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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 File #464-ARE
[RCB #165]
[Acc.#264152]

Chlorpyrifos [LORSBAN-2LV]:
New Product Registration
for Use on Cotton in Arizona
and California.

FROM: William L. Anthony, Chemist
Residue Chemistry Branch
Hazard Evaluation Division (TS-769)

THRU: Ed Zager, Section Head
Special Registration Section II
Residue Chemistry Branch
Hazard Evaluation Division (TS-769)

TO: Dennis Edwards, PM#12
Insecticide Rodenticide Branch
Registration Division (TS-767)

Dow Chemical, Midland, MI is applying for registration of their new product,[LORSBAN-2LV] to control various insects infesting cotton grown in the States of Arizona and California.

LORSBAN-LV is a self-emulsifiable concentrate containing 22.9% chlorpyrifos[O,O-diethyl-O-(3,5,6-trichloro-2-pyridyl) phosphorothioate](2 lb ai/gal).

Permanent tolerances exist for the residues of chlorpyrifos and its metabolite, [3,5,6-trichloro-2-pyridinol][TCP] on numerous raw agricultural commodities (RAC's) as well as food & feed additives. Tolerances range from negligible residues (NR) to 15 ppm (40CFR 180.342).

Permanent tolerances for residues of chlorpyrifos and its metabolite, [TCP], have been established on cottonseed at 0.5 ppm (of which no more than 0.2 ppm is the parent chlorpyrifos). There are no tolerances for residues of chlorpyrifos and its metabolite,[TCP], in/on cotton forage or gin trash.

The registrant has supported this request by submitting the: (1) PROPOPSED USE, (2) PRODUCT CHEMISTRY DATA, and (3) RESIDUE CHEMISTRY DATA.

Note: The Registration Standard for chlorpyrifos was issued, 9/30/84.

I. PROPOSED USE

LORSBAN-LV (2 lb ai/gal) will be used to control various insects on cotton in the States of Arizona and California. The insecticide will be applied at the rate of 2 pts(0.5 lb ai)/A. LORSBAN-2LV can be applied undiluted or diluted with water at a spray volume of from 0.25 to 5 gals/A, using aerial or power operated ground spray equipment suitable for thorough coverage of the cotton plant.

Re-treat as is necessary to maintain control. The following restrictions are to be observed:

(a) Do not apply within 40 days of harvest,

(b) Do not allow livestock to graze in treated area,

(c) Do not feed treated forage or gin trash to livestock.

RCB Comment

The label does not state maximum quantity of a.i. or the number of applications per area. Based on the proposed use, no more than 10 applications/season should be made. From the available residue data, total application of ai per season should not exceed 5 lbs ai. No more than 10 applications/ season should be made.

(2) Product Chemistry

Product chemistry data for formulated products are reviewed by RD/TSS. For this reason, Product Chemistry Data are not included in RCB's review.

(3) Residue Data

The registrants have submitted seven field trial residue studies in/on cotton seed from the States of AZ(4), CA(2), and MS(1). A total of 13 samples were analyzed for the active ingredient and its metabolite,

[3,5,6-trichloro-2-pyridinol][TCP]. All samples received 10 applications of LORSBAN-2LV at the rate of 0.5 lb ai/A, undiluted, with a 30 or 40 day PHI.

In two of the four AZ studies, chlorpyrifos was applied by air, and by ground; in the CA studies, both applications by air; and in MS, by ground application:

Samples were harvested,ginned, and frozen the same day. These samples were stored up to two and one-half months before being analyzed for residues:

# Samples	PHI/days	Residue/ppm	
		Chlorpyrifos †	TCP §
Six(6)	30	N.D. to 0.04	N.D. to <0.05
Seven(7)	40	N.D. to 0.08	N.D. to <0.10

† Values were less than 1/2 sensitivity of residue method for chlorpyrifos (0.01 ppm).

§ Values were less than 1/2 sensitivity of residue method for the metabolite, TCP (0.05 ppm).

RCB Comment: Raw data sheets and labeled sample chromatograms are needed to validate these data.

Recoveries for 0.01 ppm to 0.10 ppm of chlorpyrifos added to cottonseed ranged from 7% to 94% (86%) for TCP, 79% to 112% (92%). All results were corrected for recovery.

In a previous study (Memo: L. Propst, 2/14/84), XRM-4656,[the code number for LORSBAN-2LV], was applied to cotton in a Yuma, Arizona study in which 10 applications of the insecticide were applied at a high volume rate of 0.5 lb ai/A/5 gal. and a 24 to 28 day PHI. The residue levels were reported to be as high as 0.63 ppm for chlorpyrifos and 0.55 pm for its metabolite, [TCP].

Repeat application of the same insecticide under similar conditions, except at low volume (LV),i.e., 0.5 lb ai/A/qt (undiluted) and 21 to 28 day PHI yielded residues of chlorpyrifos as high as 0.30 ppm and 0.24 ppm for its metabolite.

Note: Data discussed in the Chlorpyrifos Registration Standard show a substantial decline in residues over a 14 day period. A 10 to 25 fold decline.

Methodology for Residue Data

The method used for residues of chlorpyrifos, was the Dow Chemical method [ACR76.3], first submitted to detect residues of the active ingredient in/on sorghum, PP#6F1830.

To detect residues of the metabolite, TCP, method [ACR71.19R] was used. This method was initially used to detect the residues of TCP in/on lima and snap bean forage,PP#4F1445. This method has been most frequently employed for determination of TCP residues in or on plant material. (Chlorpyrifos, Registration Standard, 2/22/84, p.30).

Both methods can be used for enforcement.

Conclusions

1. The Product Chemistry Data included in this submission should be reviewed by RD/TSS.

2. Raw data and sample chromatograms are needed to validate the residue data submitted.

Recommendation

For the reason given in conclusion #2, we recommend against the registration of this product. For further consideration, the registrant should submit the raw data and chromatograms requested.

cc: RF;SF(chlorpyrifos);Reviewer;circu;PMSD/ISB.
RDI:EZager,Sec.Head;SH,11/24/86;RDSchmitt,11/24/86.
TS-769:W.Anthony:vg:wa:CM-2:Rm810:X4351:12/5/86