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009901
Shaughnessey No.

EEB REVIEW

DATE: IN November 8, 1989 OUT December 26, 1989

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DATE OF SUBMISSION October 6, 1989

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

MRID NO(S). 412672-01, -02, -03 and -04

PRODUCT MANAGER NO. Wm Miller, PM#16, Steve Palmateer 557-4408

PRODUCT NAME(S) Starlicide, Compound DRC-1339

COMPANY NAME USDA, Animal and Plant Health Inspection Service

SUBMISSION PURPOSE Proposed registration of feedlot use

SHAUGHNESSEY NO.	CHEMICAL AND FORMULATION	% A.I.
<u>009901</u>	<u>DRC-1339, Technical grade</u>	<u>98.8%</u>
_____	_____	_____
_____	_____	_____



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

OFFICE OF
PESTICIDES AND TOXIC SUBSTANCES

MEMORANDUM

Subject: Review of a submission to meet the guideline data requirements for Starlicide.

From: *JW* James W. Akerman, Chief
Ecological Effects Branch
Environmental Fate and Effects Division (H7507C) *Douglas J. Akerman*

To: William Miller
Insecticide and Rodenticide Branch
Product Management Team Number 16
Registration Division (H7505C)

The Ecological Effects branch has reviewed the submission by the Animal and Plant Health Inspection Service of the U.S. Department of Agriculture to meet the guideline requirement to register Starlicide (3-chloro-4-methylbenzenamine HCl) for feedlot uses. The submission consisted of published papers, research reports and miscellaneous data sheets on work done by the Denver Wildlife Research Center (none of which was done specifically to satisfy registration requirements).

FIFRA requires that a registrant inform EPA of any adverse information that it has about a chemical that it wishes to register; this submission does fulfil that requirement.

Since the reports do not contain enough information about the individual tests, do not present the raw data and because the experimenters used many nonstandard animals, this submission does not fulfil the Guideline Requirements for an avian acute toxicity, avian dietary toxicity, aquatic invertebrate toxicity or freshwater fish toxicity. The experiments must be done and the research reports submitted. The information on nonstandard species is of interest and could be used in evaluating an application for an Experimental Use Permit. Please contact Dr. James Goodyear (557-7726) if you have any questions.

412672-04
MRID No.

009901
Shaughnessy No.

Data Evaluation Record
STARLICIDE
Aquatic Invertebrate Toxicity Test

GUIDELINE NUMBER: 72-2

CITATION:

Knittle, C.E. 1989. Summary of currently available aquatic organism toxicity data for the chemical 3-chloro-4-methylbenzenamine Hydrochloride (Compound DRC-1339; CPTH). USDA, APHIS, T&S, Denver Wildlife Research Center. Unpublished Special Report. Vol. 5. MRID No. 412672-04.

REASON FOR SUBMISSION:

Submitted to support the registration of feedlot uses of Starlicide.

RESULTS- Valid _____ Invalid X _____ Incomplete _____

GUIDELINE- Satisfied _____ Partially Satisfied _____ Not Satisfied X _____

DISCUSSION:

FIFRA requires that a registrant inform EPA of any adverse information that it has about a chemical that it wishes to register; this paper does fulfil that requirement. Since the reports do not contain enough information about the individual tests and because many nonstandard animals were used, this paper does not fulfil the guideline requirements for a invertebrate toxicity. The information on nonstandard species is of interest and could be used in evaluating an application for an Experimental Use Permit. The individual papers are reviewed briefly.

REVIEWED BY:

James J. Goodyear
Biologist, Section 1
Ecological Effects Branch
Environmental Fate and Effects Division (H7507C)

Signature: *James J. Goodyear*
Date: Dec 22, 1989

APPROVED BY:

for
Raymond W. Matheny
Head, Section 1
Ecological Effects Branch
Environmental Fate and Effects Division (H7507C)

Signature: *Raymond W. Matheny*
Date: 12-22-89

412672-04
MRID No.

009901
Shaughnessy No.

Data Evaluation Record
STARLICIDE
Aquatic Invertebrate Toxicity Test

GUIDELINE NUMBER: 72-2

CITATION:

Walker, W.W., A.R. Lawler and W.D. Burke. Acute toxicity of 3-chloro-4-methyl Benzenamine hydrochloride to shrimp and crabs. Bull. Environm. Contam. Toxicol. 21:643-651. DWRC No. 12400. *in*, Knittle, C.E. 1989. Summary of currently available aquatic organism toxicity data for the chemical 3-chloro-4-methylbenzenamine Hydrochloride (Compound DRC-1339; CPTH). USDA, APHIS, T&S, Denver Wildlife Research Center. Unpublished Special Report. Vol. 5. MRID No. 412672-04.

REASON FOR SUBMISSION:

Submitted to support the registration of feedlot uses of Starlicide.

RESULTS- Valid _____ Invalid X _____ Incomplete _____

GUIDELINE- Satisfied _____ Partially Satisfied _____ Not Satisfied X _____

DISCUSSION:

Besides a lack of information about the conditions under which the experiment was conducted, the following faults were found: 1) the subjects were purchased from a live bait dealer and were not of uniform size and condition, 2) the chemical medium was not specified other than to say that it was a commercial mixture, 3) the pH and other conditions of the study were not included, 4) the toxicant concentrations were too widely spaced, 5) the confidence intervals were not calculated, 6) two species of shrimp were tested at the same time, and 6) more than ten percent of the control animals died.

REVIEWED BY:

James J. Goodyear
Biologist, Section 1
Ecological Effects Branch
Environmental Fate and Effects Division (H7507C)

Signature: James Goodyear

Date: December 22, 1989

APPROVED BY:

Raymond W. Matheny
Head, Section 1
Ecological Effects Branch
Environmental Fate and Effects Division (H7507C)hyph

Signature: Raymond W. Matheny

Date: 12-22-89

412672-04
MRID No.

