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ARMY ENVIRONMENTAL HYGIENE AGENCY ABERDEEN PROVING GR--ETC F/G 6/20  
TOPICAL HAZARD EVALUATION PROGRAM OF CANDIDATE INSECT REPELLENT--ETC(U)  
MAY 79 A W SINGER, J G HARVEY

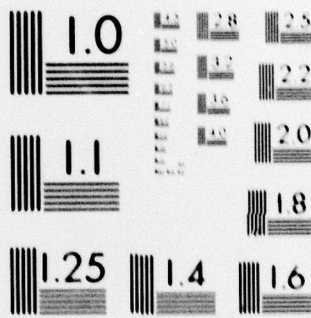
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**UNITED STATES ARMY  
ENVIRONMENTAL HYGIENE  
AGENCY**

**ABERDEEN PROVING GROUND, MD 21010**

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TOPICAL HAZARD EVALUATION PROGRAM OF CANDIDATE INSECT REPELLENTS  
AI3-37413a, AI3-37421a, AI3-37423a, AI3-37424a, AND AI3-37425a  
U.S. DEPARTMENT OF AGRICULTURE PROPRIETARY CHEMICALS  
STUDY NOS. 75-51-0118-79, 75-51-0122-79, 75-51-0124-79, 75-0125-79,  
AND 75-51-0126-79  
AUGUST 1978 - MAY 1979

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Allen W. / Singer  
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DEPARTMENT OF THE ARMY  
 U. S. ARMY ENVIRONMENTAL HYGIENE AGENCY  
 ABERDEEN PROVING GROUND, MARYLAND 21010

CPT Singer/jg/AUTOVON  
 584-3980

**17 AUG 1979**

HSE-LT-T/WP

SUBJECT: Topical Hazard Evaluation Program of Candidate Insect Repellents  
 AI3-37413a, AI3-37421a, AI3-37423a, AI3-37424a, and AI3-37425a, US  
 Department of Agriculture Proprietary Chemicals, Study Nos.  
 75-51-0118-79, 75-51-0122-79, 75-51-0124-79, 75-51-0125-79, and  
 75-51-0126-79, August 1978 - May 1979

Executive Secretary  
 Armed Forces Pest Control Board  
 Forest Glen Section, WRAMC  
 Washington, DC 20012

A summary of the pertinent findings and recommendations of the inclosed report follows:

Hazard evaluations of AI3-37413a, AI3-37421a, AI3-37423a, AI3-37424a, and AI3-37425a were performed by means of laboratory studies using New Zealand White rabbits. The technical grade compounds caused moderate skin irritation. It is recommended that AI3-37413a, AI3-37421a, AI3-37423a, AI3-37424a, and AI3-37425a, US Department of Agriculture proprietary compounds, not be approved for further testing as candidate insect repellents. However, if these compounds show pest repellent properties that are a significant improvement over currently available compounds, it is requested that they or their modified formulations be submitted for further toxicological evaluations in their proposed use formulations and/or concentration.

FOR THE COMMANDER:

*Brendan E. Joyce*

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 Director, Laboratory Services

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DEPARTMENT OF THE ARMY  
U. S. ARMY ENVIRONMENTAL HYGIENE AGENCY  
ABERDEEN PROVING GROUND, MARYLAND 21010

HSE-LT-T/WP

TOPICAL HAZARD EVALUATION PROGRAM OF CANDIDATE INSECT REPELLENTS  
AI3-37413a, AI3-37421a, AI3-37423a, AI3-37424a, AND AI3-37425a  
US DEPARTMENT OF AGRICULTURE PROPRIETARY CHEMICALS  
STUDY NOS. 75-51-0118-79, 75-51-0122-79, 75-51-0124-79, 75-0125-79,  
AND 75-51-0126-79  
AUGUST 1978 - MAY 1979

1. AUTHORITY.

a. Letter, US Department of Agriculture - Agricultural Research Service, Southern Region, Insects Affecting Man and Animal Research Laboratory, Gainesville, Florida, 9 August 1978.

b. Memorandum of Understanding between the US Army Environmental Hygiene Agency; the US Army Health Services Command; the Department of the Army, Office of The Surgeon General; the Armed Forces Pest Control Board; and the US Department of Agriculture, Agricultural Research, Science and Education Administration; titled, Coordination of Biological and Toxicological Testing of Pesticides, effective 23 January 1979.

2. REFERENCE. Toxicology Division Procedural Guide, USAEHA, 1972, revised 1976.

3. PURPOSE. The purpose of this report is to provide guidance for further entomological testing of the candidate insect repellents AI3-37413a, AI3-37421a, AI3-37423a, AI3-37424a, and AI3-37425a.

