Shaughnessy Number: 28201

Date out of EFGWB: 12/3/90

B.b Taylor

To: T. Stower/~~Joanne Miller~~
Product Manager 25
Registration Division (H7505C)

From: Henry Nelson, Acting Section Head H Nelson
Environmental Fate Review Section #3
Environmental Fate and Ground Water Branch
Environmental Fate and Effects Division (H7507C)

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

Attached, please find the EFGWB review of...

Reg./File #: 707-75, 707-182

Chemical Name: Propanil

Type Product: fungicide

Product Name: n.a.

Company Name: Rhom and Haas Company

Purpose: submission of aerobic metabolism study in wheat growing soil

Date Received: 8/1/90

Action Code: 660

EFGWB#(s): 90-0755, 90-0756

Total Reviewing Time (decimal days): 2.5 Days

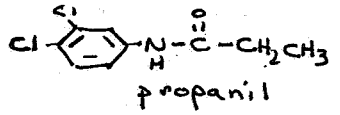
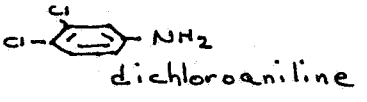
Deferrals to: ___Ecological Effects Branch, EFED ___Toxicology Branch

___Non-Dietary Exposure Branch, HED ___Dietary Exposure Branch, HED

___Science Integration and Policy Staff, EFED

ebc

1. CHEMICAL:

chemical name:	3,4-dichloropropionanilide, N-(3,4-dichlorophenyl) propanamide
common name:	propanil
trade name:	n.a.
structure:	 propanil  dichloroaniline
CAS #:	709-98-8
Shaughnessy #:	28201

2. TEST MATERIAL: discussed in DER

3. STUDY/ACTION TYPE: submission of aerobic metabolism study in wheat growing soil

4. STUDY IDENTIFICATION:

Arthur, M.F., Marsh, S.S. and Marsh, B.H. **Aerobic Soil Metabolism of ^{14}C -Propanil in Gardenia *[wheat growing]* Soil**. dated 5/15/90. Rohm and Haas Technical Report no. 34-90-05, performed by Battelle Memorial Institute, Columbus, OH. sponsored and submitted by Rohm and Haas Company, Spring House, PA. received EPA 6/25/90 under MRID# 415387-01.

5. REVIEWED BY:

Typed Name:	E. Brinson Conerly
Title:	Chemist, Review Section 3
Organization:	EFGWB/EFED/OPP

E. B. Conerly 11/20/90

6. APPROVED BY:

Typed Name:	Henry Nelson
Title:	Acting Section Head, Review Section 3
Organization:	EFGWB/EFED/OPP

H Nelson

7. CONCLUSIONS:

At this time, and in support of use on wheat, study MRID# 415387-01 provides only supplemental information. It does not completely fulfill the data requirement for the following reasons:

1) Only one soil was tested. According to the SEP for aerobic soil metabolism, if a use pattern is extensive and may encompass many types of soil, testing should be done on both sandy loam and loamy clay. This appears to apply to use on wheat.
2) The investigator postulates a second minor degradative pathway but does not describe it completely. Additional information on intermediate degradates and reactions is necessary.

Two additional actions will completely fulfill the data requirement:

1) the submission of acceptable additional information on the minor degradative pathway, as discussed in the DER. Then MRID# 415387-01 will be acceptable to fulfill part of the aerobic soil metabolism requirement [*metabolism in sandy loam soil*].

2) the submission of an acceptable study on metabolism in ***loamy clay soil***.

ebc

According to MRID# 415387-01, propanil degraded in sandy loam soil with a half-life of 0.5 days. The primary degradate within this period was dichloroaniline, with a half-life of ca. 30 days. Bound material increased to ca. 65% of applied radioactivity by day 360, and was recovered mostly in the insoluble humin fraction. A small amount of CO_2 was generated, amounting to ca. 11% at 360 days.

These results suggest that propanil and its major degradate, dichloroaniline, due to their susceptibility to microbial degradation, will not accumulate in aerobic soil.

The applicant must provide, or cooperate with other registrants to provide, data to support this use, as detailed below [in Background].

8. RECOMMENDATIONS:

The applicant should submit the necessary studies with all due speed.

