097718

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106

FEE BRANCH REVIEW

DATE: IN 12/29/78 OUT 5/1/79 IN _____ OUT _____ IN _____ OUT _____

FISH & WILDLIFE ENVIRONMENTAL CHEMISTRY EFFICACY

FILE OR REG. NO. 707-RUO and 707-RLN

PETITION OR EXP. PERMIT NO. _____

DATE DIV. RECEIVED _____

DATE OF SUBMISSION 12/14/78

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

DATA ACCESSION NO(S). 097718 - 095736

PRODUCT MGR. NO. 23 Garner

PRODUCT NAME(S) Blazer 2L and Blazer 2S

COMPANY NAME Rohm and Haas Company

SUBMISSION PURPOSE New chemical Registration

CHEMICAL & FORMULATION

Blazer® 2L	Blazer® 2S
Sodium salt of acifluorfen Sodium 5-[2-chloro-4-(trifluoromethyl)-phenoxy] -2-nitrobenzoate.....20.4%	Same 21.4%
Inerts 79.6%	....78.6%

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Environmental Safety Review

100. Purpose of Submission

The purpose of this submission is to secure the registration of a new chemical to control weeds in soybean fields.

100.1 Formulation information

Blazer (RH-6201) Technical is an aqueous solution of the active ingredient RH-6201 and several minor related reaction products. The products formulated as liquid concentrates contain the following:

	Blazer® 2L*	Blazer® 2S
Sodium salt of acifluorfen Sodium 5-[2-chloro-4-(trifluoromethyl)-phenoxy]-2-nitrobenzoate	20.4%**	21.4%**
Inert	79.6%	78.6%

* Contains [redacted]
** Equivalent to 2 lbs a.i. / gal.

INERT INGREDIENT INFORMATION IS NOT INCLUDED

100.2 Application Methods, Directions, Rates

Use 1 to 2 pints per acre on a broadcast or overall basis by ground equipment using standard low pressure herbicide sprayers equipped with hollow cone or flat fan nozzles. Refer to Blazer use rate table for target pests, exact dosage rates and timing of application. Do not apply more than 2 pints of Blazer 2L and 2S per growing season.

101 Physical and Chemical Properties

101.1 Chemical Name

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

101.2 Molecular Weight

383.65

101.3 Physical State

Brown, aqueous, viscous solution with a faint odor.

101.4 Solubility

Acetone	> 50%	Carbon Tet	< 1%
Ethanol	> 50%	Xylene	< 1%
Chloroform	< 1%	Ethylene acetate	> 50%

102 Behavior in the Environment

A cursory review by E.F.B. (12/6/77) indicates potential reentry and volatilization problems. There apparently are no validated reviews concerning the fate of this product in soil, plants, or water at this time. However, a telephone conversation with Robert Carsel, Environmental Fate Branch, resulted in the following information regarding the fate of Blazer^{R}:

1) Blazer^{R} is relatively stable in water of pH 4,7 and 9 with a half-life of 160 hours. Photodegradation appears to be a significant breakdown mechanism.

2) The half-life on soil surface is approximately 160-200 Hours and in anaerobic soil is approximately 10 days.

3) The half-life in sandy loam and silt loam soil is 30 and 60 hours, respectively.

4) Application to sludge indicated that Blazer^{R} could be discharged into the aquatic environment. However, leaching studies indicated little or no leaching from soil with Blazer remaining in the top 2-3 cm.

5) Bioaccumulation in fish is negligible.

103 Toxicological Properties

103.1 Mammals - The following was taken from a Toxicology Review (2/25/77).

Rat (Male)	Oral, 39.6% a.i.	LD_{50} = 3.33 g/kg
Rabbit	Eye, 39.6% a.i. (20% w/w)	Severe Irritation
Rat	Subacute NEL	30-50 ppm

103.2 Birds[1]

Species	% a.i.	Result
Mallard	39.8	LD_{50} = 4187 mg/kg (1666 mg a.i./kg)
	39.8	LC_{50} = 10,000 mg/kg
	39.8	No reproductive impairment to 100 ppm
Bobwhite	39.8	LC_{50} = 10,000 mg/kg
	39.8	No reproductive impairment to 20 ppm

(1) See Data Evaluation Records for a discussion of procedures and validation rationale.

103.3 Fish (1)

Species	% a.i.	Result
Bluegill	39.8	96-hr LC_{50} = 31 mg a.i./L (static)
	42.4	96-hr LC_{50} 32 mg a.i./L (dynamic)
Rainbow	39.8	96-hr LC_{50} = 54 mg a.i./L
Channel catfish	42.4	96-hr LC_{50} = 188 mg/L (80 mg a.i./L)

(1) See Data Evaluation Records for a discussion of procedures and validation rationale.

