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

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OFFICE OF
PESTICIDES AND TOXIC SUBSTANCES

MEMORANDUM

SUBJECT: EPA Reg. No. 241-243. Pendimethalin on field corn.

FROM: Linda S. Propst, Chemist
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Linda S. Propst

THRU: Charles L. Trichilo, Chief
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CT

TO: Robert J. Taylor, Product Manager #25
Fungicide-Herbicide Branch
Registration Division (TS-767)

American Cyanamid Company is requesting an amended registration for the herbicide PROWL® to add postemergence incorporation alone or in tank mix combination with atrazine to field corn. Cyanamid will designate this treatment as CULTI-SPRAY® for PROWL® alone and PROWL® plus atrazine tank mix. Cyanamid currently has 24(c) registrations for PROWL CULTI-SPRAY® in the states of Colorado, Kansas, Nebraska and Texas.

Tolerances have been established for the combined residues of PROWL® [Pendimethalin or N-(1-Ethylpropyl)-3,4-dimethyl-2,6-dinitrobenzenamine] and its metabolite 4-[(1-ethylpropyl)amino]-2-methyl-3,5-dinitrobenzyl alcohol in or on corn grain, fodder, and forage at 0.1 ppm (40 CFR 180.361). Tolerances are established for residues of the herbicide atrazine (2-chloro-4-ethylamino-6-isopropylamino-s-triazine) in or on field corn fodder and forage at 15 ppm and in or on corn grain at 0.25 ppm (40 CFR 180.220).

The rate of postemergent broadcast application proposed for PROWL CULTI-SPRAY® ranges from 0.5 lb active/acre to 1.5 lb active/acre depending upon soil texture and geographical location. The postemergent tank mix broadcast rate for PROWL CULTI-SPRAY® plus atrazine ranges from 0.5-1.5 lb active/acre for PROWL® and 1.0-1.2 lb active/acre for atrazine.

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The application is to be made uniformly with ground equipment using the recommended PROWL® or PROWL® plus atrazine tank mix in 10 or more gallons of water. PROWL® treatments can be applied from the 4-inch growth stage to as late as the last cultivation of field corn. PROWL® treatments should be incorporated or watered into the soil as soon as possible after application but incorporation must be completed within 7 days after application. If adequate moisture is not received within 7 days after application, PROWL® must be incorporated with a sweep-type or rolling cultivator. No application of PROWL® should be made prior to the postemergent soil-incorporated treatment and only one application of PROWL® or PROWL® plus atrazine per crop season.

In the application of PROWL®, livestock are allowed to graze and can be fed corn forage. When the PROWL® plus atrazine tank mix is used, a 21-day waiting period is required following treatment before grazing treated fields or feeding corn forage.

Residue data submitted in support of this amended registration include studies from Texas, Nebraska, Colorado, Kansas, California, Kentucky, and Wisconsin. Application rates for postemergence incorporation with PROWL® alone ranged from 1.0-1.5 lb a.i./A. When applied as a tank mix combination with atrazine, PROWL® rates varied from 0.75-1.5 lb a.i./A with dosage rates of atrazine being 0.75-1.0 lb a.i./A. These rates compare with the proposed rate for PROWL®. For atrazine, these rates are 0.6-0.8X the maximum recommended rate.

Silage samples were taken at various times after treatment with PHI's from 37 to 87 days. Fodder and grain samples were obtained at harvest (96 to 122 days post treatment). Corn plants and grain samples were analyzed for residues of PROWL [N-(1-ethylpropyl)-3,4-dimethyl-2,6-dinitrobenzenamine and its metabolite [4-([1-ethylpropyl]amino-2-methyl-3,5-dinitrobenzyl alcohol)] and for residues of atrazine.

Residues of PROWL® and the metabolite of PROWL® in corn plants and corn grain in all cases were below the 0.05 ppm validated sensitivity limit of the analytical procedures. Residues of atrazine in corn plants and corn grain were <0.5 ppm and <0.05 ppm respectively (the validated sensitivities of the two procedures).

The postemergence timing of PROWL® application and incorporation is limited to the last time in which the field may be cultivated. This would put the PHIs in the range of 7-10 weeks for early

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and late silage and a minimum of 13 weeks for grain and fodder. In the case of PROWL® application only, the studies above indicate that using the maximum application rate of PROWL® and with a PHI as short as 48 days (7 weeks), the residues for PROWL® and its metabolite on forage were below 0.05 ppm. PROWL® residues on grain and fodder are also below 0.05 ppm with an 85 day PHI.

No residue data were received with this submission which reflects the maximum application (1.2 lb active/A) of atrazine allowed when used in tank mix combination with PROWL®. However, since all residues of atrazine were <0.05 ppm on corn grain and <0.5 ppm on corn forage and fodder when using 1.0 lb active/A, it is unlikely that residues of atrazine resulting from the proposed use will exceed the established tolerances of 0.25 ppm on corn grain or 15 ppm on corn forage and fodder.

The label permits the grazing of livestock or the feeding of forage from a PROWL® treated field with no wait. When PROWL® is tank mixed with atrazine, a 21-day interval is imposed before forage can be fed or grazing is allowed. We view it unlikely that corn is going to be used for forage before 6-8 weeks following the last application. At this time, the corn is either cut for forage or is allowed 6-8 more weeks maturation for corn grain production. Although it is unlikely that maturing corn (0-7 weeks following the last application) will be used for forage, we consider it appropriate that the label impose a 21 day interval following the last application of either PROWL® or PROWL® plus atrazine before feeding or allowing grazing.

With the label imposing a 21 day PHI, we conclude that the established tolerances for residues of PROWL®, the metabolite of PROWL®, and atrazine on corn grain, forage, and fodder will be adequate to cover any residues which may occur as a result of the proposed amended registration.

Conclusions and Recommendations

The established tolerances for residues of PROWL®, the metabolite of PROWL®, and atrazine on corn grain, forage and fodder will not be exceeded as a result of the proposed registration providing the label is amended to include a restriction against grazing or feeding forage from Prowl-treated fields within 21 days of application. (This restriction already appears on the Prowl plus atrazine use directions).

Contingent upon the establishment of a 21-day PHI for foraging or grazing after application of Prowl® or Prowl® plus atrazine, we recommend that the proposed amended registration be granted.

cc: R.F., Circu, Reviewer, Amended use file, Subject file
RDI:Section Head:RJH>Date:4/2/82:RDS>Date:4/2/82

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