FUTURE RESEARCH AND DEVELOPMENT EFFORTS

- Development of novel test methods to evaluate the flame and thermal properties of materials at high heat flux.
- Modeling to characterize the thermal response of materials and capture inter-layer heat transfer mechanisms in multi-layer protective laminates or clothing systems.
- Development of new techniques to impart enhanced flame and thermal protection to materials.





RDECOM

THE OUELLETTE THERMAL TEST FACILITY

US ARMY NSRDEC
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THE OUELLETTE THERMAL TEST FACILITY

FOCUS:

NSRDEC is the primary facility within DOD for the development of clothing and equipment for the protection of the individual Soldier.

FACILITY:

The Thermal Test Facility is an joint Army/Navy, state-of-the-art facility (8,100 sq.ft.) designed to:

- Evaluate and characterize the effect of flame/thermal threats on materials, ranging in size from research quantities (milligrams) to full-scale systems, under defined flame and thermal conditions.
- Assist in the development of improved materials in clothing and individual equipment for the protection of the individual Soldier.
- Evaluate and analyze the thermal processes and combustion by-products of fuel burning equipment such as tent heaters, kitchen burners, water heaters and other items of individual equipment to provide optimum performance of equipment while improving the Soldiers' quality of life.

CAPABILITIES:

Propane Test Cell

Evaluation of the combustion and thermal characteristics/ burn injury predictions of full-scale systems in a propane fire.

- Stationary Manikin
- Traversing Manikin
- Thermal Oven
- Burn Pit

Flammability Testing Laboratory

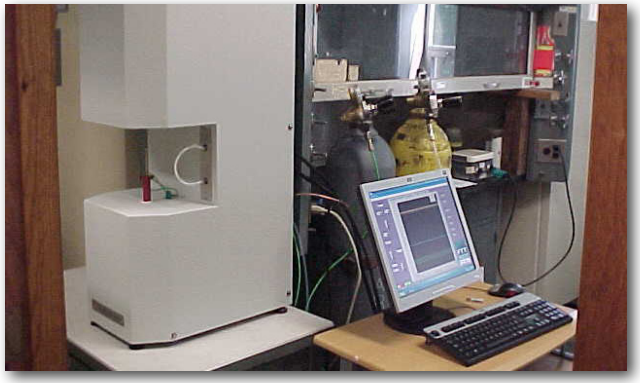
Evaluation of flammability characteristics and potential for burn injury at a laboratory scale — fabric swatch testing — utilizing ASTM, ISO, NFPA, FAA, CPSC, UL, NSRDEC and NCTRF test methods.

- Vertical Flame Test
- Horizontal Vertical Flame Test
- Thermal Protective Performance
- Thermal Barrier Test Apparatus
- Radiant Heat Resistance

Materials Analysis Laboratory

Characterization of small quantities of materials — milligrams/grams.

- Pyrolysis Combustion Flow Calorimeter
- Limiting Oxygen Index Chamber
- CO_2 Laser



Combustion Monitoring & Analysis Laboratory

Evaluation and analysis of thermal processes and combustion by-products of fuel-burning equipment such as field feeding food service burners, tent heaters, water heaters, and other support type equipment

- Combustion Analysis Equipment
- Inline Water Flow Metering Equipment
- Dedicated Exhaust systems to contain or remove of combustion or steam by-products.