JUN 28 1990

Shaughnessy No.: 103601
Date Out of EFGWB: 6/28/90

To: E. Feris
Product Manager 74
Registration Division

From: Henry Nelson, Acting Chief
Environmental Chemistry Review Section #3
Environmental Fate and Ground Water Branch/EFED

Through: Henry Jacoby, Chief
Environmental Fate and Ground Water Branch/EFED

Attached, please find the EFGWB review of . . .

Reg./File # : 524-308

Common Name : Glyphosate

Type Product : Herbicide

Product Name :

Company Name : Monsanto

Purpose : Photodegradation on soil data review

Date Received: _____ EFGWB # (s): 90374

Action Code : 160

Deferrals to:

_____ Ecological Effects Branch, EFED

_____ Science Integration and Policy Staff,

_____ Non-Dietary Exposure Branch, HED

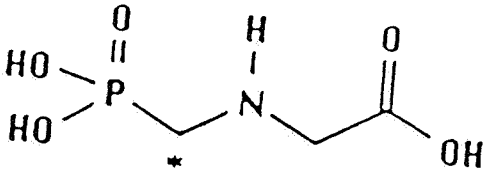
_____ Dietary Exposure Branch, HED

_____ Toxicology Branch I, HED

_____ Toxicology Branch II, HED

1. CHEMICAL: Glyphosate

2. TEST MATERIAL:



3. STUDY/ACTION TYPE: Review photodegradation on soil data.

4. STUDY IDENTIFICATION:

Photodegradation of ^{14}C Glyphosate on Soil by natural sunlight), K. Shepler, P.A. McGovern, August, 1987, Performed by Pharmacology and Toxicology Research Laboratory, Richmond, CA submitted by Monsanto, MRID 41335101.

5. REVIEWED BY:

A. Abramovitch
Chemist
EFGWB/EFED/OPP
Review Section #3

Signature: Ekiva Abramovitch

Date: JUN 27 1990

6. APPROVED BY:

Henry P. Nelson, Ph.D.
Acting Chief
EFGWB/EFED/OPP
Review Section #3

Signature: _____

Date: JUN 27 1990

7. CONCLUSION:

The photodegradation on soil data requirements is satisfied. Exposure to natural sunlight does not affect the degradation of glyphosate on soil.

8. RECOMMENDATIONS:

The status of the data requirements on glyphosate was discussed in Two January 27, 1988 EFGWB reviews (attached). Since then, only the photodegradation on soil has been satisfied (this review).

9. BACKGROUND:

A. Introduction See two January 27, 1988 reviews and references therein.

B. Directions for Use No label attached.

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10. DISCUSSION OF INDIVIDUAL TESTS OR STUDIES: See attached DER

11. COMPLETION OF ONE-LINER: Updated

12. CBI APPENDIX: None

STUDY IDENTIFICATION:

Photodegradation of ^{14}C Glyphosate on Soil by natural sunlight), K. Shepler, P.A. McGovern, August, 1987, MRID 41335101.

TYPE OF STUDY:

Photodegradation on Soil.

REVIEWED BY:

Typed Name: A. ABRAMOVITCH, Ph.D.
Title: Chemist, Review Section 1
Organization: EFGWB/HED/OPP
Date: JUN 27 1990
Signature:

APPROVED BY:

Typed Name: H. NELSON, Ph.D.
Title: Acting Chief, Review Section 3
Organization: EFGWB/HED/OPP
Date: JUN 27 1990
Signature: H Nelson

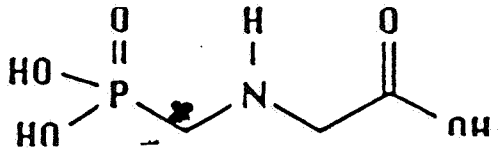
CONCLUSIONS:

1. The photodegradation on soil data requirement for glyphosate is satisfied by this study.

2. Significant photodegradation of glyphosate does not occur on soil exposed to sunlight. Microbial degradation was the predominate mode of degradation in both irridiated and non irradiated samples with half lives of 90 days and 96 days, respectively.

MATERIAL AND METHOD:

A 97.5% pure glyphosate of 98.9% radiochemical purity and 8.08 mCi/mmol and labeled as shown below was used to prepare a stock solution.



Aliquots of 200 ul of the stock solution were evenly applied to 3.1 grams of a sandy loam soil evenly distributed as a slurry on 50 mm petri dishes. The application rate simulated an application rate of 4 lb/ai/acre. The uniformity of the application was verified by several combustion analyses. The soil characteristics were as follows: pH 7.6, 1.6 organic content, CEC 6, 74% sand, 16 silt and 10% clay). Some fortified soils were maintained at 75% mhc with a humidifier and exposed to natural sunlight (light intensities attached) at 22 C and control samples were maintained unexposed

under identical conditions. Samples were taken at 0,3,7,11,20 and 31 days. Traps were used to collect volatiles. Soil samples were extracted with 0.5 KOH, analyzed by LSC and then by HPLC and TLC in reference authentic samples of parent and potential degradates.

