



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

DEC 21 1988

OFFICE OF  
PESTICIDES AND TOXIC SUBSTANCES

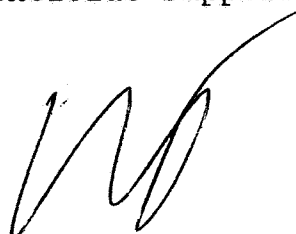
MEMORANDUM

SUBJECT: PP#3F2884 and Chlorpyrifos Registration Standard.  
Additional Comments and Recommendations  
Concerning Appropriate Tolerances and Residue Data  
Requirements. No MRID Number. No DEB Number.

FROM: Stephanie H. Willett, Chemist *SHW*  
Tolerance Petition Section II  
Dietary Exposure Branch  
Health Effects Division (TS-769C)

TO: Dennis Edwards, PM Team 12  
Registration Division (TS-767C)  
and  
Toxicology Branch, Insecticide-Rodenticide Support  
Health Effects Division (TS-769C)

THRU: Charles L. Trichilo, Ph.D., Chief  
Dietary Exposure Branch  
Health Effects Division (TS-769C)



Background

Dow Chemical USA recently submitted additional metabolism studies and residue data in response to residue chemistry data deficiencies outlined in the EPA document entitled "Guidance for the Reregistration of Pesticide Products Containing Chlorpyrifos as the Active Ingredient", issued September 28, 1984 (see memos of S.H. Willett, dated 3/9/88 and 9/23/88). These additional data were also intended to support Dow's request to revise chlorpyrifos tolerances, which include the parent and 3,5,6-trichloro-2-pyridinol metabolites, in such a way that the amount of chlorpyrifos (parent compound) would be specified but that the combined residue level would not be different from the existing tolerance in order to reduce the concern over chlorpyrifos toxicity (PP#3F2884).

DEB previously concluded that 1) all matters concerning the metabolism of chlorpyrifos in plants and ruminant animals have been sufficiently addressed as a result of the data reviewed by DEB (see footnotes 3 and 4 of guidance document), and the significant residues in plants and animals are chlorpyrifos and

TCP, and 2) that the residue data submitted adequately addressed those data gaps concerning broccoli, Brussels sprouts, cabbage, chinese cabbage, cauliflower, sorghum and alfalfa (see footnotes 12, 13, 14, 15, 38, and 40 of the guidance document).

DEB continued to recommend for the establishment of the revised tolerance expression for chlorpyrifos which separately expresses levels of chlorpyrifos and TCP. These same data were said to specifically support the following revisions in tolerance levels of various RACs:

<u>Commodity</u>	<u>Pending Tolerance</u>
Alfalfa, hay	15 ppm (of which not more than 13 ppm is chlorpyrifos)
Alfalfa, green forage	4 ppm (of which not more than 3 ppm is chlorpyrifos)
Sorghum, fodder	6 ppm (of which no more than 4 ppm is chlorpyrifos)
Sorghum, forage	1.5 ppm (of which no more than 1 ppm is chlorpyrifos)
Sorghum, grain	1.5 ppm (of which no more than 0.8 ppm is chlorpyrifos)
Vegetables, leafy, Brassica (cole)	2 ppm (of which no more than 1 ppm is chlorpyrifos)

DEB also previously recommended against the proposed revisions in the tolerances for the following items because residue data suggested that chlorpyrifos may comprise all or nearly all of the terminal residue in these crops (see memo of K. Arne dated September 3, 1983).

Apples  
 Apple pomace, dried  
 Citrus fruit  
 Citrus oil  
 Citrus pulp, dried  
 Soybean forage

The most recent Section F submitted by Dow in PP# 3F2884 is attached to this review.

### Present Considerations

The Toxicology Branch (II) has recently decided that TCP is not of toxicological concern and can be dropped from the tolerance expression for chlorpyrifos (see memo of Alan Levy, dated 11/29/88). Also, DEB has recently completed its chapter of the Second Round Review (SRR) for chlorpyrifos where present requirements for reregistration of various uses of chlorpyrifos are discussed (11/88).

Because of this new information, previous DEB conclusions need modification and clarification. Following are our current recommendations to the registrant concerning chlorpyrifos:

1. The petitioner is advised to submit a revised Section F for PP# 3F2884 which proposes tolerances in terms of parent only.
2. All proposed tolerance levels in PP# 3F2884 (Section F of December 15, 1983) may be approved (when revised to cover only the parent) with the following exceptions, due to data gaps recently identified in the SRR:
  - a. corn, fresh
  - b. sorghum, fodder
  - c. sorghum, forage
  - d. sorghum, grain
  - e. seed and pod vegetables (see recommendation 4)
  - f. sunflower seeds
  - g. sunflower seed, hull
  - h. corn oil
  - i. corn soapstock
  - j. sorghum grain, milling fractions
  - k. cattle, meat, fat, and meat byproducts
  - l. goats, meat, fat and meat byproducts
  - m. hogs, meat, fat and meat byproducts
  - n. milk, whole
  - o. milk, fat
  - p. sheep, meat, fat and meat byproducts

The present tolerances for these commodities will remain until the data requirements are met as outlined in the SRR.

