R.F.

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

NOV 5 1991

OFFICE OF
PESTICIDES AND TOXIC
SUBSTANCES

MEMORANDUM:

SUBJECT: ID: 92WA0001. Pendimethalin [PROWL®]; Section 18 emergency exemption on mint. [CBRS: #8749][DP BARCODE: [D169858].

FROM: William L. Anthony, Chemist
Special Review, Section II
Chemical Branch II - Reregistration Support
Health Effects Division [H7509C]

William L. Anthony

THRU: Francis B. Suhre, Section Head
Special Review, Section II
Chemical Branch II-Reregistration Support
Health Effects Division [H7509C]

Lee Cheng, for

TO: Jim Tompkins, PM #41
Insecticide/Herbicide Branch
Registration Division [H7505C]

The State of Washington, Department of Agriculture, has requested a Section 18 emergency exemption for PROWL® herbicide [EPA Reg. #241-243] on mint (both peppermint and spearmint) to control Kochia (Kochia scoparia) and red root pigweed(Ameranthus retrollehus) The active ingredient in PROWL® is pendimethalin or N-(1-ethylpropyl)-3,4-dimethyl-2,6-dinitrobenzenamine. PROWL® is a product of the American Cyanamid Co. at Princeton, N.J.

Pendimethalin Registration Standard (Guidance Package) was issued April, 1985. The Residue Chemistry Chapter for pendimethalin was completed July, 1984. An update was issued in March, 1990.

TOLERANCES

(a) Tolerances are established for the combined residues of pendimethalin and its metabolite, 4-[(1-ethylpropyl)amino]-2-

methyl-3,5-dinitrobenzyl alcohol, on numerous raw agricultural commodities ranging from 0.05 ppm for rice grain to 0.10 ppm for corn, peanut, sorghum, and soybean forages.

(b) Tolerances are also established for the combined residues of pendimethalin and its metabolites, 4-[(1-ethylpropyl)amino]-2-methyl-3,5-dinitrobenzyl alcohol, and 3-[(1-ethylpropyl)amino-6-methyl-2,4-dintrobenzyl alcohol in/or on peanut hulls at 0.25 ppm and.

(c) Tolerances are also established for the combined residues of pendimethalin and it metabolite, 4-[(1-ethylpropyl)amino]-2-methyl-3,5-dinitrobenzyl alcohol, in/on garlic at 0.1 ppm.

There are no tolerances established for animal commodities.

PROPOSED USE

Apply by ground, only one application of PROWL® at the rate of 3 to 4 pints (1.5 lbs to 2.0 lbs ai) in 10 gallons or more of water per acre. Acreage to be treated will not exceed 25,310 acres, which would require a maximum of 50,620 lb ai. A 90 day PHI will remain in force. The use period will extend from 10/15/91 to 4/1/92.

Restriction: A feeding restriction on the feeding of spent hay to livestock is to be included on the label.

NATURE OF THE RESIDUE

An update to the Residue and Product Chemistry chapters was issued 3/19/90. Data gaps cited included nature of the residue in plants and animals, magnitude of the residues and storage stability studies. For purposes of this Section 18 request, CBRS considers the residues of concern to be pendimethalin and 4-((1-ethylpropyl)amino-2-methyl-3,5-dinitrobenzyl alcohol.

RESIDUE STUDIES

New residue data from field studies performed in the State of Washington included: residue data on peppermint oil and peppermint hay; recovery studies on spearmint oil and peppermint hay; and storage studies for pendimethalin in peppermint oils and hay. A recovery study of the metabolite, 4-[(1-ethylpropyl)amino]-2-methyl-3,5-dinitrobenzyl alcohol[CL-202,347] was also submitted.

Peppermint oils: Four samples were analyzed for the pendimethalin residues following treatment with 2.0 and 4.0 lbs ai/ per acre with a 115 and 108 day PHI, respectively. Residues ranged from 0.87 to 3.2 ppm for the former and 1.9 to 3.2 ppm for the latter.

Peppermint hay: Analysis of the same samples, as shown above, for pendimethalin residues in hay yielded residues ranging from <0.035 to 0.045 ppm and 0.08 to 0.64 ppm, respectively.
Recoveries for samples spiked with 1.0 or 2.0 ug of the ai were @ 88% and 92%, respectively.

Peppermint hay: Analysis for the metabolite [CL 202,347], resulted in residues of <0.035 ppm for samples treated with 2.0 lbs ai/acre and <0.035 ppm to 0.092 ppm for the samples treated with 4.0 lbs ai/acre. Recoveries for samples spiked with 1.0 or 2.0 ug of the metabolite were @ 93% and 88%, respectively.

Storage studies: At storage intervals of @ two years, 0.1 ppm and 0.25 ppm of pendimethalin in peppermint oil were recovered at 77% and 75%, respectively; at storage interval of @ 180 days, 0.05 ppm, 0.10 ppm, and 0.25 ppm of pendimethalin in peppermint hay were 91%, 79%, and 85%, respectively. Recovery of the alcoholic metabolite, in which peppermint hay had been spiked with 0.05 ppm, 0.10 ppm, and 0.25 ppm of the metabolite and stored for @ 180 days, showed recoveries of were 91%. 76%, and 89%

Mint residue trials conducted in Oregon were submitted with and reviewed in our memo of 10/24/90, L. Cheng, ID #90-ID14. Briefly, residues of pendimethalin and residues of its alcoholic metabolite were each <0.035 ppm following a 114 day PHI. These results were obtained following one application of pendimethalin at 2.0 lbs ai or 4 lbs ai per acre. Fortification of mint samples with 0.05 ppm and 0.10 ppm of pendimethalin were 81% to 86% recovered; samples fortified with the alcohol metabolite at the 0.05 ppm and 0.01 ppm levels were 71% to 100% recovered

We conclude that the combined residues of pendimethalin and its alcoholic metabolite are not likely to exceed 5.0 ppm in peppermint oil and the combined residues are not likely to exceed 0.1 ppm in/on mint hay as a result of the proposed use and a 115 day PHI.

Methods are available in PAM II (methods I and II) for the enforcement of pendimethalin and its alcohol metabolite residues in plants, each at the 0.05 ppm sensitivity level using GLC with EC detector.

According to CBRS guidelines, spent hay may be fed to livestock (up to 60% in their diet). With a label restriction on feeding spent hay to livestock, no problems should be anticipated with secondary residues in meat, milk, poultry, and eggs.

CONCLUSIONS

(1) For purposes of this Section 18, the residues of pendimethalin and its alcoholic metabolite are the residues of concern.

(2) The combined residues of pendimethalin and its metabolite are not likely to exceed 5.0 ppm in/on peppermint oil or to ~~be~~ exceed 0.1 ppm in mint hay, if the PHI is revised to 115 days.

(3) With a 115 day PHI and a feeding restriction on spent hay for livestock, CBRS anticipates no problem with secondary residues in meat, milk, poultry, and eggs.

(4) Reference standards are available at EPA Industrial Chemicals Repository at Triangle Park, NC.

(5) Residue analysis were conducted in IR-4 laboratories.

RECOMMENDATION

TOX considerations permitting, CBRS has no objection to this Section 18 emergency exemption request. An agreement should be made with the FDA regarding the legal status of mint commodities in commerce.

CC: Reviewer;Sec.18 file;RF;SF[Pendimethalin,PROWL®];PIB/FOD;Saito (SACB).
RDI: FBS;LC,10/31/91;DFE,11/1/91.
H7509C: WLA;wla;Cry.Stat.;X308-8526;11/4/91;Code387-PEND