9. BACKGROUND:

The applicant is supporting use on wheat, which is an unusual target crop for this compound. This usage could be extensive. The primary use is on rice, an aquatic food crop.

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

hydrolysis -- the Propanil Task Force has commited to perform the study in order to support the rice use

photolysis in water -- the Propanil Task force has commited to perform the study in order to support the rice use

photolysis on soil -- NOT FULFILLED

aerobic soil metabolism -- discussed in this review

anaerobic soil metabolism -- NOT FULFILLED, could be fulfilled by an anaerobic aquatic metabolism study which must be provided by the Propanil Task Force to support the rice use

leaching/adsorption/desorption -- NOT FULFILLED, data must be submitted by the Propanil Task Force to support the rice use

dissipation, terrestrial field -- NOT FULFILLED

confined accumulation on rotational crops -- NOT FULFILLED

field accumulation on rotational crops -- required if confined accumulation study indicates the need

fish bioaccumulation -- waived (EBC 4/26/89)

According to the 1987 Registration standard, 95% of the manufactured product is used on rice. The University of California at Davis has informally reported damage to non-target crops, especially prune trees, from propanil applied to rice. 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 usual studies, EFGWB has required the following studies, which are not usually imposed for aquatic uses: **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.

10. DISCUSSION OF INDIVIDUAL TESTS OR STUDIES: see DER

11. COMPLETION OF ONE-LINER: information attached

12. CBI APPENDIX: attached

DATA EVALUATION REVIEW

I. Study Type: Aerobic Soil Metabolism, Data Requirement 162-1

II. Citation:

Arthur, M.F., Marsh, S.S. and Marsh, B.H. **Aerobic Soil Metabolism of ^{14}C - Propanil in Gardenia Soil**. dated 5/15/90. Rohm and Haas Technical Report no. 34-90-05, performed by Battelle Memorial Institute, Columbus, OH. sponsored and submitted by Rohm and Haas Company, Spring House, PA. received EPA 6/25/90 under MRID# 415387-01.

III. Reviewer:

Typed Name:	E. Brinson Conerly	E.B. Conerly
Title:	Chemist, Review Section 3	11/20/90
Organization:	EFGWB/EFED/OPP	

IV. Conclusions:

At this time study MRID# 415387-01 provides only supplemental information on aerobic soil metabolism of propanil in sandy loam soil. It does not completely fulfill the data requirement for the following reasons:

1) Only one soil was tested. According to the SEP for aerobic soil metabolism, if a use pattern is extensive and may encompass many types of soil, testing should be done on both sandy loam and loamy clay. This appears to apply to use on wheat.

2) The investigator postulates a second minor degradative pathway, but does not completely describe it. Additional information on intermediate degradates and reactions is necessary.

Two additional actions will completely fulfill the data requirement:

1) the submission of acceptable additional information on the minor degradative pathway. Then this study will be acceptable to fulfill part of the aerobic soil metabolism requirement [*metabolism in sandy loam soil*].

2) the submission of an acceptable study on metabolism in **loamy clay soil**.

Propanil degraded in sandy loam soil with a half-life of 0.5 days. The primary degradate within this period was dichloroaniline, with a half-life of ca. 30 days. Bound material increased to ca 65% of applied radioactivity by day 360, and was recovered mostly in the insoluble humin fraction. A small amount of CO_2 was generated, amounting to ca 11% at 360 days. These data suggest that propanil and its major degradate, dichloroaniline, are susceptible to microbial degradation and therefore will not accumulate in aerobic soil.

ebc

V. Materials and Methods:

test compound -- uniform ring-labelled ^{14}C-propanil, spec. act. 20.6 µci/mg, radiochemical purity 97%

test soil -- sandy loam Gardenia-type [wheat-growing] taken near Arthur, ND. It was passed through a 2 mm sieve and stored at $4^0 \pm 2^0$ C prior to use. Microbial viability was confirmed prior to initiation of the experiment.