009901
Shaughnessy No.

Data Evaluation Record
STARLICIDE
Aquatic Invertebrate Toxicity Test

GUIDELINE NUMBER: 72-2

CITATION:

Marking, L.L. and J.H. Chandler, Jr. 1981. Toxicity of six birds control chemicals to aquatic organisms. Bull. Environ. Contam. Toxicol. 26:705-716. DWRC No. 145. *in*, Knittle, C.E. 1989. Summary of currently available aquatic organism toxicity data for the chemical 3-chloro-4-methylbenzenamine Hydrochloride (Compound DRC-1339; CPTH). USDA, APHIS, T&S, Denver Wildlife Research Center. Unpublished Special Report. Vol. 5. MRID No. 412672-04.

REASON FOR SUBMISSION:

Submitted to support the registration of feedlot uses of Starlicide.

RESULTS- Valid _____ Invalid X _____ Incomplete _____

GUIDELINE- Satisfied _____ Partially Satisfied _____ Not Satisfied X _____

DISCUSSION:

The only standard species used was *Daphnia magna*, but many chemicals were tested. Many of the explanations are given for all of the species-chemicals tested without specifying what was done to *Daphnia magna* and CPTH, e.g., the chemicals tested were dissolved in either water or acetone, but it isn't stated which was used for CPTH. Other information is omitted; 1) the raw data, 2) the amount of solvent, 3) the existence of controls and solvent controls, 4) the method of determining the concentration of CPTH at 24- and 48-hours, 5) the pH, 6) D.O., 7) the dose and 8) the number of levels and their spacing. This submission does not meet the guideline requirements for aquatic invertebrates.

REVIEWED BY:

James J. Goodyear
Biologist, Section 1
Ecological Effects Branch
Environmental Fate and Effects Division (H7507C)

Signature: James Goodyear

Date: Dec 22, 1989

APPROVED BY:

Ray Raymond W. Matheny
Head, Section 1
Ecological Effects Branch
Environmental Fate and Effects Division (H7507C)

Signature: Ray W. Matheny

Date: 12-22-89

412672-03
MRID No.

009901
Shaughnessy No.

Data Evaluation Record
STARLICIDE
Freshwater Fish Acute Toxicity Test

GUIDELINE NUMBER: 72-1

CITATION:

Knittle, C.E. 1989 Summary of currently available toxicity data to freshwater fish for the chemical 3-chloro-4-methylbenzenamine hydrochloride (Compound DRC-1339; CPTH). USDA, APHIS, S&T, Denver Wildlife Research Center, Unpublished Special Report Vol. 4 MRID 412672-03.

REASON FOR SUBMISSION:

Support registration of feedlot use.

RESULTS- Valid _____ Invalid X Incomplete _____

GUIDELINE- Satisfied _____ Partially Satisfied _____ Not Satisfied X

DISCUSSION:

This paper is a short list of LC₅₀s that were taken from two "studies"; one on work done by the Denver Wildlife Research Center and the other on work done by the LaCrosse Fisheries Research Laboratory. FIFRA requires that a registrant inform EPA of any adverse information that it has about a chemical that it wishes to register; this paper does fulfil that requirement. Since the reports do not contain enough information about the individual tests and because many nonstandard animals were used this paper does not fulfil the guideline requirements for freshwater fish acute toxicity. The two papers are individually reviewed elsewhere.

REVIEWED BY:

James J. Goodyear
Biologist, Section 1
Ecological Effects Branch
Environmental Fate and Effects Division (H7507C)

Signature: James Goodyear

Date: Dec 22, 1989

APPROVED BY:

for Raymond W. Matheny
Head, Section 1
Ecological Effects Branch
Environmental Fate and Effects Division (H7507C)

Signature: Raymond Matheny

Date: 12-22-89

412672-03
MRID No.

009901
Shaughnessy No.

Data Evaluation Record
STARLICIDE
Freshwater Fish Acute Toxicity Test

GUIDELINE NUMBER: 72-1

CITATION:

Anonymous. 1968. Toxicity of avicide 47676 to three species of fish at 12° C. Table 6 from unpublished report. USFWS, National Fisheries Research Laboratory. LaCrosse. WI. 1 p. DWRC No. 2574. *in*, Knittle, C.E. 1989. Summary of currently available toxicity data to freshwater fish for the chemical 3-chloro-4-methylbenzenamine hydrochloride (Compound DRC-1339; CPTH). USDA, APHIS, S&T, Denver Wildlife Research Center, Unpublished Special Report, Vol. 4. MRID 412672-03.

REASON FOR SUBMISSION:

Support registration of feedlot use.

RESULTS- Valid _____ Invalid X _____ Incomplete _____

GUIDELINE- Satisfied _____ Partially Satisfied _____ Not Satisfied X _____

DISCUSSION:

There is no meaningful sense in which this submission could be called a paper or a study. It is a bit of miscellaneous, improperly recorded data. The LaCrosse Fisheries Research Laboratory would never have approved its use in this fragmented manner. It is a single sheet with incorrect data on it. The sunfish study is supposed to have occurred at 12° C and the abbreviation ppm is listed as p.p.m. These are mistakes that LaCrosse would never make: the attribution cannot be accepted. The paper contains no details about the condition of the experiment. The submission does not meet the guideline requirements for freshwater fish acute toxicity.

REVIEWED BY:

James J. Goodyear
Biologist, Section 1
Ecological Effects Branch
Environmental Fate and Effects Division (H7507C)

Signature: James J. Goodyear

Date: Dec 22, 1989

APPROVED BY:

Ray Raymond W. Matheny
Head, Section 1
Ecological Effects Branch
Environmental Fate and Effects Division (H7507C)

Signature: Raymond W. Matheny

Date: 12-22-89

412672-03
MRID No.

009901
Shaughnessy No.

Data Evaluation Record
STARLICIDE
Freshwater Fish Acute Toxicity Test

GUIDELINE NUMBER: 72-1

CITATION:

Cope, O.B. 1965. Sport Fishery Investigations. *in*, The Effects of Pesticides of Fish and Wildlife. US Department of the Interior. Fish and Wildlife Service Circular No. 226., Wash., DC pp. 51 to 63.
DWRC No. 1965. *in*, Knittle, C.E. 1989. Summary of currently available toxicity data to freshwater fish for the chemical 3-chloro-4-methylbenzenamine hydrochloride (Compound DRC-1339; CPTH). USDA, APHIS, S&T, Denver Wildlife Research Center, Unpublished Special Report Vol. 4 MRID 412672-03.

