UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF
PESTICIDES AND TOXIC SUBSTANCES

MEMORANDUM December 12, 1989

SUBJECT: Proposed Registration of a New Pesticide, Pyridate

FROM: James W. Akerman
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Environmental Fate and Effects Division H7507C

TO: Robert Taylor (PM 25)
Herbicide/Fungicide Branch
Registration Division H7505C

Attached is the registration standard for the registration of Pyridate as technical and for use on cabbage, peanuts and corn.

Based on the available toxicity information and proposed uses, the EEB concludes that the use of pyridate on cabbage, corn and peanuts will result in minimal hazard to nontarget aquatic and terrestrial organisms and is unlikely to affect to endangered species.

There are no outstanding data requirements for Ecological Effects at this time, based on the proposed use on cabbage, corn and peanuts, assuming one application per year and ground application only.

If aerial application is permitted, (123-1) terrestrial and possibly (123-2) aquatic phytotoxicity testing (TIER II) would be required.

Because of the solubility problems in past tests, LC50's and EC50's for fish, shrimp and aquatic invertebrates could not be calculated. In the future, if new uses result in a greater chance of aquatic exposure, further aquatic testing would be required for both the parent and the degradate. If more than one treatment per season or aerial application is recommended, EEB would require testing with freshwater species [one fish (72-1) and aquatic invertebrate (72-2)] using the parent. Special testing conditions

(1)

would include use of a flow-through system and solvents to maximize solubility. Test concentrations would also have to be measured in all test container at the beginning and end of the test. Aquatic testing would also be required with the degradate CL-9673, including the freshwater fish acute test (72-1) and the fish early life stage and aquatic invertebrate life cycle tests (72-4).

If you have questions, please contact Dan Rieder.

Pyridate

Ecological Effects Topical Summary

Effects on Birds

Nine studies in four documents were evaluated under this topic. Five studies were acceptable for use in a hazard assessment.

Author	Date	MRID No
Beavers	1984	Acc# 072350
Grimes	1986	403732-01
Beavers	1987	404766-02
Beavers	1987	404766-03

In order to establish the toxicity of Pyridate to birds, the following tests are required using the technical grade material: Two subacute dietary studies, one with a species of waterfowl (preferably mallard duck) and one with a species of upland game bird (preferably bobwhite quail or ring-necked pheasant); and an avian single - dose oral study on one species (preferably either mallard duck or bobwhite quail).

The following acute oral toxicity test is acceptable for use in a hazard assessment:

Species	T.M.	LD50 mg/kg	Author	Date	ID Num.	Fulfills Req.
Bobwhite	92%	>1269	Grimes	1986	403732-01	yes

The quideline requirement (71-1) for an avian acute oral study has been satisfied.

The acceptable subacute dietary toxicity studies for use in a hazard assessment are listed below:

Species	T.M.	LC50 (ppm)	Author	Date	ID Num.	Fulfills Req.
Bobwhite	90.1%	>5000	Beavers	1984	072350	yes
Mallard	90.1	>5000	Beavers	1984	072350	yes

The guideline requirements (71-2) for avian subacute dietary toxicity tests have been satisfied. There is sufficient information on Pyridate to characterize it as slightly toxic to practically nontoxic to birds.

Avian Reproduction Tests

Avian reproduction tests are required for an end-use pesticide when birds may be exposed to repeated or continuous residues through persistence, bioaccumulation or multiple applications or if tests indicate reproductive hazard. Avian reproduction studies are required since pyridate was found to cause Japanese quail to stop egg-laying at 6000 ppm.

Species	T.M.	Results	Author	Date	ID Num.	Fulfills Req.
Mallard duck	93.3%	NOEL=640 ppm	Beavers	1987	404766-02	yes
Bobwhite quail	93.3%	NOEL=1600 ppm	Beavers	1987	404766-03	yes

The avian reproduction quideline requirement (71-4) has been fulfilled.

Precautionary Labeling

Based on avian toxicity data, no label statement for birds is required.

Effects on Fish

Four studies in three documents were evaluated under this topic. Two studies were acceptable for use in a hazard assessment.

Author	Date	ACC No.
Bowman	1986	265681
Bowman	1986	265682

The minimum data requirements for establishing the acute toxicity to fish are the results from two 96-hour studies with the technical grade material. The studies are to be performed on one coldwater species (preferably rainbow trout) and one warmwater species (preferably bluegill sunfish).

