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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: 87-LA-01. Section 18 Request for the Use of
Pendimethalin (Prowl®, EPA Reg. No. 241-243) on
Sugarcane.
No Acc. Number
RCB #1951

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Thru: Edward Zager, Section Head, SRS 2 *EZager*
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To: Emergency Response and Minor Use Section
Registration Division (TS-767C)

and

Toxicology Branch
Hazard Evaluation Division (TS-769C)

The Louisiana Commissioner of Agriculture, Bob Odon, requests a Section 18 Specific Exemption authorizing applications of the herbicide Prowl® (4 lbs.a.i./gallon emulsifiable concentrate) on 40,000 acres of sugarcane to control Itchgrass and Brown Panicum.

Tolerances are established for residues of the herbicide pendimethalin [N-(1-ethylpropyl)-3,4-dimethyl-2,6-dinitrobenzenamine] and one of its two metabolites 4-((1-ethylpropyl)amino)-2-methyl-3,5-dinitrobenzyl alcohol (CL 202,347) or 3-((1-ethylpropyl)amino)-6-methyl-2,4-dinitrobenzyl alcohol (CL 217,146) ranging from 0.01 ppm in or on sunflower seeds to 0.25 ppm in or on peanut hulls. Numerous tolerances are pending including 0.1 ppm for residues in or on sugarcane (40 CFR 180.361). A Registration Standard has been completed for pendimethalin (Residue Chemistry Chapter, 5/10/84).

The proposed use involves applications at 2-4 pints (1-2 lbs.a.i.)/A/application for 2 applications: one preemergence application and the other at layby. The preemergence application could be made using ground equipment in a minimum of 10 gallons of water per acre or with aerial equipment in a

minimum of 5 gallons of water per acre. The application at layby would be made using a directed spray with ground equipment only. The following restriction would be imposed: "Do not graze treated fields or feed treated forage or fodder to livestock." RCB recommended favorably for this use in conjunction with PP#3F2765 (see R. W. Cook, 9/21/83) prior to completion of the Registration Standard. Some deficiencies identified in the Standard and not yet resolved will be incorporated into this review.

The metabolism of pendimethalin in plants is not adequately understood. The available metabolism data indicate that pendimethalin residues are absorbed and translocated in plants. However, the nature of the residue in plants has not yet been adequately delineated because "significant fractions of the extractable and unextractable residue found in plants were not identified..." (see Addendum #1: Pendimethalin Registration Standard, Residue Chemistry Chapter, 11/25/85). In the absence of adequate metabolism data, and for the purposes of this Section 18 only, we consider the residue of concern to include parent pendimethalin and its metabolite CL 202,347.

Adequate analytical methodology is available for enforcement purposes. These methods were previously reviewed by R. W. Cook (1/14/83), and the reader should refer to this memo for further information. These methods are M-1212 for pendimethalin in sugarcane and bagasse, M-1208 for pendimethalin in raw sugar, and M-1207 for pendimethalin in molasses. These methods can be found in PP#3F2765 (Acc. No. 071166). The above methods determine residues of parent only. PAM II, Methods II and IV, can be used to determine residues of CL 202,347 in sugarcane.

Residue data were submitted with PP#3F2765 (Acc. No. 071166) and reviewed by R. W. Cook (1/14/83). Although three residue studies were submitted, only one is considered useful (ibid.). In this study, residues of parent only were determined. However, since a ¹⁴C metabolism study for sugarcane showed that total ¹⁴C activity was less than 0.01 ppm (pendimethalin equivalents) at a treatment rate of 3.0 lbs.a.i./A (1.5X), we will consider this residue trial adequate for the purposes of this Section 18.

Applications were made preemergence and at layby at either 2 lbs.a.i./A (2 + 2 = 1X) or at 4 lbs.a.i./A (4 + 4 = 2X), and sugarcane was harvested 90 days after the final treatment. Residues in sugarcane, bagasse, raw sugar and molasses were all <0.05 ppm (limit of detection) at both application rates.

Based on these data, and for the purposes of this Section 18 only, we conclude that residues are not likely to exceed 0.1 ppm (2 * 0.05 ppm) for combined residues of pendimethalin and CL 202,347 in or on sugarcane, molasses, bagasse and refined sugar as a result of the proposed use.

Meat, Milk, Poultry, and Eggs

Sugarcane forage and fodder are restricted from use as animal feed. Sugarcane molasses can be fed to poultry, and bagasse and molasses can be fed to cattle. However, since no detectable residues of pendimethalin were found in sugarcane bagasse or molasses, for the purposes of this Section 18 only, we conclude that transfer of residues to eggs, milk, or to the meat, fat and meat by-products of cattle, goats, hogs, horses, poultry and sheep is not likely to occur as a result of the proposed use.

Conclusions

- (1) The metabolism of pendimethalin is not adequately understood. However, for the purposes of this Section 18 only, we will consider the residue of concern to include parent plus CL 202,347.
- (2) Analytical methodology is available for enforcement purposes (M-1212, M-1207 and M-1208 for parent pendimethalin, PP#3F2765, Acc. No. 071166; PAM II, Methods II and IV for CL 202,347).
- (3) Combined residues of pandimethalin and its metabolite CL 202,347 are not likely to exceed 0.1 ppm in or on sugarcane, bagasse, molasses or refined sugar as a result of the proposed use.
- (4) Since no detectable residues of pendimethalin were found in the animal feed items associated with this use (sugarcane bagasse and molasses), for the purposes of this Section 18 only, we conclude that secondary residues are not likely to be found in eggs, milk, or in the meat, fat and meat by-products of cattle, goats, hogs, horses, poultry and sheep as a result of the proposed use.
- (5) Analytical reference standards are available from the Pesticides and Industrial Chemicals Repository.

Recommendations

TOX considerations permitting, RCB has no objections to this Section 18. An agreement should be made with the FDA regarding the legal status of the treated commodities in commerce.

cc: Pendimethalin (Prowl®) S.F., R.F, Section 18 S.F., Circu,
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