**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**

WASHINGTON, D.C. 20460

OFFICE OF
PESTICIDES AND TOXIC SUBSTANCES

JUL 2 5 1986

MEMORANDUM

SUBJECT: EPA Registration No. 241-243 – Amended Registration
for PROWL® (Pendimethalin) on Potatoes
RCB No. 778, Accession No. 259352

FROM: Charles Frick, Chemist                 *C.Frick 7/25/86*
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Hazard Evaluation Division (TS-769C)

TO: Robert Taylor, PM 25
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THRU: Andrew Rathman, Section Head, SRS 1
Residue Chemistry Branch
Hazard Evaluation Division (TS-769C)

   American Cyanamid Company has previously requested an
amended registration for the herbicide PROWL® to add
postemergence incorporation up to the 6-inch stage of growth
alone or in tank mix combination with metribuzin and with
Eptam on potatoes. As was noted in the previous review
(memorandum, Linda Propst, February 24, 1984) RCB had no data
in the files that would indicate what residues of pendimethalin
would occur on potatoes from the requested postemergence in-
corporation up to a 6-inch stage of growth using the maximum
recommended application rate of 1.5 lb ai/A.  For this reason
we recommended against the proposed amended registration.

   Tolerances for the combined residues of the herbicide
pendimethalin (N-(1-ethylpropyl)-3,4-dimethyl-2,6-dinitro-
benzenamine) and its metabolite 4-((1-ethylpropyl)amine)-2-
methyl-3,5-dinitrobenzyl alcohol have been established in or
on potatoes at 0.1 ppm (40 CFR 180.361).

In response to the memorandum (L. Propst, February 24, 1984) American Cyanamid Company has submitted copies of the currently approved and proposed supplemental PROWL labels and three residue studies reflecting postemergence incorporation of pendimethalin up to the 6-inch stage of growth of potatoes using the maximum rate of 1.5 lb ai/A. Weather data for the experimental periods were also submitted.

## Conclusions

1. The analytical methodology employed in these studies was not submitted nor adequately referenced. The company must submit the analytical method used in obtaining the residue data.

2. While the submitted residue data were not quantitatively overwhelming, it can be concluded that residues resulting from the requested postemergent incorporation up to a 6-inch stage of growth using the maximum recommended application rate will not exceed the established tolerance for pendimethalin and its metabolite on potatoes (0.1 ppm). This conclusion is contingent upon the submission of the analytical method used for the determination of residues and our considering this methodology adequate for obtaining residue data.

3. In the residue study conducted in Chualar, California, some potatoes were treated with 2.0 lb ai/A; the residue levels on these potatoes were not reported. These data must be submitted for review or an explanation as to why these potatoes were included in the experimental design and residue analysis was not conducted.

## Recommendation

We cannot recommend the granting of this amended registration until the deficiencies noted above are resolved.

## Detailed Considerations

## Formulation

Pendimethalin formulated as PROWL (an emulsifiable concentrate containing 42.3% active ingredient (4 lb ai/gal) is currently registered for use on potatoes (40 CFR 180.361).

## Proposed Use

This action requests an amended registration for the herbicide PROWL to add postemergence incorporation of pendimethalin up to the 6-inch stage of growth of potatoes using the maximum rate of 1.5 lb ai/A.

## Nature of the Residue

Tolerances for the combined residues of the herbicide pendimethalin (N-(1-ethylpropyl)-3,4-dimethyl-2,6-dinitro-benzenamine) and its metabolite 4-((1-ethylpropyl)amine)-2-methyl-3,5-dinitrobenzyl alcohol have been established in or on potatoes at 0.1 ppm (40 CFR 180.361). We consider these compounds to be the residue of concern.

## Analytical Methodology

The only reference to the analytical procedure used in the submitted residue studies was as follows: "PROWL (CL 92,553) and its alcohol metabolite (CL 202,347) were analyzed by Methods M-1493 and M-1313 as described in Reports C-2484 and C-2235, respectively. A Tracor Model 565 gas chromatograph equipped with a nitrogen detector was used for these analyses. The validated sensitivity of both methods is 0.05 ppm." Some copies of chromatograms were submitted. Methods M-1493 and M-1313 as described in Reports C-2484 and C-2235 were not submitted. Until the analytical methods used in these residue studies along with validation data are submitted for review RCB does not have enough data to adequately interpret the submitted residue data.

## Residue Data

Summary of CL 92,553 pendimethalin per se and CL 202,347 its alcohol metabolite residues found in potato tubers.

| Location | Sample Number | Treatment Rate lb ai/A | Sampling Interval (days) | Apparent Residues (ppm) CL 92,553 | CL 202,347 |
|---|---|---|---|---|---|
| Riverhead, NY | 5698.2 | 0.0 | – | 0.011 | < 0.05 |
| | 5609.1 | 1.5 | 139 | < 0.05 | < 0.05 |
| Chualar, CA | 5805.1 | 0.0 | – | < 0.003 | < 0.006 |
| | 5805.2 | 1.5 | 83 | < 0.05 | < 0.05 |
| Arlington, WI | 5582.3 | 0.0 | – | < 0.003 | < 0.005 |
| | 5582.1 | 1.5 | 77 | < 0.05 | < 0.05 |

In the Riverhead, New York study, PROWL was applied postemergence at the rate of 1.5 lb ai/A.

In the Arlington, Wisconsin study, PROWL was applied postemergence at 1.0 or 1.5 lb ai/A.

In the Chualar, California study, PROWL was applied at 1.5 or 2.0 lb ai/A.  As noted some potatoes were treated with 2.0 lb ai/A; if any of these tubers treated at this concentration were analyzed, these data must be submitted for review or an explanation given as to why these data were not submitted.

While these are somewhat limited, we conclude that residues in potatoes will not exceed the 0.1 ppm established tolerance.  This is contingent upon submission of the analytical method along with validation data.


cc:  R.F., Amend Use F., Circ, Reviewer, PMSD/ISB
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