DP Barcode: D160963

Shaughnessy No.: 128201 128711

Date out of EFGWB: MAY 8 1991

TO: R. Taylor/V. Walters
Product Manager #25
Registration Division (H7505C)

FROM: Emil Regelman, Supervisory Chemist
Chemistry Review Section #2
Environmental Fate and Ground Water Branch

THRU: Hank Jacoby, Chief
Environmental Fate and Ground Water Branch
Environmental Fate and Effects Division (H7507C)

Attached, please find the EFGWB review of ...

Reg./File #: 352-00526/352-00441

Chemical Name: Quizalofop ethyl

Type Product: Herbicide

Common Name: Assure

Company Name: Du Pont Agricultural Products

Purpose: To review request for addition of cotton to label

Date Received: February 11, 1991 Date Completed: April 10, 1991

Action Code: 330/575

EFGWB #(s): 91-0388

Total Reviewing Time: 0.4 day

Deferrals to: ___ Ecological Effects Branch, EFED

___ Science Integration and Policy Staff, EFED

___ Non-Dietary Exposure Branch, HED

___ Dietary Exposure Branch, HED

___ Toxicology Branch

1. CHEMICAL:

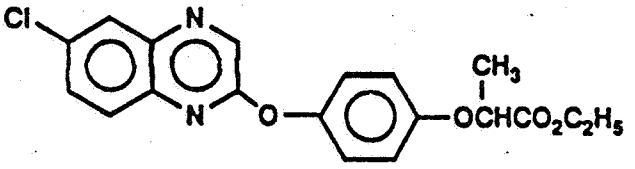
Chemical name: Quizalofop ethyl

CAS no.: 76578-14-8

Common name: Ethyl 2-[4-(6-chloroquinoxalin-2-yloxy) phenoxy] propanoate

Trade name: Assure

Chemical structure:



Physical/Chemical properties of active ingredient:

Physical characteristics:	White solid
Molecular formula:	$C_{19}H_{17}ClN_2O_4$
Molecular weight:	372.5
Melting point:	91.7 - 92.1°C
Vapor Pressure:	3 x 10^{-7} mm Hg at 20°C
Solubility:	0.3 x 10^{-4} g/100 ml water at 20°C

Octanol/water partition coefficient: 1.9 x 10^4

2. TEST MATERIAL:

N/A

3. STUDY/ACTION TYPE:

Review of request to add cotton to the label.

4. STUDY IDENTIFICATION:

Chubb, M. CORRESPONDENCE TO R. TAYLOR - PETITION TO ESTABLISH TOLERANCE FOR QUIZALOFOP ETHYL AND RESIDUES FOR COTTON AND ADD COTTON TO LABEL. Submitted by E.I. du Pont de Nemours and Company, Agricultural Products Department, Research and Development Division, Wilmington, DE - December 21, 1990; Received by EPA Decenber 28, 1990.

5. REVIEWED BY:

Gail Maske
Chemist, Review section #2
OPP/EFED/EFGWB

Signature: Gail Maske 4/10/91
Date: 10 April 91

6. APPROVED BY:

Emil Regelman
Supervisory Chemist
Review section #2
OPP/EFED/EFGWB

Signature: E Reg
Date: MAY 8 1991

7. CONCLUSIONS:

The registrant, Du Pont, is requesting cotton be added to the quizalofop ethyl label. Based on a review of the environmental fate data, there is insufficient data to support the addition of new terrestrial feed and food crop uses to the label.

The following Environmental Fate Data Requirements for Quizalofop ethyl for terrestrial feed and food crop uses which have not been fulfilled:

Environmental Fate Data Requirements	Citation of Review	MRID No.
Metabolism Studies-lab		
162-1 Aerobic soil	(ER;01/26/84) (ER;03/05/85) (DYNAMAC;09/18/85) (JHJ;10/20/86) (DSS;04/04/88)	00128213 00150937
162-3 Anaerobic aquatic	(DSS;12/18/87) (DSS;04/04/88)	00146697 40242301
Mobility Studies		
163-2 Volatility-Lab	Not Submitted[1]	

Environmental Fate Data Requirements	Citation of Review	MRID No.
Dissipation Studies-field		
164-1 Soil	(DSS;01/05/88) (DSS;04/04/88)	40336001
Accumulation Studies		
165-1 Rotational crops-confined	(DSS;12/18/87) (DSS;04/04/88)	00131583 00131585

1 Based on low vapor pressure (3×10^{-7} mm Hg) and a toxicological classifications of ≥ 3 for acute oral, acute dermal, and acute inhalation, EFGWB would concur with a waiver request for volatility studies.

