114402

Date Out EAB: OCT 29 1987

To: G. Werdig
Product Manager 50
Registration Division (TS-767)

From: Patrick Holden, Manager PWH
Ground-Water Program
Exposure Assessment Branch
Hazard Evaluation Division (TS-769)

Attached please find the environmental fate review of:

Reg./File No.:

Chemical: Acifluorfen

Type Product:

Product Name:

Company Name: Rohm & Haas/BASF Corp.

Submission Purpose: Waiver request re: ground-water monitoring study and label requirements.

ACTION CODE: 495

Date In: 10/06/87

EAB # 80013

Date Completed:

TAIS (level II)	Days
	2.0

Deferrals To:

_____ Ecological Effects Branch

_____ Residue Chemistry Branch

_____ Toxicology Branch

Monitoring study requested by EAB: /X/

Monitoring study voluntarily conducted by registrant: /__/

REGISTRATION DIVISION DATA REVIEW RECORD

Confidential Business Information — Does Not Contain National Security Information (E.O. 12065)

1-11-87
EFB/HED

1. CHEMICAL NAME
Acifluorfen

2. IDENTIFYING NUMBER	3. ACTION CODE	4. ACCESSION NUMBER	TO BE COMPLETED BY PM
114401	495	N/A	5. RECORD NUMBER 205,194
			6. REFERENCE NUMBER
			7. DATE RECEIVED (EPA)
			8. STATUTORY DUE DATE
			9. PRODUCT MANAGER (PM) C. Nerdic
			10. PM TEAM NUMBER 50

14. CHECK IF APPLICABLE

- ☐ Public Health/Quarantine
- ☐ Minor Use
- ☐ Substitute Chemical
- ☐ Part of IPM
- ☐ Seasonal Concern
- ☐ Review Requires Less Than 4 Hours

AH

TO BE COMPLETED BY PCB

11. DATE SENT TO HED/TSS: 10-6-87
12. PRIORITY NUMBER: 29
13. PROJECTED RETURN DATE: 12-21-87

15. INSTRUCTIONS TO REVIEWER

A. HED
- ☐ Total Assessment - 3(c)(5)
- ☐ Incremental Risk Assessment - 3(c)(7) and/or E.L. Johnson memo of May 12, 1977.

B. SPRD (Send Copy of Form to SPRD PM)
- ☐ Chemical Undergoing Active RPAR Review
- ☐ Chemical Undergoing Active Registration Standards Review

C. ☐ BFSD
D. ☐ TSS/RD
E. ☐ Other

F. INSTRUCTIONS

Review attached BASF response to acifluorfen call in (diphenyl ethers) requesting a waiver of ground water monitoring and label requirements and make an initial determination in 2 wk and a final one in 60 days. We expect similar letters from other diphenyl ether registrants

16. RELATED ACTIONS

17. 3(c)(1)(D)
- ☐ Use Any or All Available Information
- ☐ Use Only Attached Data
- ☐ Use Only the Attached Data for Formulation and Any or All Available Information on the Technical or Manufacturing Chemical.

18. REVIEWS SENT TO
☐ TB ☐ EEB ☐ EF ☐ PL
☐ RCB ☐ EFB ☐ CH ☐ BFSD

19.	To	TYPE OF REVIEW	NUMBER OF ACTIONS: Registration	Petition	EUP	SLN	Sec. 18	Inert	MNR. USE	Other
HED		TOXICOLOGY								
HED		ECOLOGICAL EFFECTS								
HED		RESIDUE CHEMISTRY								
HED	X	ENVIRONMENTAL DATE Attn: C. Eiden								
RD/TSS		CHEMISTRY								
RD/TSS		EFFICACY								
RD/TSS		PRECAUTIONARY LABELING								
BFSD		ECONOMIC ANALYSIS								2

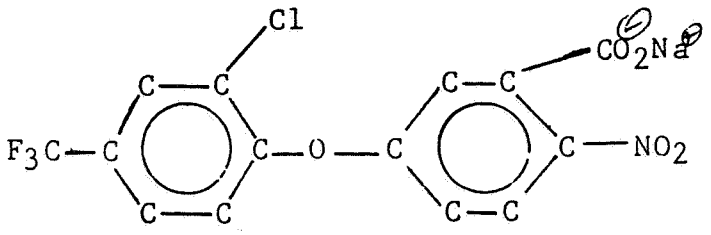
20.	21.	22.	23.	24.
☐ Label Submitted with Application Attached	☐ Confidential Statement of Formula	☐ Representative Labels Showing Accepted Uses Attached	Date Returned to RD (to be completed by HED)	Include an Original and 4 (four) Copies of This Completed Form for Each Branch Checked for Review.

1. CHEMICAL:

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

Common name: Blazer, Tackle, Acifluorfen

Structure:



2. TEST MATERIAL:

Not applicable.

3. STUDY/ACTION TYPE:

A waiver request from Rohm and Haas regarding ground-water monitoring study and label requirements for acifluorfen.

4. STUDY IDENTIFICATION:

Not applicable.

