

US EPA ARCHIVE DOCUMENT

235370
RECORD NO.

128501
SHAUGHNESSEY NO.

REVIEW NO.

EEB REVIEW

JAN 30 1989

DATE: IN 12-7-88 OUT _____

FILE OR REG. NO 476-EEEL

PETITION OR EXP. NO. _____

DATE OF SUBMISSION 11-17-88

DATE RECEIVED BY EFED 11-28-88

RD REQUESTED COMPLETION DATE 1-31-89

EEB ESTIMATED COMPLETION DATE 1-31-89

RD ACTION CODE/TYPE OF REVIEW 121

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

DATA ACCESSION NO(S). 408938-03,-04,-05

PRODUCT MANAGER NO. R. Taylor (25)

PRODUCT NAME(S) SC-0224/Sulfosate/Touchdown® Concentrate

COMPANY NAME ICI Americas, Inc.

SUBMISSION PURPOSE Submission of data in response to
previous EEB review of noncrop uses

SHAUGHNESSEY NO.	CHEMICAL, & FORMULATION	% A.I.
<u>128501</u>	<u>sulfosate</u>	<u>52.2%</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____

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

DATA ACCESSION NO(S). 408938-06,-07

PRODUCT MANAGER NO. R. Taylor (25)

PRODUCT NAME(S) SC-0224/Sulfosate/Touchdown® 4-LC

COMPANY NAME ICI Americas, Inc.

SUBMISSION PURPOSE Proposed new formulation for use on "noncrop areas around the farm" (submission incl. fish toxicity data with new formulation)

SHAUGHNESSEY NO.	CHEMICAL, & FORMULATION	% A.I.
<u>128501</u>	<u>sulfosate</u>	<u>39.9%</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____

EEB BRANCH REVIEW

PESTICIDE NAME: sulfosate

100 Submission Purpose and Label Information

100.1 Submission Purpose and Pesticide Use

In response to previous EEB reviews of sulfosate for noncrop use, the registrant has submitted fish embryolarvae and invertebrate life-cycle data. The registrant has also proposed a new formulation to reduce toxicity to aquatics (the previous 4-LC formulation was up to 714X as toxic as technical material to aquatic organisms), and has submitted fish LC₅₀ data on this formulation. The registrant has also restricted use of both the 4-LC and Concentrate to "noncrop areas around the farm" and prohibited aerial application with their currently proposed labels.

100.2 Formulation Information (from proposed labels)

1) 476-EEEL: Touchdown® Concentrate

- see 1/27/87 EEB review

2) 476-EEEA: Touchdown® 4-LC

"Sulfosate: N-Phosphonomethylglycine
trimethylsulfonium salt..... 39.9

Inert Ingredients..... 60.1%
100.0% "

100.3 Application Methods, Directions, Rates

See 1/27/87 EEB review and registrant-proposed labels attached. Aerial application is now specifically prohibited by the current proposed labels.

100.4 Target Organisms

See 1/27/87 EEB review and registrant-proposed labels attached.

100.5 Precautionary Labeling

The current labeling proposed by the registrant contains the following language:

"Keep out of lakes, ponds and streams.

Do not apply to any body of water, wetlands or other aquatic habitats. Do not contaminate water when disposing of equipment washwaters."

101 Hazard Assessment

101.1 Discussion

The registrant has restricted use to "noncrop areas around the farm" and has prohibited aerial application. Both of these actions should reduce the likelihood of aquatic exposure.

101.2 Likelihood of Adverse Effects to Non-target Organisms

See 1/21/87 EEB review. The greatest acute hazard potential described was to aquatic organisms with the previous 4-LC formulation, which was considered "moderately toxic" to the three test species. The new 4-LC formulation (4LC-E) is considered by EEB to be "practically non-toxic" to the fish species tested (rainbow trout LC₅₀ = 603 mg/L; bluegill sunfish LC₅₀ = 297 mg/L; see Section 101.4 below). Technical sulfosate is also considered "practically non-toxic" to these species and "slightly toxic" to D. magna (see 1/21/87 EEB review). An acute hazard would not be expected at the application rates proposed.

Because of environmental chemistry information indicating high water solubility of sulfosate, hydrolytic and photolytic persistence of sulfosate, potential for repeat applications, and the potential for aquatic habitat in/near noncropland, chronic aquatic toxicity data were requested (see 4/1/87, 3/30/87, and 1/21/87 EEB reviews). This data has been submitted but review cannot be completed without further information (see section 101.4 below).

Exposure levels estimated by R. Lee of EEB, using SWRRB and EXAMS models, indicate maximum water column sulfosate residues of 4.2 ppb using a fallow land scenario and 115 ppb using a turf scenario to estimate runoff from the proposed noncropland use pattern. These residues were not persistent in the water column, despite multiple applications and the above environmental chemistry. If the lowest reported MATC range of 1.2 - 2.1 mg/l for sulfosate (D. magna life cycle study, Accession No. 408937-05) is confirmed following submission of requested information, sulfosate would not appear to pose a chronic aquatic hazard.

101.3 Endangered Species Considerations

EEB has consulted with the U.S. Fish and Wildlife Service and received case-by-case Biological Opinions for a number of noncrop herbicides, including Oust (6-30-83), Picloram (8-14-85), Metribuzin (8-30-85), and Goal (11-13-85). On 7/23/87, formal consultation was initiated for all noncrop herbicides as part of the noncrop cluster, which

also included insecticides and vertebrate control pesticides. Consultation is still ongoing. When completed, labeling and/or other measures to ensure the protection endangered/threatened species, will be provided.