REASON FOR SUBMISSION:

To support proposed registration of feedlot use.

RESULTS- Valid _____ Invalid _____ Incomplete X

GUIDELINE- Satisfied _____ Partially Satisfied _____ Not Satisfied X

DISCUSSION:

This is not a scientific research report, but, instead, an more general compilation of pesticide results. The paper does not give any detailed information about the experimental conditions and uses nonstandard species. This paper does not fulfil the guideline requirements for a avian acute toxicity.

REVIEWED BY:

James J. Goodyear
Biologist, Section 1
Ecological Effects Branch
Environmental Fate and Effects Division (H7507C)

Signature: James J. Goodyear
Date: Dec 22, 1989

APPROVED BY:

^{for} Raymond W. Matheny
Head, Section 1
Ecological Effects Branch
Environmental Fate and Effects Division (H7507C)

Signature: Ray W. Matheny
Date: 12-22-89

412672-02
MRID No.

009901
Shaughnessy No.

Data Evaluation Record

STARLICIDE

Avian Dietary Toxicity Test

GUIDELINE NUMBER: 71-2

CITATION:

Knittle, C.E. 1989. Summary of currently available avian chronic toxicity data for the chemical 3-chloro-4-methylbenzenamine Hydrochloride (Compound DRC-1339; CPTH). USDA, APHIS, T&S, Denver Wildlife Research Center. Unpublished Special Report. Vol. 3. MRID No. 412672-02.

REASON FOR SUBMISSION:

Submitted to support the registration of feedlot uses of Starlicide.

RESULTS- Valid _____ Invalid X _____ Incomplete _____

GUIDELINE- Satisfied _____ Partially Satisfied _____ Not Satisfied X _____

DISCUSSION:

FIFRA requires that a registrant inform EPA of any adverse information that it has about a chemical that it wishes to register; this paper does fulfil that requirement. Since the reports do not contain enough information about the individual tests, because many nonstandard animals were used and because APHIS did not calculate a median lethal dietary (LD₅₀) in any of the eight studies that they have included in this submission, this paper does not fulfil the guideline requirements for avian dietary toxicity. The information on nonstandard species is of interest and could be used in evaluating an application for an Experimental Use Permit. Some of the papers calculate the number of days it takes for a bird to die if it eats a sub-LD₅₀ every day, as though the registrant wanted to show that chronic and sub-chronic toxic effects exist. The individual papers are reviewed briefly.

REVIEWED BY:

James J. Goodyear
Biologist, Section 1
Ecological Effects Branch
Environmental Fate and Effects Division (H7507C)

Signature: James Goodyear

Date: Dec 26, 1989

APPROVED BY:

Raymond W. Matheny
Head, Section 1
Ecological Effects Branch
Environmental Fate and Effects Division (H7507C)

Signature: Ray W. Matheny

Date: 12/26/89

412672-02
MRID No.

009901
Shaughnessy No.

Data Evaluation Record
STARLICIDE
Avian Dietary Toxicity Test

GUIDELINE NUMBER: 71-2

CITATION:

Mott, D.F. and R.R. West. 1966. Diluting DRC-1339-treated pellets with untreated to make a bait nonhazardous to ducks. Rept. to Files: B(B1) and B6.3 (F9) DRC-1339. USFWS, Denver Wildl. Center. DRC No. 226. *in*, Knittle, C.E. 1989. Summary of currently available avian chronic toxicity data for the chemical 3-chloro-4-methylbenzenamine Hydrochloride (Compound DRC-1339; CPTH). USDA, APHIS, T&S, Denver Wildlife Research Center. Unpublished Special Report. Vol. 3. MRID No. 412672-02.

REASON FOR SUBMISSION:

Submitted to support the registration of feedlot uses of Starlicide.

RESULTS- Valid _____ Invalid X Incomplete _____
GUIDELINE- Satisfied _____ Partially Satisfied _____ Not Satisfied X

DISCUSSION:

The original report (1966) was done on "ducks" without noting their species; only in 1989 was "Mallard" added in pen. The subjects were four reproductive adults. There weren't enough ducks or concentrations levels. The levels were too widely spaced. The registrant did not attempt to calculate the median lethal concentration (LC₅₀) for an avian dietary study. This submission does not fulfil the guideline requirements for avian dietary toxicity.

REVIEWED BY:

James J. Goodyear
Biologist, Section 1
Ecological Effects Branch
Environmental Fate and Effects Division (H7507C)

Signature: James Goodyear
Date: Dec 26, 1989

APPROVED BY:

Raymond W. Matheny
Head, Section 1
Ecological Effects Branch
Environmental Fate and Effects Division (H7507C)

Signature: R. W. Matheny
Date: 12/26/89

412672-02
MRID No.

009901
Shaughnessy No.

Data Evaluation Record

STARLICIDE

Avian Dietary Toxicity Test

GUIDELINE NUMBER: 71-2

CITATION:

Ford, H.S. 1967. Winter starling control in Idaho, Nevada, and Oregon. Proc. 3rd Vertebr. Pest Contrl. Conf., San Francisco, CA pp 104-110. DWRC No. 1047. *in*, Knittle, C.E. 1989. Summary of currently available avian chronic toxicity data for the chemical 3-chloro-4-methylbenzenamine Hydrochloride (Compound DRC-1339; CPTH). USDA, APHIS, T&S, Denver Wildlife Research Center. Unpublished Special Report. Vol. 3. MRID No. 412672-02.

REASON FOR SUBMISSION:

Submitted to support the registration of feedlot uses of Starlicide.

RESULTS- Valid _____ Invalid X _____ Incomplete _____

GUIDELINE- Satisfied _____ Partially Satisfied _____ Not Satisfied X _____

DISCUSSION:

This is the transcript of an oral presentation on Starlicide. It contains much interesting background material and some mention of secondary hazards, but it does not present any research evidence on avian dietary toxicity. The registrant did not attempt to calculate the median lethal concentration (LC₅₀) for an avian dietary study. This submission does not fulfil the guideline requirements for avian dietary toxicity.

