MATERIALS ENGINEERING LABORATORY

Solutions to Unique Challenges

United Engineers and Constuctors Materials Engineering Laboratory offers high-end analysis and laboratory-based testing services focused on performing customized investigations and solving problems for our clients. The unique combination of engineering and analytical capability associated with a materials/component testing laboratory has proven to be a valuable resource to our clients.

At United, we understand the importance of providing real-world solutions to our customers. Our integrated team of over 100 engineers, scientists, and technical specialists tackles challenging problems by integrating engineering, materials, and failure analysis services.

Failure Analysis and Accident Investigations

Failures may be the result of a number of complex factors and a specific sequence of events. Failure analysis requires the integration of broad-based engineering skills, fundamental materials knowledge, forensic experience, an objective mindset, and a proven process.

We recognize that a unique need exists for a quick response by experienced personnel in most investigations. We are experienced in managing investigations from initial field inspections to laboratory analysis and final recommendation support.

Our experience includes:

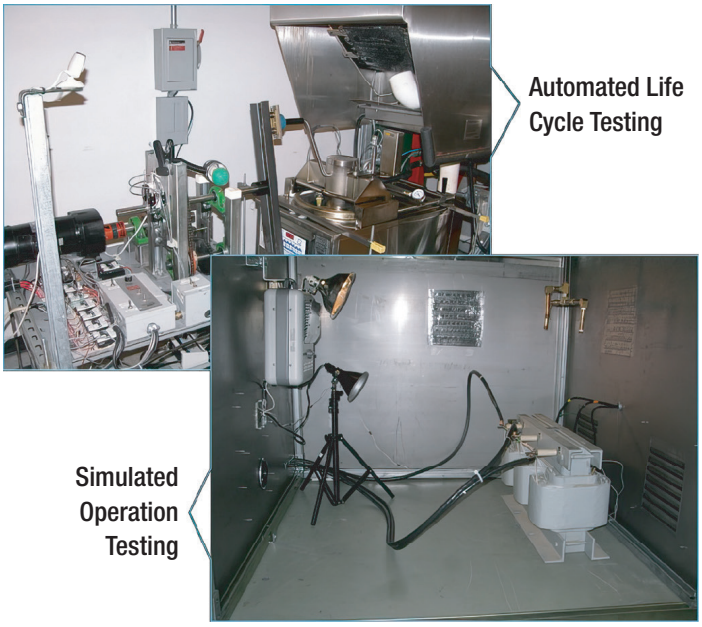
- Nuclear and Fossil Power Plant Components
- Power Transmission and Distribution Equipment
- Structures and Industrial Facilities
- Aerospace
- Biomedical Systems and Components
- Consumer and Manufactured Products/Packaging
- Manufactured Equipment

Testing and Simulation

Tests and mock-up simulations are often used to solve complex engineering problems or to assess a material, system, structure, or component on-site or in the laboratory.

Our 5,000 square foot testing and analysis laboratory allows us to perform a wide range of laboratory testing including:

- Metallurgical Analysis
- Mechanical Testing
- Chemical Testing
- Corrosion Analysis
- Laboratory Investigations for Metals, Polymers, Composites, and Coatings, etc.



Our test and simulation capabilities include:

- Standard and non-standard samples (fully customized fixtures)
- Evaluation of materials, components, and systems at controlled temperature
- Tensile, compression, bending, peel, burst, stress relaxation, fatigue, hardness, and more
- Electrical simulations, testing, and investigations
- Corrosion testing and assessments

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ENGINEERING TOMORROW'S SOLUTIONS – EMBRACING THE FUTURE OF ENERGY, INDUSTRIAL, AND MATERIALS SCIENCE TODAY

Product Development

Whether the product is a critical spacecraft component, a nuclear safety-related component, or a toaster oven, safety, reliability, function, and cost containment are critical issues designers and manufacturers must face. Our engineering and laboratory-based analytical tools allow us to effectively investigate these issues, provide independent assessments, and develop focused recommendations. We provide:

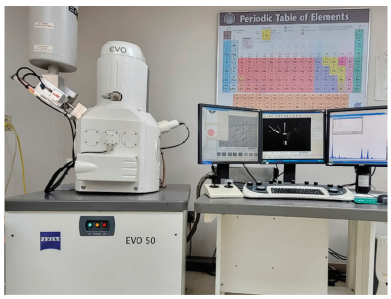
- Material Selection
- Simulations
- Qualifications

Equipment

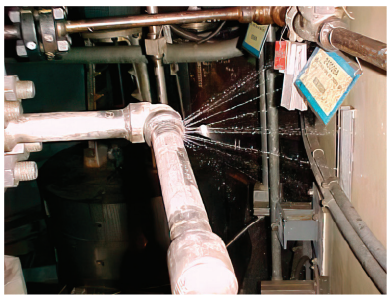
In addition to standard laboratory tools (hardness, micro-hardness, ovens, hoods, LabView data acquisition, multimeters, function generators, microscopes, etc.), United's laboratory is equipped with:

- Scanning Electron Microscope
- Fourier Transform Infrared Spectrometer
- Differential Scanning Calorimeter
- Mechanical Test Frames
- Corrosion Test Equipment

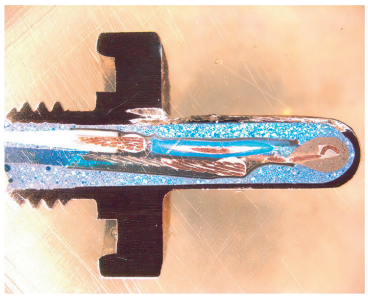
Mechanical Testing



Scanning Electron Microscope

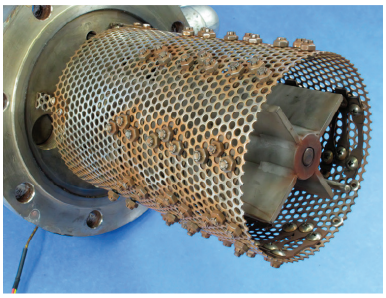


Failure Analysis



Material Selection and Qualification

ACCEPTING RADIOACTIVE COMPONENTS



Simulations and Test Loops

About United

United Engineers & Constructors is an industry leading infrastructure engineering, procurement, construction and consulting company dedicated to improving lives by delivering the most impactful solutions. Since 1905, we have served the power industry by providing comprehensive lifecycle services for the nuclear, conventional generation, renewable, and distributed energy markets.

Together with our clients and partners, we are unified in our efforts to deliver innovative and transformative infrastructure that is designed and built to meet the demands of today and the future.

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