The acceptable acute toxicity studies are presented below:

Species	T.M.	LC50 ppm	Author	Date	ACC NO.	Fulfill Req.
Rainbow trout (Salmo gairdneri)	92 %	>1.2	Bowman	1986	265681	yes
Bluegill sunfish (Lepomis macrochirus)	92 %	>2.1	Bowman	1986	265682	yes

The guideline requirement for fish acute toxicity testing (72-1) has been satisfied. Pyridate is no more than moderately toxic to fish. The values presented were measured test concentrations and are considered to represent the maximum solubility under test conditions.

Chronic Testing

Data from a fish early life stage test is required if an active ingredient is persistent in water, or chronic exposure is otherwise expected. Since pyridate is not persistent, and is not applied more than once per season, this test is not required.

Testing with Degradate

Testing with a degradate is required if it forms rapidly, forms a substantial percentage of the applied total, or is persistent. Some information from EFGWB suggested that CL-9673 forms rapidly and is moderately persistent (10-30 days halflife) in some compartments of the environment. Therefore, the EEB was concerned with the toxicity of this degradate. A study was provided with an aquatic invertebrate suggesting the degradate is

5

less toxic than pyridate. No further testing is required at this time.

Field Testing

Field testing (72-7) may be requested for pesticides expected to transport to and persist in the aquatic environment at hazardous levels. Based on available information, it is unlikely that aquatic field testing to determine effects to fish is required.

Precautionary Labeling

No fish precautionary statement is required.

Effects on Freshwater Invertebrate

Two studies in two documents were evaluated. Both studies were acceptable for use in a hazard assessment.

Author	Date	ACC No.
Ellgehausen	1982	072350
Nigitz	1982	005922

The minimum requirement to establish the acute toxicity to freshwater invertebrates is a 48-hr aquatic study with the technical material. The preferred test species is Daphnia magna. The acceptable toxicity test is presented below.

Species	T.M.	EC50	Author	Date	MRID. No.	Fulfills Req.
Daphnia magna	90.3%	1.08 ppm	Ellgehausen	1982	072350	yes

This test fulfills the guideline requirement (72-2) for acute testing with aquatic invertebrates. Pyridate is moderately toxic to aquatic invertebrates.

Chronic Testing

Data from a freshwater aquatic invertebrate life-cycle test are required if an active ingredient is persistent in water or chronic exposure is otherwise expected. Pyridate is proposed for use once per season, and is not persistent in the environment. Therefore, aquatic invertebrate testing with pyridate is not required.

Testing with a degradate

Testing with a degradate is required if it forms rapidly, forms a substantial percentage of the applied total, or is persistent. Some information from EFGWB suggested that CL-9673 forms rapidly and is persistent in some compartments of the environment. Therefore, the EEB was concerned with the toxicity of this degradate. The following test was provided.

Species	T.M.	EC50	Author	Date	MRID. No.	Fulfills Req.
Daphnia magna	CL-9673	26.14 ppm	Nigitz	1982	005922	yes for degradate

This study suggests that the degradate, CL-9673, is less toxic than pyridate and is not of ecological concern.

7

Field Testing

Field testing (72-7) may be required for pesticides expected to transport to and persist in the aquatic environment at hazardous levels. Based on available information, field testing for aquatic invertebrates is not necessary.

Precautionary Labeling

No precautionary label statement is required for aquatic invertebrates.

Effects on Estuarine Organisms

Five studies in four documents were evaluated under this topic. Three studies were used in the hazard assessment.

Author	Date	MRID No.
Dionne	1987	403048-01
Irwin	1984	073281
Ward	1984	073281

The minimum data requirements to determine the toxicity of a pesticide to estuarine organisms are an acute study with an estuarine fish species, a shrimp and a mollusc. The tests are presented below.

Species	T.M.	EC50/ LC50	Author	Date	Acc No	Fulfills Req.
Sheepshead minnow	90%	>0.3* ppm	Ward	1984	073281	yes
Mysid shrimp	90%	>0.3[1] ppm	Irwin	1984	073281	yes
Quahog clam	90%	0.145 ppm	Dionne	1987	403038-01	yes

* Based on measured concentrations in a seperate "solubility in seawater" experiment; see review dated 5-1-89.

These data suggest that pyridate is moderately toxic to shrimp and possibly highly toxic to the clam and estuarine fish.

Formulation Testing

Testing with a formulation may be required if it is expected to be directly applied to water. The following test was provided, but was not required since direct application to estuaries is not expected.

