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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

JUN 24 1988

OFFICE OF
PESTICIDES AND TOXIC SUBSTANCES

SUBJECT: Screen of Outstanding Data Requirements

FROM: Emil Regelman, Supervisory Chemist
Environmental Chemistry Review Section #3
Exposure Assessment Branch, HED (TS-769c)

THRU: Paul Schuda, Chief
Exposure Assessment Branch, HED (TS-769c)

TO: Bob Taylor, Product Manager
Herbicide Branch
Registration Division (TS-767c)

As you requested, I have evaluated the status of Monsanto's database, to support the terrestrial food crop usage of acetochlor. Please find attached a 'freshly prepared' Table A.

According to Branch records, the following deficiencies still exist in Monsanto's Acetochlor data base:

o	162-2	Anaerobic Soil Metabolism	All Data Required
o	163-1	Batch Equilibrium	Additional Data Needed
o	164-1	Terrestrial Field Dissipation	All Data Required
o	165-1	Rotational Crops (confined)	Additional Data Needed
o	165-2	Rotational Crops (field)	All Data Required
o	132-2	Foliar Dissipation	All Data Required
o	132-2	Soil Dissipation	All Data Required
o	133-3	Dermal Exposure	All Data Required
o	133-4	Inhalation Exposure	All Data Required

The groundwater team (M. Barrett) reports that a preliminary evaluation of Acetochlor's physical and chemical properties suggests a potential to leach. However, Acetochlor appears to have only marginal persistence in soil (half-life of 8-12 days). Therefore, he has deferred imposing a small-scale prospective groundwater monitoring study pending receipt/evaluation of the terrestrial field dissipation study. This study must be conducted such that the depth of leaching (if any) is adequately defined (a 2-foot residue-free zone is preferred), with at least one site a highly soil with low organic matter (<1%)

RD should refer to the appropriate EAB reviews for additional details on the deficiencies in the 163-1 and 165-1 data requirements.

TABLE A

GENERIC DATA REQUIREMENTS FOR ACETOCHLOR (Monsanto)

Data Requirement	Test Substance[1]/	Use Pattern[2]/	Does EPA have Have Data	Bibliographic Citation	Must Additional Data be Submitted?	Time Frame for Submission[3]/
§158.130 Environmental Fate						
DEGRADATION STUDIES-LAB:						
161-1 - Hydrolysis	TGAI or PAIRA	A	Yes	Report #MSL-1255 Acc. No. 099814	No (stable at pH 3,6,9)	
Photodegradation						
161-2 - In water	TGAI or PAIRA	A	Yes	Report #MSL-2748 Acc. # 071961	No (stable)	
161-3 - On soil	TGAI or PAIRA	A	Yes	"	No (stable)	
161-4 - In Air	TGAI or PAIRA	N/A	No	None	No	
METABOLISM STUDIES-LAB:						
162-1 - Aerobic Soil	TGAI or PAIRA	A	Yes	Report # MSL-1225 Acc. # 099814	No ($t_{1/2}$=8 to 12 days)	
162-2 - Anaerobic Soil	TGAI or PAIRA	A	No	"	Yes	
162-3 - Anaerobic Aquatic	TGAI or PAIRA	N/A	No	None	No	
162-4 - Aerobic Aquatic	TGAI or PAIRA	N/A	No	None	No	
MOBILITY STUDIES:						
163-1 - Leaching and Adsorption/Desorption	TGAI or PAIRA	A	Partially	None	Yes (Highily Mobile) Drummer soil(3.4% O.M) Lintonic soil(0.7% O.M)	Column Retained 57% 4%
163-2 - Volatility (Lab)	TEP	N/A	No	None	No	Soil Type / k_d Values
163-3 - Volatility (Field)	TEP	N/A	No	None	No	Lintonia 0.4; Ray 1.1; Spinks 1.6; Drummer 2.7

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Data Requirement	Test Substance[1]/	Use Pattern[2]/	Does EPA Have Data?	Bibliographic Citation	Must Additional Data be Submitted?	Time Frame for Submission[3]/
§158.130 Environmental Fate (continued)						
DISSIPATION STUDIES-FIELD:						
164-1 - Soil	TEP	A	No	None	Yes	
164-2 - Aquatic (Sediment)	TEP	N/A	No	None	No	
164-3 - Forestry	TEP	N/A	No	None	No	
164-4 - Combination and Tank Mixes	TEP	N/A	No	None	No[4]/	
164-5 - Soil, Long-term	TEP	A	No	None	No (t_{12} = 8-12 days in soil)	
ACCUMULATION STUDIES:						
165-1 - Rotational Crops (Confined)	PAIRA	A	Partially	Report # MSL-2988 Acc.#. 071961	Yes	
165-2 - Rotational Crops (Field)	TEP	A	No	None	Yes	
165-3 - Irrigated Crops	TEP	A	No	None	No	
165-4 - In Fish	TGAI or PAIRA	A	Yes	Report #MSL-2442 Acc. # 071961	No (does not accumulate	
165-5 - In Aquatic Nontarget Organisms	TEP	A	No	None	No Octonal/Water=300	