5. REVIEWED BY:

Catherine Eiden, Chemist — Catherine Eiden 10/29/87
Michael Barrett, Chemist — Michael Barrett 10/29/87
Ground-Water Team

6. APPROVED BY:

Patrick Holden, Team Leader — PWH 10/29/87
Ground-Water Team

7. CONCLUSIONS:

The registrant has submitted a waiver request for ground-water monitoring study and label requirements. EAB defers to the RD regarding the labelling requirements as EAB did not recommend any labelling requirements.

Oct. 27, 1987

Regarding ground-water monitoring, EAB concludes that at a minimum the small-scale prospective ground-water monitoring study should be required. The small-scale retrospective ground-water monitoring study is still also recommended in accordance with the RD's suggestions during the initial meeting concerning the diphenyl ethers. (During that meeting EAB recommended a small-scale prospective study and the RD suggested the small-scale retrospective study, as well).

The waiver request, received as a letter dated 8/27/87 from Jack R. Graham of BASF Corp., outlines the following points regarding the need for ground-water monitoring studies and label statements:

1. Data submitted indicate that the sodium salt of acifluorfen and its degradates do not leach below 6 inches under field conditions.

2. Acifluorfen degradates do not have leaching potential as shown from aged-leaching studies.

3. Physical/chemical properties of acifluorfen (Kd and water solubility) might indicate leaching potential, but under field conditions, parent and degradates are quickly immobilized and downward movement does not occur.

EAB's response addresses each of these points, in turn:

1. Rohm and Haas Technical Reports (No. 34H-78-19 and 34H-76-21) dated 9/25/78 and 1976, show detectable residues of acifluorfen down to 6-12 inches during a 70 day period. There was no sampling beneath the 12 inch depth. Therefore, the depth of leaching for acifluorfen residues was not defined.

   The data referenced in the waiver request letter indicate no acifluorfen residues below a 6 inch depth.

   Obviously, under different conditions, acifluorfen residues' mobility varies. A focused, well-designed field leaching study is needed to define the depth of leaching for acifluorfen residues. Half-lives for acifluorfen in the field were calculated to be $\geq$ 30 days. Further, whenever one speaks of the parent compound of acifluorfen, one actually means the free acid form. Under environmental conditions, the sodium salt of acifluorfen ~~ionizes~~ dissociates to the free acid, rapidly.

2. The aged-leaching study indicated non-mobile degradates. The parent leaching study under worst-case conditions indicated that $\geq$ 77-100% of the material applied leached through the soil columns in 4 different soil textures, sand to clay loam. The free acid form of the sodium salt of acifluorfen accounts for 82-96% of the residues found in the column leachate. The free acid form of acifluorfen sodium salt is mobile. The free acid form of the sodium

salt of acifluorfen is expected to dominate in water.

3. Water solubility and Kd values are indicated as showing the mobility of the parent compound. The Kd value was determined to be 1.00 ml/gm for a silt loam from batch adsorption/desorption studies. This is well within the "trigger" for Kd values, regularly used by the Agency for leaching potential assessments. Approximately, 50-89% of the acifluorfen residues adsorbed were desorbed through desorption experiments. The parent compound (acifluorfen's sodium salt) is not strongly adsorbed to the soil tested, and desorbs. The chemical most likely undergoing adsorption and desorption would be the free acid form of the sodium salt. The free acid carries a negative charge and is not expected to be strongly adsorbed by soils of low organic matter.

   The parent compound is miscible with water (again the free acid form of the sodium salt).

EAB further concludes based on the current EAB file reviews for acifluorfen that the sodium salt ~~ionizes~~ dissociates in water to the free acid form; this free acid form is stable to hydrolysis.

Photolysis studies were inconclusive.

Soil aerobic and anaerobic metabolism data include half-lives calculated under aerobic conditions in the laboratory to be 2-6 months for sandy loam and silt loam soils for the free acid. These half-lives meet the persistence "trigger" for aerobic soil metabolism used by EAB in determining leaching potential.

Half-lives under anaerobic soil conditions in the laboratory were indicated as weeks for the free acid form of the sodium salt of acifluorfen, and months for the acid amine degradate. EAB concludes that under anaerobic conditions, the free acid form of the sodium salt of acifluorfen and the acid amine degradate are at least moderately persistent.

The free acid form of the sodium salt is expected to be a major degradate and mobile and at least moderately persistent in soil-water environment. The other major degradate, the amine acid, is expected to be persistent; no data available on its mobility.

Unfortunately, EAB did not have the complete aerobic/anaerobic soil metabolism study to review, only summaries.

8. <u>RECOMMENDATIONS:</u>

   1. EAB recommends the small-scale prospective ground-water monitoring study for aciflurofen with analysis for the acifluorfen free acid and the amine acid degradate.

3. EAB defers to the RD on label requirements.

9. BACKGROUND:

See EAB review dated 5/28/80, number 451 and 452.

10. DISCUSSION OF INDIVIDUAL STUDIES:

See EAB review dated 5/28/80, number 451 and 452.

11. ONE LINER:

Not applicable.

12. CBI:

Not applicable.