test protocol -- Soil samples ≡ 200 gm oven-dry weight were treated with 106 µg (2.18 µCi) test compd in 4 ml MeOH [final conc. 0.53 ppm], approximating the recommended application rate of 0.94 lb ai/A. Millipore-Q water was added to bring soil to ca. 60% moisture capacity[1], and added as needed to maintain this moisture level throughout the experimental period. Flasks were connected *in series* and to ethylene glycol and sodium hydroxide traps with rubber tubing. Carbon dioxide-scrubbed, humidified air was drawn through the system by a vacuum pump. Flask aeration was interrupted during sampling, and several times during power outages.[2] Two replicate treated flasks and 1 undosed flask were harvested at 0 (immediately after dosing), 2, 6, and 12 hr and 1, 2, 3, 7, 14, 30, 60, 120, and 360 da. Traps for volatile metabolites were replaced at each sampling, and weekly throughout 360 days incubation.

sample treatment

trapping solutions were analyzed for total radioactivity. The CO_2 in the solutions was precipitated with Ba^{++} and any remaining unprecipitated radioactivity determined by LSC.

soil was Soxhlet extracted with acetone for 24 hours. This extract was reduced in volume, extracted with toluene, evaporated and taken up in MeOH for analysis.

extracted soil which retained more than 10% of applied material was slurried with 0.1 N NaOH, heated, and centrifuged:

The supernatant and washings were adjusted to pH 2 and allowed to sit overnight. It was then centrifuged:

the precipitate was resuspended in 95% EtOH and allowed to stand overnight. After centrifugation:

the alcohol-insoluble material [*α-humus*] was resuspended in water and counted by LSC.

the alcohol-soluble material [*hymatomelanic acid*] was also counted by LSC.

the supernatant was concentrated, and pH-adjusted to 4.5 with NaOH. Two vols EtOH were added and the solution left to stand overnight. After centrifugation:

the insoluble material [*β-humus*] was counted by LSC

the alcohol-soluble fraction [*fulvic acid*] was also counted by LSC

---

[1] The investigator notes that 75% moisture resulted in standing water in the samples, and that microbial activity was optimum between 50 and 75%.

[2] The investigator reports that power was off twice for 63 hours, once for "up to 48 hours", and once for 19 hours.

The pellet was heated with 6N HCl, cooled, and centrifuged:
the pellet [*insoluble humin*] was combusted for determination of total activity.
the supernatant [*soluble humin*] was neutralized with NaOH, and counted by LSC.

analytical methods
LSC -- trapping solution, soil extracts and fractions, extracted soil after combustion -- total radioactivity
HPLC -- soil extracts and fractions -- solvent system: gradient from Millipore-Q water to methanol -- retention times compared with unlabelled standards
TLC -- soil extracts and fractions -- solvent system: toluene/ethyl acetate/ammonium hydroxide (50/10/1)
MS -- unknown degradates

VI. Study Author's Results and/or Conclusions:

RESULTS

1) The propanil concentration dropped rapidly in the first few days of the study. By day 2, only 3.4 percent of the initially applied activity was parent compound.
2) The first-order half-life for propanil calculated over this period was 0.5 days.
3) The bound (unextractable) portion of the radioactivity increased from 13.2% on day 0 to 64.8% on day 360. This activity was recovered in the insoluble humin fraction.
4) After 360 days of aerobic incubation, ^{14}C-carbon dioxide accounted for 11.2% of applied activity.
5) 3,4-dichloroaniline (DCA) represented up to ca. 44% of residues and degraded with a half-life of 30 days.
6) N-hydroxy-3,4-dichloroazobenzene represented up to ca. 10% of residues.
7) Average recovery from all samples was better than 90%.

CONCLUSIONS

1) The primary degradation pathway of ^{14}C-propanil in aerobic Gardenia sandy loam is hydrolytic cleavage to DCA, the predominant radiolabelled degradate, and propionic acid, which should be rapidly metabolized by soil microorganisms.
2) A second pathway leads to N-hydroxy-3,4-dichloroazobenzene.

VII. Reviewer's Comments:

1) The conclusion *re* the primary pathway appears to be supported by the data.
2) The intermediate steps leading to the second product, described as minor, are not given, and are not readily deduced. For the record, the applicant should provide details of this pathway.
3) The traps appear to have been common to several incubation vessels. Therefore, it is difficult to interpret the CO_2 findings. In this case, volatile degradates do not amount to a large proportion of the total radioactivity, and the overall understanding of the study is not

compromised. However, this type of study should be done such that there is independent trapping for each individual vessel.