[1] The reported LC50 was 4 ppm, however, in light of the additional information received on the solubility of pyridate in seawater for the estuarine fish test, it is unlikely that the concentration in this shrimp test was much higher than 0.3 ppm, as was indicated in the fish test. Therefore, the LC50 will be considered to be >0.3 ppm, not 4 ppm.

Species	T.M.	EC50	Author	Date	MRID. No.	Fulfills Req.
Mysid shrimp	45%	3.8 ppm	Irwin	1984	072381	no[2]

This study shows that this 45% formulation is moderately toxic to shrimp.

Chronic Testing

Data from chronic estuarine testing may be required. Available information indicate these data are not necessary for pyridate since it is only applied once per season and it is not persistent.

Testing with Degradate

Testing with a degradate is required if it forms rapidly, forms a substantial percentage of the applied total, or is persistent. Some information from EFGWB suggested that CL-9673 forms rapidly and is persistent in some compartments of the environment. Therefore, the EEB was concerned with the toxicity of this degradate. A study was provided with an aquatic invertebrate suggesting the degradate is less toxic than pyridate. No further testing is required at this time.

Field Testing

Field testing (72-7) may be required for pesticides expected to transport to and persist in the estuarine environment at hazardous levels. Based on available information, field testing for estuarine organisms is not necessary.

Precautionary Labeling

A precautionary label statement is required for estuarine organisms. It should indicate that "This pesticide is toxic to estuarine organisms." This is based on the clam study result and because both the LC50's for the estuarine fish and shrimp are only considered to be >0.3 ppm.

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[2] Nc requirement exists for testing with this formulation. If need for such a test arises, this study would fulfill the requirement.

Effects on Beneficial Insects

One study in one document was provided under this topic.

Date	MRID NO
1986	403732-02

The following test was considered acceptable, and fulfills the requirements for testing with beneficial insects.

Species	T.M.	LD50	Date	MRID. No.	Fulfills Req.
Honey bee	92%	>100 ug/bee	1986	403732-02	yes

This test indicates that pyridate is practically nontoxic to honey bees. No further testing is required under this category.

Precautionary Labeling

Available data do not indicate that labeling for beneficial insects is required.

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Plant Protection

No studies were provided under this topic. Terrestrial phytotoxicity testing is required if the herbicide is considered to have a potential to be toxic to non-target plants and it is either aerially applied or has a high volatility such that it is likely to transport to adjacent vegetation. Pyridate does not have high volatility (7.49 X 10 -9 TORR) and is not proposed for aerial application. If uses are proposed that require aerial application, Tier II phytotoxicity testing would be required.

Aquatic phytotoxicity testing is required if the use involves application in close proximity to water, such as aquatic use sites or if potential for transport via runoff is high (i.e. high solubility: >10 ppm). The uses for which pyridate is proposed, corn, peanuts and cabbage, are not aquatic use sites and pyridate has low solubility. Therefore, no aquatic phytotoxicity testing is required.

Pyridate Ecological
Effects Disciplinary Review

I. Ecological Effects Profile

A. Manufacturing Use

1. Avian Studies

The avian acute oral LD50 of 1269 mg/kg (Bobwhite, 403732-01) and the avian dietary LC50's of >5000 ppm for Bobwhite quail and Mallards (Beavers, 072350) indicate that Pyridate is slightly toxic to practically non-toxic to birds. The avian reproductive NOEL for mallards and bobwhite is 1600 ppm and 640 ppm, respectively (404766-03 and 02).

2. Aquatic Studies

The fish LC50's for Rainbow trout and Bluegill are >1.2 and >2.1 ppm, respectively (265681 and 265682, respectively). This indicates that pyridate is no more than moderately toxic to freshwater fish. The LC50 of pyridate to estuarine fish was >0.3 ppm, since no mortality occurred at the highest test concentration (Sheepshead minnow, Ward, 173281) and the maximun solubility was determined to be 0.3 ppm is seawater. Pyridate is no more than highly toxic to estuarine fish.

The EC50 of 1.08 ppm for Daphnia magna (Ellgehausen, 072350), indicates that Pyridate is moderately toxic to aquatic invertebrates.

3. Mammal Studies

Information from the Toxicology Branch One-Liner indicate that the LD50 for technical pyridate in rats is 5993 mg/kg (073280). The rat 3-generation reproductive maternal and fetotox NOEL=400 ppm (072347). Rabbit teratology testing indicated a terato-, materno- and fetotox-NOEL>90 mg/kg/day (259948). A rat teratology study resulted in a developmental and maternal NOEL of 165 mg/kg/day and a terato-NOEL of >495 mg/kg/day (262546).

