Corrosion Science & Technology Group

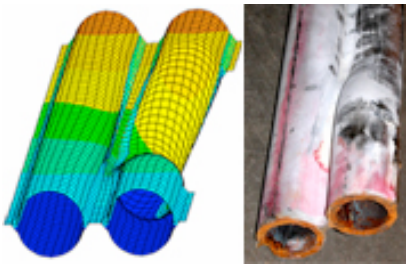
Part of the Materials Science and Technology Division

We do a broad range of research to support all forms of energy and transportation

The Corrosion Science and Technology Group in the Materials Science and Technology Division at the Oak Ridge National Laboratory develops solutions to environment degradation problems through application of fundamental mechanistic understanding, advanced, characterization techniques, laboratory simulation of extreme environments, extensive materials database, industrial collaborations, field studies, and expertise of our seven technicians and seven Ph.D. scientists.

We develop solutions to corrosion issues

- Scientific, technical, and industrial problems
- Multi-disciplinary approach
- Failure analysis
- Materials selection and specifications
- Corrosion monitoring
- Component lifetime predictions
- Environmental effects on mechanical properties
- New alloy design, development and deployment



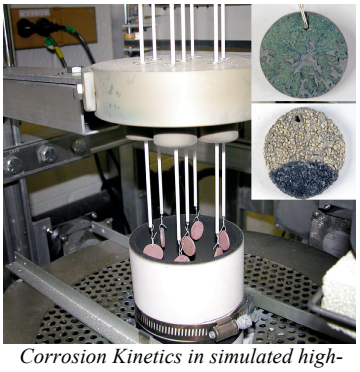
Finite element analysis determined stress and temperature of cracked and corroded boiler tubes

Experience with a wide range of materials

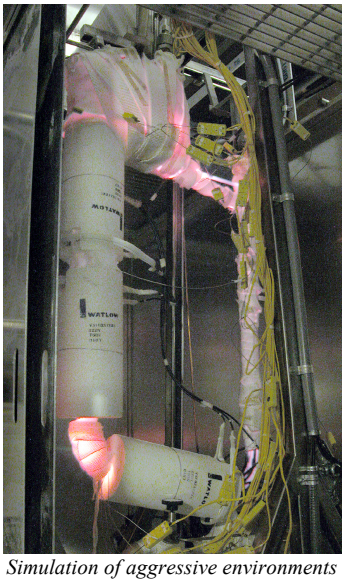
- Conventional alloys (steels, aluminum)
- Refractories and advanced ceramics & composites
- Refractory metals and intermetallics
- Coatings

Extensive laboratory facilities available

- High temperature (steam, mixed gas, etc.)
- High pressure (steam, mixed gases)
- Sulfidizing and Carburizing Environments
- Liquid metal and molten salts
- Bio-fuels and other renewables
- Aqueous and Atmospheric Corrosion



Corrosion Kinetics in simulated high-temperature/high-pressure environments



Simulation of aggressive environments

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