4-20-88
CASWELL FILE

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

APR 20 1988

OFFICE OF
PESTICIDES AND TOXIC SUBSTANCE

MEMORANDUM

SUBJECT: Bifenthrin G Petition Extension - Corn

TO: Mr. George LaRocca, PM 15
Registration Division (TS-767C)

FROM: Byron T. Backus, Toxicologist Byron T. Backus 4/14/88
Toxicology Branch (TS-769C)

THROUGH: Marcia van Gemert, Ph.D.
Section Head, Review Section III M. van Gemert 4/18/88
Toxicology Branch (TS-769C)

and

Theodore M. Farber, Ph.D., D.A.B.T.
Branch Chief
Toxicology Branch (TS-769C)

EPA Record Nos. 213570

Project No. 8-0519 5G 3235

Tox. Chem. 463F

Action Requested:

Review and comment on a G petition extension request involving use of a total amount of 3168 lbs of the active Bifenthrin on corn, and extension of the existing temporary tolerance for field corn.

Comments and Recommendations:

1. Currently, Bifenthrin is classified as a category C oncogen with a $Q^* = 5.4 \times 10^{-2}$ $(mg/kg/day)^{-1}$.

2. Previously (TB memorandum of June 23, 1987), risk values of 1.35×10^{-7} and 4.02×10^{-10} (from one-year exposure) were calculated for applicator exposure associated with open and closed loading systems respectively and proposed product use on cotton. These risk values were based on exposures to 6.4×10^{-2} (open loading) and 1.9×10^{-4} (closed loading) mg/kg/yr; these exposure levels

1/2

were provided to TB by EAB (memorandum of May 28, 1987). Subsequently (June 1987), the Toxicology Branch noted that exposures involving use of the product on corn would be no worse than those on cotton, particularly as there would be a limit of 10 applications/season on cotton, and only 5 applications/season on corn. However, in a memorandum dated December 2, 1987, M. Jones recalculated applicator risks, noting that the exposures given in the EAB review of May 28, 1987 for mixer/loaders and use on cotton did not take into account the amount of acreage that would be treated. In these calculations consideration has to be made of the average area of a corn field (200 acres), as well as the upper limit (0.554) for dermal absorption. When these values are taken into consideration, the following risks are calculated:

	(1) Average annual exposure* (mg/kg/yr)	(2) Average Daily Lifetime Exposure (mg/kg/day) $[(1) \times \frac{1}{365} \times \frac{35}{70}]$	Upper 95% Bound on Risk: $Q_1^* = 5.4 \times 10^{-2}$ $(mg/kg/day)^{-1}$ in human equivalents x 55.4% Dermal Absorption
Mixer/Loaders			
Liquid formulation			
Open loading	6.4	8.8×10^{-3}	2.6×10^{-4}
Closed loading	1.9×10^{-2}	2.5×10^{-5}	7.6×10^{-7}
Pilots	2.3×10^{-2}	3.2×10^{-5}	9.6×10^{-7}
Flaggers	1.4×10^{-1}	1.9×10^{-4}	5.6×10^{-6}
Ground Boom Application			
Low exposure	2.9×10^{-2}	4.0×10^{-5}	1.2×10^{-6}
Medium exposure	5.6×10^{-1}	7.7×10^{-4}	2.3×10^{-5}
High exposure	13	1.8×10^{-2}	5.3×10^{-4}

*Based on exposure for 10 days in one year

The risk for one-year exposure of a mixer/loader to an open loading system would be 7.4×10^{-6}, and to a closed loading system would be 2.2×10^{-8}. It is noted that these are extremely conservative estimates, as the 55.4% dermal absorption rate represents a maximum potential value.

4. The dietary risk characterizations associated with the temporary tolerances were covered in a TB memo of June 23, 1987.

5. The Toxicology Branch has no objections to extension of this G petition provided product labeling stipulates the use of closed loading systems.