REVIEWED BY:

James J. Goodyear
Biologist, Section 1
Ecological Effects Branch
Environmental Fate and Effects Division (H7507C)

Signature: James Goodyear

Date: Dec 26, 1989

APPROVED BY:

Raymond W. Matheny
Head, Section 1
Ecological Effects Branch
Environmental Fate and Effects Division (H7507C)

Signature: R. W. Matheny

Date: 12/26/89

412672-02
MRID No.

009901
Shaughnessy No.

Data Evaluation Record
STARLICIDE
Avian Dietary Toxicity Test

GUIDELINE NUMBER: 71-2

CITATION:

Anonymous. 1966. Toxicity of compound 47676 (DRC-1339). Am. Cyan. Co. 2 pp. DWRC No. 2388.
in, Knittle, C.E. 1989. Summary of currently available avian chronic toxicity data for the chemical 3-chloro-4-methylbenzenamine Hydrochloride (Compound DRC-1339; CPTH). USDA, APHIS, T&S, Denver Wildlife Research Center. Unpublished Special Report. Vol. 3, MRID No. 412672-02.

REASON FOR SUBMISSION:

Submitted to support the registration of feedlot uses of Starlicide.

RESULTS- Valid _____ Invalid X Incomplete _____

GUIDELINE- Satisfied _____ Partially Satisfied _____ Not Satisfied X

DISCUSSION:

There are no experiments reported in this two page list of unverified results. The registrant did not attempt to calculate the median lethal concentration (LC₅₀) for an avian dietary study. The submission does not fulfil the guideline requirements for avian dietary toxicity.

REVIEWED BY:

James J. Goodyear
Biologist, Section 1
Ecological Effects Branch
Environmental Fate and Effects Division (H7507C)

Signature: James Goodyear
Date: Dec 26, 1989

APPROVED BY:

Raymond W. Matheny
Head, Section 1
Ecological Effects Branch
Environmental Fate and Effects Division (H7507C)

Signature: R. W. Matheny
Date: 12/26/89

412672-02
MRID No.

009901
Shaughnessy No.

Data Evaluation Record
STARLICIDE
Avian Dietary Toxicity Test

GUIDELINE NUMBER: 71-2

CITATION:

Peoples, S.A. and J.P. Henry. 1964. The use of toxicants in starling control. Joint Prog. Rept., Univ. Calif. Agric. Expt. Sta., USFWS, Wash., DC and Calif. Dept. Agric. pp 15-16. DWRC No. 5123. in, Knittle, C.E. 1989. Summary of currently available avian chronic toxicity data for the chemical 3-chloro-4-methylbenzenamine Hydrochloride (Compound DRC-1339; CPTH). USDA, APHIS, T&S, Denver Wildlife Research Center. Unpublished Special Report. Vol. 3. MRID No. 412672-02.

REASON FOR SUBMISSION:

Submitted to support the registration of feedlot uses of Starlicide.

RESULTS- Valid _____ Invalid X Incomplete _____

GUIDELINE- Satisfied _____ Partially Satisfied _____ Not Satisfied X

DISCUSSION:

This one paragraph submission concludes that Starlicide can be used to kill Starlings. The registrant did not attempt to calculate the median lethal concentration (LC₅₀) for an avian dietary study. The submission does not fulfil the guideline requirements for avian dietary toxicity.

REVIEWED BY:

James J. Goodyear
Biologist, Section 1
Ecological Effects Branch
Environmental Fate and Effects Division (H7507C)

Signature: James J. Goodyear

Date: Dec 26, 1989

APPROVED BY:

Raymond W. Matheny
Head, Section 1
Ecological Effects Branch
Environmental Fate and Effects Division (H7507C)

Signature: Ray W. Matheny

Date: 12/26/89

412672-02
MRID No.

009901
Shaughnessy No.

Data Evaluation Record
STARLICIDE
Avian Dietary Toxicity Test

GUIDELINE NUMBER: 71-2

CITATION:

Schafer, E.W., Jr. and D.J. Cunningham. 1970. The chronic toxicity of DRC-1339 to unmated and mated pigeons. Tech. Rept. No. 2, Work unit DF-102.2. USFWS, Denver Wildl. Research Center. 3 pp. DWRC No. 10091. *in*, Knittle, C.E. 1989. Summary of currently available avian chronic toxicity data for the chemical 3-chloro-4-methylbenzenamine Hydrochloride (Compound DRC-1339; CPTH). USDA, APHIS, T&S, Denver Wildlife Research Center. Unpublished Special Report. Vol. 3. MRID No. 412672-02.

REASON FOR SUBMISSION:

Submitted to support the registration of feedlot uses of Starlicide.

RESULTS- Valid _____ Invalid X _____ Incomplete _____

GUIDELINE- Satisfied _____ Partially Satisfied _____ Not Satisfied X _____

DISCUSSION:

Experiments were done on two sets of two adult, mated pigeons. They produced clutches of eggs, some of which hatched. The daily feeding of sub-LD₅₀ doses of Starlicide eventually killed the adults and then killed their offspring. The registrant did not attempt to calculate the median lethal concentration (LC₅₀) for an avian dietary study. The submission does not fulfil the guideline requirements for avian dietary toxicity.

REVIEWED BY:

James J. Goodyear
Biologist, Section 1
Ecological Effects Branch
Environmental Fate and Effects Division (H7507C)

Signature: James Goodyear

Date: Dec 26, 1989

APPROVED BY:

per
Raymond W. Matheny
Head, Section 1
Ecological Effects Branch
Environmental Fate and Effects Division (H7507C)

Signature: Zig. Vaitonis

Date: 12/26/89

412672-02
MRID No.

