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OFFICE OF
PESTICIDES AND TOXIC SUBSTANCES

MEMORANDUM

PP#3F2884 Chlorpyrifos on several commodities. A request by the petitioner to base the ADI on expected residues rather than tolerance levels for certain commodities.

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THRU: Charles L. Trichilo, Chief
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TO: J. Ellenberger, PM Team No. 12
Registration Division (TS-767)
and
Toxicology Branch
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In a recent conference (see PP#3F2884, 11/1/83 memo of conference, K. Arne) Mr. Robert Bischof of Dow expressed concern that, for some commodities, the chlorpyrifos ADI as determined by TOX does not realistically represent amount of residue that would be consumed by humans. Specifically, these concerns were raised over meat (the tolerance for which is exaggerated because it is based on residues expected in fat), sugarbeets (where residues would be removed during processing), citrus (where most of the residue is in the peel), and wheat (where much of the residue would be removed during milling to flour). We are therefore calculating the maximum residue expected in the food items of these commodities following to effect a more realistic ADI for chlorpyrifos.

Meat, Fat, Kidney, and Liver

Below we summarize tolerances for meat to include the tolerance (or tolerances required by us for residues resulting from the pending use on tomatoes; see FAP#1H5295), the highest expected level of combined residues in fat, lean meat, liver, and kidney and the highest expected level of chlorpyrifos, per se, in fat, lean meat, liver, and kidney. The data for cattle tissues includes residues that may result from a spray treatment. Feeding studies have been most recently discussed in our review of the 8/31/83 amendment to FAP#1H5295.

(ppm)	Tolerance	Highest expected level, TCP plus chlorpyrifos(ppm)	Highest expected level, chlorpyrifos, per se (ppm)
Cattle			
fat	2.0	1.93	1.83
lean meat	2.0	0.06	0.02
liver	2.0	1.27	<0.01
kidney	2.0	0.86	<0.01
Hogs			
fat	0.5	0.38	0.29
lean meat	0.5	0.10	0.04
liver	0.5	0.12	<0.01
kidney	0.5	0.08	<0.01
Horses			
fat	1.5	0.70	0.62
lean meat	1.5	0.05	<0.01
liver	1.5	0.95	<0.01
kidney	1.5	0.60	<0.01
Sheep and goats			
fat	1.5	0.94	0.84
lean meat	1.5	0.07	0.015
liver	1.5	1.28	0.01
kidney	1.5	0.81	0.01

Citrus

The tolerance for citrus is 1 ppm. However, processing studies show that the maximum combined residues expected in juice would be <0.1 ppm and that of this <0.05 ppm is expected to be chlorpyrifos, per se. Residues in the peel, which also may find limited use as human food, may be as high as 2 ppm, of which >75% could be chlorpyrifos, per se.

Sugar Beets

The tolerance for sugar beets roots is 1 ppm. However, processing studies show that little, if any, chlorpyrifos (<0.05 ppm) would be expected in processed sugar. Available studies show that levels of TCP may approach 0.5 ppm in crude sugar; we would expect lower levels than this in refined sugar, but are not able to make a better estimate.

Wheat

The petition for chlorpyrifos on wheat is currently under RCB review; the question of residues in wheat products will be addressed in conjunction with that petition (PP#3F2947).

Conclusion and Recommendation

We suggest that Toxicology Branch use the above calculated residue levels in their determination of the ADI for chlorpyrifos to effect a more realistic estimate of human exposure via ingestion.

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TS-769: K. Arne:CM-2:Rm810:557-7377:11/3/83
cc: R.F., Circu., K. Arne, Thompson, FDA, TOX, EEB, EAB, PP#3F2884
RDI: M. Nelson, 11/3/83; R. Schmitt, 11/3/83

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