



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

7-11-89

OFFICE OF
PESTICIDES AND TOXIC SUBSTANCES

11 JUL 1989

MEMORANDUM

SUBJECT: REVIEW OF VAPOR PRESSURE STUDY FOR SULFURAMIDE
(HED Project No. 9-1577)

TO: Phillip Hutton
Product Manager 17
Registration Division (H7505C)

FROM: David Jaquith
Review Section 1
Non-Dietary Exposure Branch
Health Effects Division (H7509C)

David Jaquith

THRU: Michael Firestone, Head
Review Section 1
Non-Dietary Exposure Branch
Health Effects Division (H7509C)

Carol Firestone (for)

THRU: Charles L. Trichilo, PhD., Chief
Non-Dietary Exposure Branch
Health Effects Division (H7509C)

Charles L. Trichilo

Please find below the NDEB review of

RD or SRRD Record #: 1812-327

Caswell #: 454E

Date Received: 06/09/89

Review Time: 2 days

Deferral to: Biological Analysis Branch/BEAD

 Science Analysis & Coordination Branch

 TB - Insecticide/Rodenticide Support Section

 TB - Herbicide/Fungicide/Antimicrobial Support
Section

1.0 INTRODUCTION

Griffin Corporation has submitted a vapor pressure study conducted at different temperatures (MRID No. 411150-00) for their insecticidal product sufluramide (N-ethyl perfluorooctanesulfonamide). These data were requested by Dr. Firestone (NDEB) in order to estimate the potential respiratory exposures of individuals to the product. Sulfuramide is the active ingredient in Raid Ant Controller II Ant Bait (EPA Reg. No. 1812-330) and Raid Roach Controller II Roach Bait (EPA Reg. No. 1812-329). Copies of the labels for these products are attached as Appendix A. Both of these products are packaged in child resistant containers. The ant product contains 0.36 oz of a 0.5 percent formulation (0.0018 oz or 0.051 g of active ingredient). The roach bait is packaged in 1 oz containers with the formulation at a concentration of 1.0 percent (0.01 oz or 0.28 g of active ingredient). Twelve roach baits or 4 ant baits are enclosed in each package. All of the baits are to be used for maximum efficacy. The baits are designed to be placed primarily on horizontal surfaces near walls. Stickers are provided to allow placement on vertical surfaces.

2.0 DESCRIPTION OF STUDY

The vapor pressure of sulfuramide was determined by two different methods, thermogravimetric and Knudsen effusion. The thermogravimetric experiments were conducted by placing a sample in an open platinum pan over which was passed dry nitrogen at measured flow rates and one atmosphere pressure. Two different flow rates were used to verify that saturation of the gas had occurred. The weight loss of the material was determined at various times. The vapor pressure was then calculated using the following equation:

$$P = \frac{W}{rt} \times \frac{RT}{M}$$

where;

P = vapor pressure in atm

W = weight loss in grams

r = N₂ flow rate (cm³/min)

t = time in minutes

R = universal gas constant = 82.06 cm³ atm mol⁻¹ K⁻¹

T = temperature, K

M = molecular weight = 527 g/mol (see Appendix B.)

No detectable weight loss occurred between 23 and 35 degrees C using the thermogravimetric method whether the temperature was changed or held constant over the 90 minute period with a gas flow rate of 8 cm³ /min. A weight loss detection limit of 0.01 mg was used to calculate a vapor pressure at 34 degrees C. The calculated vapor pressure using these values was 6.6×10^{-7} atm (0.067 Pa). A summary of the registrant's results using both methods at different temperatures is presented in Table 1.

Table 1. Vapor Press of Sulfuramide (C₈F₁₇NHSO₂C₂H₅) Measured at Various Temperatures Using a Thermogravimetric Method or Knudsen Effusion Equipment.

