EFFICACY STUDY REVIEW

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To: Ann Sibold

Through: Mark Dow MD 1/7/2000

Date: January 6, 2000

EPA File Symbol: 241-GOE and 241-GOO

Product Name: Phantom Termiticide-Insecticide and Chlorfenapyr 25WP

Registrant: American Cyanamid

PM: Marion Johnson

Action: 116

Submission No(s). S562830 & D256467 and S562829 & D256466

Chemical: chlorfenapyr insecticide (I)

OPPTS Guideline: 810.36

Instructions: Review efficacy results for termites and fire ants

Studies Submitted: No MRID and no guideline

Package was submitted containing update on chlorfenapyr efficacy studies at the laboratory and field level. The second year results from field evaluations against termites by the USDA-FS are included. In addition, USDA - APHIS/PPQ results for Imported Fire Ants are presented.

The termiticide use is for post-construction use only.

USDA-FS Results:

1. Chlorfenapyr (EPA File Symbol 241-GOE) provided 100% protection of wood against termites at all concentrations tested in the Concrete Slab (CS) and Ground Board (GB) tests after the first year (1997) of testing. In the second year (1998) in Florida, the 0.125% and 0.75% treatments under concrete slabs (CS) declined to 90% and 80% control, respectively. The 0.5% treatments under Ground Boards declined to 90% control. In Mississippi, the 0.125% and 2.0% treatments under concrete slabs declined to 70% and 90% effectiveness, respectively.

2. The termite activity in the penetrated plots in Mississippi is of particular note. Of the three 0.125% CS plots penetrated, one continued to have termite activity, and damage to wood in all three plots was rated as "moderate". The 2.0% CS plot also had termite activity and moderate wood damage.

3. The wood of both penetrated 0.75% plots in Florida suffered moderate damage but no termites were present when the respective evaluations were conducted.

Dr. Kard among others have explained these results by pointing to the delayed toxicity and non-repellent nature of this insecticide. Termites are continually exposed to sub-lethal doses in treated soil and move treated soil during tunnel building. However, it has not been shown that the non-repellent nature of this insecticide results in secondary kill of other colony members. Furthermore, failure of a soil treatment to prevent termites from entering a structure could result in their establishment within a structure. Data development for this termiticide must be viewed cautiously and we must think about what the proper label rate will be if this compound fails in year two but continues to be effective through five years or if failures are intermittent.

EUP Results - The limited results presented in this report appear promising. **However, the company should now collect and report data on swarmer tube formation in structures treated to eliminate infestations of Formosan termites.** Mud tubes may appear inactive and termites may not be found or seen in a treated structure but the litmus test for Formosan termite elimination is whether or not they swarm the following year. Data of this nature are not reported here but should be in the future.

Laboratory Repellency Trials: Chlorfenapyr was shown to be a non-repellent termiticide.

Again, there were no data submitted for Chlorfenapyr 25WP and the SC data probably will not bridge to support the 25WP formulation.

Efficacy of Chlorfenapyr 2 SC as an Imported Fire Ant Quarantine Treatment:

Acceptable for this use at concentrations as low as 50ppm but best control achieved above 50ppm as a soil drench.

2/2