009901
Shaughnessy No.

Data Evaluation Record
STARLICIDE
Avian Dietary Toxicity Test

GUIDELINE NUMBER: 71-2

CITATION:

Schafer, E.W., Jr. and D.J. Cunningham. 1965. The chronic toxicity of DRC-1339 to starlings. Rept. to File:B(P9) DRC-1339. USFWS, Denver Wildl. Research center. 3 pp. DWRC No. 2420. in, Knittle, C.E. 1989. Summary of currently available avian chronic toxicity data for the chemical 3-chloro-4-methylbenzenamine Hydrochloride (Compound DRC-1339; CPTH). USDA, APHIS, T&S, Denver Wildlife Research Center. Unpublished Special Report. Vol. 3. MRID No. 412672-02.

REASON FOR SUBMISSION:

Submitted to support the registration of feedlot uses of Starlicide.

RESULTS- Valid _____ Invalid X _____ Incomplete _____

GUIDELINE- Satisfied _____ Partially Satisfied _____ Not Satisfied X _____

DISCUSSION:

The study used adult Starlings, a nonstandard species, in feeding tests to determine the "Average death time" for six concentration levels. Each level was only 50% of the next highest level. Two of the six levels induced emesis, therefore, there were only four effective levels. The registrant did not attempt to calculate the median lethal concentration (LC₅₀) for an avian dietary study. The submission does not fulfil the guideline requirements for avian dietary toxicity.

REVIEWED BY:

James J. Goodyear
Biologist, Section 1
Ecological Effects Branch
Environmental Fate and Effects Division (H7507C)

Signature: James Goodyear

Date: Dec 26, 1989

APPROVED BY:

RM
Raymond W. Matheny
Head, Section 1
Ecological Effects Branch
Environmental Fate and Effects Division (H7507C)

Signature: Ryg. Vaituzis

Date: 12/26/89

412672-02
MRID No.

009901
Shaughnessy No.

Data Evaluation Record
STARLICIDE
Avian Dietary Toxicity Test

GUIDELINE NUMBER: 71-2

CITATION:

Schafer, E.W., Jr., D.J. Cunningham, R.B. Brunton, and N.F. Lockyer. 1970. The chronic toxicity of DRC-1339 to starlings, pheasants, pigeons, and Bobwhite quail. Tech Rept. No. 18, Work Unit DF-102.2. USFWS, Denver Wildl. Research Center. 9 pp. DWRC No. 10107. *in*, Knittle, C.E. 1989. Summary of currently available avian chronic toxicity data for the chemical 3-chloro-4-methylbenzenamine Hydrochloride (Compound DRC-1339; CPTH). USDA, APHIS, T&S, Denver Wildlife Research Center. Unpublished Special Report. Vol. 3. MRID No. 412672-02.

REASON FOR SUBMISSION:

Submitted to support the registration of feedlot uses of Starlicide.

RESULTS- Valid _____ Invalid X Incomplete _____

GUIDELINE- Satisfied _____ Partially Satisfied _____ Not Satisfied X

DISCUSSION:

In separate studies, Starlings, pheasants, pigeons, and Bobwhite quail were divided into groups and fed diets with varying concentrations of Starlicide. Their average "time to death" was recorded. All of the birds were adults, there were no replicates, the groups did not contain enough birds, only the Starling study had enough levels of concentration of Starlicide, the levels were only 10% to 50% of the next higher level and there was no raw data presented that could be used to calculate an LC_{50} . The registrant did not attempt to calculate the median lethal concentration (LC_{50}) for an avian dietary study. The submission does not fulfil the guideline requirements for avian dietary toxicity.

REVIEWED BY:

James J. Goodyear
Biologist, Section 1
Ecological Effects Branch
Environmental Fate and Effects Division (H7507C)

Signature: *James Goodyear*
Date: Dec 22, 1989

APPROVED BY:

Raymond W. Matheny
Raymond W. Matheny
Head, Section 1
Ecological Effects Branch
Environmental Fate and Effects Division (H7507C)

Signature: *Zig. Vintuzis*
Date: 12/26/89

Data Evaluation Record

STARLICIDE

Avian Dietary Toxicity Test

GUIDELINE NUMBER: 71-2

CITATION:

Schafer, E.W., Jr., R.B. Brunton, D.J. Cunningham, and N.R. Lockyer. 1977. The chronic toxicity of 3-chloro-4-methylbenzenamine HCl to birds. Arch. Environm. Contam. Toxicol. 6:241-248. DWRC No. 12280. *in*, Knittle, C.E. 1989. Summary of currently available avian chronic toxicity data for the chemical 3-chloro-4-methylbenzenamine Hydrochloride (Compound DRC-1339; CPTH). USDA, APHIS, T&S, Denver Wildl. Research Center. Unpublished Special Report. Vol. 3. MRID No. 412672-02.

REASON FOR SUBMISSION:

Submitted to support the registration of feedlot uses of Starlicide.

RESULTS- Valid _____ Invalid X _____ Incomplete _____

GUIDELINE- Satisfied _____ Partially Satisfied _____ Not Satisfied X _____

DISCUSSION:

This published study is a slight reworking of the research report by the same authors that was submitted as "The chronic toxicity of DRC-1339 to starlings, pheasants, pigeons, and Bobwhite quail. Tech Rept. No. 18, Work Unit DF-102.2. DWRC No. 10107." and reviewed as part of this submission. That study was rejected because, "In separate studies, Starlings, pheasants, pigeons, and Bobwhite quail were divided into groups and fed diets with varying concentrations of Starlicide. Their average "time to death" was recorded. All of the birds were adults, there were no replicates, the groups did not contain enough birds, only the Starling study had enough concentration levels, the levels were 10% to 50% of the next higher level and there was no raw data presented that could be used to calculate an LC₅₀."

In this paper they calculated Kanega's Index of Chronicity, "the ratio of the acute oral LD₅₀ to the 30-day subacute LC₅₀." They say that, "The 30-day LC₅₀ . . . for the starling was 4.7 ppm and the 90-day LC₅₀ was 1.0 ppm. The 28-day LC₅₀ for coturnix was 18 ppm. The 30-day LC₅₀ for pigeons was less than 100 ppm." They do not say how these figures were obtained and present no raw data from which EEB could make a calculation. They haven't abandoned their "Average Days to Death" criterion since they print that data instead of the standard data. This submission does not fulfil the guideline requirements for avian dietary toxicity.