Temperature °C	Temperature °F	Vapor Pressure (Pa)	Method
34	93	<0.1	TGA ¹ , flow = 8 cm ³ /min
36	97	6.4×10^{-2}	Knudsen effusion
55	131	1.21	Knudsen effusion
58	136	0.8	TGA ¹ , flow = 18 cm ³ /min
58	136	1.4	TGA ¹ , flow = 10 cm ³ /min
72	162	5.6	TGA ¹ , flow = 10 cm ³ /min

¹ TGA = Thermogravimetric Analysis

CONCLUSIONS

After examination of the data submitted by the registrant NDEB agrees that the vapor pressure of sulfuramide is very low under the conditions likely to occur with use and that exposure to such vapors can be considered to be negligible. NDEB notes that, if a 60 kg individual absorbs the entire contents of an ant bait, the dose would be 51 mg or 0.85 mg per kg.

cc: Sulfuramide file
Correspondence file
Circulation file
SACB
TB-IRS

(FRONT PANEL)

RAID
ROACH CONTROLLER II
ROACH BAIT

KILLS ROACHES WHERE THEY BREED

ODORLESS BAITS

RELIEF FROM EVEN SEVERE ROACH PROBLEMS

KILLS EVEN HIDDEN ROACHES

KILLS ROACHES YOU SEE, KILLS ROACHES YOU DON'T SEE

KILLS ROACHES CONTINUOUSLY FOR UP TO THREE MONTHS

CONTAINS SULFLURAMID

ADVANCED ROACH DEFENSE SYSTEM

Guaranteed To Work
Or Money Back - See Back Panel

ACTIVE INGREDIENTS:

N-ethyl Perfluorooctanesulfonamide

1.000%

INERT INGREDIENTS:

99.000%

CAUTION:

DO NOT ALLOW CHILDREN OR PETS
TO PLAY WITH THE BAITS

CONTAINS 12 CHILD RESISTANT BAITS

NET WT. 1 OZ.

ACCEPTED
with COMMENTS
in EPA Letter Dated:

MAR 23 1989

Under the Federal Insecticide,
Fungicide, and Rodenticide Act as
amended, for the pesticide
registered under EPA Reg. No.

1812-330

(BACK PANEL)

RAID
ROACH CONTROLLER II
ROACH BAIT

KILLS ROACHES FOR UP TO THREE MONTHS

NEW BAIT DESIGN

WITH MORE OPENINGS TO ATTRACT MORE ROACHES!

New! Raid Roach Controller II contains Sulfluramid, a revolutionary ingredient that keeps killing roaches nonstop. Roach Controller II Roach Baits are so advanced they kill roaches where they breed, ridding your home of roaches for up to three months. Child resistant Roach Controller II Baits may be placed anywhere you've seen roaches, even on kitchen countertops or next to food. Roach Controller II Roach Baits are guaranteed to work for even severe bug infestations.

For maximum effectiveness, use all 12 baits at one time and replace every three months.

SATISFACTION GUARANTEE: If RAID ROACH CONTROLLER II ROACH BAIT does not provide effective roach control, return all 12 baits in this box, for a full refund of purchase price to: Consumer Services Department, S. C. Johnson & Son, Inc., Racine, Wisconsin 53403, U.S.A.

THIS IS HOW ROACH CONTROLLER II ROACH BAIT WORKS

1. Roach Controller II Roach Baits fit snugly in corners and along paths commonly traveled by roaches.
2. Roaches are attracted to the bait to feed.
3. Roaches eat the bait and return to nesting area to die.
4. Bait food carried back to the nest continues to kill other roaches.

DIRECTIONS FOR HOUSEHOLD USE:

It is a violation of Federal Law to use this product in a manner inconsistent with its labeling.

For thorough roach control, use all 12 baits at one time. To keep roaches from returning, replace all baits every three months.

1. Break Roach Controller II Baits apart from the plastic frame.

6. Replace ALL baits every three months to keep roaches from returning. Use the 3 month reminder enclosed on your calendar or refrigerator to remember the date of replacement.

DISPOSAL: Wrap container and put in trash collection.

