UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

DATE: January 22, 1981

SUBJECT: EPA Registration No. 4822-169 RAID INDOOR FOGGER
Caswell # 715,328

FROM: Cheryl A. Peterson
IRB/TSS

TO: Mr. George LaRocca
Product Manager (15)

Registrant: S. C. Johnson & Son, Inc.
1525 Howe Street
Racine, WI 53403

Active Ingredients:

Pyrethrins	0.05%
2,2-dichlorovinyl dimethyl phosphate	0.47%
Related compounds	0.03%
Inert Ingredients	99.45%

Background:

This product is registered for indoor use as a fogger against roaches, fleas, etc. The company has submitted a revised label and statement of Practical Treatment. Acute oral, acute dermal, aspiration, skin irritation, primary eye irritation and acute inhalation studies have been submitted in support of the submission.

Recommendations:

1. Acute oral, acute dermal, primary eye irritation and primary skin irritation studies are acceptable.

2. The acute inhalation and aspiration hazard studies have been classified Core Supplementary Data. The exact method for determination of actual chamber concentration in the inhalation study should be fully explained.

3. The information from [redacted] on 1,1,1-trichloroethane would be necessary in establishing a policy which would be applicable to other products, containing similar ingredients.

4. IRB/TSS would have no objection to the proposed labeling changes on this product, since the acute oral LD_{50} places the product in Tox. Cat. III.

PRODUCT INGREDIENT SOURCE INFORMATION IS NOT INCLUDED

Review:

The following studies were conducted by Raltech Scientific Services, P.O. Box 7545, Madison, WI 53707 for S.C. Johnson & Son, Inc., on material identified as RAID INDOOR FOGGER, EPA Registration No. 4822-169. The studies were received by EPA on November 7, 1980, and are in Accession No. 243780.

1. Acute Oral LD_{50} - Rat. Dated: 8-18-80.

Procedure: 8M, 8F Sprague-Dawley albino rats each received via oral gavage 3.94 ml/kg test material (ave. bulk density = 1.27 g/ml) or 5.0 g/kg. Observations were made at 1,2,5 & 24 hrs and daily for 14 days. There was survivor sacrifice and necropsy.

Results: Oral LD_{50} for M is greater than 5.0 g/kg. Oral LD_{50} for F is greater than 5.0 g/kg. 2/8 M died, 0/8 F died. On the average, survivors gained weight during the observation period. Clinical signs included diarrhea, ataxia, prostration. Gross necropsy showed lungs with diffuse, pinpoint red and white foci, brown material around nose and mouth.

Study Classification: Core Minimum Data (Individual body weight measurements should be recorded 3-4 x weekly instead of at 7 & 14 days).

Product Classification: Tox. Cat. III.

2. Acute Dermal LD_{50} Rabbit. Dated: 8-18-80.

Procedure: 5M, 5F NZ white rabbits each received 24-hr occluded exposure to 2.0 g/kg test material on abraded skin. There was a 14-day observation period, with survivor sacrifice and necropsy.

Results: Dermal LD_{50} for M is greater than 2.0 g/kg. Dermal LD_{50} for F is greater than 2.0 g/kg. No mortalities. On the average, animals gained weight during the observation period. Necropsy showed abscess on livers. Clinical signs included minor erythema and edema.

Study Classification: Core Guideline Data

Product Classification: Tox. Cat. III.

3. Aspiration hazard - Rat. Dated: 8-18-80.

Procedure: 10 M albino Sprague-Dawley test rats and 5 controls were anesthetized to the point of apnea in a covered jar containing a paper towel moistened with 30 ml of anesthesia grade diethyl ether, U.S.P. A wire screen prevented direct contact with the paper. Anesthetized animal was placed on its back on a table. With mouth held open, tongue was pulled forward with forceps and animal's head was elevated. 0.2 ml test material was delivered into mouth with a 1 cc syringe. Controls each received 0.2 ml deionized

water. As breathing resumed and became regular, at the end of the expiration phase of the breathing cycle, the nostrils were closed off with fingers. This allowed material in the oral cavity to be drawn into lungs. Observations after exposure lasted a minimum of 4 hours at intervals from 5 to 30 minutes. Body weights were measured just before exposure, and 24 hours after exposure. There was survival sacrifice and necropsy, with lungs weighed.