4) The metabolism of DCA does not appear to follow first order kinetics, and may have a first half-life considerably shorter than 30 days -- in any case, it does not appear likely to persist.

VIII. CBI Information Addendum: included

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
2181	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) Rf factors
1
2
3
4
5

Soil Metabolism Studies - Terrestrial
Aerobic (162-1) Anaerobic (162-2)
not required for use on rice
1 - # sandy loam, $t_{\frac{1}{2}}$ 0.5 day
Dichloroaniline $t_{\frac{1}{2}}$ 30 days

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

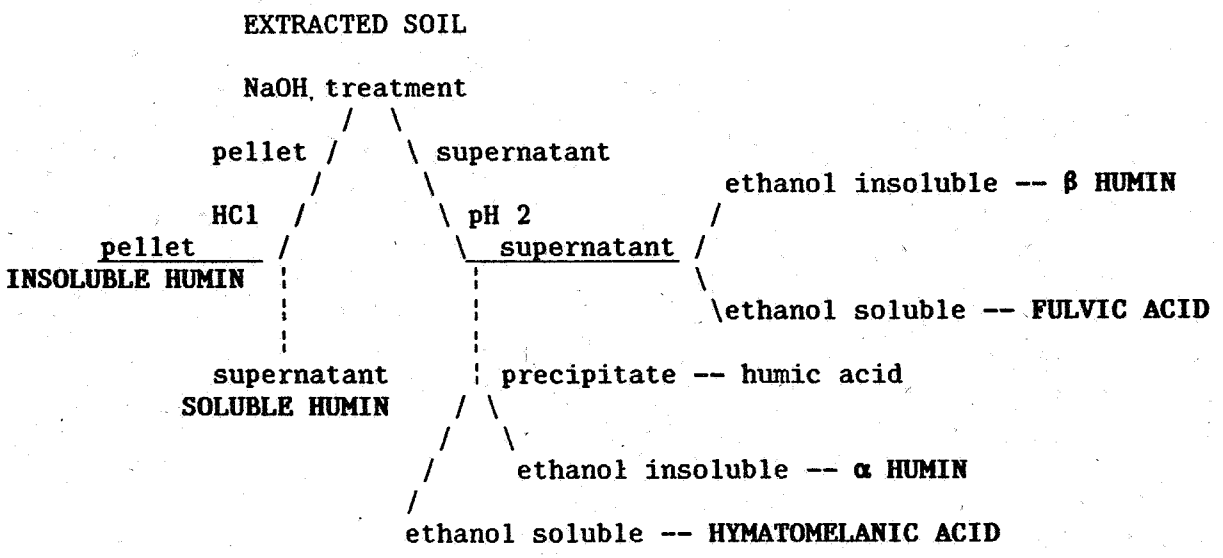
Rotational Crop Restrictions (165-1, -2)
1
2

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

Degradation Products
1 # dichloroaniline (DCA) -- aerobic metabolism
2
3
4
5

Notes

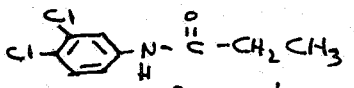
References: Reg Std 12/87, EBC 10/24/90, Farm Chemicals Handbook 1985

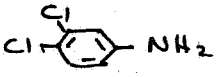


developed by EBC, EFGWB 10/24/90

1. CHEMICAL:

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


Propanil


Dichloroaniline

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

2. TEST MATERIAL:

3. STUDY/ACTION TYPE: submission of aerobic metabolism study in wheat growing soil

4. STUDY IDENTIFICATION:

Arthur, M.F., Marsh, S.S. and Marsh, B.H. Aerobic Soil Metabolism of ^{14}C -Propanil in Gardenia *[wheat growing]* Soil. dated 5/15/90. Rohm and Haas Technical Report no. 34-90-05, performed by Battelle Memorial Institute, Columbus, OH. sponsored and submitted by Rohm and Haas Company, Spring House, PA. received EPA 6/25/90 under MRID# 415387-01.

