

US EPA ARCHIVE DOCUMENT

Snaughnessy No.: 128501

Date Out of EAB: DEC 26 1985

To: R. Taylor
Product Manager 25
Registration Division (TS-767)

From: Samuel M. Creeger, Chief
Review Section #1
Exposure Assessment Branch
Hazard Evaluation Division (TS-769)



Attached, please find the EAB review of...

Reg./File #: 476-EEEL and EEEA

Chemical Name: sulfosate

Type Product: herbicide

Product Name: SC 0224

Company Name: Stauffer Chemical Co.

Submission Purpose: Submission of additional data to support an

EJP on non-crop areas.

Date Received: 12/19/85

Action Code(s): 121

Date Completed: DEC 26 1985

EAB #(s) : 6145 and 6146

days: 1.5

Deferrals to: Ecological Effects Branch

Residue Chemistry Branch

Toxicology Branch

Monitoring study requested by EAB:

Monitoring study voluntarily conducted by registrant:

INERT INGREDIENT INFORMATION IS NOT INCLUDED

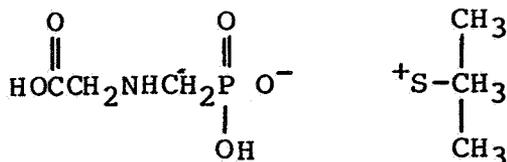
1. CHEMICAL:

Common name: sulfosate

Company codes: SC-0224; R-50224

Chemical name: trimethylsulfonium carboxymethylaminomethylphosphonate

Chemical structure:



Physical/Chemical properties: refer to review dated 8/18/83

2. TEST MATERIAL:

The test material used was 56.6% ai technical sulfosate

3. STUDY/ACTION TYPE:

Stauffer Chemical Co. has submitted vapor pressure data in response to a previous EAB review of a proposed EUP for sulfosate (5.5 and 4 lb/gal LC formulations) on non-crop areas.

4. STUDY IDENTIFICATION:

Stauffer Chemical Co. 1985. The vapor pressure of SC-0224. Report No. 85-35. (Accession no. 260509)

5. REVIEWED BY:

Debra Edwards, Ph.D.
Review Section 1/EAB/HED/OPP

Debra Edwards DEC 26 1985

6. APPROVED BY:

Samuel M. Creeger, Chief
Supervisory Chemist
Review Section 1/EAB//HED/OPP

Sam M Creeger
DEC 26 1985

7. CONCLUSIONS:

The vapor pressure concerns noted by EAB in previous reviews (8/18/83 and 3/1/84) have been resolved. The high vapor pressure values reported for technical SC-0224 [8.2 torr at 10°C; 14.6 torr at 20°C; 24.9 torr at 30°C; 41.3 torr at 40°C]

The vapor pressure of pure sulfosate is $\leq 4 \times 10^{-7}$ torr.

8. RECOMMENDATIONS:

EAB has no further concerns regarding the previously-reported vapor pressure values for technical SC-0224. However, the aerobic soil metabolism data requirement has not been fulfilled and "no detailed distributional breakout of target sites/amounts to be applied . . ." (see review of 8/18/83) for the proposed 4 LC experimental program has been submitted. These data and information must be submitted prior to final EAB assessment of the proposed EUP.

9. BACKGROUND:

A. Introduction:

Stauffer Chemical Co. is requesting an EUP for use of two formulations of sulfosate (5.5 and 4 lb/gal liquid concentrates) on non-crop areas. In the original review of the proposed EUP, dated 8/18/83, the reviewer noted that relatively high vapor pressure values were reported for the technical material, even at below-ambient temperatures (8.2 torr at 10°C). As a result, he stated, ". . . it is likely that the registrant will have to conduct one or more of the following studies prior to full registration: photolysis in air, human exposure analysis, reentry." In a subsequent submission, the registrant responded (see review dated 3/1/84), ". . . the vapor pressure is due entirely to [redacted] in the technical material." However, the reviewer concluded [redacted]

[redacted] "EAB still has no way of knowing what ambient air levels are likely to be over treated fields." Thus, the vapor pressure concerns remained unresolved. The present submission presents vapor pressure data for the active ingredient and provides a more detailed explanation of the [redacted] technical material.