Results: 7/10 rats died with 4 min. Following test material administration. On the average controls gained weight. Survivors of the test group lost weight during the 24 hours after exposure. Lung weights in test animals that lived 24 hours averaged 1.281 g, while lung weight of controls after 24 hours averaged 1.372 g. The lung weight as % of body weight averaged in controls 0.508, while the test lung weights averaged 0.505%. No clinical signs were noted in controls. 1/3 surviving test animals had blood colored fluid discharged from mouth and nose. Three survivors showed signs of recovery at 0.5 and 1.0 hour observations. Lung weights of animals that died on test averaged 0.960 g. It was concluded that the test material caused acute pulmonary hemorrhage. Test animals that survived showed no visible lung lesions. Test animals that died on test showed dark red areas over entire lung on necropsy. Four of seven showed bloody nasal discharge. Controls showed nothing remarkable at necropsy.

Study Classification: Core Supplementary Data.

4. Primary Eye Irritation - Rabbit. Dated: 8-18-80.

Procedure: Nine NZ white rabbits each received 0.1 ml test material in one eye. 3/9 animals had eyes washed for 1 min. with water starting no sooner than 30 sec. after instillation. Observations were made at 24, 48, 72 & 96 hours for seven days.

Results: 5/6 unwashed eyes showed minor corneal opacity with clearing in 3/5 by 48 hours and 2/5 by 72 hours. 6/6 unwashed showed minor conjunctivitis with clearing by 96 hours. No washed eyes showed corneal opacity. 3/3 washed eyes showed minor conjunctivitis with clearing by 96 hours in 3/3.

Study Classification: Core Minimum Data

Product Classification: Tox. Cat. II.

5. Primary Skin Irritation - Rabbit. Dated: 8-18-80.

Procedure: 3M, 3F NZ white rabbits received 24-hour, occluded exposure on abraded skin and nonabraded skin to 0.5 ml test material on each of 4 ears. Observations were made at 24 and 72 hours. There was survivor sacrifice and necropsy.

Results: Primary Dermal Irritation Index = 0.9. 3/6 (2M, 1F) rabbits showed minor edema with clearing by 72 hours. 6/6 rabbits showed minor erythema with clearing in 2/6 by 72 hours.

Study Classification: Core Guideline Data

Product Classification: Tox. Cat. IV.

6. Primary Eye Irritation - Rabbit. Dated: 8-18-80.

Procedure: 9 NZ white rabbits each received a 2 sec. spray of test material from a distance of 4" in 1 eye which was held open during application. Treated eye was then held shut for 1 second. 3/9 had eyes washed for 1 minute with lukewarm water starting no sooner than 30 sec. after application. Observations were made at 24, 48, 72 and 96 hours and 7 days. There was survivor sacrifice and necropsy.

Results: No corneal opacity. 6/6 unwashed eyes showed minor conjunctivitis with clearing by 48 hours. 3/3 washed eyes showed minor conjunctivitis with clearing by 48 hours.

Study Classification: Core Minimum Data (Product should be applied as a liquid, exact dosage should be determined.)
Product Classification: Tox. Cat. III.
7. Acute Inhalation LC_{50} - Rat. Dated; 8-29-79.

Procedure: 30 control and 40 test Sprague-Dawley rats were used. Two groups of 10 M, 10 F test animals were exposed to test material sprayed directly from aerosol cans at nominal conc. of 20.3 mg/l & 45 mg/l air for 1 hr. at a dispersion rate of 1.6 g/sec. per minute. Test material was sprayed into chamber every ~~minute for~~ 18 sec. There was a 14-day observation period with survivor sacrifice and necropsy. If mortality was greater than 50 % of exposed animals, range finding tests were run using 10 rats of each sex. Particle sizes were determined. Actual conc. were determined at 15, 30, 45 and 60 minutes of the exposure period by an unspecified method. Test chamber with an exhaust fan and test material administered on the top near the air inlet part, and this was then drawn down over the animals.

Results: Four animals died during the experimental procedure. Test animals on the average gained weight during the observation period. Necropsy showed red and/or raised white areas in the lungs. This occurred in both control and test animals. One animal showed hemorrhages in the thymus and another in the hydrometra. These were considered incidental. The range of particle sizes at 45 g/l air was as follows:

27%	0.5 µ
36%	0.5 to 2 µ
20%	2-4 µ
11%	4-10 µ
6%	10.0 µ

Actual chamber conc. at 45 mg/l:

15 min. = 29.2 mg/l
30 min. = 45 mg/l

The range of particle sizes at 45 mg/l air was as follows:

39%	0.5 µ
32%	0.5 - 2 µ
18%	2-4 µ
6%	4-10 µ
5%	10.0 µ

Actual chamber conc. at 45 mg/l air was:

15 min. = 21.8 mg/l
30 min. = 9.0 mg/l (collection was spilled, reason for low reading)
45 min. = 27.5 mg/l
60 min. = 20.3 mg/l

Clinical signs included shallow breathing and lack of coordination.

Study Classification: Core Supplementary Data (Actual methods by which particle size and actual chamber concentration measurements were made should be explained fully).