REVIEWED BY:

James J. Goodyear
Biologist, Section 1
Ecological Effects Branch
Environmental Fate and Effects Division (H7507C)

Signature: James Goodyear

Date: Dec 22, 1989

APPROVED BY:

for
Raymond W. Matheny
Head, Section 1
Ecological Effects Branch
Environmental Fate and Effects Division (H7507C)

Signature: Ray. Matheny

Date: 12/26/89

412672-01
MRID No.

009901
Shaughnessy No.

Data Evaluation Record

STARLICIDE

Avian Acute Toxicity Test

GUIDELINE NUMBER: 71-1

CITATION:

in, Knittle, C.E. 1989. Summary of currently available avian single-dose oral LD₅₀ data for the chemical 3-chloro-4-methylbenzenamine hydrochloride (Compound DRC-1339; CPTH). USDA, APHIS, S&T, Denver Wildlife Research Center. Unpublished Special Report. Vol. 2.

REASON FOR SUBMISSION- To support proposed registration of feedlot use.

RESULTS- Valid _____ Invalid X _____ Incomplete _____

GUIDELINE- Satisfied _____ Partially Satisfied _____ Not Satisfied X _____

DISCUSSION:

This paper is a list of LD₅₀s that were taken from a series of research reports done by the Denver Wildlife Research Center. FIFRA requires that a registrant inform EPA of any adverse information that it has about a chemical that it wishes to register; this paper does fulfil that requirement. Since the reports do not contain enough information about the individual tests and because many nonstandard animals were used (usually without identifying them to species by scientific name), this paper does not fulfil the guideline requirements for a avian acute toxicity. The information on nonstandard species is of interest and could be used in evaluating an application for an Experimental Use Permit. The individual papers are reviewed briefly.

REVIEWED BY:

James J. Goodyear
Biologist, Section 1
Ecological Effects Branch
Environmental Fate and Effects Division (H7507C)

Signature: James Goodyear

Date: Dec 22, 1989

APPROVED BY:

Raymond W. Matheny
Head, Section 1
Ecological Effects Branch
Environmental Fate and Effects Division (H7507C)

Signature: Ray W. Matheny

Date: 12/26/89

412672-01
MRID No.

009901
Shaughnessy No.

Data Evaluation Record
STARLICIDE
Avian Acute Toxicity Test

GUIDELINE NUMBER: 71-1

CITATION:

Schafer, E.W. 1972. The acute oral toxicity of 369 pesticidal, pharmaceutical and other chemicals to wild birds. Toxicology and applied pharmacology 21:315-330. DWRC No. 12266. *in*, Knittle, C.E. 1989. Summary of currently available avian single-dose oral LD₅₀ data for the chemical 3-chloro-4-methylbenzenamine hydrochloride (Compound DRC-1339; CPTH). USDA, APHIS, S&T, Denver Wildlife Research Center. Unpublished Special Report. Vol. 2.

REASON FOR SUBMISSION- To support proposed registration of feedlot use.

RESULTS- Valid _____ Invalid X _____ Incomplete _____
GUIDELINE- Satisfied _____ Partially Satisfied _____ Not Satisfied X _____

DISCUSSION:

This submission is not a study by a summary of other studies. It was submitted in support of CPT (DRC 1347) and rejected as invalid in April 1988. Nonstandard species were used, the details of the procedures were not given and there was no raw data. The paper does not meet the guideline requirements for avian acute toxicity.

REVIEWED BY:

James J. Goodyear
Biologist, Section 1
Ecological Effects Branch
Environmental Fate and Effects Division (H7507C)

Signature: James Goodyear
Date: Dec 22, 1989

APPROVED BY:

for Raymond W. Matheny
Head, Section 1
Ecological Effects Branch
Environmental Fate and Effects Division (H7507C)

Signature: Raymond W. Matheny
Date: 12-22-89

412672-01
MRID No.

009901
Shaughnessy No.

Data Evaluation Record
STARLICIDE
Avian Acute Toxicity Test

GUIDELINE NUMBER: 71-1

CITATION:

Schafer, E.W. and D.J. Cunningham. 1966. Annual Progress Report, Wildlife Research Work Unit, Denver Wildlife Research Center, Chemical and Physical Methods of controlling damage by birds. DWRC No. 11058. *in*, Knittle, C.E. 1989. Summary of currently available avian single-dose oral LD₅₀ data for the chemical 3-chloro-4-methylbenzenamine hydrochloride (Compound DRC-1339; CPTH). USDA, APHIS, S&T, Denver Wildlife Research Center. Unpublished Special Report. Vol. 2.

REASON FOR SUBMISSION- To support proposed registration of feedlot use.

RESULTS- Valid _____ Invalid X _____ Incomplete _____

GUIDELINE- Satisfied _____ Partially Satisfied _____ Not Satisfied X _____

DISCUSSION:

This paper recounts studies on the toxicity of Starlicide to adult starlings (*Sturnus vulgaris*), Red-winged blackbirds (*Agelaius phoeniceus*), pigeons, crows, House finches (*Carpodacus mexicanus*), Grackles and rabbits. A section on dietary toxicity to starlings was included. It also reports some experiments done in treating roosts, pastures, feedlots *etc.* There is a report on the treatment of eggs with Starlicide to poison crows. It does not give enough specific information to meet a Guideline requirement on the avian acute toxicity of Starlicide.

REVIEWED BY:

James J. Goodyear
Biologist, Section 1
Ecological Effects Branch
Environmental Fate and Effects Division (H7507C)

Signature: James J. Goodyear

Date: Dec 22, 1989

APPROVED BY:

RW Raymond W. Matheny
Head, Section 1
Ecological Effects Branch
Environmental Fate and Effects Division (H7507C)

Signature: Raymond W. Matheny

Date: 12-22-89

412672-01
MRID No.

009901
Shaughnessy No.

Data Evaluation Record

STARLICIDE

Avian Acute Toxicity Test

GUIDELINE NUMBER: 71-1

CITATION:

Schafer, E.W. and D.J. Cunningham. 1967. Toxicity of DRC-1339 to Grackles and House finches. File B(P9) DRC-1339. from Denver Wildlife Research Center files. DRWC No. 2780. in, Knittle, C.E. 1989. Summary of currently available avian single-dose oral LD₅₀ data for the chemical 3-chloro-4-methylbenzenamine hydrochloride (Compound DRC-1339; CPTH). USDA, APHIS, S&T, Denver Wildlife Research Center. Unpublished Special Report. Vol. 2.