B. Directions for use:

The proposed experimental program, originally planned for 9/1/83 to 9/1/85, is appended to the review by E. Regelman, dated 8/18/83.

10. DISCUSSION OF INDIVIDUAL TESTS OR STUDIES:

10.1 A. Study Identification: Vapor pressure.

Stauffer Chemical Co. 1985. The vapor pressure of SC-0224. Report No. 85-35. (Accession No. 260509)

B. Test Materials and Methods:

Two studies were conducted. In the first study, a flask containing technical SC-0224 (56.6% ai) was attached to a vacuum system with a "cold-finger" trap attached. The trap

INERT INGREDIENT INFORMATION IS NOT INCLUDED

and flask were separated by glass tubing containing glass wool. The system was evacuated to 23 torr [redacted] and maintained at 25°C for 3 days. The trap was cooled with liquid nitrogen. The total condensate collected after 3 days was weighed and analyzed for SC-0224 by LC.

In the second study, 100 ml of 56.6% technical sulfosate were placed in the bottom of a carboy (19.4 liter volume) which was then sealed with a Teflon-lined stopper. The carboy was maintained at room temperature (approximately 25°C). After 2 weeks, a sample of the vapor phase (1500 ml) was withdrawn through the stopper using a gas-tight syringe. The withdrawn vapor was discharged into 60 ml deionized water. SC-0224 was determined in the solution by LC.

C. Reported Results:

In the first study, 12.8 g of condensate were collected. [redacted]

The LC method measured 740 ng of carboxymethylaminophosphonic acid in the condensate which corresponds to 1080 ng or 4.4×10^{-9} moles of SC-0224. The vapor pressure of SC-0224 was calculated to be 1.4×10^{-7} torr using the ideal gas law equation, shown below:

$$P = (nRT)/V$$

n = number of moles present

V = volume

T = degrees Absolute

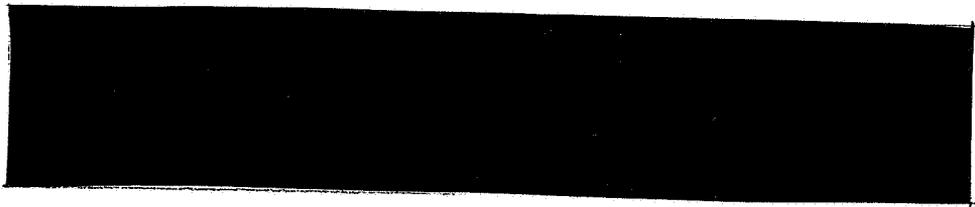
R = universal gas constant (62,359 mL-torr/degree-mole)

In the second study, it was determined that 6 ng of carboxymethylaminophosphonic acid, corresponding to 8.7 ng or 3.55×10^{-11} moles of SC-0224, were in the 1500 ml of withdrawn vapor. Again using the ideal gas law equation, the vapor pressure of SC-0224 was calculated to be 4×10^{-7} torr.

In addition to the results of the above two studies, Stauffer submitted data in support of their previous contention (see review dated 3/1/84) that the previously-reported vapor pressures (see review dated 8/18/83) were due to [redacted]

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Observed and calculated values are presented in Table I (attached).

D. Study Author's Conclusions:

" . . . the vapor pressure of SC-0224 is negligible and . . . significant amounts of the compound will not be present in ambient air over treated fields . . . " [taken from a letter to R. Taylor, dated 11/20/85, which accompanied the submission].

E. Reviewer's Discussion and Interpretation of Results:

The reviewer checked the registrant's calculations and found them to be correct. The submitted studies are scientifically valid and the reviewer is in agreement with the registrant's conclusions.

11. COMPLETION OF ONE-LINER:

No one-liner.

12. CBI APPENDIX:

No CBI appendix.

Sulfosate environmental fate/exposure assessment review

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Pages _____ through _____ are not included in this copy.

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 - Identity of product impurities
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 - Description of product quality control procedures
 - Identity of the source of product ingredients
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