

Shaughnessy Number: 071003

Date out of EFGWB: 6/14/90

To: K. Samek
Product Manager 74
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 *Henry Jacoby*
Environmental Fate and Ground Water Branch
Environmental Fate and Effects Division (H7507C)

Attached, please find the EFGWB review of...

Reg./File #: 0255

Chemical Name: 1,2,12,12a tetrahydro-8,9-dimethoxy-2-(1-methylethenyl) -

[1]benzopyrano[3,4-b]furo[2,3-H][1]-benzopyran-6(6H) one

Common Name: Rotenone

Type Product: piscicide

Product Name: Nox-fish

Company Name: US Fish and Wildlife Service

Purpose: response to Registration Standard of 1988

Date Received: 3/26/90

Action Code: 660

EFGWB#(s): 90-0475

Total Reviewing Time (decimal days): _____

Deferrals to: Ecological Effects Branch, EFED

Science Integration and Policy Staff, EFED

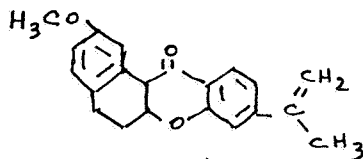
Non-Dietary Exposure Branch, HED

Dietary Exposure Branch, HED

Toxicology Branch

1. CHEMICAL:

chemical name: 1,2,12,12a tetrahydro-8,9-dimethoxy-2-(1-methylethenyl)
[1]benzopyrano[3,4-b]furo[2,3-H][1]-benzopyran-6(6H) one
common name: rotenone
trade name: nox-fish
structure:



CAS #: 53-79-4
Shaughnessy #: 71003

2. TEST MATERIAL: n.a.

3. STUDY/ACTION TYPE: response to the 1988 Registration Standard -- description of "unreviewed" relevant material, and request for clarification of data base status

4. STUDY IDENTIFICATION:

correspondence from Bernard L. Berger of the US Fish and Wildlife Service (3 pg) and attachments (81 pages) dated 6/1/89. Pages 1 and 2 and Volume 2 from this submission were not forwarded to EFGWB.

5. REVIEWED BY:

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

E. B. Conerly 6/13/90

6. APPROVED BY:

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

H. Nelson 6/13/90

7. CONCLUSIONS:

- 1) Examination of the Fish and Wildlife Service's (FWS) submission and EFGWB's files discloses the following:
 - a) There are unfortunate discrepancies between various portions of the 1988 Registration Standard. Table A, in particular, omitted a number of relevant studies, for reasons not known at this time. The definitive position of EFGWB on the various data requirements is best described in the reviews contained in the EFGWB Science Chapter, and is detailed below. The Science Chapter was not available to the applicant.
 - b) Many of the studies which the FWS believes were not seen by EFGWB were reviewed, but are listed under different MRID #s.
 - c) EFGWB files indicate that hydrolysis and photolysis studies were accepted at one time. They were rereviewed for the Registration Standard and downgraded.
 - d) Several relevant documents have apparently not been received by EFGWB.
- 2) There are no reviewable data in the submission received by EFGWB.
- 3) Some data requirements mentioned in the Registration standard are not relevant to the FWS use, and are not their responsibility.

8. RECOMMENDATIONS:

- 1) Outstanding data requirements should be filled as soon as practicable.
- 2) The unreviewed documents should be sent to EFGWB. They are:
 - a) the document identified as MRID # 001960-32 -- aerobic aquatic metabolism
 - b) the document identified as MRID # 001960-32 -- aquatic field dissipation
 - c) MRID # 403487-03 and vol. 2 of the current submission -- irrigated crop accumulation
 - d) the document identified as MRID # 002617-14 and correspondence of 8/12/87 -- non-target organism accumulation

9. BACKGROUND:

Rotenone is used by the US FWS for ridding ponds of "undesirable" fish in order to restock for sport fishing. The 1988 Registration Standard also mentions domestic and agricultural uses. Available data indicate a labile compound, with a half-life of a few days under the least favorable conditions for its disappearance (a cold aquatic environment). Its mobility ranges from high (sand sediment) to insignificant, depending upon the type of soil.

