PMSD/ISB

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

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OFFICE OF
PESTICIDES AND TOXIC SUBSTANCES

MEMORANDUM

SUBJECT: Thiodicarb (Larvin®; EPA Reg. No. 264-379) on Cotton. Amendment to Restrict Applications and Increase PHI. MRID No. 410191-01. Branch No. 5116.

FROM: Kenneth W. Dockter, Chemist
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TO: Dennis H. Edwards, Jr./Rita Kumar, PM Team # 12
Registration Division (H 7505C)

Rhone-Poulenc Ag Co. has submitted an amended label dated 2/28/89 for **Larvin® brand 3.2 Thiodicarb Insecticide/Ovicide Aqueous Flowable** (32.5% ai; Reg. No. 264-379) restricting the number of applications and increasing the PHI to prevent over-tolerance residues on cotton. Residues in excess of the tolerance had been reported in samples from Arizona and California. Consequently, uses in those states were cancelled. With the proposed label amendment, the Company requests those uses be restored. They contend that the absence of rainfall contributed to those over-tolerance incidences.

Tolerances have been established for the combined residues of the insecticide thiodicarb (dimethyl N,N'-[thiobis[[(methylimino)carbonyl]oxy] bis [ethanimidothioate]) and its metabolite methomyl (S-methyl[(methylcarbamoyl)oxy]-thioacetimidate) in or on cottonseed at 0.4 ppm (40 CFR § 180.407), and in or on processed feed cottonseed hulls at 0.8 ppm (21 CFR § 561.386).

The current label allows repeated applications of 5.0-36.0 fl oz product (0.125-0.9 lb ai)/A at 3-7 day intervals with a 28-day PHI. Grazing is not allowed.

The proposed, additional use restriction is, "In Arizona, apply before bolls begin to open and do not exceed 2 applications per season". This would allow aerial or ground application of up to 72 fl oz (1.8 lbs ai)/A/season, and a PHI of about 45 days.

No analytical method was provided with this request. The Company claims that the analytical methodology used to generate the current data is,"with modifications; 7-TWH-21", the method found in PP#0F2413, Accession No. 099601. The GC-FPD (Sulfur mode) method in PP#0F2413 was judged adequate at that time, which see A. Smith 1/21/81 review.

Currently, the method involves, "sample grinding followed by extraction with aqueous acetone, liquid-liquid partitioning, silica gel clean-up, caustic hydrolysis to methomyl oxime, and GC-FPD (sulfur mode)". A 0.04 ppm level of quantification, and recoveries of 76-109% from cottonseed fortified at 0.04 and 0.08 ppm are reported. Representative chromatograms were not provided.

No metabolism data were provided with this current submission. Problems with the animal metabolism need resolution before meat and milk tolerances can be established. As a result grazing has been restricted.

The new residue data provided with this current submission consists of seven tests in the "arid California/Arizona (CA/AZ) region" in which **Larvin 3.2** was used in 1988 field trials of growing cotton varieties at rates of 0.6 & 0.9 lb ai/A. Test plot sizes were not given. Repeat aerial and/or ground applications were made at 5-20 gpa. Tests were carried out in: CA (two each at El Centro and Poplar; one in Fresno) and AZ (two at Litchfield Park). The residue data including some details of the tests are depicted below.

Thiodicarb residues in Cottonseed

State	Rate	PHI	ppm
CA	2 x 0.9	46	ND
"	"	"	"
AZ	2 x 0.6	44	0.04
"	"	"	0.03
CA	2 x 0.9	33	0.10
"	"	45	0.03
"	"	"	0.04

Rate: number of applications at lbs ai/A.
ppm is maximum reported (n=3); corr.

Untreated control samples were taken from "adjacent or nearby" plots, presumably with identical field data. All samples (lint + seed) were frozen after harvest until ginned on 12/19/88, refrozen, shipped to Phone-Poulenc Ag Co., and analyzed by 1/26/89.

Previously reported residues from 1986 and 1987 trials in the CA/AZ region were, despite efforts of restricting the number of applications and increasing the PHI, consistently over-tolerance, which see current transmittal letter dated 2/28/89. Although additional details were not provided, the Company claims those over-tolerance residues were due to improper treatment timing, and the specific absence of rainfall in that region.

We note an absence of supporting weather data in the current report.

In sum, sufficient raw data are not yet available in support of the proposed labeling. But, providing that adequate raw data are submitted which support the reported below-tolerance summary residue data, we can recommend for the proposed amended label.

Conclusions:

1. Providing that adequate raw data are submitted which support the reported below-tolerance summary residue data, we can conclude that thiodicarb residues which may result from the proposed use of **Larvin 3.2** on cotton growing in Arizona and California are not likely to exceed the current tolerances for cottonseed (0.4 ppm) and for processed feed cottonseed hulls (0.8 ppm). The PM should direct the Company's attention to current Data Reporting Guidelines, NTIS No. PB86 248192, especially sections pertaining to Analytical Methods, Magnitude of the Residue: Crop Field Trials, and Storage Stability Studies.

2. Data on weather conditions from application through sampling must be provided for all crop field trials.

3. With respect to analytical methods, we require a detailed, stepwise description of the current procedure used to generate the residue data, including method modifications. E.g., what specifically does method modification 7-TWH-21 entail? Also required, are representative chromatograms for standards, spikes, and samples.

Recommendation:

Contingent on the discussed, supporting raw data (See Conclusions 1, 2, and 3), we could recommend for the use in Arizona.

cc: K. Dockter (DEB), R. Schmitt, Thiodicarb Amended use file, PP#0F2413, E. Eldredge (ISB/PMSD), Circulation (7), RF.
RDI: ARRathman:4/27/89:EZager:4/27/89 6
TS-769:DEB:CM#2:RM 802:77886:K.W. Dockter:edited by Kd:4/28/89