103.4 Invertebrates (1)

Species	% a.i.	Results
Daphnia	39.8	48-hr LC_{50} = 28 mg a.i./L

(1) See Data Evaluation Records for a discussion of procedures and validation rationale

103.5 Marine (1)

Species	% a.i.	Results
Fiddler crab	39.8	96-hr LC_{50} 100 mg/L
Grass shrimp	42.4	96-hr LC_{50} = 446 mg/L (189 mg a.i./L)
Freshwater clam	42.4	96-hr LC_{50} = 150 mg/L (64 mg a.i./L)
Eastern Oyster	42.4	48-hr LC_{50} = 74 mg/L (31.3 mg a.i./L)

(1) See Data Evaluation Records for a discussion of procedures and validation rationale

104. Hazard Assessment

104.1 Discussion

RH-6201, Blazer 2L and 2S, is a selective herbicide for post-emergence application to soybeans to control a wide variety of susceptible weeds. The formulations are liquid concentrates containing 2 lbs a.i./ gal. One to two pints per acre are applied on a broadcast or overall basis, not to exceed 2 pints per acre per season.

Immediately upon application, the residue profile in certain areas will be:

Blazer Residues (ppm)

lbs/A	Soil Surface	Water 6"	Water 10'	Weeds Seeds	Short Grasses	Long Grasses
0.25	5.5	.18	.009	14.5	60	27.5
0.5	11.0	.37	.019	29	120	55

104.2 Likelihood of Adverse Effects To Non-Target Organisms

According to Wildlife Utilization of Croplands (Gusey and Maturgo, 1973, Shell Oil Co.) soybean fields can be utilized by a variety of avian and mammalian species. From the estimated maximum residues immediately after application and the known toxicity levels, this reviewer has determined that the proposed use of these products poses no acute unreasonable adverse effects to non-target organisms as proposed. However, chronically, a dietary level of 100 ppm a.i. RH-6201 during a one-generation reproduction study resulted statistically in a significantly lower percentage of viable 11-day bobwhite quail embryos; 66.5%, a level which falls below typical observed values for bobwhite as specified in 163.71-4 of the proposed guidelines. No other significant effects were observed. Maximum residues immediately after application at the highest rate, 0.5 lb a.i./A, are likely to produce only limited, if any, exposure to avian species, especially due to (1) lower typical levels of residues, (2) photodegradation, and (3) a single application.

With the cumulative toxicological effects demonstrated by the avian reproduction study, a half-life in water of over 6-days, and aquatic LC_{50} values less than 100 times the estimated environmental concentrations immediately after application, a concern exists regarding chronic exposure of Blazer^R to aquatic organisms at application rates approaching 0.5 lb a.i./A. The use of Blazer^R on such a major crop as soybeans increases the probability of widespread input into water. The possibility of chronic adverse effects, based on the above criteria, suggests the need for additional aquatic testing (See 104.4).

104.3 Endangered Species Considerations

It is anticipated that this product will not adversely affect endangered species when used as proposed. The bald eagle may acquire residues should it feed on small mammals that have grazed on contaminated foliage. However, based on data at hand, mammals should not be effected nor weakened and therefore, should not be any more susceptible to eagles than

uncontaminated mammals. Only low residues would be anticipated (based on previous toxicology reviews) by this route of exposure; rates low enough not likely to be of concern.

104.4 Adequacy of Toxicity Data

Twelve fish and wildlife studies were reviewed under the registration submission for Blazer 2L and 2S use on soybeans. All of the six basic studies submitted by Rohm and Haas —(1) Mallard acute oral, (2) mallard and bobwhite subacute dietary, (3) bluegill, channel catfish and rainbow trout 96-hour LC_{50} and (4) Daphnia acute 48-hour LC_{50} are acceptable for this section 18 and for registration requirements. For registration, an additional study, the daphnia life-cycle with measured concentrations in the water, is required based upon criteria triggered in 104.2 above.

withdrawn per conversation with R. Stevens. Lee Rocco 6/15/79 company notified

105 Conclusions

The Ecological Effects Branch cannot approve the registration of these products until the requested study, the daphnia life-cycle with measured concentrations of Blazer in the water, has been submitted, accepted and an evaluation made. This review is subject to revision upon receipt of a written validated Environmental Fate Review.

105.1 Classification

The Ecological Effects Branch cannot recommend classification of this new product at this time. We have determined that the currently available data do not exceed the risk criteria for General Use. However, the data necessary to complete the evaluation of the risk of chronic effects to aquatic organisms are not available, as indicated in 104.4 above.

105.2 Labeling

The existing labeling will be adequate unless the requested data indicates other precautions are necessary.

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Richard R. Stevens
Biologist, Section III
Ecological Effects Branch
Hazard Evaluation Division

Richard R. Stevens

April 30, 1979

Robert Hitch
Acting Section III Head
Ecological Effects Branch
Hazard Evaluation Division

Robert Hitch

Clayton Bushong
Chief, Ecological Effects Branch
Hazard Evaluation Division

R.H. Johnson for Clayton Bushong