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GENERIC DATA REQUIREMENTS ACETOCHLOR

Data Requirement	Test Substance[1/]	Use Pattern[2/]	Does EPA Have Data?	Bibliographic Citation	Must Additional Data be Submitted?	Time Frame for Submission[3/]
§158.140 Reentry Protection						
132-2 - Foliar Dissipation	TEP	A	No	None	Yes	
132-2 - Soil Dissipation	TEP	A	No	None	Yes	
133-3 - Dermal Exposure	TEP	A	No	None	Yes	
133-4 - Inhalation Exposure	TEP	A	No	None	Yes	
§158.142 Spray Drift						
201-1 - Droplet Size Spectrum	TEP	A	No	None	No	
201-1 - Drift Field Evaluation	TEP	A	No	None	No	
§158.75 Human Exposure Data	TEP	A	No	None	Yes	
Other Exposure Data	TEP	A	No	None	Reserved	

TABLE A
GENERIC DATA REQUIREMENTS FOR ACETOCHLOR

FOOTNOTES:

1/ Composition: TGAI = Technical grade of the active ingredient; PAIRA = Pure active ingredient, radiolabelled; TEP = Typical end-use product.

2/ The use patterns are coded as follows: A = Terrestrial, Food Crop; B = Terrestrial, Non-Food; C = Aquatic, Food Crop; D = Aquatic, Non-Food; E = Greenhouse, Food Crop; F = Greenhouse, Non-Food; G = Forestry; H = Domestic Outdoor; I = Indoor.

3/ Data must be submitted within the indicated timeframes, which begin on the date of the Guidance Document (see front cover for this date).

4/ Currently is not being imposed.

Monsanto

Monsanto Company
1101 17th Street, N.W.
Washington, D.C. 20036
Phone: (202) 452-8880

June 21, 1988

Director
Registration Division (TS767C)
Office of Pesticide Programs
U.S. Environmental Protection Agency
1921 Jefferson Davis Highway
Crystal Mall #2, Room 726
Arlington, Virginia 22202

Attention: Mr. Robert J. Taylor
Product Manager (25)

Subject: Acetochlor Herbicide EPA File Symbol 524-GUI
Harness® PP3F2966 Request for Concurrence on
Registration Status - Environmental Fate Requirements

Dear Sir:

Monsanto is in the final stages of the submission process for full registration of Acetochlor (Harness) herbicide. Our records indicate that with respect to Acetochlor, we have completed all requirements for the Guidelines related to Environmental Fate (Section 158.130) with the exception of a field rotational crop study which is currently being conducted and scheduled for completion by second quarter 1989. Monsanto is hereby requesting the Agency's concurrence with this observation as we are intending to complete our registration package in time for the 1989 planting season.

If you have any questions or comments, please contact Dr. Kevin Cannon or me.

Sincerely,

James L. Kunstman, Ph.D.
Senior Registration Specialist

/dh

cc: K. F. Cannon
G. B. Fuller

Note on Acetochlor N Barnett 6/23/88

Acetochlor has a number of properties (low soil adsorpt., stable to hydrolysis & photodegrad & ~~solub~~ high water solub) which indicate it might leach,

However, a compound must be suffic. persistent to leach to any meas. extent Without having seen the actual studies the aerobic soil half-life of 8-12 d ~~may~~ might indicate dissip is suffic. rapid to alleviate g-w cont. concerns,

My recomm. is that the registrant conduct field dissip / leach studies that define the depth of leaching with a 2-ft residue free zone in the soil. Highly permeable, low-org matter soils must be included.

Pending the results of such a study, a small-scale preap g.w. monit study could be req.

NOTE: Are any metab of acetochlor (a) persistent and (b) of tox. concern? If so, then a g w monitoring study would definitely be in order.

Table 1. Related environmental fate characteristics for atrazine compared with those of typical leaching pesticides as outlined in the "Ground Water Monitoring Guidelines"

Name of Characteristic		[redacted]ds for Leaching Pesticides	
K_d	0.4 - 2.7	< 5, usually less than 1 or 2	0.6-8.1 ✓
K_{oc}		< 300 to 500	213
Water solubility, ug/mL	223 ppm	> 30	242 ✓
Henry's law constant (atmos-L/mol)	??*	< 10^{-5}	$\sim 3 \times 10^{-6}$?
Photolysis, half-life, days	stable	> 7	— ✓
Soil persistence, half-life, days	8 - 12 ?	> 14 or 21	7-73 ✗
Hydrolysis rate, half-life, days	stable pH 5-9	> 175	— ✓

Alachlor values from this report

* Vapor press. is given as < 1 mm Hg (this seems exceedingly high, and is orders of mag. greater than alachlor [2.2×10^{-5} mm Hg] or metolachlor [1.3×10^{-5} mm Hg, 20°C]. If 1 mm Hg is used, Henry's const is 1.6×10^{-1})