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

JUN 4 1985

OFFICE OF
PESTICIDES AND TOXIC SUBSTANCES

MEMORANDUM

SUBJECT: EPA Registration No. 9779-206. Dimethoate-revised PHI for alfalfa. RCB# 975.

FROM: Sami Malak, Ph.D., Chemist
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Hazard Evaluation Division (TS-769)

THRU: Edward Zager, Section Head
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TO: William H. Miller, PM# 16
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Registration Division (TS-767)

Riverside/Terra Company of Memphis, Tennessee requests revising the preharvest interval (PHI) for dimethoate (Dimate 2.67) from 28 to 10 days when used on alfalfa.

Permanent tolerances are established for total residues of the insecticide dimethoate (0,0-dimethyl S-(N-methylcarbamoylmethyl) phosporodithioate) including its oxygen analog (0,0-dimethyl S-(N-methylcarbamoylmethyl)phosphorothioate) in/on several raw agricultural commodities including alfalfa at 2.0 ppm (40 CFR 180.204).

For insect control in alfalfa, the federally registered use on alfalfa grown for hay permits one application of dimethoate (Dimate 2.67, Reg. No. 9779-206) per season, at the rate of 0.08 to 0.5 lb act/A. There is a 28-day PHI. The label warns against pasturing within the 28-day PHI. For alfalfa grown for seed, the registered use permits an application of dimethoate at 0.25-0.42 lb act/A. There is a 28-day PHI. The label warns against feeding of livestock on treated crops, threshings, treated hay, pasture or stubble within the 28-day PHI.

The proposed use on alfalfa grown for hay would permit one application of dimethoate (Dimate 2.67, Reg. No. 9779-206) at the rate of 0.08 to 0.5 lb act/A/cutting. There is a 10-day PHI. The label warns against pasturing within the 28-day PHI. The proposed use on alfalfa grown for seed would permit application of dimethoate at the rate of 0.25-0.42 lb act/A. There is a 28-day PHI. The label warns against feeding of livestock on treated crops, threshings, treated hay, pasture or stubble within the 28-day PHI.

We note that the only difference between the proposed and the registered use is the PHI for alfalfa grown for hay which is reduced from 28 to 10 days.

The use as described in the Registration Standard is as follows: (memo of Charles Trichilo to Juanita Wills, 9/3/82):

USE SUMMARY

Crop	Maximum Rate (lb/acre)	Tolerance (ppm)	Restrictions and Limitations
Alfalfa	0.5	2	10-day pregrazing/preharvest interval; Apply once per growing season
Alfalfa (seed Crop)	0.5	2	10-day pregrazing/prefeeding interval

We note that the use pattern summarized in the RS is consistent with that in the EPA Index to Pesticide Chemicals, Vol. III-035001-2, 8/25/81. The RS, however, recommends no more than one application prior to cutting, whereas, the EPA Index lists one application per growing season. The use pattern described in the EPA Index is also consistent with that found in PP#1F1087 (memo of F.D. Gee, 6/25/71). PP#1F1087 summarizes dimethoate use on alfalfa as follows: "Dimethoate as a 2.67 lbs act/gal emulsifiable concentrate is to be applied to alfalfa grown for hay or seed at rates of 0.25 to 0.5 lb act/A. It is not to be applied in the bloom period. There is a 10-day interval between application and harvesting or pasturing. Alfalfa (grown for hay) is to have only one application per growing season".

Residue Data

No data were included with this application. Riverside/Terra Company, however, referenced the data in the Registration Standard for dimethoate (memo of Charles Trichilo to Juanita Wills, 9/30/82 which is cited below:

	APPLICATION DATA				RESIDUE LEVELS (ppm)			
SAMPLE	Number*	Interval (days)	Rate (lb/acre)	PHI (days)	<0.5	0.5-2.0	>2.0	REF.
Fresh alfalfa	2	6-10	0-5	0-9	1	3	19	a
Fresh alfalfa	2	6-10	10-14	10-14	5	6	0	a

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Fresh alfalfa	1	-	0.5-1.0	8-10	9	3	0	b
Fresh a falfa	2	9-11	0.5	10-11	2	0	1	b

a. Orloski 1970, 00075584
b. American Cyanamid 1975, 00075659
* Per cutting

The data, reflecting both aerial and ground application, indicate that combined residues of dimethoate and dimethoxon will not exceed the 2 ppm tolerance, 10 days after application of 0.5 lb dimethoate per acre, provided that there is no more than 1 application prior to cuttings.

Residues resulting from low volume aerial application do not exceed those resulting from ground application (American Cyanamid 1975, 00075659). There are no apparent residues in new growth following the cutting of treated alfalfa (American Cyanamid 1975, 00075659).

Residue levels in alfalfa hay are similar to those in fresh alfalfa, although the rate of residue decline is slower in hay (Orloski 1970, 00075584; American Cyanamid 1975, 00075659).

At present 40 CFR 180.204 lists a tolerance of 2 ppm for "alfalfa". The tolerance should be expressed in terms of "alfalfa, fresh" and "alfalfa, hay".

Residue data included in PP#1F1087 (memo of F.D. Gee, 6/25/71) are cited below:

Data are presented for green and dry alfalfa from treatments of 0.5 lb act/A (1X) and 1.0 act/A (2X). The data presented were obtained by the gas chromatographic method described herein. Values reported herein are for combined residues (parent plus oxygen analog).

Green alfalfa: At 0.5 lb act/A and zero day after application maximum residues are up to 29 ppm. At 1.0 lb act/A maximum residue of 44 ppm occurred at 1 day after application. However, residues show a rapid decline, that is, a half-life of about two days. A semi-log plot of data show that combined residues from the maximum proposed use at the proposed 10 day interval are 0.7-1.4 ppm.

Dry alfalfa: Dry alfalfa from treatment of 0.5 lb act (maximum recommended) show 1.2 ppm the day before bailing. Maximum residues on the day of bailing were 0.9 ppm. Two weeks after bailing the maximum value is 0.5 ppm.

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From the available data in the Registration Standard and PP#1F1087, we conclude that the established tolerance of 2 ppm for residues of dimethoate in/on alfalfa will not be exceeded as a result of the proposed use. The tolerance, however, should be expressed in 40 CFR 180.204 in terms of "alfalfa, fresh" and "alfalfa, hay".

Conclusions and Recommendation

The established tolerance of 2 ppm for residues of dimethoate in/on alfalfa will not be exceeded as a result of the proposed use. Therefore, we have no objection to this amendment. The tolerance, should be expressed in 40 CFR180.204 in terms of "alfalfa, fresh" and "alfalfa, hay".

TS-769:RCB:S.Malak:vg:CM#2:Rm810:X77377:6/3/85
cc: R.F., Circu., Reviewer, Dimethoate (Dimate 2.67) S.F., PMSD/ISB
RDI: R. Schmitt, 5/30/85; E. Zager, 5/29/85