

6500 (Human Volunteers)

BUKED-74:FFD:ces
2480Serial: 3077
8 May 1961

From: Chief, Bureau of Medicine and Surgery
To: Secretary of the Navy

Subj: Skin absorption studies of tagged triaryl phosphate hydraulic fluid,
at the USNH Bethesda, Md.; use of volunteers; request for authorisation for

Ref: (a) MARMED Art. 1-17
(b) SecNav Cir of 29 October 1958

1. Evaluation of the toxicity of certain hydraulic fluids has been under way since 1958. A triaryl phosphate hydraulic fluid is presently used aboard submarines and other vessels. It has been established that (a) no hazard due to vapor exists, (b) as long as concentration as an aerosol is below 1 mg/m^3 no hazard to humans exists, and (c) under normal circumstances and handling, an ingestion hazard does not arise. A remaining problem is one of possible absorption of triaryl phosphate through the skin from a leaking hydraulic system. By reference (b), authorization was granted to use human subjects in shipboard tests which resulted in the standard set above with regard to aerosol concentration.

2. The Radioisotope Laboratory of the U. S. Naval Hospital, Bethesda, Maryland, in conjunction with the U. S. Naval Toxicology Unit, Bethesda, Maryland, proposes to apply tagged triaryl phosphate to the skin of volunteers to determine the degree of absorption. Triaryl phosphate tagged with P^{32} will be utilized in combination with untagged triaryl phosphate. Preliminary work will be performed with the pig to determine basic parameters and disappearance curves. Following this, the material will be deposited on the skin of humans and through blood and urine studies the absorption can be determined.

3. An amount of material containing no greater activity than 50 uc/cm^2 will be placed on the skin (approximately 1 skin erythema dose). If 100% absorption does occur, the radiation dose to the individual will be only 1/10 that which is received in the course of clinical diagnostic procedures utilizing P^{32} . Based on present information, the skin activity will be in the order of $1-5 \text{ uc/m}^2$ with only 1-10% absorption of the material, and, consequently, a further lowering of the radiation dose will result. The amount of triaryl phosphate to be placed on the skin represents 1/25 to 1/200 of that amount believed capable of producing any damage through the toxicity of this material.

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4. It is the opinion of this Bureau that the above proposed procedure will not create any undue hazard to the health or life of the volunteers. It is therefore recommended that approval be given for the above proposed procedure in accordance with reference (a).

A. S. GIBBIAN

Deputy and Assistant Chief

25 MAY 1961

Approved _____

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PAUL B. FAY, Jr.
Under Secretary of the Board



DEPARTMENT OF THE NAVY
BUREAU OF NAVAL PERSONNEL
WASHINGTON 25, D.C.

IN REPLY REFER TO
Pers-A21-dh
MAY 19 1961

ME.

MEMORANDUM FOR THE UNDER SECRETARY OF THE NAVY

Subject: Skin absorption studies of tagged triaryl phosphate hydraulic fluid, at the USNH Bethesda, Md.; use of volunteers, request for authorization for

Reference: (a) Under SECNAV Serial 1665 of 15 May 1961

1. In response to reference (a) the Chief of Naval Personnel has no objection to the proposed use of volunteers for subject test.

Very respectfully,

A handwritten signature in black ink, appearing to read "K. E. Taylor", is written over the typed name.

K. E. TAYLOR
ACTING ASSISTANT CHIEF FOR PLANS

ORIGINAL SERIAL:

1665



DEPARTMENT OF THE NAVY
HEADQUARTERS UNITED STATES MARINE CORPS
WASHINGTON 25, D. C.

IN REPLY REFER TO

A01C-ngv

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MEMORANDUM FOR THE UNDER SECRETARY OF THE NAVY

Subj: Skin absorption studies of tagged triaryl phosphate hydraulic fluid, at the USNH Bethesda, Md.; use of volunteers

Ref: (a) Ch Bu Med ltr BUMED-74:PFD:ces 6480 Ser 5077 of 8 May 1961 (Under Sec Nav Ser 1665)

1. This Headquarters has no objection to the conduct of the studies described in reference (a). Use of Marine Corps volunteers in this program will be authorized on a temporary additional duty basis at no cost to the Marine Corps.

CVB Drake

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