4. SUMMARY OF FINDINGS. Hazard evaluations of the candidate repellents AI3-37413a, AI3-37421a, AI3-37423a, AI3-37424a, and AI3-37425a, USDA proprietary compounds, were conducted by this Agency using New Zealand White rabbits for a skin irritation study. A tabular presentation of animal toxicity data developed in this Agency follows:\*†

\* In conducting the studies described in this report, the investigators adhered to the "Guide for the Care and Use of Laboratory Animals," US Department of Health, Education, and Welfare Publication No. (NIH) 74-23, revised 1978.

† The experiments reported herein were performed in animal facilities fully accredited by the American Association for the Accreditation of Laboratory Animal Care.

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Topical Hazard Eval Study Nos. 75-51-0118-79, 75-51-0122-79, 75-51-0124-79, 75-51-0125-79, and 75-51-0126-79, Aug 78-May 79

TABULAR PRESENTATION OF DATA

Test	Results	Interpretation
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SKIN IRRITATION STUDIES

Rabbits

Single 24-hour application to intact and abraded skin of New Zealand White rabbits. Compounds AI3-37413a, AI3-37421a, AI3-37423a, AI3-37424a, and AI3-37425a produced moderate primary irritation on both intact and abraded skin of all rabbits. USAEHA Category III (ref Appendix)

0.5 ml of technical grade compound applied to each of six rabbits.

5. CONCLUSION. The candidate repellents AI3-37413a, AI3-37421a, AI3-37423a, AI3-37424a, and AI3-37425a have potential for causing moderate primary skin irritation to intact and abraded skin and do not qualify as nonhazardous insect repellents.

6. RECOMMENDATIONS. Under the provisions of the Memorandum of Understanding (paragraph 1b), it is recommended that AI3-37413a, AI3-37421a, AI3-37423a, AI3-37424a, and AI3-37425a, USDA proprietary compounds, not be approved as candidate insect repellents. If these compounds should show pest repellent properties which are a significant improvement over currently available compounds, it is requested that they be resubmitted in their proposed use formulations and/or concentrations.

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Topical Hazard Eval Study Nos. 75-51-0188-79, 75-51-0122-79, 75-51-0124-79,  
75-51-0125-79, and 75-51-0126-79, Aug 78-May 79

APPENDIX

TOPICAL HAZARD EVALUATION PROGRAM  
DEFINITIONS OF CATEGORIES OF COMPOUNDS BEING  
CONSIDERED FOR ACUTE SKIN APPLICATION

CATEGORY I - Compounds producing no primary irritation of the intact skin or no greater than mild primary irritation of the skin surrounding an abrasion. (INTERPRETATION: No restriction for acute application to the human skin.)

CATEGORY II - Compounds producing mild primary irritation of the intact skin and the skin surrounding an abrasion. (INTERPRETATION: Should be used only on human skin found by examination to have no abrasions or may be used as a clothing impregnant.)

CATEGORY III - Compounds producing moderate primary irritation of the intact skin and the skin surrounding an abrasion. (INTERPRETATION: Should not be used directly on the skin without a prophetic patch test having been conducted on humans to determine irritation potential to human skin. May be used without patch testing, with extreme caution, as clothing impregnants. Compound should be resubmitted in the form and at the intended use concentration so that its irritation potential can be reexamined using other test techniques on animals.)

CATEGORY IV - Compounds producing moderate to severe primary irritation of the intact skin and of the skin surrounding an abrasion and, in addition, producing necrosis, vesiculation, and/or eschars. (INTERPRETATION: Should be resubmitted for testing in the form and at the intended use concentration. Upon resubmission, its irritation potential will be reexamined using other test techniques on animals, prior to possible prophetic patch testing in humans, at concentrations which have been shown not to produce primary irritation in animals.)

CATEGORY V - Compounds impossible to classify because of staining of the skin or other masking effects owing to physical properties of the compound. (INTERPRETATION: Not suitable for use on humans.)

EYE CATEGORIES:

A. Compounds noninjurious to the eye. INTERPRETATION: Irritation of human eyes is not expected if the compound should accidentally get into the eyes, provided it is washed out as soon as possible.

B. Compounds producing mild injury to the cornea. INTERPRETATION: Should be used with caution around the eyes.

C. Compounds producing mild injury to the cornea, and in addition some injury to the conjunctiva. INTERPRETATION: Should be used with caution around the eyes and mucosa.

D. Compounds producing moderate injury to the cornea. INTERPRETATION: Should be used with extreme caution around the eyes.

E. Compounds producing moderate injury to the cornea, and in addition producing some injury to the conjunctiva. INTERPRETATION: Should be used with extreme caution around the eyes and mucosa.

F. Compounds producing severe injury to the cornea and to the conjunctiva. INTERPRETATION: Should be used with extreme caution. It is recommended that use be restricted to areas other than the face.