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

MAY 28 1987

OFFICE OF
PESTICIDES AND TOXIC SUBSTANCES

MEMORANDUM

SUBJECT: EPA Reg. No. 214-213. Amended registration for PROWL® (Pendimethalin on potatoes). Accession Nos. 40140800, 40140801, and 40140802. RCB No. 2192.

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

THRU: Andrew R. Rathman, Section Head
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APR

TO: Robert J. Taylor, Product Manager #25
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American Cyanamid Company has previously requested an amended registration for the herbicide PROWL® to add early post-emergence incorporation on potatoes up to 6-inch stage of growth using 1.5 lb. a.i./acre.

A tolerance has been established for the combined residues of PROWL® [pendimethalin or N-(1-ethylpropyl)-3,4-dimethyl-2,6-dinitrobenzeneamine] and its metabolite 4-((1-ethylpropyl)amino)-2-methyl-3,5-dinitrobenzyl alcohol in or on potatoes at 0.1 ppm (40 CFR 180.361).

Background

This proposed amended registration was denied because there were no data available in our files reflecting residues of pendimethalin occurring on potatoes from postemergence incorporation using 1.5 lb. a.i./acre (See L. Propst memo dated 7/8/83).

In response to the 7/8/83 memorandum, American Cyanamid conducted three residue studies with postemergence incorporation of pendimethalin on potatoes up to a 6-inch stage of growth using 1.0, 1.5, and 2.0 lb. a.i./acre. These residue trials were reviewed by Charles Frick, 7/25/86. All residues of pendimethalin on potatoes resulting from the 1.0 and 1.5 lb. a.i./acre applications were less than the established tolerance of 0.1 ppm. No residue values were submitted for potatoes treated with 2.0 lb. a.i./acre.

The proposed amended registration was again denied because the analytical methodology (Methods M-1313 and M-1493) used in generating these data was not submitted nor adequately referenced. Further, the reviewer questioned why no values were submitted for potatoes treated with 2.0 lb. a.i./A.

Current Submission

The registrant has explained that the object of the residue trials was to provide residue data generated using 1.5 lbs. a.i./acre, the proposed amended use. Since the 2.0 lb. a.i./acre application was made inadvertently, samples from this trial were never analyzed nor kept for analysis.

Additionally, the registrant has submitted the details of the procedures along with validation data for analytical methods M-1313 (MRID No. 401408-02) and M-1493 (MRID No. 401408-01) as follow:

M-1313 involves extracting the CL 202,347 [4-([ethylpropyl] amino)-2-methyl-3,5-dinitrobenzyl alcohol] from potato tubers with aqueous acid methanol. After filtration, concentration, and further acidification the CL 202, 347 is partitioned from the extract into hexane. After the hexane has been removed by evaporation, the residue is acetylated and cleaned up further by chromatography on a Florisil column. The Florisil column eluate is evaporated to dryness and the residue dissolved in a measured volume of hexane. The CL 202, 347 content of this solution is measured by gas chromatography by the external standard technique using an instrument equipped with a nitrogen detector. The validated sensitivity of the method is 0.05 ppm.

Potatoes fortified with 0.05, 0.10, 0.20, and 0.50 ppm of CL 202,347 showed recoveries ranging from 86.5% to 112.5%.

M-1493 which determines residues of pendimethalin involves shaking ground potato tubers overnight with acidic aqueous methanol. After filtration, a 25 ml aliquot of the extract is diluted with 0.1N hydrochloric acid and the solution passed through a pre-conditioned C-18 solid-phase extraction column, the pendimethalin being absorbed onto the column. After rinsing the column with water and drying, the pendimethalin is eluted from the column using 1% methanol in hexane. The column effluent is evaporated and the residue taken up in 1 ml of hexane. The pendimethalin content of this solution is determined, using gas chromatography, by the external standard technique using an instrument equipped with a nitrogen detector. The validated sensitivity of the method is 0.05 ppm.

Potato tubers fortified with 0.05, 0.10, 0.20, and 0.50 ppm of pendimethalin showed recoveries ranging from 79% to 98.2%.

Typical chromatograms for control and fortified tubers were submitted for both methods.

Conclusions and Recommendations

1. All residues resulting from the proposed postemergence incorporation of pendimethalin on potatoes up to a 6-inch stage of growth using rates up to 1.5 lb. a.i./ acre will be covered by the established tolerance of 0.1 ppm.
2. We conclude that the analytical procedures M-1313 and M-1493 used in generating the residue data are adequate.
3. Our questions regarding the samples from the plots treated with 2.0 lb. a.i./acre have been answered.

We have no further objections to and recommend for the proposed postemergence incorporation of pendimethalin on potatoes up to a 6-inch stage of growth using rates up to 1.5 lbs. a.i./acre.

cc: Reading File, Circulation, Reviewer, Subject File (Pendimethalin),
Amended Use File, PMSD/ISB
RDI: A. R. Rathman, 5/27/87; R. D. Schmitt, 5/28/87
TS-769:RCB:LSP:lsp:CM-2:Rm803:557-7324:5/28/87