The following list describes the current status of data requirements, based on EFGWB files and examination of the reviews contained in the Science Chapter prepared by EFGWB for the 1988 Registration Standard. No additional studies have been reviewed since the Standard was issued. Table A in the Registration Standard omitted some studies which were reviewed, and which at least partially fulfilled their respective data requirements. Some documents which might have completed other requirements have not been received or reviewed by EFGWB.

hydrolysis -- partially fulfilled by MRID # 001414-09, which was previously accepted (Soo Bock Hong, 10/25/84). It was reviewed and downgraded for the registration standard, but was not listed in Table A.

photolysis in water -- partially fulfilled by MRID # 001414-10, which had been previously accepted (EBC, 8/27/86). It was reviewed and downgraded for the registration standard. It was not listed in Table A.

soil photodegradation -- required for CROP uses

aerobic soil metabolism -- required for CROP uses

anaerobic soil metabolism -- fulfilled by the anaerobic aquatic study MRID # 001412-73

anaerobic aquatic metabolism -- fulfilled by MRID # 001412-73

aerobic aquatic metabolism -- partially fulfilled by MRID # 001412-74, unreviewed data (MRID # 196032) exists which may complete the requirement.

leaching/adsorption/desorption -- partially fulfilled by MRID # 001578-50, needs an aged study

terrestrial field dissipation -- required for CROP uses

aquatic field dissipation -- partially fulfilled by MRID # 005178-51 which was reviewed for the registration standard. This study was not cited in table A, but was mentioned in the bibliography. It was deemed deficient for several reasons. Unreviewed data exists (MRID # 196032) which may complete the data requirement.

accumulation on rotational crops, confined -- required for CROP uses

accumulation on irrigated crops, confined -- not fulfilled, unreviewed data exists which may complete the data requirement.

fish bioaccumulation -- fulfilled by MRID # 001461-83

non-target species accumulation -- not imposed at this time, but unreviewed data exists which might fulfill the data requirement

10. DISCUSSION OF INDIVIDUAL TESTS OR STUDIES:

The applicant, the FWS, has challenged EPA's position on many data requirements given in the 1988 Registration Standard. The following are EFGWB concerns:

hydrolysis -- FWS states that MRID # 254729 [sic] fulfills the data requirement. The bibliographic information on this document corresponds to MRID # 001414-09, reviewed in the EFGWB science chapter of the Registration Standard, but was not cited in table A. It was deemed scientifically sound but was deficient in characterization of degradates. Short half-lives of 12.6, 3.2, and 2.0 days at pHs 5, 7, and 9 respectively are indicated. EFGWB files do show that it was previously accepted.

photodegradation in water -- FWS states that MRID # 254730 [sic] meets the data requirement. The bibliographic information on this document corresponds to MRID # 001414-10, reviewed for the Registration Standard. It was not cited in table A, but was mentioned in the bibliography. It was deemed deficient for reasons detailed in the EFGWB science chapter of the standard. A short half-life (< 1 hr) was indicated. EFGWB files do show that it was previously accepted.

aerobic aquatic metabolism -- FWS states that correspondence, MRID # 196032 [sic] completes the data requirement by providing necessary additional information on an earlier study (MRID # 001412-74?). This document is not present or mentioned in EFGWB files. MRID # 001412-74 was reviewed, and its deficiencies are described in detail in the EFGWB science chapter of the standard. It was not cited in table A, but was mentioned in the bibliography. A short half-life (< 1 day) was indicated.

mobility -- leaching/adsorption/desorption -- FWS claims that MRID # 261713 [sic] meets the data requirement. This document predates the Registration Standard but is not acknowledged in it. MRID # 001578-50, a study on unaged compound, was reviewed and classified as acceptable in the EFGWB science chapter of the standard. Mobility ranged from high in sand sediment to immobile in sand, loam, loamy sand, and silt loam. The registration standard noted the need for data on aged material.

field dissipation, aquatic -- FWS claims that correspondence, MRID # 196032 [sic] meets the data requirement by providing necessary additional information on an earlier study (MRID # 005178-51?). This document is not present or mentioned in EFGWB files. MRID # 005178-51 was reviewed for the Registration Standard. It was not cited in table A, but was mentioned in the bibliography. It was deemed deficient for several reasons, detailed in the EFGWB science chapter of the Registration Standard. A short half-life (< 1 day in warm water and 3 - 7 days in cold) was indicated.

accumulation, irrigated crop -- the FWS has cited a previously submitted but apparently unreviewed report (MRID 403487-03) and submitted additional data (volume 2 of the current submission) to fulfill this requirement. Rotenone is said not to accumulate in irrigated crops. EFGWB will place the cited documents into review when it is forwarded to the Branch.

accumulation, non-target organisms -- the FWS has submitted a study to address this data requirement, although it is not being imposed at this time. EFGWB will review it if the applicant so desires.

11. COMPLETION OF ONE-LINER: no data added

12. CBI APPENDIX: n.a.