3. The tolerance proposals for broccoli, Brussels sprouts, cabbage, cauliflower and chinese cabbage should be withdrawn and the currently established tolerance for residues in/on Brassica (cole) leafy vegetables should be revised to permit no more than 1 ppm chlorpyrifos.
4. The currently established tolerance of 0.1 ppm for residues of parent and TCP in/on legume vegetables, succulent or dried (except soybeans) should be revised to permit no more

3

than 0.05 ppm chlorpyrifos. The currently established seed and pod vegetable tolerance must stand until we receive the required data as outlined in the SRR for dill and okra, for which individual tolerances must be proposed.

5. The new Section F should require a tolerance proposal of 0.25 ppm for the fat, meat and meat byproducts of horses based on current uses on feed items.
6. The new Section F should require a tolerance proposal of 0.1 ppm for poultry fat, meat and meat byproducts based on current uses on poultry feed items.
7. DEB previously recommended that the revised tolerance not be accepted for citrus because chlorpyrifos may comprise all or nearly all of terminal residue (see DEB memo of 9/8/83). However, the proposed tolerance was inadvertently left in the Section F appended to the DEB memo of 3/9/88. The new Section F should propose a tolerance of 1 ppm for residues of chlorpyrifos per se on citrus.

Attachment: Section F of PP#3F2884

TS769C:DEB:SHW:shw-12/15/88:CM2:RM810:X1669

cc: RF, Circ., Willett, PP#3F2884, Reg. Std. File (D. Edwards),  
PM12, PMSD/ISB

RDI: M.F.Kovacs, 12/16/88; R.D. Schmitt, 12/16/88

4

Revised on December 15, 1983

SECTION F. PROPOSED TOLERANCES FOR THE PESTICIDE CHEMICAL

Tolerances for combined residues of the insecticide chlorpyrifos [0,0-diethyl 0-(3,5,6-trichloro-2-pyridyl)phosphorothioate] and its metabolite 3,5,6-trichloro-2-pyridinol are proposed as revisions to 40 CFR 180.342 as follows:

15 parts per million (of which no more than 13 ppm is chlorpyrifos) in or on alfalfa, hay;

0.05 part per million (of which no more than 0.01 ppm is chlorpyrifos) in or on bananas, pulp with peel removed;

1 part per million (of which no more than 0.7 ppm is chlorpyrifos) in or on bean forage;

2 parts per million (of which no more than 1 ppm is chlorpyrifos) in or on broccoli;

2 parts per million (of which no more than 1 ppm is chlorpyrifos) in or on Brussels sprouts;

2 parts per million (of which no more than 1 ppm is chlorpyrifos) in or on cabbage;

2.5 parts per million (of which no more than 2.0 ppm is chlorpyrifos) in or on cattle, meat, fat and meat byproducts;

2 parts per million (of which no more than 1 ppm is chlorpyrifos) in or on cauliflower;

2 parts per million (of which no more than 1 ppm is chlorpyrifos) in or on cherries;

2 parts per million (of which no more than 1 ppm is chlorpyrifos) in or on Chinese cabbage;

0.1 part per million (of which no more than 0.05 ppm is chlorpyrifos) in or on corn, field, grain;

0.1 part per million (of which no more than 0.05 ppm is chlorpyrifos) in or on corn, fresh (inc. sweet, K+CWHR);

- 10 parts per million (of which no more than 8 ppm is chlorpyrifos)  
in or on corn, forage and fodder;
- 0.5 part per million (of which no more than 0.2 ppm is chlorpyrifos)  
in or on cottonseed;
- 0.1 part per million (of which no more than 0.05 ppm is chlorpyrifos)  
in or on cucumbers;
- 0.1 part per million (of which no more than 0.01 ppm is chlorpyrifos)  
in or on eggs;
- 0.1 part per million (of which no more than 0.01 ppm is chlorpyrifos)  
in or on figs;
- 2.0 parts per million (of which no more than 1.0 ppm is chlorpyrifos)  
in or on goats, meat, fat and meat byproducts;
- 0.5 part per million (of which no more than 0.3 ppm is chlorpyrifos)  
in or on hogs, meat, fat and meat byproducts;
- 1.5 parts per million (of which no more than 0.8 ppm is chlorpyrifos)  
in or on horses, meat, fat and meat byproducts;
- 0.5 part per million (of which no more than 0.25 ppm is chlorpyrifos)  
in or on milk, fat;
- 0.03 part per million (of which no more than 0.02 ppm is chlorpyrifos)  
in or on milk, whole;
- 1 part per million (of which no more than 0.8 ppm is chlorpyrifos)  
in or on mint, hay;
- 0.05 part per million (of which no more than 0.01 ppm is chlorpyrifos)  
in or on nectarines;
- 0.05 part per million (of which no more than 0.01 ppm is chlorpyrifos)  
in or on peaches;
- 1 part per million (of which no more than 0.7 ppm is chlorpyrifos)  
in or on pea forage;
- 15 parts per million (of which no more than 2 ppm is chlorpyrifos)  
in or on peanut hulls;
- 6

