

6-7-77 CB

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

SUBJECT: Petition for the establishment of a tolerance
of 0.75 ppm in/on Sorghum grain and 1.50 ppm
in/on Sorghum forage and fodder. Petition
No. 6F1830

DATE: 6/7/77

FROM: Toxicology Branch, Chan, S.L., Ph.D.

Sim-Lam Chan

TO: Product Manager No. 12, Mr. Sanders, F.T.

for OOP 6/8/77

File petition

Petitioner: Dow Chemical, USA
P.O. Box 1706
Midland, Michigan 48640

Recommendations:

Sorghum grain, forage and fodder are used almost exclusively for animal feeds. A review by Chemistry Branch is needed for Chlorpyrifos residues in/on sorghum grain, forage and fodder and in/on edible animal tissues, milk, eggs and creams as a result of the above feeds.

Our recommendations for this petition are exactly the same as those for petitions 6F1777, 6F1786 and 6H5147, previously given by Chan, S.L.

A. Substance Identification.

1. Chemical name: 0,0-Diethyl 0-(3,5,6-trichloro-2-pyridyl) phosphorothioate.
2. Synonyms: Chlorpyrifos, Lorsban, Dursban, Dowco 179, and ENT 27311.
3. Properties and Characteristics: See recent reviews (4/19/77, 4/25/77) on petitions 6H5147 and 6F1786 by Chan, S.L.

B. Related petitions: 9F0817, 3F1306, 3F1370, 4F1445, 5G1595, 5H5080, 6H5147, 6F1380, 6F1786, 6F1777.

1. Formulation: Lorsban 4E: See previous reviews on 6F1786, 6F1777 and 6H5147 by Chan, S.L.
2. Inert clearance: Cleared as in previous reviews by Chan, S.L.

Note: This petition is found deficient in chemistry residue data in the review by A. Smith, 11/23/76. Otherwise, tox. branch conclusion is unaffected.

Tox. Br. SLC

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D. Uses proposed:

As a ground or aerial broadcast foliar spray, applied when 30-50% of the seed heads are in bloom followed by a second and third treatment at 3 day intervals as needed. The amount of Chlorpyrifos used is 40~~2~~ per acre per treatment.

E. Toxicological Reviews.

No new toxicological data are submitted.
All toxicological data have been adequately reviewed recently by Chan, S.L., on petition numbers 6H5147 and 6F1786.

F. 1. Prior Tolerances for Chlorpyrifos.

CFR 40, § 180.342 Chlorpyrifos; tolerances for residues.

Tolerances are established for combined residues of the pesticide chlorpyrifos (0,0-diethyl 0-(3,5,6-trichloro-2-pyridyl) phosphorothioate and its metabolite 3,5,6-trichloro-2-pyridinol in or on the following raw agricultural commodities:

Commodity:	Parts per million
Bananas (whole).....	0.25
Bananas, pulp with peel removed.....	0.05
Beans, lima.....	0.05
Beans, lima, forage.....	1
Beans, snap.....	0.05
Beans, snap, forage.....	1
Cattle, fat.....	1.5
Cattle, mbyp.....	1.5
Cattle, meat.....	1.5
Corn, field, grain.....	0.1
Corn, fresh (inc sweek K + CWHR).....	0.1
Corn, fodder.....	0.1
Corn, forage.....	0.1
Cottonseed.....	0.5
Eggs.....	0.01
Goats, fat.....	0.1
Goats, mbyp.....	0.1
Goats, meat.....	0.1

Commodity:	Parts per million
Hogs, fat.....	0.1
Hogs, mbyp.....	0.1
Hogs, meat.....	0.1
Horses, fat.....	0.1
Horses, mbyp.....	0.1
Horses, meat.....	0.1
Milk, fat [0.01 ppm (N) in whole milk]..	0.25
Peaches.....	0.05
Poultry, fat (exc turkeys).....	0.01
Poultry, mbyp (exc turkeys).....	0.01
Poultry, meat (exc turkeys).....	0.01
Sheep, fat.....	0.1
Sheep, mbyp.....	0.1
Sheep, meat.....	0.1
Turkeys, fat.....	0.2
Turkeys, mbyp.....	0.2
Turkeys, meat.....	0.2

2. Pending Tolerances for Chlorpyrifos and Metabolites

- (i) 0.05 ppm in or on Almonds, apples, pears, plums and prunes. (Petition No. 6F1777).
- (ii) 0.10 ppm in/on Sweet-potatoes. (Petition No. 6F1786).
- (iii) <0.025 ppm in/on food, food additive tolerance. (Petition No. 6H5147).

G. 1. ADI Determination.

2-year rat feeding study:

RBC AChE NEL = 0.1 mg/kg/day.

2-year dog feeding study:

RBC AChE NEL = 0.1 mg/kg/day.

A safety factor of 10 is used since Chlorpyrifos is an organo-phosphorus acetylcholinesterase inhibitor.

ADI = 0.01 mg/kg/day

MPI = 0.60 mg/day for a 60 kg person.

2. Exposure from present and pending tolerances.

(a) From present tolerances

<u>Source</u>	<u>PPM</u>	<u>Intake (g)</u>	<u>Chlorpyrifos (mg)</u>
Bananas, peaches,			
beans, snap & lima	0.05	62.5	0.0031
Beef	1.50	110.0	0.1650
Beef fats	1.50	11.0	0.0165
Beef by-products	1.50	22.9	0.0344
Other meat by-products	0.10	10.0	0.0010
Other meat & poultry	0.10	150.0	0.0150
Other animal fats	0.10	11.0	0.0011
Corn	0.10	31.6	0.0032
Dairy products	0.01	515.1	0.0052
Eggs	0.01	57.0	0.0006

Total daily exposure = 0.240 mg

(b) From pending tolerances

<u>Source</u>	<u>PPM</u>	<u>Intake (g)</u>	<u>Chlorpyrifos (mg)</u>
Almonds, apples, pears,			
plums and prunes	0.05	44.4	0.0023
Food additive tolerance	0.025	1500.0	0.0375
Sweet-potatoes	0.10	4.0	0.0004

Total daily exposure = 0.0402 mg.

3. Exposure from the petitioned tolerance of 0.75 ppm of Chlorpyrifos in/on sorghum grain.

Sorghum grain is mainly consumed in small amount in the form of Molasses, the estimated intake of which is 0.6 gm/day.

The exposure level is:

$$\begin{aligned} &= 0.75 \times .0006 \text{ mg} \\ &= 0.00045 \text{ mg/person/day.} \end{aligned}$$

4. The MPI for Chlorpyrifos = 0.60 mg/person/day.
The exposure from existing tolerances = 0.240 mg/day.
The exposure from pending tolerances = 0.040 mg/day.
The exposure from this petition = 0.0005 mg/day.

Compared to the human exposure from existing tolerances, the exposure from the petitioned tolerance is negligible. With the addition of this tolerance the MPI will not be exceeded.