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

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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*  
Toxicology Branch (TS-769C) *4/14/88*

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

and

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Branch Chief  
Toxicology Branch (TS-769C) *10/18/88*

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  $Q^* = 5.4 \times 10^{-2} \text{ (mg/kg/day)}^{-1}$ .
2. Previously (TB memorandum of June 23, 1987), risk values of  $1.35 \times 10^{-7}$  and  $4.02 \times 10^{-10}$  (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  $6.4 \times 10^{-2}$  (open loading) and  $1.9 \times 10^{-4}$  (closed loading) mg/kg/yr; these exposure levels

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

\*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  $7.4 \times 10^{-6}$ , and to a closed loading system would be  $2.2 \times 10^{-8}$ . 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.