


US EPA ARCHIVE DOCUMENT

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Date Out EFB 23 NOV 1982

To: Product Manager 25(Taylor)  
TS-767

From: E. Regelman (Acting)  
Chief, Review Section No. 1  
Environmental Fate Branch 

Attached please find the environmental fate review of:

Reg./File No.: 524-316

Chemical: Alachlor

Type Product. H

Product Name: LASSO

Company Name: Monsanto

Submission Purpose: response to exposure assessment

ZBB Code: other

ACTION CODE: 401

Date in: 8/19/82

EFB # 446 and 447

Date Completed 23 NOV 1982

TAIS (level II) Days

Deferrals To:

64

3

       Ecological Effects Branch

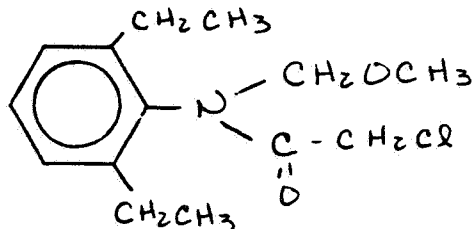
       Residue Chemistry Branch

  X   Toxicology Branch

1.0 INTRODUCTION

Monsanto has submitted a response to the EFB review of May 25, 1982 regarding exposure of workers to alachlor.

2.0 Lasso: Alachlor



2-chloro-2',6'-diethyl-N-(methoxymethyl)acetanilide

3.0 DISCUSSION

Monsanto in its letter responding to our review correctly identifies errors in Table 1 on page 9 of our review. The errors are found in the columns under the headings Dermal Exposure and Respiratory Exposure of the Flagman during Aerial Application of the EC. The numbers shown are transposed and Table 1 of the Monsanto response has the exposure values correctly placed (see attachment).

In addition, Monsanto has submitted revised lifetime daily exposure values for workers using Lasso (Table 2, attached). EFB accepts the numbers generated as worst case estimates and defers to Tox Branch the evaluation of associated risk. The suitability of dermal absorption values is also left to Tox Branch to accept.

4.0 RECOMMENDATIONS

EFB continues to believe that the exposure studies are scientifically valid.

EFB defers to Tox Branch the exposure values found in the attached tables for the determination of the risk assessment.

Richard V. Moraski, Ph.D.  
Chemist, Review Section No. 1  
Environmental Fate Branch, HED

*No comment  
necessary as it  
is deferred*

Table 1. Revised<sup>1</sup> Summary of Recalculated Potential Worker Exposure Estimates to Alachlor

Aerial and Ground Application

	<u>µg/kg bw/100 acres</u>		<u>µg/kg bw/lb. applied</u>		
	<u>Dermal Exposure</u>	<u>Respiratory Exposure</u>	<u>Total Exposure<sup>2</sup></u>	<u>@ 10% Dermal Absorption</u>	<u>@ 50% Dermal Absorption</u>
<u>Aerial Application (EC) 100 acres @ 3 lbs. AI/acre = 300 lbs.</u>					
Mixer/Loader	17.8	0.07	17.9	0.006	0.030
Pilot	4.6	0.2	4.8	0.002	0.008
Flagman	181.9	1.1	183.	0.064	0.306
<u>Ground Application (EC) 100 acres @ 4 lbs. AI/acre = 400 lbs.</u>					
Mixer/Loader	96.	0.16	96.2	0.024	0.120
Applicator/Inc	18.1	0.16	18.3	0.005	0.023
Combined	114.1	0.32	114.4	0.029	0.143
<u>Ground Application (Granular) 100 acres @ 1.2 lbs. AI/acre = 120 lbs.</u>					
Mixer/Loader	18.4	1.8	20.2	0.030	0.091
Applicator/Inc	ND <sup>3</sup>	0.17	0.17	0.001	0.001
Combined	18.4	2	20.4	0.032	0.093

<sup>1</sup> Monsanto revision of table 1, 2 from EFB evaluation of Monsanto exposure studies EFB #271 (Garner to Taylor, May 25, 1982)

<sup>2</sup> Assume: 100% absorption for respiratory and dermal absorption; 70 kg person

<sup>3</sup> ND: non-detectable

Table 1 (continued)

