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TOPICAL HAZARD EVALUATION PROGRAM OF CANDIDATE INSECT REPELLENT--ETC(U)
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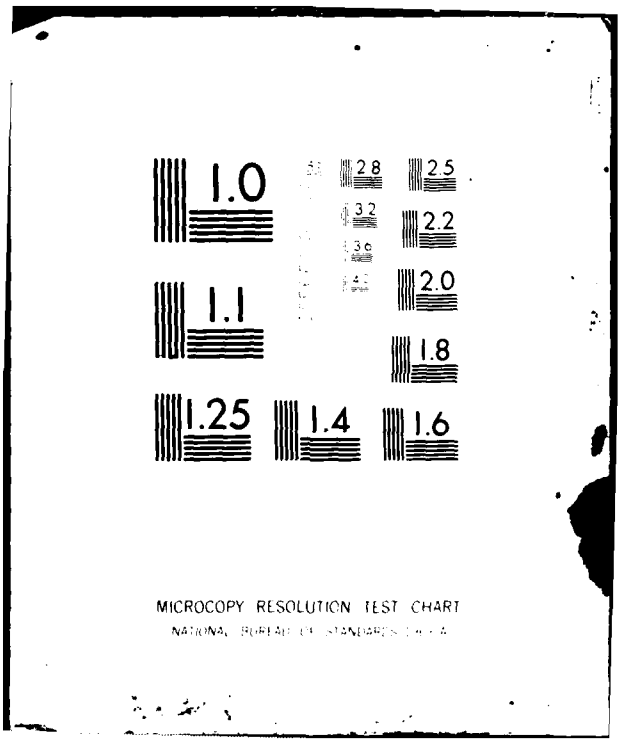
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UNITED STATES ARMY ENVIRONMENTAL HYGIENE AGENCY

ABERDEEN PROVING GROUND, MD 21010

TOPICAL HAZARD EVALUATION PROGRAM OF CANDIDATE INSECT REPELLENT
AI3-20351 (10.9.80)
US DEPARTMENT OF AGRICULTURE PROPRIETARY CHEMICAL
STUDY NO. 75-51-0286-82
FEBRUARY 1981 - JANUARY 1982

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4. TITLE (and Subtitle) Topical Hazard Evaluation Program of Candidate Insect Repellent AI3-20351 (10.9.80) US Department of Agriculture Proprietary Chemical Study No. 75-51-0286-82		5. TYPE OF REPORT & PERIOD COVERED Final, Feb 81-Jan 82 6. PERFORMING ORG. REPORT NUMBER
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19. KEY WORDS (Continue on reverse side if necessary and identify by block number)

AI3-20351 (10.9.80)
Skin Irritation
Eye Irritation
Guinea Pig Sensitization
USDA Proprietary Chemical
Topical Hazard Evaluation Program

20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

Preliminary hazard evaluations of AI3-20351 (10.9.80) was performed by means of laboratory animal studies using rats, rabbits, and guinea pigs. The technical grade chemical produced mild injury to the cornea of rabbits. It did not cause skin irritation or prove to be acutely toxic by ingestion. Chemical AI3-20351 (10.9.80) produced a moderate sensitization reaction in 6 out of 10 guinea pigs. Based on the skin sensitization, it is recommended that this chemical not be approved for further testing as a candidate.

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

CPT Topper/lh/AUTOVON
584-3980

REPLY TO ATTENTION OF

HSHB-LT/WP

12 MAY 82

SUBJECT: Topical Hazard Evaluation Program of Candidate Insect Repellent AI3-20351 (10.9.80), US Department of Agriculture Proprietary Chemical, Study No. 75-51-0286-82, Feb 81 - Jan 82

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

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

Preliminary hazard evaluations of AI3-20351 (10.9.80) was performed by means of laboratory animal studies using rats, rabbits, and guinea pigs. The technical grade chemical produced mild injury to the cornea of rabbits. It did not cause skin irritation or prove to be acutely toxic by ingestion. Chemical AI3-20351 (10.9.80) produced a moderate sensitization reaction in 6 out of 10 guinea pigs. Based on the skin sensitization, it is recommended that this chemical not be approved for further testing as a candidate insect repellent.

FOR THE COMMANDER:

JOHN F. MAZUR
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as (5 cy)

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Dir, Advisory Cen on Tox, NRC
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USDA, ARS (Dr. Terrence McGovern)
USDA, ARS-Southern Region

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

REPLY TO ATTENTION OF
HSHB-LT/WP

TOPICAL HAZARD EVALUATION PROGRAM OF CANDIDATE INSECT REPELLENT
AI3-20351 (10.9.80)
US DEPARTMENT OF AGRICULTURE PROPRIETARY CHEMICAL
STUDY NO. 75-51-0286-82
FEBRUARY 1981 - JANUARY 1982

1. AUTHORITY.

a. Letter, US Department of Agriculture - Agricultural Research Service, Southern Region, Insects Affecting Man and Animals Research Laboratory, Gainesville, Florida, 12 February 1981.

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 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), 1981.

3. PURPOSE. The purpose of this program is to provide guidance for further entomological testing of the candidate insect repellent AI3-20351 (10.9.80).

4. SUMMARY OF FINDINGS. Hazard evaluations of the candidate repellent AI3-20351 (10.9.80), US Department of Agriculture (USDA) Proprietary Chemical was conducted by this Agency using New Zealand White rabbits for skin and eye studies, Hartley guinea pigs for a skin sensitization study and Sprague-Dawley rats for determination of oral toxicity. A tabular presentation of animal toxicity data developed in this Agency follows:*†

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* 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.

