TITLE 40--PROTECTION OF ENVIRONMENT
CHAPTER I--ENVIRONMENTAL PROTECTION AGENCY
[PP 6F1830/R207]
SUBCHAPTER E--PESTICIDE PROGRAMS

PART 180--TOLERANCES AND EXEMPTIONS FROM TOLERANCES FOR
PESTICIDE CHEMICALS IN OR ON RAW AGRICULTURAL COMMODITIES

Chlorpyrifos

AGENCY: Office of Pesticide Programs, Environmental Protection
Agency (EPA).

ACTION: Final Rule.

SUMMARY: This rule establishes tolerances for residues of the
insecticide chlorpyrifos on sorghum grain at 0.75 part per million
(ppm) sorghum fodder at 6 ppm, and sorghum forage at 1.5 ppm. The
regulation was requested by Dow Chemical Co. This rule establishes
maximum permissible levels for residues of chlorpyrifos on sorghum
grain, fodder, and forage.

EFFECTIVE DATE: Effective on the date of publication in the
FEDERAL REGISTER.

FOR FURTHER INFORMATION CONTACT: Mr. Frank Sanders, Product
Manager (PM) 12, Registration Division (TS-767), Office of Pesticide
Programs, EPA, 401 M Street, SW, Washington, DC 20460 (202/426-9425).

SUPPLEMENTARY INFORMATION: On September 1, 1976, notice was
given (41 FR 36834) that Dow Chemical Co., PO Box 1706, Midland, MI
48640, had filed a pesticide petition (PP 6F1830) with the EPA. This
petition proposed that 40 CFR 180.342 be amended to establish tolerances for combined residues of the insecticide chlorpyrifos (O,O-diethyl O-(3,5,6-trichloro-2-pyridyl) phosphorothioate) and its metabolite 3,5,6-trichloro-2-pyridinoI in or on the raw agricultural commodities sorghum grain at 0.75 ppm, and sorghum fodder and forage at 1.5 ppm.

Subsequently, the petitioner amended the petition by increasing the proposed tolerance on sorghum fodder from 1.5 ppm to 6 ppm. Since sorghum fodder is not a human food item, the higher tolerance will not result in a potential increase in exposure of humans to chlorpyrifos residues. Thus, the tolerances are not being proposed at this time to provide an opportunity for public comment. No comments were received in response to this notice of filing. (A related document concerning the establishment of a feed additive tolerance for residues of chlorpyrifos on sorghum grain milling fractions appears elsewhere in today's FEDERAL REGISTER).

The data submitted in the petition and other relevant material have been evaluated. The toxicology data considered in support of the proposed tolerances included a two-year rat feeding/oncogenicity study and a dog feeding study with a no-observed-effect level (NOEL) of 0.1 milligram (mg)/kilogram (kg) of body weight. Studies on delayed neurotoxicity and reproduction showed negative potentials. Based on the two-year chronic rat feeding study with the 0.1 mg/kg bw NOEL on cholinesterase activity and using a safety factor of 10, the acceptable daily intake (ADI) for man is 0.01 mg/kg bw/day.
The theoretical maximum residue contribution (TMRC) in the human
diet from the proposed tolerances and tolerances which have
previously been established for residues of chlorpyrifos on a variety
of raw agricultural commodities at levels ranging from 0.01 ppm to
1.5 ppm does not exceed the ADI. A food additive regulation (21
CFR 193.85) has previously been established for chlorpyrifos in food-
handling establishments. Feed additive tolerances have also been
established (21 CFR 561.98) for residues of chlorpyrifos in dried
sugar beet pulp at 1 ppm and sugar beet molasses at 3 ppm.

Desirable data that are lacking from the petition are a life-
time oncogenicity study and a teratology study. In a letter of
February 17, 1978, and January 31, 1979, the petitioner indicated
that the lifetime oncogenicity study is expected to be completed in
May, 1979 and the teratology study is expected to be completed in
late 1979. The petitioner also agreed to voluntarily delete the use
of chlorpyrifos on sorghum from the label should the lifetime oncogen-
icity and teratology studies be found to exceed the risk criteria
for chronic toxicity in 40 CFR 162.11. Although the oncogenicity
evaluation of chlorpyrifos is not complete, it is concluded that
based on the available data, the risks are acceptable since the
absence of an oncogenic potential is shown in the two-year rat
feeding/oncogenicity study.

