121001
SHAUGHNESSEY NO.

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REVIEW NO.

EEB BRANCH REVIEW

DATE: IN 5-5-82 OUT 7/30/82

FILE OR REG. NO. 7969-LI

PETITION OR EXP. PERMIT NO.

DATE OF SUBMISSION 4-15-82

DATE RECEIVED BY HED 5-5-82

RD REQUESTED COMPLETION DATE 8-25-82

EEB ESTIMATED COMPLETION DATE

RD ACTION CODE/TYPE OF REVIEW 110/New Chemical -- Food/Feed Use

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

DATA ACCESSION NO(S).

PRODUCT MANAGER NO. R. Taylor (25)

PRODUCT NAME(S) Poast

COMPANY NAME BASF Wyandotte Corporation

SUBMISSION PURPOSE Proposed Registration of Soybeans Use

SHAUGHNESSEY NO.	CHEMICAL, & FORMULATION	% A.I.
121001	2-[1-(ethoxyimino) butyl]-5-[2-	20.0
	(ethylthio)propyl]-3-hydroxy-	
	2-cyclohexen-1-one*	80.0
	Inerts	

* 1.53 lbs/gal

100 Labeling

Use:

0.5 to 2.5 pts/acre (0.1 to 0.5 lb ai/A). Always add a nonphytotoxic oil concentrate at 1 qt/A ground, 1 pt/A air.

Environmental Hazards:

"Do not apply directly to lakes, ponds or streams. Do not contaminate water by cleaning of equipment or disposal of wastes."

102 Behavior in the Environment

Source: EFB review 7/22/82, C. Fletcher.

Poast is fairly stable to hydrolysis with a half-life of about 40 days at pH6 and 25°C. The major hydrolysis metabolite is M2S, an oxazole derivative.

Photolytic 1/2 lives of Poast were about 23 and 38 minutes under anaerobic and aerobic aqueous solutions.

Poast will photodegrade on soil surfaces with a half-life of approximately 3.6-3.7 hours.

Poast degrades in loamy and soil under aerobic, sterile/ aerobic and anaerobic conditions. Microbial activity is primarily responsible for its disappearance. Half-life in loamy sand was determined to be 4-5 days and in loam about 11 days.

Laboratory soil leaching data shows that aged Poast residues could leach in soils. This is supported by the low soil adsorption coefficient (K=0.3039 to 0.740 for soil with 0.69% and 2.44% organic matter respectively.). However, in a field leaching/dissipatin study, Poast did not leach beyond the first 4 inches of soil and did not persist.

Poast does not accumulate in rotational crop tissues. Measured residues were all below 0.066 ppm. The one year crop rotation restriction was waived by EFB.

Bluegill sunfish did not accumulate residues of Bentazon. When exposed to Bentazon residues in water maximum accumulation in whole fish was about 7X the water concentration. After 14 days depuration, residue levels fell over 90% of the maximum accumulated. Accumulation levels in catfish are not expected to exceed 1X.

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No data on the identification of ^{14}C residues in water, whole fish or fish tissue were submitted. Most likely, however, residues were parent and the M2S metabolite since Bentazon is fairly stable to hydrolysis under environmental conditions ($T_1/2$ 47 days at pH 6, 25°C). M2S is the major hydrolysis product.

Using ultra-violet (UV) spectra calibration, the partition coefficients of Poast related compounds are:

MSO	1.6-6.9
MSO_2	1.6-9.7
$M2SO_2$	2.6-3.0
$5\text{-}OHMSO_2$	0.9-3.7
$6\text{-}OH\ M2SO_2$	

103 Toxicological Properties

Mallard Duck	$AOLD_{50}$	72,000 mg/kg	Core
" "	$SDLC_{50}$	75,000 ppm	Core
Bobwhite Quail	$SDLC_{50}$	75,000 ppm	Core
Bluegill	96-hr LC_{50}	265 ppm	Core
Rainbow	96-hr LC_{50}	170 ppm	Core
Daphnia	48-hr LC_{50}	78.1 ppm	Core

104 Discussion

Poast is to be registered for application to soybeans at rates ranging from 0.5 to 2.5 pts/A to control a variety of weeds. This is equivalent to 0.1 to 0.5 lb a.i./A. These rates of application are not expected to contribute to residues that would impact terrestrial wildlife; not with avian LD_{50} and LC_{50} values in excess of 72,000 mg/kg and 75,000 ppm respectively.

Similarly, Poast is not expected to impact aquatic species. Even inadvertent direct application to water would result in residues (0.367 ppm) approximately 200 fold lower than the most sensitive aquatic species (daphnia LC_{50} = 78.1 ppm). Runoff and/or leaching, even if they were indicated, would be expected to contribute much less and would result in far greater margin for safety.

Given the properties of Bentazon, we do not anticipate unacceptable acute or chronic hazards to terrestrial or aquatic wildlife. Although fairly stable to hydrolysis (1/2 life 40 days), bentazon photodegrades fairly rapidly in soil and water (photolysis 1/2 lives of less than one day. The low soil adsorption coefficient (mean=0.4768) and the laboratory leaching study show a potential for bentazon to leach. However, leaching under

natural environmental conditinos, according to EFB, is not indicated. The half-life of bentazon in soil ranged from less than 3 to 5 days in loamy sand soil and about 11 days in loam soil. Fish accumulation data for bluegill and catfish indicate very low potential for bioaccumulation (1-7X).

Similarly, based on the relatively non-toxic nature of bentazon, the expected residues, and the fact that bentazon is not expected to persist in the environment, we do not expect that Poast will jeopardize the existence of any endangered terrestrial or aquatic species.

105 Conclusions

The Ecological Effects Branch has completed its review of Poast for use on soybeans. The Ecological Effects data are acceptable and complete at this time to support the proposed use. We have no objection to Poast being registered for soybeans. We believe Poast can be used as a herbicide as specified herein without resulting in unacceptable risk to non-target aquatic or terrestrial animals. EEB has no further data requirements at this time.

We recommend the following modification of the Environmental Hazards labeling in 100 above:

"Do not apply directly to water or wetlands. Do not contaminate water by cleaning of equipment or disposal of wastes."

Underlining indicates changes.

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