Nov 1, 77

11-1-77

EES BRANCH REVIEW

DATE: IN _____ OUT _____ IN 9/23/77 OUT 11/1/77 IN _____ OUT _____

FISH & WILDLIFE ENVIRONMENTAL CHEMISTRY EFFICACY

FILE OR REG. NO. 464-449, 523

PETITION OR EXP. PERMIT NO. 6F1745

DATE DIV. RECEIVED 2/11/76

DATE OF SUBMISSION

DATE SUBMISSION ACCEPTED 2/11/76 3CID-2B-yes

TYPE PRODUCT(S): (I,) D, H, F, N, R, S

PRODUCT MGR. NO. 12 Sanders

PRODUCT NAME(S) Lorskan 10 G & 15 A

COMPANY NAME Dow

SUBMISSION PURPOSE New use - field corn and sugarbeets

CHEMICAL & FORMULATION Chlorpyrifos ([omo-diethyl 0-(3,5,6-trichloro-2-pyridyl) phosphorothioate]) Dursban

1.0 Introduction

1.1 Chlorpyrifos, Lorsban, Dursban, Dowco 179, Ent 2731.

1.2 Percent active: 10 & 15
Granular formulation

1.3 This review was requested as an expedite from PM 12 (Sanders) on October 27, 1977. We are reviewing this request in accordance to Dr. Rogoff's memo to Mr. Harrison of 8/23/77, concerning review priority contact points, PSO.

1.4 The expedite review application is for Chlorpynifos (Lorsban 10G & 15G) for use on field corn and sugar beets.

2.0 Directions for Use.

Field Corn: Use LORSBAN 10G granular insecticide at planting time as a band (row) treatment at the rate of 9 to 12 ounces per 1,000 feet of row. Incorporate the granules into the top 1 inch of soil by placing in a 6 to 7 inch wide band over the row behind the planter shoe and ahead of the press wheels. Do not make more than one application per season.

Amount of LORSBAN 10 G Per 1,000 Feet of Row	Pounds of LORSBAN 10G Required Per Acre for Various Row Spacings					
	40"	38"	36"	34"	32"	30"
9 ounces	7.5	8.0	8.5	9.0	9.5	10.0
12 ounces	10.0	10.5	11.0	11.5	12.5	13.0

Sugar Beets: Use LORSBAN 10G by application as a row treatment at planting time or postemergence (up to the 2 to 4 true leaf stage of the plant). Apply the granules at the rate of 10 to 13.5 ounces per 1000 feet of row (equivalent to 15 to 20 pounds per acre based on a 22 inch row spacing) by placing in a 5 to 7 inch wide band over the drill row (at planting) or plants (post-emergence). When used at planting, the granules may be applied either ahead of the planter shoe and the seed drilled in the center of the band or behind the planter over the drill row. Incorporate the granules to a depth of 1 to 2 inches with either method. For postemergent treatment incorporate the banded granules to a depth of 1/2 to 1 inch using a suitable cultivator. Do not make more than one application per year.

Sugar Beets: Use LORSBAN 15G by application as a row treatment at planting time or postemergence (up to the 2 to 4 true leaf stage of the plant). Apply the granules at the rate of 6.5 to 9 ounces per 1000 feet of row (equivalent to 10 to 13.5 pounds per acre based on a 22 inch row spacing) by placing in a 5 to 7 inch wide band over the drill row (at planting) or plants (postemergence). When used at planting, the granules may be applied either ahead of the planter shoe and the seed drilled in the center of the band or behind the planter over the drill row. Incorporate the granules to a depth of 1 to 2 inches with either method. For postemergent treatment incorporate the banded granules to a depth of 1/2 to 1 inch using a suitable cultivator. Do not make more than one application per year.

Field Corn: Use LORSBAN 15G by application at planting time as a band (row) treatment at the rate of 6 to 8 ounces per 1,000 feet of row. Incorporate the granules into the top 1 inch of soil by placing in a 6 to 7 inch wide band over the row behind the planter shoe and ahead of the press wheels. Do not make more than one application per season.

Amount of LORSBAN 15G Per 1,000 Feet of Row	Pounds of LORSBAN 15G Required Per Acre for Various Row Spacings					
	40"	38"	36"	34"	32"	30"
6 ounces	5.0	5.25	5.5	5.75	6.0	6.5
8 ounces	6.5	7.0	7.25	7.75	8.25	8.75

2.1 Disposal

Keep out of any body of water. Do not contaminate water by cleaning of equipment or disposal of wastes. Do not apply where runoff is likely to occur.

3.0 Discussion of Data

Data has been submitted by reference and previously submitted data has not been validated per Dr. Rogoff's memo to Mr. Campt of August 12, 1977.

Previously submitted data has been submitted under the following numerical headings.