The metabolism of chlorpyrifos is adequately understood, and
an adequate analytical method (gas chromatography) is available for
enforcement purposes. No actions are currently pending against
continued registration of chlorpyrifos nor are there any other relevant considerations involved in establishing the proposed tolerances. The established tolerances for residues of chlorpyrifos in milk, meat, poultry, and eggs are adequate to cover the proposed uses.

The pesticide is considered useful for the purpose for which tolerances are sought, and it is concluded that the tolerances of 0.75 ppm on sorghum grain, 6 ppm on sorghum fodder, and 1.5 ppm on sorghum forage established by amending 40 CFR 180.342 will protect the public health. It is concluded, therefore, that the tolerances be established as set forth below.

Any person adversely affected by this regulation may, within 30 days after publication in the FEDERAL REGISTER, file written objections with the Hearing Clerk, Environmental Protection Agency, Rm. M-J708 (A-110), 401 M St., SW, Washington, DC 20460. Such objections should be submitted in triplicate and specify the provisions of the regulation deemed to be objectionable and the grounds for the objections. If a hearing is requested, the objections must state the issues for the hearing. A hearing will be granted if the objections are supported by grounds legally sufficient to justify the relief sought.

Under Executive Order 12044, EPA is required to judge whether a regulation is "significant" and therefore subject to the procedural requirements of the Order or whether it
may follow other specialized development procedures. EPA labels these other regulations "specialized". This regulation has been reviewed, and it has been determined that it is a specialized regulation not subject to the procedural requirements of Executive Order 12044.

Effective on the date of publication in the FEDERAL REGISTER Part 180 is amended as set forth below.

Signed 2, 1979

[Signature]

Deputy Assistant Administrator for Pesticide Programs


cc: TS-766 (EJohnson, Rm. E-639)  
TS-767 (DCampt, Rm. E-347)  
TS-769 (RSchmitt, Rm. E-108)  
TS-767 (PN 12/Petition File)

FRS/EGross/eg/rm405ET/x54854/TS-757/4-25-79
Part 180, Subpart C, section 180.342, is amended by alphabetically inserting sorghum grain at 0.75 ppm, sorghum fodder at 6 ppm, and sorghum forage at 1.5 ppm in the table to read as follows:

Section 180.342 Chlorpyrifos; tolerances for residues.

<table>
<thead>
<tr>
<th>Commodity</th>
<th>Parts per million</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sorghum, fodder</td>
<td>6</td>
</tr>
<tr>
<td>Sorghum, forage</td>
<td>1.5</td>
</tr>
<tr>
<td>Sorghum, grain</td>
<td>0.75</td>
</tr>
</tbody>
</table>
1.0 Introduction

1.1 Other names for chlorpyrifos are Lorsban, Dursban, DOMCO 179, ENT 27311.

1.2 Percent Active - Lorsban 4E: 40.7% chlorpyrifos and 22.8% aromatic petroleum derivative solvent.

1.3 For use on sorghum to control midge.

1.4 See other reviews for chlorpyrifos:

- 6720-EAA
- 9782-LU
- 9198-6T
- 299-172
- 464-448, 449, 523
- 56-1595
- 464-448
- 3F 1306
- 3F 1306
- 464-ULH
- 464-LRT
- 464-368
- 5F 1673
- 464-EXP
- 464-EXP
- 464-LRH
- 464-EXP
- 4F 1445
- 3F 1370

2.0 Directions for Use

2.1 Method and Time of Application: Ground or aerial application as a broadcast, foliar spray. First treatment when 30 to 50 percent of the seed heads are in bloom and midge adults are present. A second and third treatment at 3-day intervals as needed but not to exceed 3 applications.

2.2 Dosage: One quarter (0.25) pound of chlorpyrifos per acre per treatment (equivalent to one-half pint of Lorsban 4E per acre).

2.3 Restrictions: Do not use treated crop for forage or silage within 14 days after last treatment or for fodder within 70 days after last treatment.
2.4 Do not contaminate water by cleaning of equipment or disposal of wastes.

2.5 Do not reuse empty container. Crush or perforate it and bury it in an area away from water supplies.

3.0 Discussion of Data

3.1 Hydrolysis Studies

The following studies were reviewed and accepted on 5/2/74:


Submitted March 20, 1972.


