

Westinghouse Autoclave

Background

The Westinghouse engineers, technicians and staff who specialize in evaluations through laboratory testing of irradiated materials provide experimental evidence to support materials and processing solutions for its customers while supporting industry technical initiatives.

The Westinghouse materials group performs laboratory evaluations at laboratory facilities located in Churchill, Pennsylvania (USA), for a wide range of customers and represents a total of nearly 700 years of staff experience. It supports all of the Westinghouse product lines and specializes in material evaluations and testing that include hot cell capabilities, materials characterization and chemical processing.

The materials group offers:

- More than 35 years of on-site experience handling and evaluating activated and contaminated materials
- Mechanical performance and microstructural characterization laboratories
- Inclusive cold and hot autoclave facilities for comprehensive corrosion evaluations
- Knowledge and services of leading experts in surveillance capsule design, fabrication and examination
- Custom design/fabrication of irradiated materials testing hardware
- Nondestructive evaluation techniques
- Fuel crud and sludge analysis expertise



High-temperature steam oxidation unit

Description

The materials group runs a high-pressure autoclave laboratory with 26 operating autoclaves that simulate the temperature, pressure, chemistry and operating stresses that are experienced in a pressurized water reactor system. The laboratory was recently refurbished and features computerized autoclave control and remote data access.

The autoclave laboratory is dedicated to testing for corrosion and stress corrosion cracking, and consists of:

- Sixteen static-load autoclaves
- Six servo-load-equipped autoclaves
- Four flexible configuration autoclaves
- Automated instrumentation readout to central server
- Remote access to data interrogation and test monitoring

Testing environments include:

- Air, vacuum and inert gas
- Pressurized water reactor primary water and secondary water
- Boiling water reactor environments
- High-temperature/high-pressure supercritical fluid
- Cryogenic to high temperature
- Accelerated corrosion

Benefits

The autoclave laboratory offers:

- Corrosion testing
- Stress corrosion crack (SCC) initiation testing
- SCC crack growth testing
- Deposition loop
 - Crud simulation
 - Crud heat flow testing
- Debris filtration assessment



Autoclave laboratory