8. RECOMMENDATIONS:

The registrant should be informed of the following:

a. The environmental fate data is not adequate to support the addition of cotton to the label.

NOTE TO PM:

A review of the status of environmental fate data requirements shows that deficiencies pending from 1988 reviews have not been addressed. An acceptable time frame should be established for completion of new studies or for addressing the deficiencies.

9. BACKGROUND:

Quizalofop ethyl, a phenoxy propionic ester, is a postemergence herbicide registered for use on soybeans and terrestrial non-food crops. The maximum application rate for soybeans and cotton is 0.25 lb. ai/A and for terrestrial non-food crops is 0.20 lb ai/A. Aerial application and ground application are used. Foliar absorption is rapid with quizalofop ethyl metabolism to DPX-acid which further degrades to phenols and CO_2.

Quizalofop ethyl is practically nontoxic to birds, highly toxic to freshwater fish, very highly toxic to invertebrates, moderately toxic to marine fish, very toxic to marine invertebrates, and relatively nontoxic to honey bees and humans. However, nontarget organism risk appears to be minimal because maximum expected residues on soil and water do not approach the toxicity values for organisms tested.

10. DISCUSSION:

None

11: COMPLETION OF ONE-LINER:

See attached one-liner.

12: CBI APPENDIX:

N/A

Environmental Fate & Effects Division
PESTICIDE ENVIRONMENTAL FATE ONE LINE SUMMARY
QUIZALOFOP ETHYL
Last Update on February 9, 1990
[V] = Validated Study [S] = Supplemental Study [U] = USDA Data

Common Name:QUIZALOFOP ETHYL
Smiles Code:
PC Code # :128201 CAS #:76578-14-8 Caswell #:

Chem. Name :ETHYL 2-[4-(6-CHLOROQUINOXALIN-2-YLOXY) PHENOXY] PROPANOATE

Action Type:SELECTIVE POSTEMERGENCE HERBICIDE

Trade Names:TARGA; ASSURE; DPX-Y6202
(Formul'tn):EC 9.5%; SUSPENSION C, 10%
Physical State:

Use :FOR THE CONTROL OF ANNUAL AND PERENNIAL GRASS WEEDS IN SOY-
Patterns :BEANS, COTTON, PEANUTS, SUGAR BEETS, FLAX, ALFALFA, ETC.
(% Usage) :
:

Empirical Form: $C_{19}H_{17}ClN_2O_4$
Molecular Wgt.: 372.80 Vapor Pressure: 3.00E -7 Torr
Melting Point : °C Boiling Point: °C
Log Kow : pKa: @ °C
Henry's : E Atm. M3/Mol (Measured) 4.75E -7 (calc'd)

Solubility in ...					Comments
Water	3.10E -1	ppm	@	°C	
Acetone	E	ppm	@	°C	
Acetonitrile	E	ppm	@	°C	
Benzene	E	ppm	@	°C	
Chloroform	E	ppm	@	°C	
Ethanol	E	ppm	@	°C	
Methanol	E	ppm	@	°C	
Toluene	E	ppm	@	°C	
Xylene	E	ppm	@	°C	
	E	ppm	@	°C	
	E	ppm	@	°C	

Hydrolysis (161-1)
[V] pH 5.0:600 DAYS
[V] pH 7.0: 30 "
[V] pH 9.0: 2 "
[ ] pH :
[ ] pH :
[ ] pH :

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Photolysis (161-2, -3, -4)
[ ] Air :
[V] Soil :38 - 43 DAYS
[V] Water:55 DAYS
[ ] :
[ ] :
[ ] :