	<u>µg/kg bw/100 acres</u>			<u>µg/kg bw/lb. applied</u>	
	<u>Dermal Exposure</u>	<u>Respiratory Exposure</u>	<u>Total Exposure<sup>2</sup></u>	<u>@ 10% Dermal Absorption</u>	<u>@ 50% Dermal Absorption</u>
<u>5 gal probe 100 acres @ 4 lbs AI/acre = 400 lbs.</u>					
Mixer/Loader	24.9	0.09	25.	0.006	0.031
Applicator/Inc	18.1	0.16	18.3	0.005	0.023
Combined	43.0	0.25	43.3	0.011	0.054
<u>55 gal probe 100 acres @ 4 lbs. AI/acre = 400 lbs.</u>					
Mixer/Loader	48.0	0.18	48.2	0.012	0.060
Applicator/Inc	18.1	0.16	18.3	0.005	0.023
Combined	66.1	0.34	66.4	0.017	0.083

<sup>2</sup> See previous page

Table 2. Revised<sup>1</sup> Additional Risk Estimates of the  
 Applicator Exposure (Worst case estimates)

	<u>Exposure assuming 10% dermal absorption mg/kg/day</u>	<u>Level of Risk</u>	<u>Exposure assuming 50% dermal absorption mg/kg/day</u>	<u>Level of Risk</u>
<u>Aerial Application (EC)</u>				
<u>Open pour and mix</u>				
Mixer/Loader	0.14 x 10 <sup>-4</sup>		0.71 x 10 <sup>-4</sup>	
Pilot	0.47 x 10 <sup>-5</sup>		0.19 x 10 <sup>-4</sup>	
Flagman	0.15 x 10 <sup>-3</sup>		0.72 x 10 <sup>-3</sup>	
<u>Ground - Grower Application (EC)</u>				
<u>Open pour and mix</u>				
Mixer/Loader	0.16 x 10 <sup>-4</sup>		0.82 x 10 <sup>-4</sup>	
Applicator/Inc	0.34 x 10 <sup>-5</sup>		0.16 x 10 <sup>-4</sup>	
Combined	0.20 x 10 <sup>-4</sup>		0.98 x 10 <sup>-4</sup>	
<u>Ground - Custom Application (EC)</u>				
<u>Open pour and mix</u>				
Mixer/Loader	0.49 x 10 <sup>-4</sup>		0.24 x 10 <sup>-3</sup>	
Applicator/Inc	0.10 x 10 <sup>-4</sup>		0.47 x 10 <sup>-4</sup>	
Combined	0.59 x 10 <sup>-4</sup>		0.29 x 10 <sup>-3</sup>	
<u>Ground - Grower Application (Granular)<sup>2</sup></u>				
Mixer/Loader	0.21 x 10 <sup>-4</sup>		0.62 x 10 <sup>-4</sup>	
Applicator/Inc	0.70 x 10 <sup>-6</sup>		0.70 x 10 <sup>-6</sup>	
Combined	0.22 x 10 <sup>-4</sup>		0.64 x 10 <sup>-4</sup>	

Table 2 (continued)

	<u>Exposure assuming 10% dermal absorption mg/kg/day</u>	<u>Level of Risk</u>	<u>Exposure assuming 50% dermal absorption mg/kg/day</u>	<u>Level of Risk</u>
<u>Ground - Grower Application (Probe Transfer System - 5 Gallon)<sup>2</sup></u>				
Mixer/Loader	$0.41 \times 10^{-5}$		$0.21 \times 10^{-4}$	
Applicator/Inc	$0.34 \times 10^{-5}$		$0.16 \times 10^{-4}$	
Combined	$0.75 \times 10^{-5}$		$0.37 \times 10^{-4}$	
<u>Ground - Custom Appli- cator (Probe Transfer System - 55 gallon)<sup>3</sup></u>				
Mixer/Loader	$0.24 \times 10^{-4}$		$0.12 \times 10^{-3}$	
Applicator/Inc	$0.10 \times 10^{-4}$		$0.47 \times 10^{-4}$	
Combined	$0.35 \times 10^{-4}$		$0.17 \times 10^{-3}$	

<sup>1</sup> Revised exposure estimates by Monsanto for table on page 6 of Toxicology Branch report from A. Mahfouz to R. Taylor dated 7/19/82.

<sup>2</sup> Same conditions as used for ground application by grower for EC.

<sup>3</sup> Same conditions as used for ground application by custom applicator for EC.