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TOPICAL HAZARD EVALUATION PROGRAM OF CANDIDATE INSECT
REPELLENTS A13-2688..(U) ARMY ENVIRONMENTAL HYGIENE
AGENCY ABERDEEN PROVING GROUND MD J V WADE 1983
USAEHA-75-51-0343-83

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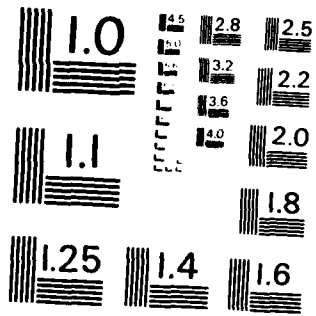
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**UNITED STATES ARMY
ENVIRONMENTAL HYGIENE
AGENCY**

ABERDEEN PROVING GROUND, MD 21010

TOPICAL HAZARD EVALUATION PROGRAM
OF
CANDIDATE INSECT REPELLENTS
A13-26881b AND A13-38425a
US DEPARTMENT OF AGRICULTURE PROPRIETARY CHEMICALS
STUDY NOS.
75-51-0343-83 AND 75-51-0362-83
SEPTEMBER 1981 - MAY 1983

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REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
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20. ABSTRACT (Continue on reverse side if necessary and identify by block number) Chemical AI3-38425a did not produce primary irritation of the intact skin and no more than mild irritation of the skin surrounding an abrasion. Chemical AI3-26881b produced mild primary irritation of the intact skin and the skin surrounding an abrasion. Both chemicals produced moderate injury to the cornea and, in addition, produced some injury to the conjunctiva.		



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

CPT Wade/orl/AUTOVON
583-3980

REPLY TO
ATTENTION OF

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HSHB-OT/WP

SUBJECT: Topical Hazard Evaluation Program of Candidate Insect Repellents
A13-26881b and A13-38425a, US Department of Agriculture Proprietary
Chemicals, Study Nos. 75-51-0343-83 and 75-51-0362-83, September
1981 - May 1983

Executive Secretary
Armed Forces Pest Management Board
Forest Glen Section, WRAMC
Washington, D.C. 20307

EXECUTIVE SUMMARY

The purpose, essential findings and major recommendations of the inclosed report are as follows:

a. Purpose. The purpose of this program is to provide guidance for further entomological testing of candidate insect repellents A13-26881b and A13-38425a by means of laboratory animal studies using New Zealand White rabbits.

b. Essential Findings. Chemical A13-38425a did not produce primary irritation of the intact skin and no more than mild irritation of the skin surrounding an abrasion. Chemical A13-26881b produced mild primary irritation of the intact skin and the skin surrounding an abrasion. Both chemicals produced moderate injury to the cornea and, in addition, produced some injury to the conjunctiva.

c. Major Recommendations. Recommend disapproval of chemicals A13-26881b and A13-38425a for further testing as candidate insect repellents. Should the insect repellent properties of these compounds represent a substantial improvement over the current standard repellent, they should be resubmitted in the form and concentration intended for usage.

FOR THE COMMANDER:

Joel C. Gaydos

JOEL C. GAYDOS, M.D.
Colonel, MC
Director, Occupational and
Environmental Health

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CF:
HQDA (DASG-PSP) wo incl
Cdr, HSC (HSPA-P)
Dir, Advisory Cen on Tox, NRC (2 cy)
Comdt, AHS (HSHA-IPM)
USDA, ARS (Dr. Terrence McGovern)
USDA, ARS, Southern Region (3 cy)
USDA, ARS, Southern Region (LTC Reinert)

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

REPLY TO
ATTENTION OF

HSHB-OT/WP

TOPICAL HAZARD EVALUATION PROGRAM
OF
CANDIDATE INSECT REPELLENTS
A13-26881b AND A13-38425a
US DEPARTMENT OF AGRICULTURE PROPRIETARY CHEMICALS
STUDY NOS.
75-51-0343-83 AND 75-51-0362-83
SEPTEMBER 1981 - MAY 1983

1. AUTHORITY.

a. Letter, US Department of Agriculture, Agricultural Research Southern Region, Insects Affecting Man and Animals, Gainesville, Florida, 3 September 1981.

b. Letter, US Department of Agriculture, Agricultural Research Southern Region, Insects Affecting Man and Animals, Gainesville, Florida, 26 February 1982.

c. 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 Department of Agriculture, Agricultural Research, Science and Education Administrations; titled Coordination of Biological and Toxicological Testing of Pesticides, effective 23 January 1979.

