



UNITED STATES ARMY PUBLIC HEALTH COMMAND

Public Affairs Office

5158 Blackhawk Rd. Aberdeen Proving Ground, MD 21010-5403
410-436-1770
usaphc-pao@amedd.army.mil

Toxicology Portfolio

Mission

The mission of the USAPHC Toxicology Portfolio is to promote health and prevent disease, injury and disability of Soldiers and civilians by identifying the toxicity of military-unique and military-relevant compounds and the risks they pose to humans and the environment. These compounds are proposed for use by the Army and DOD in such things as explosives, ammunition, equipment and other materiel.

Background

Elements of the Toxicology Portfolio have provided support for the safety of Soldiers for more than 40 years. In the 1960s, toxicologists and other scientists working for the U.S. Army Environmental Hygiene Agency conducted initial work on understanding the effects of exposure to DEET insect repellent on Army personnel. (The USAEHA was a predecessor organization to the current USAPHC.) Over the years, the mission of the portfolio has grown significantly. Current efforts focus on maintaining Soldier and civilian health and readiness through the evaluation and clearance of products, materials and compounds proposed for military use.

Clients

The majority of work currently performed by Toxicology Portfolio's scientists is sponsored by organizations external to the USAPHC. These organizations require a detailed understanding of the potential health effects from exposure to various compounds and substances, used or proposed for use by the military. The portfolio has a wide range of customers within the DOD and collaborates with the Environmental Protection Agency, various environmental and state organizations, universities and industry.

Structure and Organization

Toxicology Portfolio is one of nine portfolios making up the Army Institute of Public Health, a subordinate unit of the USAPHC. The portfolio has two separate programs and a veterinary support division:

*** Health Effects Research Program** — Experts in HERP conduct basic and applied research, development, testing and evaluation in the fields of toxicology, environmental

biology and chemistry. Scientific efforts work toward establishing safe exposure criteria for new and existing DOD products, chemicals and compounds.

HERP develops toxicity data providing researchers and weapon systems program managers with essential feedback relative to the acquisition and use of new compounds and materials. As subject-matter experts in munitions toxicology, the HERP staff works closely with customers to develop information used in the decision-making process regarding sustained use of these compounds. HERP scientists also provide expert reviews of important regulatory criteria affecting a variety of Army and DOD activities, and advise on and conduct the necessary toxicology studies needed for refinement of environmental health criteria.

HERP conducts environmental health assessments, making highly specific and detailed determinations regarding how, and how quickly, military-relevant compounds move into air, water or soil. These assessments help to characterize and refine their potential to cause adverse health effects.

The principal goal of this program is to reduce the probability of air, water and soil contamination, and to identify potential health effects to personnel in that environment. HERP scientists also serve as consultants and study directors for conducting toxicity studies of various chemicals and compounds and may employ the use of laboratory tests, cell culture techniques, computer models, or animals to determine potential toxicity of a particular product.

*** Toxicity Evaluation Program** — Scientists in TEP provide expertise in the protection of Soldiers and other personnel by assuring the safety of products proposed for use by the Army. They do so by identifying chemical hazards and providing recommendations on preventive measures for avoiding or minimizing exposures. In addition, they support the Army's preventive medicine program and personnel readiness by means of consultations, evaluations and laboratory testing.



UNITED STATES ARMY PUBLIC HEALTH COMMAND

Public Affairs Office

5158 Blackhawk Rd. Aberdeen Proving Ground, MD 21010-5403
410-436-1770
usaphc-pao@amedd.army.mil

TEP directly supports the USAPHC and DOD's public health mission by conducting occupational toxicity studies that examine the toxicity of select substances and compounds found in the workplace. Results of these studies are used to determine safe occupational exposure levels, which is of particular importance to industrial hygienists who study health hazards and diseases in the work environment to protect and enhance the health and safety of workers.

In recent years, significant efforts have focused on inhalation toxicology studies of various colored smoke materials used by the military as signaling devices or to mark landing zones. Results of these studies help to characterize and determine potential effects of smoke exposure to soldiers in the field. TEP scientists' recent work also includes characterizing the toxicity of new fire-suppression chemicals and sensitive munition materials.

In addition, TEP scientists also conduct "toxicity clearances" mandated by regulation, a process that includes comprehensive toxicity reviews and evaluations. Results are used as a basis for granting the required "authorization" for continued development, use and eventual deployment of various chemicals, compounds, materials and equipment. In 2011, the more than 30 toxicity clearances were provided for a variety of products undergoing development, including plastic, rubber and adhesive compounds, as well as fabrics, filter materials and inks used in the production of military protective masks.

*** Veterinary Medicine Division** — The VMD staff provides expert medical and pathology services in direct support of the portfolio's programs. Board-certified veterinary specialists in the fields of laboratory animal medicine and pathology, along with highly experienced and compassionate husbandry staff, provide routine and emergency care for all animals. Under supervision and guidance from the USAPHC attending veterinarian, the staff helps ensure animal facilities and the USAPHC Animal Care and Use Program maintain strict compliance with federal, DOD and institutional animal care and use laws, directives, regulations, policies and guidelines.

All studies are conducted in accordance with Good Laboratory Practice Standards. The USAPHC Animal Care and Use Program has consistently maintained accreditation with the Association for Assessment and Accreditation of Laboratory Animal Care International since 1973. Oversight of the program is provided by the USAPHC's Institutional Animal Care and Use Committee and Quality Systems Office, and the Medical Research and Materiel Command's Research Protection Animal Care and Use Review Office.

Toxicology's People

Approximately 30 people work in the Toxicology Portfolio. They include military and civilian personnel who are biologists, chemists, toxicologists, veterinary pathologists, laboratory animal veterinarians, animal care technicians and administrative personnel, to list just some of the occupations within the portfolio. In addition to their professional experience, most staff members hold advanced academic degrees and certifications in their respective areas of study.

Benefits for the Army

The Toxicology Portfolio is a prolific producer of information for the public health community. The portfolio has helped to produce several technical guides that are used DOD-wide to identify safe exposure limits for industrial chemicals and biological agents for DOD personnel. Experts in the portfolio have also published numerous reports on their toxicity studies. The work performed in Toxicology Portfolio has a significant impact on operational readiness and sustainment because it continually evaluates emerging products and compounds to keep DOD employees and their environment safe.