Submitted March 20, 1972.

5. Pesticide Petition No. 3F1306)


3.2 Microbial Studies

The following studies were submitted on March 20. They were reviewed and accepted on 2/15/73.


3.3 Adsorption Studies

The following studies were reviewed and accepted on 4/2/74.

2. (Pesticide Petition No. 3F1306)


3. (Pesticide Petition No. 3F1306)


3.4 Leaching, Persistence, Degradation, and Decomposition

3.4.1 The following studies were submitted on March 20, 1972. They were reviewed and accepted on 5/2/74.


3.4.2 The following study was accepted on 5/2/74.

7. (Pesticide Petition No. 3F1306)


3.4.3 This study was not accepted as a leaching study on 2/15/73.


3.5 Volatility Studies


Submitted on March 20, 1972. Reviewed and accepted on 2/15/73.
3.6 Photodegradation Studies

The following studies were submitted on March 20, 1972 and were reviewed and accepted on 2/15/73.


Studies were done on glass slides and in a 50% methyl alcohol and 50% water solution.


3.7 Fish Accumulation Studies


Submitted on March 20, 1972. Reviewed and accepted on 2/15/73.

3.8 Stability in Dipped Vats


Submitted on March 20, 1972. Reviewed and accepted on 2/15/73.

3.9 Lab Testing Soil


Submitted on March 20, 1972. Reviewed and accepted on 2/15/73.

3.10 Dursban dripping into flowing water by drip method for irrigation


Submitted on March 20, 1972. Reviewed and accepted on 2/15/73.
3.11 Persistence in Salt Marsh Habitat


Submitted on March 20, 1972. Reviewed and accepted on 2/15/73.

3.12 Insecticide in Temporarily Submerged Soils.


6. (Pesticide Petition No. 3F1306)


Reviewed and accepted on 5/2/74.

3.13 Mosquito Control


Submitted on March 20, 1972. Reviewed and accepted on 2/15/73.


Residues of Dursban, its oxygen analog, and 3,5,6-trichloro-2-pyridinol in turkeys in a pen with treated soil were determined using gas chromatography. Residues of Dursban and small residues of 3,5,6-trichloro-2-pyridinol were found in skin, liver, and kidney tissues.
3.15 The following referenced reports are not required by environmental chemistry:


3.16 Full Reports of Investigations Made with Respect to the Safety of the Pesticide Chemical

The following reports dealing with metabolism in animals were included in the Pesticide Petition No. 3F1306 and are cited in this report:


4.0 Summary

The following studies were previously accepted:

1. Hydrolysis
2. Microbial
3. Adsorption
4. Leaching persistence, degradation, and decomposition
5. Volatility
6. Photodegradation
7. Fish Accumulation
8. Stability in Dipped Vats
9. Lab Testing Soil
10. Dursban dripping into flowing water by drip method for irrigation
11. Persistence in Salt Marsh Habitat
12. Insecticide in Temporarily Submerged Soils
13. Mosquito Control

5.0 Recommendations

5.1 We do not concur with the proposed use because the following, which are required under Sec. 3, have not been submitted or referenced:
1. Photodegradation on soil.
2. Photodegradation on surfaces
3. Decline curve studies (field dissipation)
4. Rotational crop study
5. Anaerobic soil study
6. Laboratory leaching study on degradates.

5.2 The following study was not made available for review.

1. (Pesticide Petition No. 3F1306, Volumes XI and XII)

Kenaga, E. E. 1972. The environmental fate of chloropyrifos as related to EPA PR Notice 70-15. Ag-Organics Dept., Midland, MI. March 20, (plus appended references 1-41). Submitted August 28, 1972. The appended references include the following:

5.3 No environmental chemistry data have been submitted or referenced on aromatic petroleum derivative solvents. We concur with the use of this solvent in this formulation because the pesticide or product, relating to an evaluation of the effects on man or the environment, is fundamentally different from the properties considered by the agency in the establishment of data requirements of the Registration guidelines and therefore the data are not germane to determine if the pesticide(s) or product(s) will generally cause unreasonable adverse effects on man or the environment.

Ronald E. Ney, Jr. 10/12/76

Nancy Dodd 10/8/76
Environmental Chemistry Section
Efficacy and Ecological Effects Branch