B. Formulated Product

No tests with formulated products are required, however, one test was provided and considered acceptable. The shrimp LC50 for a 45% formulation was 3.8 ppm (Irwin, 073281).

C. Degradate Testing

No mammal toxicity tests were performed specifically with CL-9673. However, residue analysis indicated that pyridate quickly metabolized to CL-9673 in mammals. Therefore, mammals were considered to have been exposed to the degradate while they were dosed/fed with pyridate. The degradate was not considered to be more toxic than pyridate and not of toxicological concern, according to the Toxicology Branch reviewer. Therefore, EEB concludes that the degradate is not more toxic to wild mammals than the parent.

Avian testing with the degradate is not considered necessary, since it is assumed that pyridate would also metabolize to CL-9673 in birds as it did in mammals. Therefore, birds were considered to have been exposed to the degradate when they were dosed with pyridate.

Aquatic testing with the degradate of pyridate, CL-9673, suggests that it is less toxic than the parent, and therefore, not of ecological concern to aquatic organisms based on the currently proposed uses, with one treatment per season and no aerial application. The EC50 of CL-9673 to Daphnia magna was 26 ppm (Nigitz, 005922).

II Ecological Effects Hazard Assessment

A Use

Pyridate is proposed for use as postemergent control of broadleaf weeds in cabbage (Tough 45WP) and peanuts and corn (Tough 3.75 EC).

Label directions indicate use of 2-4 lbs of Tough 45WP per acre. This is equivalent to 0.9 to 1.8 lbs ai/acre. This risk assessment assumes ground application only.

B Environmental Fate

Hydrolysis: Pyridate rapidly hydrolyzes to CL-9673 with half-lives of 66.7 hours at pH 5, 17.8 hours at pH 7 and 6.8 hours at pH 9 at 22 degrees Celsius (1-30-86).

Bioaccumulation: Pyridate (parent plus CL-9673) bioaccumulates in bluegill with a BCF of about 464X for whole fish, but 99% of the accumulated residues are eliminated after 14 days in clean water (1-30-86).

Field Dissipation: Preliminary date suggest that pyridate degrades rapidly to CL-9673 and CL-9673 also degrades with a halflife range of 8-15 days (1-30-86).

Aerobic Aquatic Dissipation: Pyridate seems to be metabolized to CL-9673 (1-30-86).

Aerobic Soil degradation of degradate: The degradation halflife of CL-9673 ranged from 10 to 30 days representing moderate persistence.

C. Manufacturing-Use

The EEB does not perform a hazard assessment for manufacturing of pesticides.

D. End-Use Product

For risk assessment purposes, it is assumed that the use rate is 0.9 to 1.8 lbs ai/acre, one application per season, ground application only.

1. Terrestrial

If pyridate is sprayed at 0.9 to 1.8 lbs ai per acre, the following residues (ppm) would be expected on various food items.

	short grass	long grass	leafy crops	insects forage	seed pods	Fruit
0.9 lbs/acre						
maximum	216	99	113	52	11	6
typical	113	83	31	30	3	1
1.8 lbs/acre						
maximum	432	198	226	104	22	12
typical	226	166	62	59	5	3

The expected exposure levels are substantially lower than the avian LC50 values of 5000 ppm and the avian reproductive NOEL of 640 ppm (bobwhite quail). If the mammalian LD50 is used to estimate a one-day LC50, the result is approximately 59,900 ppm[3]. The estimated residues are substantially lower than this value. The highest estimated residue value, 432 ppm, exceeds the mammalian 3-generation reproductive NOEL of 400 ppm. However, since pyridate is not persistent and will only be applied once per season, long-term exposure is unlikely. If multiple applications are proposed, these conclusions will have to be re-evaluated. Acute and chronic effects to terrestrial organisms are unlikely.

The degradate, CL-9673, while persistent, is not considered to represent hazard to mammals or birds based on its lack of toxicity. See discussion on degradate testing (p 13).

2. Aquatic

Assuming a maximum application rate of 1.8 lbs ai/acre, the following estimation of exposure is calculated. Assuming 10 acres of treated land drains into a 1 acre pond, and 0.1% of the applied is available for transport via runoff, approximately 1.1 ppb would occur in adjacent aquatic habitat.

10 acres X 1.8 lbs/acre X 0.001 runoff X 61 ppb = 1.098 ppb

This value is less than 0.12 ppm (1/10 1.2 ppm fish LC50). It is also less than 0.11 (1/10 the aquatic invertebrate EC50 of 1.08 ppm).