0.5 part per million (of which no more than 0.2 ppm is chlorpyrifos)  
in or on peanuts;

0.05 part per million (of which no more than 0.01 ppm is chlorpyrifos)  
in or on pears;

0.05 part per million (of which no more than 0.01 ppm is chlorpyrifos)  
in or on plums, inc. fresh prunes;

0.5 part per million (of which no more than 0.1 ppm is chlorpyrifos)  
in or on poultry, meat, fat and meat byproducts (inc. turkeys);

0.1 part per million (of which no more than 0.05 ppm is chlorpyrifos)  
in or on pumpkins;

3 parts per million (of which no more than 2 ppm is chlorpyrifos)  
in or on radishes;

3 parts per million (of which no more than 0.5 ppm is chlorpyrifos)  
in or on rutabagas;

0.1 part per million (of which no more than 0.05 ppm is chlorpyrifos)  
in or on seed and pod vegetables;

2.0 parts per million (of which no more than 1.0 ppm is chlorpyrifos)  
in or on sheep, meat, fat and meat byproducts;

6 parts per million (of which no more than 4 ppm is chlorpyrifos)  
in or on sorghum, fodder;

1.5 parts per million (of which no more than 1 ppm is chlorpyrifos)  
in or on sorghum, forage;

0.75 part per million (of which no more than 0.3 ppm is chlorpyrifos)  
in or on sorghum, grain;

0.5 part per million (of which no more than 0.3 ppm is chlorpyrifos)  
in or on soybeans;

0.05 part per million (of which no more than 0.01 ppm is chlorpyrifos)  
in or on pears;

0.05 part per million (of which no more than 0.01 ppm is chlorpyrifos)  
in or on pears;

0.5 part per million (of which no more than 0.2 ppm is chlorpyrifos)  
in or on strawberries;

0.25 part per million (of which no more than 0.2 ppm is chlorpyrifos)  
in or on sunflower seeds;

0.1 part per million (of which no more than 0.05 ppm is chlorpyrifos)  
in or on sweet potatoes;

1 part per million (of which no more than 0.3 ppm is chlorpyrifos)  
in or on turnip greens; and

3 parts per million (of which no more than 1 ppm is chlorpyrifos)  
in or on turnips.

Under the provisions of Section 409 of the Federal Food, Drug, and Cosmetic Act food additive tolerances for combined residues of the insecticide chlorpyrifos [0,0-diethyl 0-(3,5,6-trichloro-2-pyridyl) phosphorothioate] and its metabolite 3,5,6-trichloro-2-pyridinol are proposed as revisions to 21 CFR 193.85 as follows:

3 parts per million (of which no more than 1.5 ppm is chlorpyrifos)  
in or on corn oil;

10 parts per million (of which no more than 8 ppm is chlorpyrifos)  
in or on mint oil; and

1.5 parts per million (of which no more than 0.4 ppm is chlorpyrifos)  
in or on peanut oil.

Under the provisions of Section 409 of the Federal Food, Drug, and Cosmetic Act feed additive tolerances for combined residues of the insecticide chlorpyrifos [0,0-diethyl 0-(3,5,6-trichloro-2-pyridyl) phosphorothioate] and its metabolite 3,5,6-trichloro-2-pyridinol are proposed as revisions to 21 CFR 561.98 as follows:

1 part per million (of which no more than 0.5 ppm is chlorpyrifos)  
in or on corn soapstock;

1.5 parts per million (of which no more than 0.8 ppm is chlorpyrifos)  
in or on sorghum, grain, milling fractions;



5 parts per million (of which no more than 0.5 ppm is chlorpyrifos)  
in or on sugar beets, dried pulp;

15 parts per million (of which no more than 0.01 ppm is chlorpyrifos)  
in or on sugar beets, molasses; and

0.5 part per million (of which no more than 0.4 ppm is chlorpyrifos)  
in or on sunflower seed, hulls.