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TABLE. PRESENTATION OF DATA

Test	Results	Interpretation
SKIN IRRITATION STUDIES		
Rabbits		
Single 24-hour application to intact and abraded skin of New Zealand White rabbits. 0.5 mL technical grade chemical applied to each of six rabbits.	Chemical AI3-20351 (10.9.80) did not cause any irritation of the intact skin or of the skin surrounding an abrasion.	USAEHA Category I (ref Appendix A)
EYE IRRITATION STUDIES		
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.	Chemical AI3-20351 (10.9.80) produced mild injury to the cornea. Application followed by washing did not cause any irritation to the eyes of rabbits.	USAEHA Category B (ref Appendix A)
APPROXIMATE LETHAL DOSE (ALD)		
Oral		
Rats (male)-no diluent	4311 mg/kg	AI3-20351 (10.9.80) should not be acutely toxic by accidental ingestion.

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Test	Results	Interpretation
SENSITIZATION STUDIES		
Guinea Pigs (Male)		
Intradermal injections of 0.1 mL of a 0.1 percent solution (w/v) of AI3-20351 (10.9.80) or of dinitrochlorobenzene (DNCB)* in a mixture containing 1 volume of propylene glycol and 29 volumes of saline.		
Ten test guinea pigs for each chemical were given ten sensitizing doses over a 3-week period. After 2 weeks rest, they were challenged with ID injections of test chemical.	Challenge doses of AI3-20351 (10.9.80) produced a sensitization reaction in 6 out of 10 guinea pigs.	Chemical AI3-20351 (10.9.80) produced a moderate sensitization reaction under test conditions and may produce sensitization reaction in man.
Ten positive control guinea pigs were sensitized over 3 weeks with DNCB. After 2 weeks rest, they were challenged with ID injections of DNCB.	Challenge dose of DNCB in positive control guinea pigs produced a marked sensitization reaction in 10 out of 10 guinea pigs.	DNCB produced a marked reaction, indicating the guinea pigs respond to sensitizing agents.

* A known skin sensitizer.

5. CONCLUSION. Technical grade chemical AI3-20351 (10.9.80) produced mild injury to the cornea of rabbits. It did not cause skin irritation or prove to be acutely toxic by ingestion. Chemical AI3-20351 (10.9.80) produced a moderate sensitization reaction in guinea pigs and may be expected to cause such a reaction in humans. The Analytical Quality Assurance review is listed in Appendix B.

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6. RECOMMENDATION. Under the provisions of the Memorandum of Understanding (paragraph 1b); it is recommended that AI3-20351 (10.9.80) not be approved for further testing as a candidate insect repellent.

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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.

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APPENDIX B

ANALYTICAL QUALITY ASSURANCE

ical Quality Assurance Office certifies the following with regard udy:

is study was conducted in accordance with:

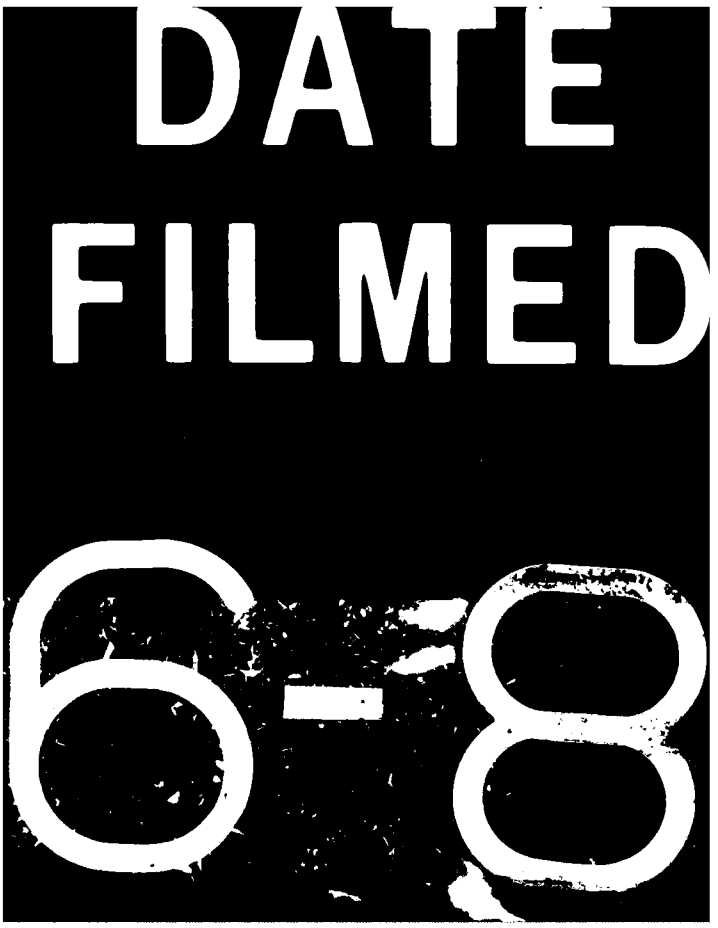
) Standing Operating Procedures developed by the Toxicology USAEHA.

:) Title 21, Code of Federal Regulations, 1981 rev, Part 58, Good / Practice for Nonclinical Laboratories Studies.

acilities were inspected during its operational phase to insure e with paragraph a above.

he information presented in this report accurately reflects the raw rated during the course of conducting the study.

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