5. REVIEWED BY:

Typed Name: E. Brinson Conerly E.B. Conerly 10/24
Title: Chemist, Review Section 3
Organization: EFGWB/EFED/OPP

6. APPROVED BY:

H Nelson

Typed Name: Henry Nelson
Title: Acting Section Head, Review Section 3
Organization: EFGWB/EFED/OPP

7. CONCLUSIONS:

The submitted study provides supplemental information only. It suggests that propanil [estimated $t_{\frac{1}{2}}$ = 0.5 days] and its major degradate, dichloroaniline [estimated $t_{\frac{1}{2}}$ = 30 days], due to their susceptibility to microbial degradation, will not accumulate in aerobic soil .

The applicant must provide, or cooperate with other registrants to provide, data to support this use, as detailed below [in Background]. Part of the aerobic soil metabolism requirement will be fulfilled by the submitted study upon the submission of acceptable additional information as discussed in the DER.

8. RECOMMENDATIONS:

The applicant should submit the necessary studies with all due speed.

ebc

9. BACKGROUND:

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

hydrolysis -- the Propanil Task Force has commited to perform the study in order to support the rice use

photolysis in water -- the Propanil Task force has commited to perform the study in order to support the rice use

photolysis on soil -- NOT FULFILLED

aerobic soil metabolism -- discussed in this review

anaerobic soil metabolism -- NOT FULFILLED, could be fulfilled by an anaerobic aquatic metabolism study which must be provided by the Propanil Task Force to support the rice use

leaching/adsorption/desorption -- NOT FULFILLED, data must be submitted by the Propanil Task Force to support the rice use

dissipation, terrestrial field -- NOT FULFILLED

confined accumulation on rotational crops -- NOT FULFILLED

field accumulation on rotational crops -- required if confined accumulation study indicates the need

fish bioaccumulation -- waived (EBC 4/26/89)

According to the 1987 Registration standard, 95% of the manufactured product is used on rice. The University of California at Davis has informally reported damage to non-target crops, especially prune trees, from propanil applied to rice. 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 usual studies, EFGWB has required the following studies, which are not usually imposed for aquatic uses: **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.

10. DISCUSSION OF INDIVIDUAL TESTS OR STUDIES: see DER

11. COMPLETION OF ONE-LINER: information attached

12. CBI APPENDIX: attached

DATA EVALUATION REVIEW

I. Study Type: Aerobic Soil Metabolism, Data Requirement 162-1

II. Citation:

Arthur, M.F., Marsh, S.S. and Marsh, B.H. Aerobic Soil Metabolism of ^{14}C - Propanil in Gardenia Soil. dated 5/15/90. Rohm and Haas Technical Report no. 34-90-05, performed by Battelle Memorial Institute, Columbus, OH. sponsored and submitted by Rohm and Haas Company, Spring House, PA. received EPA 6/25/90 under MRID# 415387-01.

III. Reviewer:

Typed Name:	E. Brinson Conerly
Title:	Chemist, Review Section 3
Organization:	EFGWB/EFED/OPP

E. B. Conerly 10/24/90

IV. Conclusions:

1. The study provides supplemental information on aerobic soil metabolism of propanil in sandy loam soil. It does not completely fulfill the data requirement for the following reasons:
   1) Only one soil was tested. Testing should be done on all soil types in which wheat is typically grown.
   2) The minor degradative pathway the investigator postulates is incompletely described. Additional information on intermediate degradates and reactions is necessary.

2. Propanil degraded in sandy loam soil with a half-life of 0.5 days. The primary degradate within this period was dichloroaniline, with a half-life of ca. 30 days. Bound material increased to ca 65% of applied radioactivity by day 360, and was recovered mostly in the insoluble humin fraction. A small amount of CO_2 was generated, amounting to ca 11% at 360 days.

V. Materials and Methods:

test compound -- uniform ring-labelled ^{14}C-propanil, spec. act. 20.6 µci/mg, radiochemical purity 97%

test soil -- Gardenia-type [wheat-growing] taken near the town of Arthur, ND classified as a sandy loam. It was passed through a 2 mm sieve and stored at $4^0 \pm 2^0$ C prior to use. Microbial viability was confirmed prior to initiation of the experiment.

test protocol -- Soil samples equivalent to 200 gm oven-dry weight were treated with 106 µg (2.18 µCi) of test compound in 4 ml methanol [final concentration 0.53 ppm], approximating the recommended application rate of 0.94 lb ai/A. Millipore-Q water was added to bring the soil to ca.