REASON FOR SUBMISSION- To support proposed registration of feedlot use.

RESULTS- Valid _____ Invalid X _____ Incomplete _____

GUIDELINE- Satisfied _____ Partially Satisfied _____ Not Satisfied X _____

DISCUSSION:

Grackles and House finches (*Carpodacus mexicanus*) were dosed with DRC-1339 (Starlicide). The details of the experiment are not given (including the dose levels), therefore the study does not meet the guideline requirement for avian acute toxicity,

REVIEWED BY:

James J. Goodyear
Biologist, Section 1
Ecological Effects Branch
Environmental Fate and Effects Division (H7507C)

Signature: James Goodyear
Date: Dec 22, 1989

APPROVED BY:

^{for} Raymond W. Matheny
Head, Section 1
Ecological Effects Branch
Environmental Fate and Effects Division (H7507C)

Signature: Raymond W. Matheny
Date: 12-22-89

412672-01
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Data Evaluation Record
STARLICIDE
Avian Acute Toxicity Test

GUIDELINE NUMBER: 71-1

CITATION:

Schafer E.W., Jr., W.A. Bowles, Jr. and J. Hurlbut. 1983. The acute oral toxicity, repellency, and hazard potential of 998 chemicals to one or more species of wild and domestic birds. Arch. Environm. Contam. Toxicol. 12:355-382. DWRC No. 12445. *in*, Knittle, C.E. 1989. Summary of currently available avian single-dose oral LD₅₀ data for the chemical 3-chloro-4-methylbenzenamine hydrochloride (Compound DRC-1339; CPTH). USDA, APHIS, S&T, Denver Wildlife Research Center. Unpublished Special Report. Vol. 2.

REASON FOR SUBMISSION- To support proposed registration of feedlot use.

RESULTS- Valid _____ Invalid X _____ Incomplete _____

GUIDELINE- Satisfied _____ Partially Satisfied _____ Not Satisfied X _____

DISCUSSION:

The submission is not a study but a summary of other studies. Three methods for the relevant test are not given. There was no raw data and the procedures were not in accordance with the guidelines. This paper was reviewed and ruled to be "invalid" in April 1988 when it was submitted to support the registration of DRC-1347. This study does not meet the guideline requirements for avian acute toxicity.

REVIEWED BY:

James J. Goodyear
Biologist, Section 1
Ecological Effects Branch
Environmental Fate and Effects Division (H7507C)

Signature: James Goodyear
Date: Dec 22, 1989

APPROVED BY:

Sr Raymond W. Matheny
Head, Section 1
Ecological Effects Branch
Environmental Fate and Effects Division (H7507C)

Signature: Dennis Matheny
Date: 12-22-89

412672-01
MRID No.

009901
Shaughnessy No.

Data Evaluation Record

STARLICIDE

Avian Acute Toxicity Test

GUIDELINE NUMBER: 71-1

CITATION:

Various Authors. 1962 to 1968. Bird toxicity or stupeficient test results. DWRC Numbers 521 through 537, 539 through 541 and 547 through 553 in, Knittle, C.E. 1989. Summary of currently available avian single-dose oral LD₅₀ data for the chemical 3-chloro-4-methylbenzenamine hydrochloride (Compound DRC-1339; CPTH). USDA, APHIS, S&T, Denver Wildlife Research Center. Unpublished Special Report. Vol. 2.

REASON FOR SUBMISSION- To support proposed registration of feedlot use.

RESULTS- Valid _____ Invalid X _____ Incomplete _____

GUIDELINE- Satisfied _____ Partially Satisfied _____ Not Satisfied X _____

DISCUSSION- Contains data sheets without explanations.

REVIEWED BY:

James J. Goodyear
Biologist, Section 1
Ecological Effects Branch
Environmental Fate and Effects Division (H7507C)

Signature: James Goodyear

Date: Dec 22, 1989

APPROVED BY:

Raymond W. Matheny
Head, Section 1
Ecological Effects Branch
Environmental Fate and Effects Division (H7507C)

Signature: Raymond Matheny

Date: 12-22-89

412672-01
MRID No.

009901
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Data Evaluation Record
STARLICIDE
Avian Acute Toxicity Test

GUIDELINE NUMBER: 71-1

CITATION:

DeCino, T.J. and D.J. Cunningham. 1964. Annual Progress Report, Wildlife Research Work Unit, Denver Wildlife Research Center, Chemical and Physical Methods of controlling damage by birds. Document No. 11064. *in*, Knittle, C.E. 1989. Summary of currently available avian single-dose oral LD₅₀ data for the chemical 3-chloro-4-methylbenzenamine hydrochloride (Compound DRC-1339; CPTH). USDA, APHIS, S&T, Denver Wildlife Research Center. Unpublished Special Report. Vol. 2.

REASON FOR SUBMISSION- To support proposed registration of feedlot use.

RESULTS- Valid _____ Invalid X _____ Incomplete _____

GUIDELINE- Satisfied _____ Partially Satisfied _____ Not Satisfied X _____

DISCUSSION:

This paper contains brief reports of the results of the administration of CPTH to various nonstandard subjects, including Red-winged blackbirds (*Agelaius phoeniceus*), Starlings (*Sturnus vulgaris*), rats, Guinea pig, mice, sheep, cats, rabbits, chickens and dogs (DWRCD does not identify animals to species, the later species are probably the laboratory species). The acute LC₅₀ was determined for a variety of birds to assess the hazard to nontarget species, including; Starlings, red-winged blackbirds, pheasants, Mourning doves, Common pigeon, Coturnix quail, Black-billed magpie, Blue jay, House sparrow, Blue-winged teal, Mallard duck, Pin-tail duck, Cooper's hawk and the Sparrow hawk (American kestrel). Only one of these birds is of a standard species and not enough detailed information was given about it to meet a guideline requirement. Several cattle feedlot and turkey farm baiting experiments were reported, including observations on secondary hazards. The "study" may be of use when DWRC applies for an EUP, but they do not meet the guideline requirements for avian oral toxicity.

