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TOPICAL HAZARD EVALUATION PROGRAM OF CANDIDATE INSECT REPELLENT--ETC(U)
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TOPICAL HAZARD EVALUATION PROGRAM
OF CANDIDATE INSECT REPELLENT AI3-62980-Gb
US DEPARTMENT OF AGRICULTURE PROPRIETARY COMPOUND
STUDY NO. 51-0840-77
DECEMBER 1975 - APRIL 1977

Approved for public release; distribution unlimited.

US ARMY
ENVIRONMENTAL HYGIENE AGENCY
ABERDEEN PROVING GROUND, MD 21010

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AI3-62980-Gb	eye irritation
USDA Proprietary Compound	sensitization
Topical Hazard Evaluation	oral toxicity
candidate repellent	Photochemical Skin Irritation
skin irritation	

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

A hazard evaluation of candidate insect repellent AI3-62980-Gb was performed by means of laboratory studies using rats, rabbits and guinea pigs. The technical grade compound caused mild skin and eye irritation but no photochemical irritation in rabbits, no sensitization reactions in guinea pigs and did not demonstrate an acute ingestion hazard. It is recommended that AI3-62980-Gb, US Department of Agriculture Proprietary compound be approved for further testing as a candidate insect repellent.

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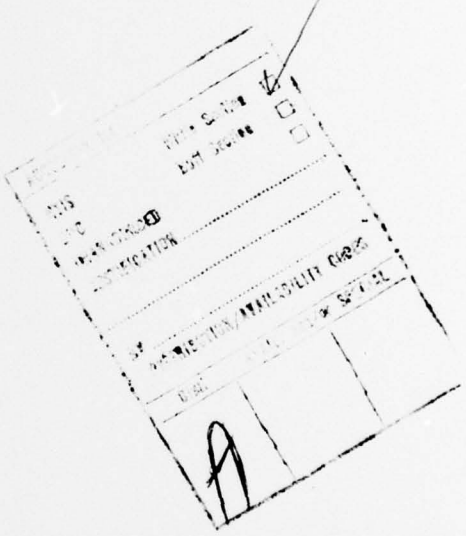
ABSTRACT

A hazard evaluation of candidate insect repellent AI3-62980-Gb was performed by means of laboratory studies using rats, rabbits and guinea pigs. The technical grade compound caused mild skin and eye irritation but no photochemical irritation in rabbits, no sensitization reactions in guinea pigs and did not demonstrate an acute ingestion hazard. It is recommended that AI3-62980-Gb, US Department of Agriculture Proprietary compound be approved for further testing as a candidate insect repellent.



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TOPICAL HAZARD EVALUATION PROGRAM OF CANDIDATE INSECT REPELLENT AI3-62980-Gb US DEPARTMENT OF AGRICULTURE PROPRIETARY COMPOUND STUDY NO. 51-0840-77 DECEMBER 1975 - APRIL 1977

1. AUTHORITY.

a. Letter, US Department Agriculture - Agricultural Research Service, Southern Region, Insects Affecting Man Research Laboratory, Gainesville, Florida, 4 December 1975.

b. Memorandum of Understanding between the US Army Environmental Hygiene Agency; the US Army Health Services Command; the US Department of the Army, Office of The Surgeon General; the Armed Forces Pest Control Board; and the US Department of Agriculture, effective December 1970 with Amendment No. 1, effective August 1974.

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

3. PURPOSE. The purpose of this program is to provide guidance for further entomological testing of the candidate insect repellent AI3-62980-Gb.

4. SUMMARY OF FINDINGS. A hazard evaluation of the candidate repellent AI3-62980-Gb, US Department of Agriculture (USDA), 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, Wistar-derived 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) 74-23, revised 1972 - second printing 1974.

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

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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 compound applied to each of six rabbits.	Compound AI3-62980-Gb produced mild primary irritation of the intact skin and of the skin surrounding an abrasion.	USAEHA Category II (ref Appendix).
EYE IRRITATION STUDIES		
Rabbits		
Single 24-hour application of 0.1 ml technical grade compound to one eye of each of six New Zealand White rabbits.	Compound AI3-62980-Gb produced mild injury to the cornea and in addition, some injury to the conjunctiva in six out of six rabbits at 24 hours after application lasting up to 7 days.	USAEHA Category C (ref Appendix). The compound should be used with caution around the eyes and mucosa.
APPROXIMATE LETHAL DOSE (ALD)		
Oral		
Rats (male) - no diluent	ALD>4900 mg/kg	Presents little lethal hazard from acute 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 suspension (w/v) of AI3-62980-Gb or of dinitrochlorobenzene (DNCB)* in a mixture containing 1 volume of propylene glycol and 29 volumes of saline.		
Ten test guinea pigs received and challenged with a 0.1 percent solution of AI3-62980-Gb.	Challenge dose of test compound (last intradermal injection) did not produce a sensitization reaction.	Compound AI3-62980-Gb did not produce a sensitization reaction under these test conditions and is not expected to produce a sensitization reaction in man.
Ten positive control guinea pigs received and challenged with 0.1 percent suspension of DNCB.	Positive control (DNCB) produced a marked sensitization reaction in ten out of ten guinea pigs.	
Ten cage control guinea pigs: Five receiving challenge dose of test compound without prior sensitizing doses. Five receiving challenge dose of DNCB without prior sensitizing doses.	Cage control guinea pigs showed no greater reaction to test compound and DNCB than were seen in original test groups.	

* A known skin sensitizer.

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TEST	RESULTS	INTERPRETATION
PHOTOCHEMICAL SKIN IRRITATION STUDIES		
Rabbits		
A single application (0.05 ml) of a 25 percent (w/v) solution of the compound (AI3-62980-Gb) and of a 10 percent (w/v) oil of Bergamot solution (positive control) in 95 percent ethyl alcohol, were applied to the intact skin of six rabbits. Five minutes after application, the rabbits were exposed to UV light (365 nm) for 30 minutes at a distance of 10-15 cm.	A 25-percent solution of AI3-62980-Gb in ethanol did not cause a photochemical irritation reaction under test conditions. Positive control application and irradiation caused greater irritant effects than in unirradiated skin areas.	Compound AI3-62980-Gb did not cause a photochemical irritation reaction under test conditions and is not expected to cause a photo-chemical irriation in humans.
Control		
Following UV exposure of the rabbits 0.05 ml of test compound, positive control and diluent were applied to additional skin areas to serve as unirradiated control sites. Application areas were checked for skin irritation reactions at 24, 48 and 72 hours.		

5. CONCLUSION. The candidate insect repellent AI3-62980-Gb, has a potential for causing mild skin and eye irritation but no photochemical irritation in rabbits, no sensitization reactions in guinea pigs, and did not demonstrate an acute ingestion hazard.

6. RECOMMENDATION. Under the provisions of the Memorandum of Understanding (reference para 1b), it is recommended that AI3-62980-Gb, USDA Proprietary Compound be approved for further testing as a candidate insect repellent. The compound should be used with caution around abrasions of the skin and in addition, the eyes and mucosa.

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