RESULTS:

The experiment provided a complete account for the fate of all applied radiolabeled material. All applied material remained on the plates (no volatiles) and averaged at 105% recoveries. Degradation rates on both exposed and non exposed plates were almost identical with estimated half lives of 90.2 days for exposed samples and 96.3 days for non exposed samples. The degradate on both sunlight exposed and non exposed plates was HMPA (aminomethylphophonic acid) and carbon dioxide.

DISCUSSION:

The experiment was conducted under EPA approved protocol and guidelines and satisfies data requirements.

Glyphosate environmental fate review

Page _____ is not included in this copy.

Pages 6 through 12 are not included in this copy.

The material not included contains the following type of information:

___ Identity of product inert ingredients

___ Identity of product impurities

___ Description of the product manufacturing process

___ Description of product quality control procedures

___ Identity of the source of product ingredients

___ Sales or other commercial/financial information

___ A draft product label

___ The product confidential statement of formula

___ Information about a pending registration action

X FIFRA registration data

___ The document is a duplicate of page(s) _____

___ The document is not responsive to the request

The information not included is generally considered confidential by product registrants. If you have any questions, please contact the individual who prepared the response to your request.

Use this form for individual studies & to submit pesticide applications.

United States Environmental Protection Agency
Office of Pesticide Programs
Washington, DC 20460

Data Review Record

Confidential Business Information - Does not contain National Security Information (E.O. 12065)

Pack Number	Date Received
50134 EFED	2/16/90

1. Product Name

Chemical Name: Glyphosate

2. Identifying Number	3. Record Number	4. Action Code	5. MRID/ Accession Number	6. Study Guideline or Narrative
524-308	258401	600	41335101	161-3

7. Reference No.	8. Date Rec'd (EPA)	9. Prod/Review Mgr/DCI	10. PM/RM Team No.	11. Date to HED/ EFED/RD/BEAD	12. Proj Return Date	13. Date Returned to RD/SRRD
	12-22-89	E. FERIS	74	2-14-90	5-23-90	

Instructions

Registrant says this submission is to supplement a previously submitted and reviewed study - MRID 228130. Please review this submission and determine if the guideline is satisfied.

103601-1 /178

This Section Applies to Review of Studies Only

14. Check Applicable Box

- ☐ Adverse 6(a)(2) Data (405)
- ☐ Special Review Data (870)
- ☐ Generic Data (Reregistration)(660)
- ☐ Product Specific Data (Reregistration)(655)

15. No. of Individual Studies Submitted

16. Have any of the above studies *(in whole or in part)* been previously submitted for review?

- ☐ Yes *(Please identify the study(ies))*
- ☐ No

17. Related Actions

18.	To	Type of Review	19. Reviews Also Sent to	
HED		Science Analysis & Coordination	☐ SAC	☐ PC
		Toxicology/HFA	☐ TOX/HFA	☐ PL
		Toxicology/IR	☐ TOX/IR	
		Dietary Exposure	☐ DEB	☐ EA
		Nondietary Exposure	☐ NDE	☐ AC
EFED		Ecological Effects		☐ BA
	✓	Environmental Fate & Groundwater	☐ EEB	
SRRD		Special Review	☐ EFGWB	
		Reregistration		
		Generic Chemical Support	☐ SR	
RD		Insecticide-Rodenticide	☐ RER	
		Fungicide-Herbicide	☐ GSC	
		Antimicrobial		
		Product Chemistry	☐ IR	
		Precautionary Labeling	☐ FH	
BEAD		Economic Analysis	☐ AM	
		Analytical Chemistry		
		Biological Analysis		

20. Data Review Criteria

A. Policy Note No. 31

- ☐ 1 = data which meet 6(a)(2) or meet 3(c)(2)(B) flagging criteria
- ☐ 2 = data of particular concern from registration standard
- ☐ 3 = data necessary to determine tiered testing requirements

B. Section 18

- ☐ 1 = data in support of section 3 in lieu of section 18

C. Inert Ingredients

- ☐ 1 = data in support of continued use of List 1 inert

- ☐ Confidential Statement of Formula (EPA Form 8570-4) Attached *(Trade Secrets)*
- ☐ Label Attached

EPA Form 8570-17 (Rev. 11-88)
Previous editions are obsolete.

White - Data Coordinator
Yellow - Data Review Section
Pink - PM/RM/DCI
Green - Return with completed review