60% moisture capacity[1], and was added when needed throughout the experimental period. The flasks were connected *in series* [to each other?] and to ethylene glycol and sodium hydroxide traps with rubber tubing. Carbon dioxide-scrubbed, humidified air was drawn through the system by a vacuum pump. Flask aeration was interrupted during sampling times, and several times during power outages.[2] Two replicate treated flasks and one undosed flask were harvested at 0 (immediately after dosing), 2, 6, and 12 hours, and 1, 2, 3, 7, 14, 30, 60, 120, and 360 days. Traps for volatile metabolites were replaced at each sampling time and weekly throughout the 360 day incubation.

sample treatment

trapping solutions were analyzed for total radioactivity. The CO_2 in the solutions was precipitated with Ba^{++} and any remaining unprecipitated radioactivity determined by LSC.

soil was Soxhlet extracted with acetone for 24 hours. This extract was reduced in volume, extracted with toluene, evaporated and taken up in MeOH for analysis.

extracted soil which retained more than 10% of applied material was slurried with 0.1 N NaOH, heated, and centrifuged:

The supernatant and washings were adjusted to pH 2 and allowed to sit overnight. It was then centrifuged:

the precipitate was resuspended in 95% EtOH and allowed to stand overnight. After centrifugation:

the alcohol-insoluble material [*α-humus*] was resuspended in water and counted by LSC.

the alcohol-soluble material [*hymatomelanic acid*] was also counted by LSC.

the supernatant was concentrated, and the pH adjusted to pH 4.5 with NaOH. Two volumes of EtOH were added and the solution left to stand overnight. After centrifugation:

the insoluble material [*β-humus*] was counted by LSC

the alcohol-soluble fraction [*fulvic acid*] was also counted by LSC

The pellet was heated with 6N HCl, cooled, and centrifuged:

the pellet [*insoluble humin*] was combusted for determination of total activity.

the supernatant [*soluble humin*] was neutralized with NaOH, and counted by LSC.

analytical methods

LSC -- trapping solution, soil extracts and fractions, extracted soil after combustion -- total radioactivity

---

[1] The investigator notes that 75% moisture resulted in standing water in the samples, and that microbial activity was optimum between 50 and 75%.

[2] The investigator reports that power was off twice for 63 hours, once for "up to 48 hours", and once for 19 hours.

HPLC -- soil extracts and fractions -- solvent system: gradient from Millipore-Q water to methanol -- retention times compared with unlabelled standards
TLC -- soil extracts and fractions -- solvent system: toluene/ethyl acetate/ammonium hydroxide (50/10/1)
MS -- unknown degradates

VI. Study Author's Results and/or Conclusions:

RESULTS

1) The propanil concentration dropped rapidly in the first few days of the study. By day 2, only 3.4 percent of the initially applied activity was parent compound.
2) The first-order half-life for propanil calculated over this period was 0.5 days.
3) The bound (unextractable) portion of the radioactivity increased from 13.2% on day 0 to 64.8% on day 360. This activity was recovered in the insoluble humin fraction.
4) After 360 days of aerobic incubation, ^{14}C-carbon dioxide accounted for 11.2% of applied activity.
5) 3,4-dichloroaniline (DCA) represented up to ca. 44% of residues and degraded with a half-life of 30 days.
6) N-hydroxy-3,4-dichloroazobenzene represented up to ca. 10% of residues.
7) Average recovery from all samples was better than 90%.

CONCLUSIONS

1) The primary degradation pathway of ^{14}C-propanil in aerobic Gardenia sandy loam is hydrolytic cleavage to DCA, the predominant radiolabelled degradate, and propionic acid, which should be rapidly metabolized by soil microorganisms.
2) A second pathway leads to N-hydroxy-3,4-dichloroazobenzene.

VII. Reviewer's Comments:

1) The conclusion *re* the primary pathway appears to be supported by the data.
2) The intermediate steps leading to the second product, described as minor, are not given, and are not readily deduced. For the record, the applicant should provide details of this pathway.
3) The traps appear to have been common to several incubation vessels. Therefore, it is difficult to interpret the CO_2 findings. In this case, volatile degradates do not amount to a large proportion of the total radioactivity, and the overall understanding of the study is not compromised. However, these studies should be done such that there is independent trapping for each individual vessel.
4) The metabolism of DCA does not appear to follow first order kinetics, and may have a first half-life considerably shorter than 30 days -- in any case, it does not appear likely to persist.

