



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

PP #5E3280
0866

JUN 26 1986

OFFICE OF
PESTICIDES AND TOXIC SUBSTANCES

MEMORANDUM

SUBJECT: PP #5E3280. (RCB #940) Parathion or its methyl homolog on wild rice. Amendment of 4/15/86. No Accession No.

FROM: Cynthia Deyrup, Ph.D., Chemist. *Cynthia Deyrup*
Tolerance Petition Section 2
Residue Chemistry Branch
Hazard Evaluation Division (TS-769)

THRU: J.H. Onley, Ph.D., Section Head *J.H. Onley*
Tolerance Petition Section 2
Residue Chemistry Branch
Hazard Evaluation Division (TS-769)

TO: Hoyt Jamerson, Minor Use Officer
Registration Division (TS-767)

and

Toxicology Branch
Hazard Evaluation Division (TS-769)

Background

The RCB chapter of the Ethyl Parathion Registration Standard was completed on 4/8/85. The guidance package has not yet been issued.

Interregional Research Project No. 4 had proposed the establishment of a permanent tolerance for residues of parathion (0,0-diethyl-0-p-nitrophenyl thiophosphate) or its methyl homolog, 0,0-dimethyl-0-p-nitrophenyl thiophosphate, on wild rice cultivated in CA at 1.0 ppm. The original submission sought to register the use of Niran E-4 (an emulsifiable concentrate of ethyl parathion) on wild rice with an application rate of 0.1 lb. a.i./A. RCB recommended for the establishment of the tolerance on wild rice grown in CA (PP #5E3280, memo of C. Deyrup, 9/6/85). However,

59

TOX recommended that separate tolerance petitions for methyl- and ethyl- parathion be resubmitted before any risk assessment is made (PP #5E3280, memo of G.Z. Ghali, 8/30/85).

Since the original 9/6/85 review of PP #5E3280 discussed in detail the proposed use of ethyl parathion on wild rice, most of the following discussion will be devoted to the use of methyl parathion on wild rice.

Present Submission

The present submission consists of a revised Section B which includes proposed labeling for both methyl and ethyl parathion and a revised Section F which proposes separate tolerances for methyl and ethyl parathion in/on wild rice at 1.0 ppm.

Tolerances for methyl parathion have been established on a few raw agricultural commodities under 40 CFR 180.121 (b). The established tolerances range from 0.2 ppm (guar beans) to 5.0 ppm (birdsfoot trefoil hay).

The RCB chapter of the Methyl Parathion Registration Standard was completed on 11/8/85.

Manufacturing and Formulation

The manufacturing process of methyl parathion has been published in Marshall Sittig's "Pesticide Manufacturing and Toxic Materials Control Encyclopedia," page 593.

The formulation proposed for use on wild rice is NIRAN® M-4, an emulsifiable concentrate containing 4 lbs. a.i./gal. NIRAN M-4 contains 43.3% methyl parathion.

The inerts are cleared under 40 CFR 180.1001.

Proposed Use

NIRAN M-4 is to be applied to wild rice grown in CA at the rate of 0.5 lb. a.i./A. Two applications per season are permitted. A 15 day PHI is imposed.

Nature of the Residue

No new metabolism studies were submitted with this petition. However, the nature of the residue has been discussed in detail in reviews of PP #8E2103 and PP #6E1800. Residue dissipation occurs mainly through volatilization. The degree of translocation is limited. Methyl parathion undergoes dealkylation, hydrolysis, and oxidation to yield the oxon. The nature of the residue is adequately understood for the purpose of the proposed use on wild rice. The parent compound, methyl parathion, is the residue of concern.

MANUFACTURING PROCESS INFORMATION IS NOT INCLUDED

2 155

Analytical Methodology

No residue data were submitted to support the proposed tolerance for methyl parathion on rice. The basis for the proposed tolerance on wild rice is a TX rice field trial which was described in the RCB chapter (completion date, 11/8/85) of the Methyl Parathion Registration Standard. Samples were analyzed colorimetrically by a non-methyl parathion-specific method. RCB considers this method adequate for the generation of residue data.

Methods for the determination of methyl parathion are described in Pesticide Analytical Manual (PAM), Vol. II and in the Official Methods of Analysis of the Association of Official Analytical Chemists. The various techniques involve polarography (an official AOAC method), HPLC (an EPA method) and GLC using an FPD or an NPD (nitrogen-phosphorus detector). RCB concludes that adequate methodology is available for enforcement purposes.

Residue Data

No residue data were submitted reflecting analyses of methyl parathion on rice or wild rice.

The RCB chapter of the Methyl Parathion Registration Standard cited a single study on cultivated rice. In this TX field trial, rice was treated aerially with a single application of a microencapsulated formulation of methyl parathion at a rate of 0.33 lb. a.i./A. or with 2 applications at a rate of 0.30 lb. a.i./A. A PHI of 14 days was observed. Combined residues of methyl parathion plus its nitrobenzene and aminobenzene moieties were 0.10 and 0.16 ppm, respectively, in grain from the low and high rates.

RCB concludes that this single rice field trial, conducted in TX, does not support the use of methyl parathion on wild rice grown in CA. Not only is it inappropriate to translate data from TX to CA, but it is also inappropriate to translate data from field trials using a microencapsulated formulation to EC formulations. Furthermore, the proposed application rate, 0.5 lb. a.i./A, is higher than the application rate used in the TX field trial.