EPA Est. No. 56207-WI-002

THIS IS HOW ROACH
CONTROLLER II ROACH
BAIT WORKS

RLW/ec
EPARMax

A collection of 15 small, stylized line drawings of various insects, including beetles, flies, and bees, arranged in a grid-like pattern.

ACCEPTED
with COMMENTS
in EPA Letter Dated

(FRONT PANEL)

MAR 23 1989

RAID
ANT CONTROLLER II
ANT BAIT

Under the new Ant Control, Fungicide, and Rodenticide Act as amended, for the pesticide registered under EPA Reg. No.

Contains 4 Baits

1812-330

KILLS A VARIETY OF HOUSEHOLD ANTS

KILLS THE QUEEN

KILLS THE COLONY

ODORLESS BAIT DISCS

COLONY STOP FORMULA

CONTAINS METASTOP

ADVANCED ANT DEFENSE SYSTEM

Guaranteed To Work
Or Money Back - See Back Panel

ACTIVE INGREDIENTS:

N-ethyl Perfluorooctanesulfonamide

0.500%

INERT INGREDIENTS:

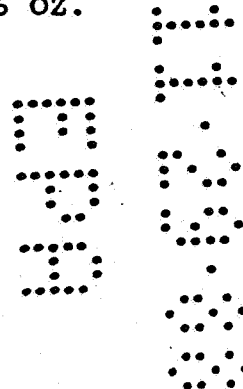
99.500%

CAUTION:

DO NOT ALLOW CHILDREN OR PETS
TO PLAY WITH THE BAITS

CONTAINS 4 CHILD RESISTANT BAITS

NET WT. .36 OZ.



(BACK PANEL)

RAID
ANT CONTROLLER II
ANT BAIT

KILLS A VARIETY OF HOUSEHOLD ANTS

NEW BAIT DESIGN

MORE OPENINGS TO ATTRACT MORE ANTS

New! Raid Ant Controller II Ant Bait contains Metastop, a revolutionary formula which provides relief from even tough ant problems. Ants carry the bait food back to the nest to kill the queen and destroy the entire colony. Ant Controller II Ant Bait kills a variety of household ants, including Black Carpenter Ants, Argentine Ants, Cornfield Ants, and Pharaoh Ants. Child resistant Ant Controller II Ant Baits can be placed anywhere you have seen ants; even next to food and dishes. Attractive beige colored baits blend better on most home surfaces.

SATISFACTION GUARANTEE: If RAID ANT CONTROLLER II ANT BAIT does not provide effective ant control, return all 4 baits in this box, for a full refund of purchase price to: Consumer Services Department, S. C. Johnson & Son, Inc., Racine, Wisconsin 53403, U.S.A.

DIRECTIONS FOR HOUSEHOLD USE:

It is a violation of federal law to use this product in a manner inconsistent with its labeling.

1. Break Ant Controller II Baits apart from the plastic frame.
2. For best results, place the baits by ant trails or close to areas where ants are numerous. You can even place Ant Controller II Ant Baits on kitchen countertops and next to food and dishes.
3. Use all four baits at one time; use additional baits for larger infestations.

STORAGE AND DISPOSAL STATEMENTS

STORAGE: Store in an area inaccessible to children.

DISPOSAL: Wrap container and put in trash collection.

EPA Reg. No. 1812-330

EPA Est. No. 56207-WI-002

RLW/ec
EPAAMax

Appendix B. Calculation of Molecular Weight of Sulfuramide

Formula = $\text{C}_8\text{F}_{17}\text{NHSO}_2\text{C}_2\text{H}_5$

Element	No.	At. Wt.	No x At Wt
C	8	12.00	96.0
F	17	18.99	322.8
N	1	14.00	14.0
H	1	1.00	1.0
S	1	32.00	32.0
O	2	16.00	32.0
C	2	12.00	24.0
H	5	1.00	5.0
Molecular Weight =			526.8 g/mol