REVIEWED BY:

James J. Goodyear
Biologist, Section 1
Ecological Effects Branch
Environmental Fate and Effects Division (H7507C)

Signature: James Goodyear

Date: Dec 22, 1989

APPROVED BY:

for Raymond W. Matheny
Head, Section 1
Ecological Effects Branch
Environmental Fate and Effects Division (H7507C)

Signature: Raymond Matheny

Date: 12-22-89

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Data Evaluation Record
STARLICIDE
Avian Acute Toxicity Test

GUIDELINE NUMBER: 71-1

CITATION:

DeCino, T.J. E.W. Schafer, and D.J. Cunningham. 1965. Annual Progress Report, Wildlife Research Work Unit, Denver Wildlife Research Center, Chemical and Physical Methods of controlling damage by birds. Document No. 11059. *in*, Knittle, C.E. 1989. Summary of currently available avian single-dose oral LD₅₀ data for the chemical 3-chloro-4-methylbenzenamine hydrochloride (Compound DRC-1339; CPTH). USDA, APHIS, S&T, Denver Wildlife Research Center. Unpublished Special Report. Vol. 2.

REASON FOR SUBMISSION- To support proposed registration of feedlot use.

RESULTS- Valid _____ Invalid X _____ Incomplete _____

GUIDELINE- Satisfied _____ Partially Satisfied _____ Not Satisfied X _____

DISCUSSION:

This paper recounts toxicity experiments that were done on adult starlings (*Sturnus vulgaris*), domestic turkeys, and sparrow hawks (*i.e.*, the American kestrel, *Falco sparverius*). It also reports some experiments done on secondary hazards to Marsh hawks (*Circus cyaneus*) and American kestrels. It does not give enough specific information to meet a Guideline requirement.

REVIEWED BY:

James J. Goodyear
Biologist, Section 1
Ecological Effects Branch
Environmental Fate and Effects Division (H7507C)

Signature: James Goodyear

Date: Dec 22, 1989

APPROVED BY:

for Raymond W. Matheny
Head, Section 1
Ecological Effects Branch
Environmental Fate and Effects Division (H7507C)

Signature: Raymond Matheny

Date: 12-22-89

412672-01
MRID No.

009901
Shaughnessy No.

Data Evaluation Record
STARLICIDE
Avian Acute Toxicity Test

GUIDELINE NUMBER: 71-1

CITATION:

DeCino, T.J., D.J. Cunningham and E.W. Schafer. 1966. Toxicity of DRC-1339 to Starlings. J. Wildlife Mngt. 30:249-253. DWRC No. 12035. *in*, Knittle, C.E. 1989. Summary of currently available avian single-dose oral LD₅₀ data for the chemical 3-chloro-4-methylbenzenamine hydrochloride (Compound DRC-1339; CPTH). USDA, APHIS, S&T, Denver Wildlife Research Center. Unpublished Special Report. Vol. 2.

REASON FOR SUBMISSION- To support proposed registration of feedlot use.

RESULTS- Valid _____ Invalid X _____ Incomplete _____
GUIDELINE- Satisfied _____ Partially Satisfied _____ Not Satisfied X _____

DISCUSSION:

Starlicide was intubated into each of six Starlings in each of six levels. The study does not fulfil the guideline requirements for avian acute toxicity because of a lack of details about the experiment, too few birds per level, no replicated levels, failure to mention in numbers the concentrations of each level, observing the birds for only seven days instead of 14, no control level, use of a nonstandard species and not providing raw data. The study does provide data on other bird species and on secondary poisoning in hawks.

REVIEWED BY:

James J. Goodyear
Biologist, Section 1
Ecological Effects Branch
Environmental Fate and Effects Division (H7507C)

Signature: James Goodyear
Date: Dec 22, 1989

APPROVED BY:

R Raymond W. Matheny
Head, Section 1
Ecological Effects Branch
Environmental Fate and Effects Division (H7507C)

Signature: Raymond Matheny
Date: 12-22-89

412672-01
MRID No.

009901
Shaughnessy No.

Data Evaluation Record
STARLICIDE
Avian Acute Toxicity Test

GUIDELINE NUMBER: 71-1

CITATION:

Matteson, R.E. 1978. Acute oral toxicity of DRC-1339 to Cardinals (*Cardinalis cardinalis*). Bird Damage Report No. 84. Project No. 903. Denver Wildlife Research Center. DWRC No. 84. in, Knittle, C.E. 1989. Summary of currently available avian single-dose oral LD₅₀ data for the chemical 3-chloro-4-methylbenzenamine hydrochloride (Compound DRC-1339; CPTH). USDA, APHIS, S&T, Denver Wildlife Research Center. Unpublished Special Report. Vol. 2.

REASON FOR SUBMISSION- To support proposed registration of feedlot use.

RESULTS- Valid _____ Invalid X _____ Incomplete _____
GUIDELINE- Satisfied _____ Partially Satisfied _____ Not Satisfied X _____

DISCUSSION:

When DWRC biologist found that the manufacturer of Starlicide, Ralston Purina Co., had changed the bait and the size of the pellets without prior notice to DWRC, they decided to "appraise the hazard potential of the changed formulation." Cardinals were gavaged with doses of Starlicide: 1 bird @ 31.6 mg/l, 2 @ 10.0 mg/l and 2 @ 3.16 mg/l. Since other details were not given and since there were an insufficient numbers of subjects in an insufficient number of concentration levels, the study does not fulfil the guideline requirements for avian acute toxicity.

REVIEWED BY:

James J. Goodyear
Biologist, Section 1
Ecological Effects Branch
Environmental Fate and Effects Division (H7507C)

Signature: James Goodyear
Date: Dec 22, 1989

APPROVED BY:

for Raymond W. Matheny
Head, Section 1
Ecological Effects Branch
Environmental Fate and Effects Division (H7507C)

Signature: Roy Matheny
Date: 12/26/89