6720-EAA	08/08/76
9782-LU	06/11/76
9198-GT	06/10/76
299-72	05/03/76
464-448, 449, 523	05/02/76
5G-1595	03/13/76
464-448	12/06/75
3F 1306	04/02/74
3F 1306	02/15/73
464-ULN	
464-LRT	08/13/75
464-368	08/13/75
6F 1673	10/06/75
464 EXP	03/05/74
464-EXP	03/26/74
464-LRN	03/04/74
464-EXP	03/20/74
4F 1445	03/04/74
3F 1370	05/18/73
464-448	10/12/76
464-448	09/27/77

No new EC data submitted or referenced.

4.0 Conclusions

Since the agricultural practice is for incorporation, we can delete the photodegradation on soil and on surfaces for this use. We note that there are no field dissipation, aged leaching, or rotational crop data submitted nor referenced. We have some data on rotational crops at 2 lbs ai/A, the ownership is not defined. Residues do occur 119 days from application to planting in wheat, sugar beets, and soybeans (not an actual use condition study). We also note that the previously accepted studies may not have been on the incorporation technique (leaching for sure); and based on the field dissipation, aged leaching, and rotational crop; these studies may not be germane if substantial differences in fate occur.

5.0 Recommendations

5.1 We can not concur with the proposed new use on field corn and sugar beets for chlorpypifos (Lorsban 10G and 15G).

5.2 The following data which are required (data gaps) were not submitted nor referenced.

1. Aged leaching study
2. Field Dissipation study
3. Rotational crop study

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PM Note:

A. Photodegradation on soil surfaces is also required for this use, but the agricultural practice (incorporation to a depth of 4-6"), does not lend itself to be germane. We do not need this.

B. Rotational crop data not submitted nor referenced. We have some data on file, the ownership is not defined. There are some problems (residues in rotated crops [soybeans, sugar beets, and wheat]) from the use of 2 lbs ai Lorsban 4E/A. The study was not done under actual conditions.

C. The use in comparison with other uses is proportionately different in:

1. Incorporation.

2. Old data may not have been done on the agricultural practice of incorporation.

3. Based on data that we receive from section 5.2, old data may not be germane if significant differences in fate is shown.

D. We have not validated previous (old) data. See memo from Dr. Rogoff to Mr. Compt - March 17, 1977.

5.3 The following paragraphs are examples of acceptable protocol for data which are required and have not been submitted nor referenced, for example:

1. Leaching. Leaching through soil is dependent upon pesticide formulation, physical and chemical properties of pesticide and soil and environmental conditions. Add pesticide to soil(s) corresponding to the highest recommended rate for a single application and study leaching using radioisotopic or comparable techniques to provide a quantitative estimate of mobility in soil. Each study will include soils as sand (agricultural), sandy loam, silt loam, clay or clay loam having a pH range of 4 to 8 with at least one soil having on organic matter content less than one percent. Use a minimum of four soils to study pesticide leaching and elute each immediately with the equivalent of twenty acre-inches water. Use one of the above soils to study leaching of pesticide residues wherein the pesticide is aged in soil under aerobic conditions for thirty days prior to eluting with the equivalent of one-half acre-inches

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water per day for forty-five days. Two basic techniques for leaching are soil column and soil thin-layer chromatography (soil TLC).

2. Field dissipation. A field dissipation study under actual use conditions is required. Continue analyses until a ninety percent loss of the pesticide occurs or until patterns of formation and decline of degradation products are established, or to the maximum time specified. Sampling times include pro-application, and shortly post-application for each single or multiple application. Succeeding samples are dependent upon degradation and metabolism characteristics and potential for reentry. Identification of residues comprising more than ten percent of initial application or 0.01 ppm is needed for the registrant to construct decline curves of residues. If multiple applications are anticipated then this use pattern must be reflected in the study.

   Field and vegetable crop uses. Take soil samples in increments to a depth of 12 inches from sites in four agricultural use areas for a maximum test duration of eighteen months.

3. Rotational crops. Studies are required to establish if pesticide residue uptake occurs in rotational crops, emergency replanting, or in situations where crops receive water from treated areas. The applicant must identify crops that can be rotated in the proposed use areas. Treat a sandy loam soil with radiolabeled pesticide at a rate equivalent to that expected under actual use conditions. Following treatment, age the pesticide aerobically for a time approximating the anticipated cultural practice; for example, one year for crops rotated the following year, 120 days for crops rotated immediately after harvest, and 30 days for assessing circumstances of crop failure. Plant a root crop, small grain and leafy vegetable crop at the above times and periodically analyze to maturity. When residues are found, a field study using formulated products shall be undertaken to determine when residues would not occur in subsequent crops under actual use conditions is required for those practices where a subsequent crop is treated with the same active ingredient as the initial crop. This study is not required for a cover crop if typically plowed under and not grazed. A crop

residue study under actual field use conditions is required where water from treated areas, including holding ponds or effluent and other discharges, is typically used to irrigate crops.

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