Aerobic Soil Metabolism (162-1)
[V] 1 DAY IN WOODSTOWN SdLm AND
[ ] FLANAGAN SiLm.
[ ]
[ ]
[ ]
[ ]
[ ]

Anaerobic Soil Metabolism (162-2)
[S]
[ ]
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[ ]
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Anaerobic Aquatic Metabolism (162-3)
[ ]
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Aerobic Aquatic Metabolism (162-4)
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Soil Partition Coefficient (Kd) (163-1)

	SOIL	Kads	Kdes	Koc
[S]	SdLm	1.5-1.9	.25	.36-.66
[S]	SiLm	16-20	.32	1.1 -1.2
[ ]				
[ ]				
[ ]				

Soil Rf Factors (163-1)

[S] MODERATELY MOBILE IN SiClLm
[ ] IN IL, AND IN SiLm FROM MS;
[ ] IMMOBILIZED IN TOP 4" OF LOAM
[ ] FROM CA.
[ ]
[ ]

Laboratory Volatility (163-2)

[ ]
[ ]

Field Volatility (163-3)

[ ]
[ ]

Terrestrial Field Dissipation (164-1)

	STATE	Sd	Si	Cl	%OM	pH	T1/2	CORR. COEFF.
[S]	IL	21	49	30	4.5	6.4	145 DAYS	.89
[S]	CA	44	37	19	1.3	7.9	364 "	.50
[S]	MS	15	65	20	1.2	6.0	139 "	.42
[ ]								
[ ]								
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[ ]								
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[ ]								

Aquatic Dissipation (164-2)

[ ]
[ ]
[ ]
[ ]
[ ]
[ ]

Forestry Dissipation (164-3)

[ ]
[ ]

Long-Term Soil Dissipation (164-5)
[ ]
[ ]

Accumulation in Rotational Crops, Confined (165-1)
[S] ROTATIONAL CROPS PLANTED 128 DAYS AFTER TREAT. W/
[ ] 8 OZ/ACRE HAD INSIG. RESIDUES (QUINAZ. LABEL ONLY)

Accumulation in Rotational Crops, Field (165-2)
[ ]
[ ]

Accumulation in Irrigated Crops (165-3)
[ ]
[ ]

Bioaccumulation in Fish (165-4)
[V] BLUEGILL SUNFISH BCF: EDIBLE = 16 X FOR APPL. OF .004 MG/L,
[ ] AND 10 X FOR .04 MG/L. DEPURATION VALUES AT 14 DAYS = .3 X.

Bioaccumulation in Non-Target Organisms (165-5)
[ ]
[ ]

Ground Water Monitoring, Prospective (166-1)
[ ]
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[ ]

Ground Water Monitoring, Small Scale Retrospective (166-2)
[ ]
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Ground Water Monitoring, Large Scale Retrospective (166-3)
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Ground Water Monitoring, Miscellaneous Data (158.75)
[ ]
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[ ]

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Field Runoff (167-1)
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Surface Water Monitoring (167-2)
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[ ]
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Spray Drift, Droplet Spectrum (201-1)
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[ ]

Spray Drift, Field Evaluation (202-1)
[ ]
[ ]
[ ]
[ ]

Degradation Products

CO2=major degradate; 13-22% of applied radioactiv. in study of photodegradation on soil.
In aerobic metabolism test, DPX-acid was quickly formed and its half-life was estd. as 4 weeks on Flanagan SiLm and 8 weeks on Woodstown SdLm; major degradate of DPX acid was phenol 4 which accounted for 26% of the applied by week 2, decreased to 10% by week 9, and to 5% by week 53.

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Comments

In the anaerobic aquatic study, degradation to DPX-Acid was rapid with a half-life of about 1 day; further metabolism gave phenols 1, 2, and 4, and hydroxyphenol-2 with respective half-lives of 6 . and 13 weeks.
In leaching tests with 12" columns of SdLm soil treated with unaged quinoxaline-labelled parent, and leached with 20" water, the parent compd. acctd. for 7% in the soil extracts while the primary degradate (DPX-Y6202 acid) comprised 62-75% of that recovered in the soil and 95% in the leachate extract.

Koc = 510 (U)

References: EFGWB REVIEWS
Writer : PJH