The estimated concentrations are less than 0.03 ppm (1/10 0.3 ppm). This is the maximum solubility in seawater, and both the shrimp and fish LC50's are considered greater than 0.3 ppm. It is also less than 14.5 ppb, (1/10 the clam EC50 of 0.145 ppm). Acute effects to freshwater and estuarine organisms are considered

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[3] Assuming a mammal consumes 10% of its body weight per day, the formula 1-day LC50 (ppm) = $\frac{\text{LD50 (mg/kg) X WT (grams)}}{\text{consumption per day (grams)}}$ results in an LC50 of 59930 ppm.

15

unlikely. Chronic exposure to the parent is unlikely because it is short-lived and only applied once per season.

The primary degradate, CL-9673 is considered to represent a greater potential for ecological hazard because the parent quickly becomes this chemical, a large percent of the applied total becomes CL-9673, and it is apparently more persistent than pyridate. However, testing with CL-9673 and aquatic invertebrates indicates it is not as toxic as pyridate. Hazard from this degradate is expected to be minimal based on the proposed condition of use.

3 Endangered Species

The endangered species triggers are:

Group	Rep. NOEL	LC50
Birds	640 ppm	500 ppm (5000/10)
Mammal	400 ppm	5990 ppm (59900[4]/10)
Fish	chronic exp. unlikely	0.06 ppm (1.2/20)
Aqu. Inv.	"	0.054 ppm (1.08/20)
Mussels	"	0.007 ppm (145/20)

Terrestrial

If pyridate is sprayed at 1.8 lbs ai per acre, the following residues (ppm) would be expected on various food items.

	short grass	long grass	leafy crops	insects forage	seed pods	Fruit
maximum	432	198	226	104	22	12
typical	226	166	62	59	5	3

Maximum levels do not exceed acute endangered species triggers. Chronic exposure is unlikely because pyridate is not persistent. Use of pyridate is unlikely to affect endangered terrestrial species including birds, mammals, reptiles and terrestrial stages of amphibians.

Aquatic

Assuming a maximum application rate of 1.8 lbs ai/acre, the following estimation of exposure is calculated. Assuming 10 acres of treated land drains into a 1 acre pond, and 0.1% of the applied is available for transport via runoff, approximately 1.1 ppb would occur in adjacent aquatic habitat.

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[4] The extrapolated 1-day LC50 for mammals assuming the organism consumes 10% of its body weight per day.

10 acres X 1.8 lbs/acre X 0.001 runoff X 61 ppb = 1.098 ppb

This value is less than the endangered species trigger values for fish and aquatic invertebrates, including mussels.

Endangered Species Summary

The use of pyridate is not expected to affect endangered species.

III. Precautionary Labeling

A. Manufacturing-Use Product

The following statement is required:

"Do not discharge effluent containing this product into lakes, streams, ponds, estuaries, oceans, or public water unless this product is specifically identified and addressed in an NPDES permit. Do not discharge effluent containing this product into sewer systems without previously notifying the sewage treatment plant authority. For guidance contact your State Water Board or Regional Office of the EPA.

B. End-Use Product for Terrestrial Food Crop

The following statement is required:

"This pesticide is toxic to estuarine organisms. Do not apply directly to water or wetlands (swamps, marshes, bogs, and potholes). Do not contaminate water when disposing of equipment washwater or rinsate."

IV Data Requirements (See Table A)

There are no outstanding data requirements for Ecological Effects at this time, based on the proposed use on cabbage, corn and wheat, assuming one application per year and ground application only.

If aerial application is permitted, (123-1) terrestrial and possibly (123-2) aquatic phytotoxicity testing (TIER II) would be required.

If more than one treatment per season or aerial application is recommended, further testing would be required for both the parent and the degradate. Because of the solubility problems, EEB would require flow-through testing with freshwater species [one fish (72-1) and aquatic invertebrate (72-2)] using the parent. Solvents would also be required to maximize solubility. Chronic aquatic testing would also be required with the degradate CL-9673,

including (72-4) fish early-life stage and aquatic invertebrate life-cycle testing.

V Studies not used in Risk Assessment

Four studies in one document were evaluated but not used to indicate avian toxicity.

Author	Acc No
Sachasse	072350

Two studies in one document was evaluated but not used to indicate toxicity to fish.

