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

OFFICE OF
PESTICIDES AND TOXIC SUBSTANCES

JUL 13 1990

MEMORANDUM

SUBJECT: 90-MN-08. Section 18 Specific Exemption. Mancozeb on Wild Rice. EPA Reg. No. 707-180.
No MRID No. ; DEB # 6735.

FROM: Arliene M. Aikens, Chemist
Special Registration Section II
Dietary Exposure Branch
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THROUGH: Francis B. Suhre, Section Head
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TO: Rebecca Cool/ J. Tompkins, PM 41
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and

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The State of Minnesota Department of Agriculture requests a Section 18 Specific Exemption for Dithane DF (Mancozeb), EPA Reg No. 707-180, on wild rice to control fungal brown spot (FBS). Dithane DF contains 75% Mancozeb (zinc.manganese ethylene bisdithiocarbamate) as its active ingredient. The registrant is Rohm and Haas Inc.

A similar Section 18 request for Mancozeb on wild rice was reviewed previously by RCB (84-WI-08, S. Malak 7/31/84). The Mancozeb Registration Standard, Residue Chemistry Chapter was issued (8-15-

86). The Guidance document was completed in April 1987. Additional residue data were submitted (MRID# 408697-17, MRID# 410918-01) which impacts the current submission. Mancozeb was placed in Special Review in April 1987. A Special Review Technical Support Document for EBDC fugnicides was issued, Dec. 1989. The Special Review is based on the Agency's determination that exposure to ethylenethiourea, a common EBDC metabolite, may pose carcinogenic risks to humans from dietary exposure and risk of developmental and thyroid effect to mixers, loaders and applicators.

Mancozeb is registered for use in the treatment of seed and planting stock for rice, sorghum, safflower, flax and pineapple (Guidance document, April 1987). No tolerances are established for residues of Mancozeb in/on wild rice or rice. Food and Feed Additive tolerances are established for Mancozeb in/on barley, oats, rye and wheat grain at 5.0 ppm, bran at 20 ppm, flour at 1.0 ppm and milled feed fractions at 20 ppm. These commodities are all members of the same crop grouping as rice. Tolerances are also established for Mancozeb residues in/on numerous RAC(s) as well as in/on kidney and liver (40 CFR 180.176, 40 CFR 185.6300 and 40 CFR 186.6300).

90-MN-08 proposes a maximum of two applications of Mancozeb on wild rice at 1.6 lb ai/A by aerial application to no more than 22,000 acres, with application during the 40 day PHI following TILT use on wild rice. No PHI is specified in this Sec. 18 (90-MN-08). A 21-day PHI for Mancozeb treated wild rice was specified in the previous Sec. 18 which was recommended for by DEB (S. Malak, 84-WI-08, 7/31/84), in which a total of 6.4 lb ai/A was applied.

The plant metabolism of Mancozeb is discussed in the Residue Chemistry Chapter of the Registration Standard (8/15/86). Mancozeb undergoes stepwise degradation in plants and animals to yield ethylenebisdithiocarbamate (EBDC) and ethylenethiourea (ETU). According to the Mancozeb Registration Standard, additional information is needed on the metabolism of Mancozeb. However, for the purposes of this Sec. 18, we will consider the residues of concern to be the parent compound, and its metabolites EBDC and ETU.

Analytical methodology is available to determine Mancozeb and ETU in wild rice. Ethylenebisdithiocarbamate (EBDC) residues are determined by the Keppel method (PAM II, method III). Ethylenethiourea (ETU) residues are determined by an AOAC method (Onley, et. al., JAOAC, 60(5), 1105-10, 1977). Both methods are necessary to determine residues of Mancozeb in wild rice, because of the nonspecificity of the Keppel method. Additional analytical methodology is being developed by the sponsor.

Data submitted with this Sec. 18 indicates that no residues of Mancozeb or its metabolites are found at detectable levels in/on

processed wild rice seed, and that residues in the range of 1.80-9.50 ppm are found in/on green wild rice seed, after the treatment of wild rice crops with a total of 6.4 lbs ai/A with PHI of 16-18 days. Recent data submitted in support of seed treatments indicate that detectable residues of mancozeb and ETU may also occur in rice stem fractions and rice straw at 0.13ppm and 0.03ppm respectively, after mancozeb treated seeds are grown to maturity and analyzed (MRID #(s) 408697-17 and 410918-01). A summary of the field trial data submitted with this Sec. 18 is provided below:

MANCOZEB RESIDUES IN/ON WILD RICE

SAMPLE NO.	LOCATION	TOTAL APPLIED (lb.ai/A)	PHI (days)	SAMPLE (Seed)	MANCOZ. (ppm)	ETU (ppm)
77-0338	Aitken, MN	6.4	16	Green	9.50	0.13
		6.4	16	Green	3.50	0.07
77-0335	Clearbrook, MN	6.4	18	Green	1.80	0.03
		6.4	18	Green	0.03	0.03
77-0338	Aitken, MN	6.4	16	Proces.[a]	ND[b]	ND
		6.4	16	Proces.	ND	-
77-0335	Clearbrook, MN	6.4	18	Proces.	ND	ND
		6.4	18	Proces.	ND	ND

[a]Only processed seed is consumed.
[b]ND(<0.02ppm)

Meat, Milk, Poultry and Eggs

Wild rice grain, straw or other by-products are not customarily used in livestock diets (PP#7E1881, R. Perfetti, 3/15/77). Therefore residues of Mancozeb are not expected to occur in meat, milk, poultry or eggs as a result of this Sec. 18.

Conclusions and Recommendation

1. The metabolism of Mancozeb is adequately understood for the purposes of this Sec. 18. The residues of concern are the parent compound and it metabolites EBDC and ETU.

2. Adequate analytical methodology is available for enforcement purposes (PAM II, method III).

3. a. Residues of Mancozeb in/on wild rice are not expected to exceed 10 ppm in green seed and ND (<0.1 ppm) in processed seed from this Sec. 18 proposed use, provided a PHI of 16 days is imposed.

   b. Residues of ETU in/on wild rice are not expected to exceed 0.2 ppm in green seed and ND (<0.02 ppm) in processed seed as a result of this Section 18 proposed use, provided a PHI of 16 days is imposed.

4. Secondary residues are not expected to occur in meat and milk from this Sec. 18 proposed use of Mancozeb on wild rice, provided a livestock feeding restriction is included on the product label.

5. Reference standards are available from the Pesticides and Industrial Chemicals Repository at RTP, NC.

TOX considerations permitting, DEB has no objections to this Section 18 request provided:

- o The label is amended to include a PHI of 16 days.
- o The label is amended to restrict feeding livestock with treated wild rice straw.

An agreement should be made with FDA regarding the legal status of treated wild rice in commerce.

Note to DRES: Use the ETU residue levels for processed wild rice seed to estimate the dietary risk associated with this Sec. 18 proposed use.

CC: R.F., Sec. 18 Mancozeb S.F., Circu, R. SCHMITT, AIKENS, DRES/SACB (J. Kariya)
RDI:FS: 7/10/90:EZ:7/10/90
H7509C:DEB:AA:aa:CM#2:Rm 800A:557-7379:7/3/90: Edited 7/9/90