TOX has recommended that residues of methyl parathion and ethyl parathion be considered separately in risk assessments.

RCB reiterates its conclusion of 9/6/85 (PP #5E3280, memo of C. Deyrup) that the proposed tolerance of 1.0 ppm for residues of ethyl parathion on wild rice grown in CA is supported by the residue data. The petitioner has the option of submitting appropriate residue data to support the proposed use of methyl parathion on wild rice grown in CA or of deleting the proposed tolerance for residues of methyl parathion on wild rice in a revised Section F. In any case, the petitioner will need to submit a revised Section F which reflects his intent of establishing a tolerance(s) with regional registration on wild rice (see Other Considerations

3 156

section of this review).

Meat, Milk, Poultry, and Eggs

Since neither wild rice nor wild rice plants is generally used as a feed item, secondary residues in meat, milk, poultry, and eggs from the proposed use are not expected to be a problem.

Other Considerations

Codex, Canada, and Mexico have not established tolerances for residues of methyl or ethyl parathion on wild rice. There will be no compatibility problem if the proposed tolerance on wild rice is established.

Should Registration Division ultimately approve the proposed "Tolerances with Regional Registration," RCB recommends that the tolerance for ethyl parathion on wild rice be included in a separate subsection under 40 CFR 180.121. The "Tolerances with Regional Registration" would be referenced along with future regional registration tolerances in a new subsection (n) under 40 CFR 180.1 which would define the Agency's interpretation of "Tolerances with Regional Registration." An appropriate interpretation for 40 CFR 180.1, subsection "n" could be:

180.1 (n) Certain tolerances are based on geographically limited residue data. These "Tolerances with Regional Registration" are included in separate subsections under 40 CFR.101 through 180.999. In order to expand the area of usage on these crops, additional residue data generated in these areas will be required. Persons seeking geographically broader registration on these crops should contact the appropriate EPA product manager concerning whether additional residue data are required.

Conclusions

1. The nature of the residue is adequately understood for the purpose of the proposed use on wild rice only. Ethyl and methyl parathion, are the residues of concern.
2. The methodology used to generate residue data on rice in the TX field trial cited in the RCB chapter (completion date, 11/8/85) of the Methyl Parathion Registration Standard was adequate. Methodology suitable for enforcement purposes is also available.
- 3a. RCB reiterates its conclusion of 9/9/85 (PP #5E3280, memo of C. Deyrup) that the proposed tolerance of 1.0 ppm for residues of ethyl parathion on wild rice grown in CA is supported by the residue data.
- 3b. RCB concludes that a single rice field trial, conducted

4 157

in TX, does not support the use of methyl parathion on wild rice grown in CA. Not only is it inappropriate to translate data from TX to CA, but it is also inappropriate to translate data from field trials using a microencapsulated formulation to EC formulations. Also, the proposed application rate is higher than the application rate used in this trial.

- 3c. The petitioner has the option of submitting appropriate residue data to support the proposed use of methyl parathion on wild rice grown in CA or of deleting the proposed tolerance for residues of methyl parathion on wild rice in a revised Section F.
- 3d. The petitioner will need to submit a revised Section F which reflects his intent of establishing a tolerance(s) with regional registration.
4. Generally, wild rice and wild rice plants are not used as animal feed items; therefore, there is no expectation that secondary residues of parathion will arise in meat, milk, poultry, and eggs from the proposed use.
5. Codex, Canada, and Mexico have not established tolerances for residues of methyl parathion on wild rice. There will be no compatibility problem if the proposed ethyl or methyl tolerance on wild rice is established.

Recommendations

RCB recommends against establishing the proposed tolerance for residues of methyl parathion at 1.0 ppm on wild rice grown in CA because of the reasons given under Conclusion 3b, 3c, and 3d.

However, TOX and EAB considerations permitting, RCB could recommend for the establishment of a permanent tolerance with regional registration for residues of ethyl parathion at 1.0 ppm in wild rice grown in CA. RCB would recommend that this tolerance with regional registration for ethyl parathion on wild rice be included in a separate subsection under 40 CFR 180.121.

Attachment 1: (International Residue Limit Status Sheet)
cc: Circu, EEB, EAB, Deyrup, 5E3280, R.F., PMSD/ISB, FDA
RDI: JHOnley:6/23/86:RDSchmitt:6/23/86
TS-769:RCB:CM#2:RM810:X7484:CDeypur:cd:6/23/86

INTERNATIONAL RESIDUE LIMIT STATUS

CHEMICAL Parathion
Methyl Parathion

PETITION NO 563280

CCPR NO. 59

C. Reyneuf
J. Dec 9/25/86

Codex Status

Proposed U. S. Tolerances

No Codex Proposal
Step 6 or above

Residue (if Step 9): _____

Residue: Parathion
Methyl Parathion

Crop(s) Limit (mg/kg)

Crop(s) Tol. (ppm)

none (on wild rice)

Wild rice 1.0

CANADIAN LIMIT

MEXICAN TOLERANCIA

Residue: _____

Residue: parathion-methyl
and methyl

Crop Limit (ppm)

Crop Tolerancia (ppm)

none

none (on wild rice)^{1/2}

Notes: 1/2 There is a 1 ppm Mexican limit on rice.

6
159