2. REFERENCE. Toxicology Division Standing Operating Procedures, US Army Environmental Hygiene Agency (USAEHA).

3. PURPOSE. The purpose of this program is to provide guidance for further entomological testing of the candidate insect repellents A13-26881b and A13-38425a, US Department of Agriculture (USDA) Proprietary Chemicals.

4. SUMMARY OF FINDINGS. Hazard evaluation of the candidate insect repellent A13-26881b and A13-38425a were conducted by this Agency using New Zealand White rabbits for skin and eye studies. A tabular presentation of animal toxicity data developed by 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) 80-23, revised 1978.

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

Study Nos. 75-51-0343-83 & 75-51-0362-83, Sep 81 - May 83

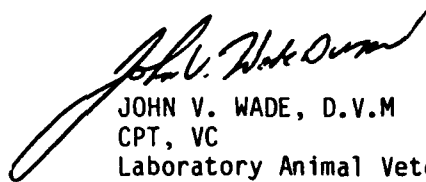
TABLE. PRESENTATION OF DATA

TEST	RESULTS	INTERPRETATION
<u>Skin Irritation Studies</u>		
Rabbits		
A single 24-hour application to intact and abraded skin of New Zealand White rabbits.	Chemical A13-26881b produced mild primary irritation of the intact skin and the skin surrounding an abrasion.	USAEHA Category II (ref Appendix A)
0.5 mL of technical grade chemical applied to each of six rabbits.	Chemical A13-38425a did not produce primary irritation of the intact skin and no more than mild irritation of the skin surrounding an abrasion.	USAEHA Category I (ref Appendix A)
<u>Eye Irritation Studies</u>		
Rabbits		
Single 24-hour application of 0.1 mL technical grade chemical to one eye of each of nine New Zealand White rabbits. Three of the nine rabbits had the eye flushed with warm water for 1 minute, 25 seconds after application.	Chemicals A13-26881b and A13-38425a produced moderate injury to the cornea and, in addition, produced some injury to the conjunctiva. Washing with water did not significantly decrease injury produced.	USAEHA Category E (ref Appendix A)

5. CONCLUSION. Chemical A13-38425a did not produce primary irritation of the intact skin and no more than mild irritation of the skin surrounding an abrasion. Chemical A13-26881b produced mild primary irritation of the intact skin and the skin surrounding an abrasion. Both chemicals produced moderate injury to the cornea and, in addition, produced some injury to the conjunctiva. These studies were monitored by the Analytical Quality Assurance Office (see Appendix B).

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6. RECOMMENDATION. Recommend disapproval of USDA Proprietary Chemicals A13-26881b and A13-38425a for further testing as candidate insect repellents (under the provisions of the Memorandum of Understanding, paragraph 1c, this report). Should the insect repellent properties of these compounds represent a substantial improvement over the current standard repellent, they should be resubmitted in the form and concentration intended for usage.



JOHN V. WADE, D.V.M
CPT, VC
Laboratory Animal Veterinary Officer
Toxicology Division

APPROVED:



TIMOTHY B. WEYANDT, M.D., M.P.H.
MAJ, MC
Acting Chief, Toxicology Division

APPENDIX A

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.

APPENDIX B

ANALYTICAL QUALITY ASSURANCE

The Analytical Quality Assurance Office certifies the following with regard to this study:

- a. This study was conducted in accordance with:
 - (1) Standing Operating Procedures developed by the Toxicology Division, USAEHA.
 - (2) Title 21, Code of Federal Regulations, 1981 rev, Part 58, Good Laboratory Practice for Nonclinical Laboratory Studies.
- b. Facilities were inspected during its operational phase to insure compliance with paragraph a above.
- c. The information presented in this report accurately reflects the raw data generated during the course of conducting the study.


PAUL V. SNEERINGER, Ph.D.
Chief, Analytical Quality
Assurance Office