101.4 Adequacy of Toxicity Data

The following four studies were reviewed by Kimberly D. Rhodes of Hunter/ESE (DERs dated 1/9/89).

A) fish acute LC₅₀ data with new formulation

--formulation designated "4LC-E" by registrant

1) rainbow trout (Accession No. 408938-05)

- LC₅₀ of test material (not adjusted for percent a.i.) = 603 mg/L ("practically non-toxic")
- Study Classification: Core for this formulation

2) bluegill sunfish (Accession No. 408938-06)

- LC₅₀ of test material (not adjusted for percent a.i.) = 297 mg/L ("practically non-toxic")
- Study Classification: Core for this formulation

B) fish early life stage and invertebrate life-cycle data with technical product

1) rainbow trout early life stage (Accession No. 408938-04)

- Reported statistical analyses and results cannot be confirmed without raw data concerning "hatchability, survival, standard length, and wet weight of the rainbow trout eggs or fry". This information must be submitted.
- The water sample collection procedures must be clarified, including location.
- Study Classification is potentially Core with submission of above information.

2) D. magna life cycle test (Accession No. 408937-05)

- Reported statistical analyses and results cannot be confirmed without raw data concerning "survival of first generation daphnids, production of young by first generation daphnids at various times for each treatment, and the length of

INERT INGREDIENT INFORMATION IS NOT INCLUDED

first generation daphnids at the end of the test" (SEP, 1986, cited in DER). This information must be submitted.

- The water sample collection procedures must be clarified, including location.
- Study Classification is potentially Core with submission of above information.

Since the registrant changed their 4-LC formulation, the previously requested aquatic LC₅₀ data on the old [redacted] the aquatic chronic data on the old formulation are no longer needed for hazard evaluation.

Plant Protection studies (40 CFR §158.150) are still required, as indicated in the 4/1/87, 3/30/87, and 1/21/87 EEB reviews. Please note, however, that these should be Tier II studies, since sulfosate is an herbicide and would be expected to show effects in the Tier I tests sufficient to require Tier II.

101.5 Adequacy of Labeling

To ensure the protection of endangered/threatened species, additional labeling may be required, as noted above.

102 Classification

Sulfosate does not appear to be a candidate for Restricted Use classification.

103 Conclusions

EEB has reviewed the proposed registration of sulfosate for "weed control in noncrop areas around the farm". See Section 101 for our updated risk assessment. Tier II Plant Protection studies and additional information regarding submitted chronic aquatic studies (Section 101.4) are required to complete a full risk assessment.

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1-27-89

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AQUATIC EEC SIMULATION

I. Runoff Determination

SWRRB (Simulator for Water Resources on Rural Basins), a computer model, was used to simulate runoff of Sulfosale in Riesel, Tx. Fallow landfields. In simulation, the pesticide was applied 4.125 lb x 3 appl x 1 Mo. interval a year, during July - Sept growing season for 3 years ('69, '72, '75). From these results, the following runoff events are selected to represent runoffs in the wettest year (the maximum runoff), the average wet year (the average runoff) and the dry year (the minimum runoff).

Unit Runoff (g/H) (lbs/appl.)

Max. runoff (1972)		Med. runoff (1969)		Min. runoff (1975)	
J. day	runoff*	J. day	runoff*	J. day	runoff
236	12.128 0.084	Kd= 50 {	303	0.286 0.002	0
300	6.378 0.044		339	0.222 0.002	
301	0.305 0.002		340	0.738 0.005	
303	0.676 0.005	Kd= 0.3 {	303	2.741 0.019	
304	0.188 0.001		339	2.785 0.019	
305	0.441 0.003		340	7.476 0.052	
306	0.469 0.003				
317	0.121 0.001				
349	0.240 0.002				

* Tot Runoff = unit runoff x $\frac{0.0069}{10(A) \times 0.69 \div 1000} = \text{Kg F.M.W}$

II. EEC Determination

To further explore fate and EEC of this pesticide in the aquatic system, the EXAMS II (Exposure Analysis Modeling) was then used to simulate its fate in the ponds and streams. The runoff from 10 H. crop land or drainage basin (i.e., unit runoff from SWRRB x 10) was loaded to Ga. pond-stream scenario consists of one H. farm pond-2 m. deep (surrounded by 10 H. drainage basin connected by a short section of stream (100-m L. x 3-m W. x 0.5-m D.) and then a long section of stream (300-m L. x 3-m W. x 0.5-m D.). The EEC's of this pesticide in the hypothetical pond and stream, predicted from EXAMS simulation are listed as follows:

EEC (ppb)

Run off	pond	Stream 1	Stream 2
High (1972)	4.2 ppb	1.863 ppb	0.589 ppb ← water column
Med. ()	200 ppb	93.145 ppb	29.445 ppb ← sed.
Low ()			
MED 1969	0.324 ppb	0.146 ppb	0.0479 ppb ← water column
Kd=0.3	[dis] 3.3	1.49	0.486
	[sed] 5.79	18.95	8.1
Yago/runf Kd=0.3	115 ppb	83.8 ppb	60.7 ppb ← water column / dis.
t _{1/2} (%) = 24 da	34.5 ppb	25.1 ppb	18.2 ppb ← " 150hpa

Sulfosate ecological effects review

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Pages 9 through 22 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
 - FIFRA registration data
 - The document is a duplicate of page(s) _____
 - The document is not responsive to the request
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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.
