

# Strategic Materials Laboratory

BWX Technologies, Inc. maintains extensive facilities for analyzing and testing radioactive materials at the Lynchburg Technology Center located in Virginia.

The Strategic Materials Laboratory (SML) is a radiologically controlled area where nuclear and non-nuclear materials are processed and evaluated. The laboratory is used to develop and test nuclear fuel and related components as part of the Nuclear Materials & Inspections Systems at the facility.

## Background

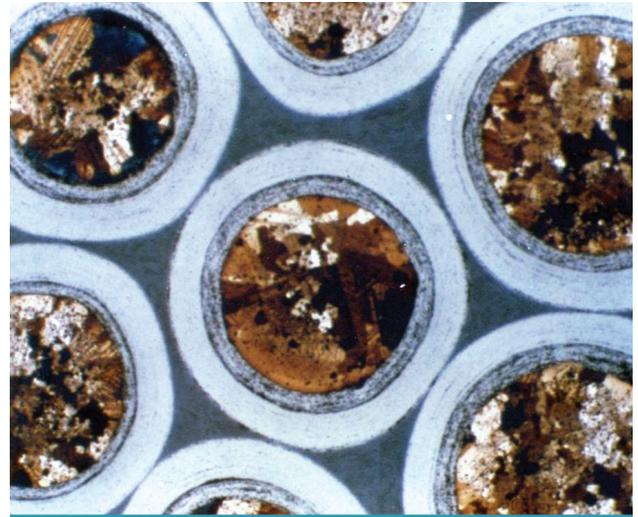
For more than 50 years BWXT's Lynchburg Technology Center (formerly the R&D Division of BWXT) has supported the company's interest in the nuclear industry.

The SML was built for processing, developing, and testing advanced nuclear fuels and its components in the late 1980's under the U.S. Air Force Space Nuclear Thermal Propulsion Program.

The laboratory supported developing and testing coated particle fuel for advanced particle-bed reactors. Other notable projects include high temperature fuel development for advanced reactors, solar bimodal propulsion, and work on Russian high temperature fuel.

## Capabilities

Nuclear and non-nuclear materials can be processed, tested, and characterized in the SML by our staff of materials scientists and technicians. We support internal and external customers.



*An optical micrograph of a polished cross-section of fuel particles showing coatings and center fuel kernel*



*A scanning electron micrograph of a coated nuclear fuel particle after a crush test*

### Laboratory test facilities include:

- High-temperature (>3000°C) exposure in inert gas of 100% hydrogen
- Deformation (plasticity)
- Static and dynamic compression
- Bed thermal expansion
- Thermal stability / interaction / compatibility
- Cyclic temperature
- Melt-point determinations

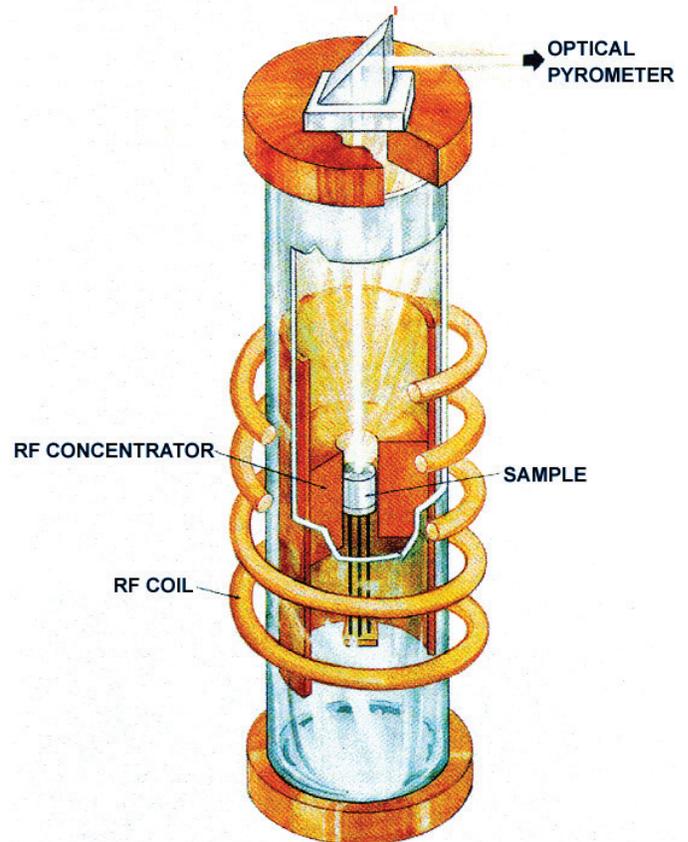
### Processing facilities include:

- High temperature induction furnaces
- High temperature graphite furnace
- Hot isostatic pressing
- Cold isostatic pressing
- Chemical vapor deposition / infiltration
- Supercritical fluid infiltration
- Hot machining

### Other section facilities include:

- Scanning electron microscopy with x-ray microanalysis (EDS/XRF)
- Hot cell facilities (rated to 300,000 curies)
- Electron microprobe
- Mechanical testing
- Metallography/Microhardness

The SML is approved by the U.S. Department of Defense and U.S. Department of Energy for secret and classified projects. Facilities are available on-site for storage and communications.



*A melt-point apparatus used to measure the melting point of advanced nuclear fuel*

People Strong  
**INNOVATION DRIVEN** > . . . . .

At BWX Technologies, Inc. (NYSE: BWXT), we are People Strong, Innovation Driven. Headquartered in Lynchburg, Virginia, BWXT is a Defense News Top 100 manufacturing and engineering innovator that provides safe and effective nuclear solutions for global security, clean energy, environmental restoration, nuclear medicine and space exploration. With more than 7,000 employees, BWXT has 14 major operating sites in the U.S., Canada and the U.K. In addition, BWXT joint ventures provide management and operations at a dozen U.S. Department of Energy and NASA facilities. For more information, visit [www.bwxt.com](http://www.bwxt.com). Follow us on LinkedIn, X, Facebook and Instagram.

The information contained herein is provided for general information purposes only and is not intended nor to be construed as a warranty, an offer, or any representation of contractual or other legal responsibility. The products and services described herein are provided by the subsidiaries of BWX Technologies, Inc.

© 2023 BWX Technologies, Inc. All rights reserved.



**BWX Technologies, Inc.**  
Nuclear Materials & Inspection Systems  
2016 Mt. Athos Road  
Lynchburg, VA 24504  
1.434.522.5165

[www.bwxt.com](http://www.bwxt.com)