VIII. CBI Information Addendum:

RIN 1876-95

PROPANIL EFGWB REVIEW

Page____ is not included in this copy.

Pages 17 through 18 are not included.

The material not included contains the following type of information:

____ Identity of product inert ingredients.

____ Identity of product impurities.

____ Description of the product manufacturing process.

____ Description of quality control procedures.

____ Identity of the source of product ingredients.

____ Sales or other commercial/financial information.

____ A draft product label.

____ The product confidential statement of formula.

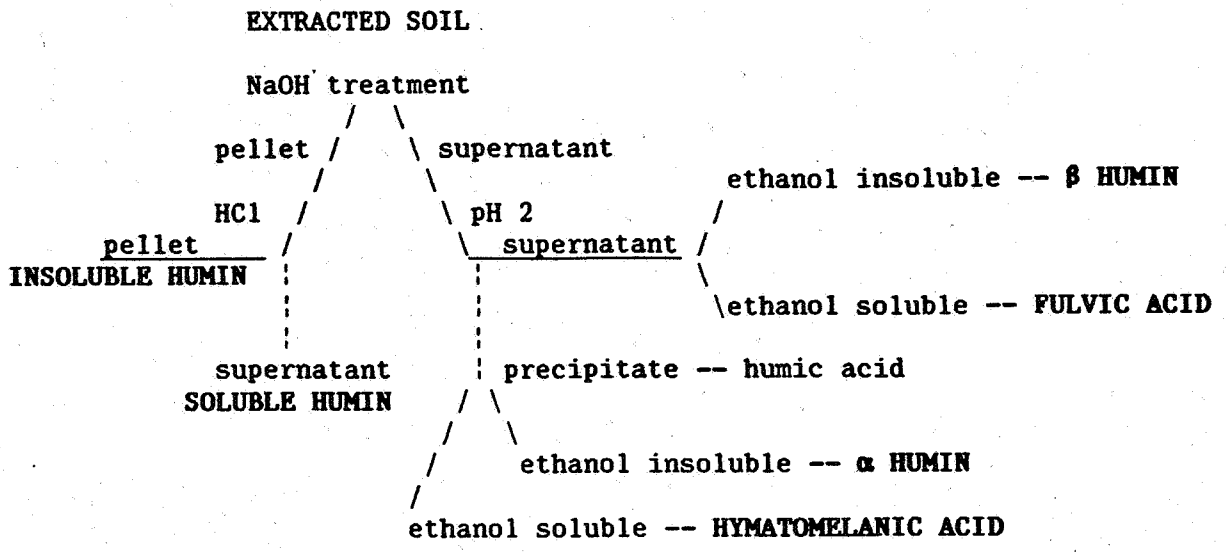
____ Information about a pending registration action.

✓ FIFRA registration data.

____ The document is a duplicate of page(s) _____.

____ The document is not responsive to the request.

The information not included is generally considered confidential by product registrants. If you have any questions, please contact the individual who prepared the response to your request.



developed by EBC, EFGWB 10/24/90

RIN 1876-95

PROPANIL EFGWB REVIEW

Page____ is not included in this copy.

Pages 20+ through 25 are not included.

The material not included contains the following type of information:

____ Identity of product inert ingredients.

____ Identity of product impurities.

____ Description of the product manufacturing process.

____ Description of quality control procedures.

____ Identity of the source of product ingredients.

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____ The document is a duplicate of page(s) _____.

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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
2181	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) Rf factors
1
2
3
4
5

Soil Metabolism Studies - Terrestrial
Aerobic (162-1) Anaerobic (162-2)
not required for use on rice
1 - # sandy loam, $t_{\frac{1}{2}}$ 0.5 day
Dichloroaniline $t_{\frac{1}{2}}$ 30 days

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 # dichloroaniline (DCA) -- aerobic metabolism
2
3
4
5

Notes

References: Reg Std 12/87, EBC 10/24/90, Farm Chemicals Handbook 1985