FILE

114402

Date Out EFB: 1-4 MAY 1984

TO: Don Stubbs/Welch
Product Manager
Registration Division
TS-767

FROM: Samuel Creeger, Chief
Review Section No. 1
Exposure Assessment Branch
Hazard Evaluation Division

Attached please find the environmental fate review of:

Reg./File No.: 84-ND-02

Chemical: Sodium Acifluorfen

Type Product: Herbicide

Product Name: Blazer 2L

Company Name: North Dakota Department of Agriculture

Submission Purpose: Section 18 emergency exemption for use on sunflowers

ZBB Code: (3)(c)(5)

ACTION CODE: 510

Date in: 5/1/84

EFB # 4331

Date Completed: 5/14/84

TAIS (level II) Days

51 1

Deferrals To:

_____ Ecological Effects Branch

_____ Residue Chemistry Branch

_____ Toxicology Branch

1.0 INTRODUCTION

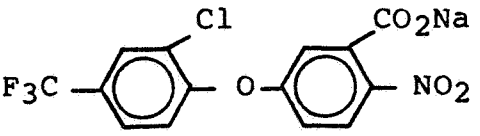
The North Dakota Department of Agriculture has requested an emergency exemption for the use of Blazer 2L, EPA Reg. No. 707-149 (Sodium acifluorfen, as a. i.) for use on sunflowers to control wild mustard.

1.1 Chemical

Common name: Acifluorfen, sodium salt

Chemical name: Sodium 5-[2-chloro-4-(trifluoromethyl)-phenoxy]-2-nitrobenzoate

Chemical structure:



2.0 DIRECTIONS FOR USE

The use directions/application rate/use area of the exemption request are ambiguous. However, accompanying letters indicate that Blazer 2L will be applied at 2 oz (0.125 lb a. i) per acre. Application will be by both ground and aerial equipment.

A minimum of 200,000 acres would probably be densely infested with wild mustard requiring control measures.

3.0 DISCUSSION OF DATA

3.1 No environmental fate data were included or referenced in the exemption request.

3.2 Review of EAB files indicate that adequate data are available to define the environmental fate of sodium acifluorfen. No data deficiencies for terrestrial food crop use are noted.

Previously reviewed data indicate that sodium acifluorfen:

- Will hydrolyse to acifluorfen (free acid) under environmental temperature and pH. Acifluorfen (free acid) appears to be stable to further hydrolysis.

- will photodegrade in aqueous solution when exposed to sunlight with a half-life of about two weeks, releasing CO_2 and minor amounts (<7% of each) of 8 photoproducts.

- Will photodegrade on soil surface with a half-life of 57 days (continuous exposure) forming polar materials, unidentified compounds and the volatile photoproduct RH-34800 [2-chloro-4-(trifluoromethyl)phenol]*.

- will degrade in aerobic soil maintained in the laboratory with a half-life of 1-6 months. Numerous metabolites were formed but none exceeded 10% of initial application. Degradation appeared to proceed by microbial processes.

- Will degrade under anaerobic soil conditions with half-life of about one week. RH-4515 [4-(2-chloro-4-[trifluoromethyl]-phenoxy)-2-carboxylicacetanilide]** is the major anaerobic soil metabolite and is relatively stable under anaerobic soil conditions.

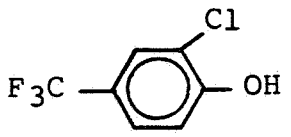
- Will dissipate under field conditions with a half-life of 4-7 weeks.

- Will leach readily in soil, but soil aged residues do not leach. Sodium acifluorfen, as parent compound, is not expected to persist in soil long enough to reach ground water.

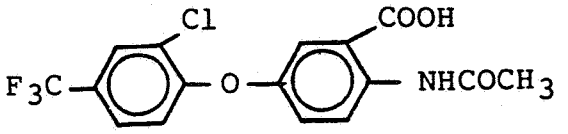
- Will not bioaccumulate in bluegill sunfish. Bluegill bioaccumulation factors did not exceed 7X in whole body tissues and these residues decreased by 85% during 2 weeks of depuration. (Bioaccumulation study for catfish was unacceptable. However, it was concluded that factors exceeding 30X are not expected to occur in catfish.)

- Will be taken up by some rotational crops. Current Blazer 2L label bears a restriction prohibiting planting root crops (such as carrots, turnips, sweet potatoes, etc.) earlier than 18 months following treatment.

- appears to have no negative effects on soil microbial processes.



*(RH-34800)



**(RH-4515)

4.0 RECOMMENDATION

Data on file in EAB support the issuance of the emergency exemption provided the use directions are amended to include the rotational crop restriction prohibiting the planting of root crops (such as carrots, turnips, sweet potatoes, etc) earlier than 18 months following treatment under the emergency exemption.

Clinton Fletcher
Review Section No. 1
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