabolism

The applicant requests a waiver of this requirement because terrestrial food crop uses of propanil are being discontinued. For use limited to rice, this requirement does not apply, and a waiver is not needed.

WAIVER REQUEST -- anaerobic soil metabolism

The applicant requests a waiver of this data requirement because terrestrial food crop uses of propanil are being discontinued. This route of disappearance might be a unusually significant one in this case, since the soil in rice paddies is normally under water and would tend towards an anaerobic state for an extended period. EFGWB cannot recommend a waiver at this time, but reserves this requirement pending results of studies on hydrolysis, photolysis, and aquatic metabolism.

WAIVER REQUEST -- leaching on aged residues

The applicant requests a waiver of this requirement based on:

1) their intention not to perform aerobic soil metabolism studies
2) their belief that aged leaching studies have not in the past been required for aquatic uses

A waiver is not appropriate at this time. EFGWB reserves this requirement pending results of hydrolysis, photolysis, and metabolism studies.

WAIVER REQUEST -- terrestrial field dissipation

The applicant is requesting a waiver of this requirement based on:

1) their intention not to support terrestrial food uses
2) their intention to perform aquatic field dissipation studies

This study is not required for use only on rice. A waiver is not needed.

SUBSTITUTION -- confined irrigated rotational crop accumulation

Because of propanil's use pattern, the applicant proposes to perform an irrigated confined rotational crop instead of a terrestrial study.

What is meant by "confined" is not clear, since these studies are normally done in the field. The applicant must clarify the nature of the proposed study and state the crop(s) which might affected.

For use in areas limited to rice growing only, a terrestrial study is not required since tolerances for the primary crop would cover the follow crop as well.

If rice is to be rotated with a terrestrial food crop, confined terrestrial rotational crop studies or tolerances are required for crops representative of each affected type. The proposed irrigated crop study would not be an acceptable substitute.

Irrigated crop studies for each type of affected crop are required.

WAIVER REQUEST -- fish bioaccumulation

The applicant requests a waiver of this requirement because:

1) the K_{ow} of the compound is 193
2) a study with fathead minnows indicated maximum accumulations of 69 and 111x, and 95-96% depuration within 10 days

Based on this information, EFGWB can grant the waiver.

11. COMPLETION OF ONE-LINER: attached

12. CBI APPENDIX: n.a.

ENVIRONMENTAL FATE AND GROUND WATER BRANCH
PESTICIDE ENVIRONMENTAL FATE ONE-LINER

File No.: 28201 CAS No.: 709-98-8
Type Pesticide: fungicide
Chemical Name 3,4-dichloro propionanilide, N-(3,4-dichlorophenyl) propanamide
Empirical Form: $C_9H_9ONCl_2$
Uses: rice
Form. Type: EC, sol conc/liquid

Mole Wt.	Sol. @20°C (ppm)	Vap. Pres.(torr)	Log K_{ow} Henry
218.1	200 (r.t.)		Kow=193 log Kow=2.29

Hydrolysis (161-1)
pH 5: to be done
pH 7: to be done
pH 9: to be done

Photolysis (161-2, -3, -4)
Water: to be done
Soil:
Air:

Mobility Studies (163-1)
Soil Partition (K_d)
1
2
3
4
5

Rf factors

Soil Metabolism Studies - Terrestrial
Aerobic (162-1)
not required for use on rice

Anaerobic (162-2)

Metabolism Studies - Aquatic
Anaerobic (162-3)
1) to be done

Aerobic (162-4)
1) to be done

Field Dissipation Studies
Terrestrial (164-1)
not required for use on rice

Aquatic (164-2)
1) to be done

** EPA Acceptable Study
# Supplemental (Scientifically Sound) Information)

Field Dissipation Studies
Forest (164-3) Other
not required for use
on rice

Ground Water Findings
1
2
3

Rotational Crop Restrictions (165-1, -2)
1
2

Fish Accumulation Studies (165-4)
waived due to low Kow (193)

Degradation Products
1
2
3
4
5

Notes

References: Reg Std 12/87, Farm Chemicals Handbook 1985
Writer: EBC