Tox

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

DATE: June 29, 1979

SUBJECT: EPA File Symbol: 4822-RAN OFF! FORMULA III LIQUID SPRAY INSECT REPELLENT
Caswell ~~#426~~

Caswell #346

FROM: B.T. Backus
IRB/TSS

TO: Mr. Franklin Gee
Product Manager 17

Applicant: S.C. Johnson & Son, Inc.
1525 Howe St.
Racine, WI 53403

Active Ingredient:
N,N-diethyl-meta-toluamide.....17.10%
Other Isomers.....0.90%
Inert Ingredients:.....82.00%

Background:

The original set of acute toxicological data for this formulation was reviewed by Dr. Dykstra (September 7, 1978). In his review, the formulation was placed in Toxicity Category III on the basis of eye effects, based on redness, chemosis and discharge in all subjects (washed and unwashed eyes) at 24, 48 and 72 hours.

Dr. Dykstra's memorandum indicated the necessity of a dermal photosensitization study to support the registration of this formulation. This study has now been submitted.

Recommendations:

1. The Dermal Photosensitization Study is Core Minimum Data, and is acceptable and adequate for registration purposes.

2. IRB/TSS has no objections, on the basis of human and environmental safety, to the conditional registration of this product under a General Use classification with the labeling revisions indicated below.

3. Since the formulation is in toxicity category III on the basis of eye effects, an appropriate precautionary statement (see below) is required. Since the eye irritation study indicates an eye wash has no ameliorating effect, the usual first aid statement ("In case of contact, immediately flush eyes with plenty of water") does not apply.

4. Since the product can cause some minor skin irritation when applied on a continual basis, and since it is possible there may be greater absorption

through damaged skin, and taking into account that this is the type of product that will be used by sunbathers, people on vacation etc., the precautions (see below) should include a statement not to apply to excessively sunburned or damaged skin.

5. The applicant should use the cite-all method of support, particularly as the dermal photosensitization study is not on the formulation proposed for registration, but on a similar one.

Labeling:

The Precautionary Statements, Hazards to Humans should be revised to something like the following:

CAUTION: Avoid contact with Eyes or Lips. If in eyes, get medical attention if irritation persists. Do not apply to excessively sunburned or damaged skin.

Review:

1. Dermal Photosensitization Study; formulations tested included one similar to that as proposed for registration (identified under Laboratory Code C). Hill Top Research, Miamiville OH. EPA Acc. No. 238577.

   Procedure: 28 human females (ages 21-60 yrs) participated, with 24 completing the study. Initially, subjects had sites on right thigh and right upper arm exposed to xenon-mercury (UV) light; each subject had a series of different sites exposed to 10-20-30-40-50-60 seconds, in order to determine shortest exposure time which resulted in visible erythema for that particular subject.

   Simultaneously, patches of 4 test materials, including the similar formulation, were applied in triplicate to sites on left thigh. These sites were scored for primary irritation the next day.

   After the scoring samples were reapplied, then 30 minutes later removed by cleansing with acetone. A light-occlusive patch was placed over one set of sample sites, while the other two were exposed to 1 minimal erythemic dose (MED-determined for each individual above) unfiltered and 6 MED mylar-filtered irradiation (reaction on sites exposed to latter would indicate response to long UV). Sites were scored the following day.

   One week later (snow emergency occurred) testing began by applying one set of patches of each sample material to left upper arm. Sites were cleaned 23 hours later, scored, exposed to 2 MED unfiltered UV, and covered again with sample patches. Total of 13 applications of sample were made over 19-day period, with 5 UV exposures. This was followed by a 14-day rest period.

Challenge patch applications were then made, sites scored next day. If no irritation was present, these sites were then exposed to 5 MED (minimal erythmic dosage) of UV. Sites were then scored 1, 3 and 6 days later. Reactions were graded by subtracting the score for the no-sample UV site from the score for the site to which test sample had been applied.

Results: 24/24 participants were not sensitized under the conditions of this study. Additionally, no evidence of photosensitization was demonstrated with this material.

Conclusion: This material is not a contact sensitizer nor is it a photosensitizer under conditions which are similar to the proposed use.

Data Classification: Core Minimum Data. While normally it would be desirable to include a positive control in a study of this sort with animal subjects, this is not ethical in human experimentation. It would have also been desirable to include males in the study, but the data presented in this study are adequate.

Byron T. Backus 6-29-79

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