

ENGINEERING DIRECTORATE

The Engineering Directorate operates under the auspices of the Edgewood Chemical Biological Center (ECBC). The Directorate has over 600 people with the main offices located on the Edgewood Area of Aberdeen Proving Ground, MD with additional personnel stationed at Rock Island, IL. Additionally, Engineering Directorate personnel directly support the Joint Project Managers under the Joint Program Executive Office for Chemical and Biological Defense (JPEO-CBD), as well as numerous other government organizations.

Our Engineering Branch drives technology transition from research to engineering development and transitions materiel from engineering development through production, fielding, and sustainment. Our highly trained workforce is committed to responsive customer service and is knowledgeable about current and evolving technology and capabilities worldwide. We use our unique infrastructure, engineering expertise and life-cycle services to solve chemical and biological (CB) defense challenges for the Warfighter and Homeland.

MISSION

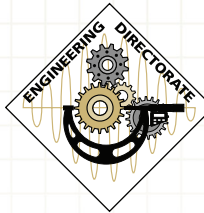
Provide unique infrastructure, engineering expertise and life-cycle services to solve Chemical and Biological challenges for the Warfighter and the Homeland.

VISION

First Stop for Chemical and Biological Defense Solutions



ECBC is the principal research, development and engineering center for non-medical chemical and biological defense. ECBC is an organizational element of the Army's Research, Development and Engineering Command, which reports to the Army Materiel Command. ECBC develops technology in the areas of detection, protection and decontamination and provides support over the entire materiel lifecycle—from basic research through technology development, engineering design, equipment evaluation, product support, sustainment, field operations and disposal.

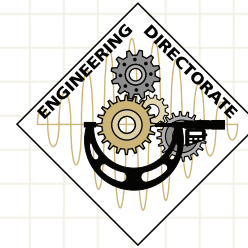


ECBC ENGINEERING

Design→Build→Test→Support

The Edgewood Chemical Biological Center Engineering Directorate is here and available to assist you with Design, Build, Test & Support Solutions for Chemical and Biological Defense Needs.

Please call 410.436.5600 or e-mail ecbc.engineering.directorate@conus.army.mil



ECBC ENGINEERING

Design→Build→Test→Support

ECBC PROTECTION FACTOR TEST FACILITY

FOR PUBLIC RELEASE





The US Army Edgewood Chemical Biological Center maintains the Protection Factor (PF) Test Facility. The PF Test Facility is designed to evaluate chemical, biological, radiological and nuclear (CBRN) protective capabilities of respirator systems such as masks and clothing. In order to simulate exposure to chemical agents, volunteers don test items and enter a test chamber containing a polydispersed corn oil aerosol challenge. The corn oil aerosol is between 0.4 and 0.6 micron in diameter and has an air concentration of 20-40 mg/m³. The air inside the protective equipment is sampled for challenge aerosol particles while the subject undergoes a series of exercises intended to evaluate worst-case operational conditions. There is a standard set of exercises used during testing but the customer may specify exercises pending approval by the Human Use Committee. Sampling is accomplished through a length of silicon tubing



that is connected from the mask and/or suit to the laser photometers. The protection factor (also known as fit factor) results are graphically displayed real-time on a computer monitor.

The facility comprises an entrance airlock and aerosol exposure chamber that can accommodate up to sixteen volunteers and is designed for flexible protocol setup. Human Performance testing is conducted to ensure comfort, fit, breathing resistance, vision, and communication aptitude of the protective ensemble. Active vapor testing is used if additional testing is needed. Vapor Testing, just as Aerosol Testing provides real-time active sampling. Methyl Salicylate is the primary substance used for vapor testing.

CAPABILITIES

- Protection Factor / Fit Factor testing with Corn Oil Aerosol
- Vapor Challenge Testing with Methyl Salicylate
- User Performance Testing (evaluations, obstacle courses)

EQUIPMENT

- 10' x 16' x 32' corn oil aerosol chamber
- Laser Photometers
- TSI Electrostatic Classifier
- TSI DustTrak
- M41 PortaCounts
- Environmental Fogging Chamber

REQUIREMENTS

- NIOSH CBRN Certification Testing
- Joint Service Standardization Agreement for Fit Factor Testing