Author	Acc No
Sachasse	072350
Buchanan	072350

One study in one document was evaluated but not used to indicate toxicity to estuarine organisms

Author	ACC NO
Ward	073281

Table A. Generic Data Requirements for Pyridate

Data Requirement	Composition[1]	Use Pattern[2]	Does EPA Have Data To Satisfy This Requirement? (Yes, No, or Partially)	Bibliographic Citation (MRID No.)	Must Additional Data Be Submitted Under FIFRA Sec. 3(c)(2)(B)?
158.145 Wildlife and Aquatic Organisms					
AVIAN AND MAMMALIAN TESTING					
71-1 Avian Oral LD50	TGAI	A	yes	403732-01	no
71-2 Avian Dietary LC50					
a. Upland Game Bird	TGAI	A	yes	072350	no
b. Waterfowl	TGAI	A	yes	072350	no
71-3 Wild Mammal Toxicity	TGAI	A	no		no[3]
71-4 Avian Reproduction	TGAI	A	yes	404766-02, 404766-03	no
71-5 Simulated and Actual Field Testing - Mammals and Birds	TEP	A	no		no[4]
AQUATIC ORGANISM TESTING					
72-1 Freshwater Fish LC50					
a. Coldwater	TGAI	A	yes	265681	no
b. Warmwater	TGAI	A	yes	265682	no
72-2 Freshwater Aquatic Invertebrate LC50	TGAI	A	yes	072350	no
	Degradate	A	yes	005922	no
72-3 Estuarine/Marine Organism LC50	TGAI	A	yes	073281 403038-01	no
	TEP(45WP)	A	yes	073281[5]	no

Table A. Pyridate, continued.

Data Requirement	Composition[1]	Use Pattern[2]	Does EPA Have Data To Satisfy This Requirement? (Yes, No, or Partially)	Bibliographic Citation (MRID No.)	Must Additional Data Be Submitted Under FIFRA Sec. 3(c)(2)(B)?
72-4 Fish Early Life-Stage/Invertebrate Life-Cycle	TGAI	A	no		no[6]
72-5 Fish Life-Cycle	TGAI	A	no		no
72-6 Aquatic Organism Accumulation	TGAI	A	no		no[7]
72-7 Simulated or Actual Field Testing - Aquatic Organisms	TEP	A	no		no
158.10 Plant Protection					
121-1 TARGET AREA PHYTOTOXICITY	TEP	A	no		no
NONTARGET AREA PHYTOTOXICITY					
TIER I					
122-1 Seed Germination/ Seedling Emergence	TGAI	A	no		no[8]
122-1 Vegetative Vigor	TGAI	A	no		no[8]
122-2 Aquatic Plant Growth	TGAI	A	no		no[8]
TIER II					
123-1 Seed Germination/ Seedling Emergence	TGAI	A	no		no[9]
123-1 Vegetative Vigor	TGAI	A	no		no[9]
123-2 Aquatic Plant Growth	TGAI	A	no		no[10]

Table A. Pyridate continued.

Data Requirement	Composition[1]	Use Pattern[2]	Does EPA Have Data To Satisfy This Requirement? (Yes, No, or Partially)	Bibliographic Citation (MRID No.)	Must Additional Data Be Submitted Under FIFRA Sec. 3(c)(2)(B)?
TIER III					
124-1 Terrestrial Field Study	TEP	A	no		no
124-2 Aquatic Field Study	TEP	A	no		no
NONTARGET INSECT TESTING - POLLINATORS					
141-1 Honey Bee Acute Contact Toxicity	TGAI	A	yes	403732-02	no

1. Composition: TGAI = Technical Grade of the Active Ingredient; TEP = Typical End Use Product.

2. A = Terrestrial Food Crop; B = Terrestrial Nonfood; C = Aquatic Food Crop; D = Aquatic Nonfood;

3. Wild mammal testing not currently a requirement.

4. Field testing not required for proposed uses and treatment conditions.

5. Testing with shrimp was performed, even though it was not required. Study would fulfill requirement if needed.

6. Since pyridate is not persistent and is only applied once per season, chronic testing is not required.

7. The fish bioaccumulation data from EFGWB suffices for this requirement.

8. Tier I plant testing is not required for herbicides, since it is assumed that herbicides are toxic to plants at the application rate.

9. Pyridate does not have high volatility and is not proposed for aerial application, therefore, TIER II terrestrial phytotoxicity tests not required.

10. Aquatic phytotoxicity testing is not required since proposed uses are not aquatic sites and potential for transport to aquatic habitat is low.

22