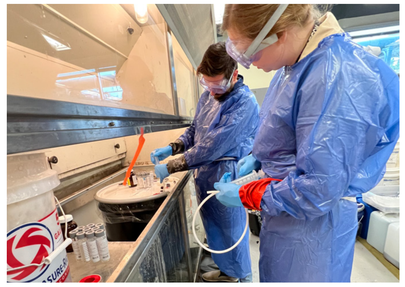
AECOM Process and Technology Development Laboratories

SUPPORTING EQUIPMENT & TOOLS

AECOM maintains a large inventory of equipment including reactors, exchangers, heaters, chillers, along with flow, pressure, and temperature control and monitoring devices. If the desired equipment is not available, AECOM can often specify and provide new equipment to meet the unique needs of each client.

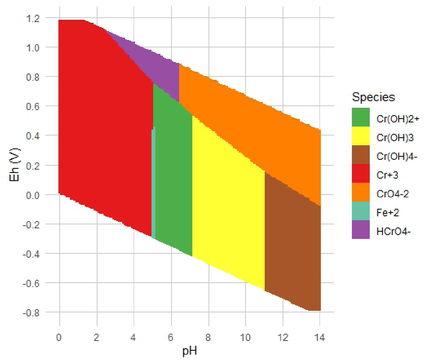
Glove Box



Walk-in Hood

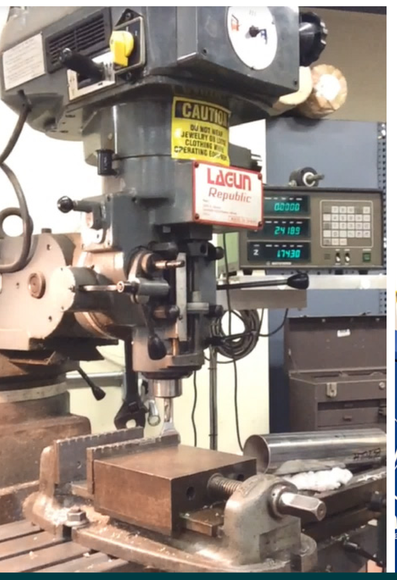
Process Modeling

Our chemists and engineers execute modeling for both industrial processes and fundamental chemistry. One example is using PHREEQC in conjunction with R+ to model the pH-ORP (Oxygen Reduction Potential) dependency of mixed solutions.



Dominant Species of Chromium and Iron at 0.5 mmol/kg Cr and 0.1 mmol/kg Fe, 15°C

Utilities and Machine Support



House air, house nitrogen, and distilled water are available in all labs. A machine shop with drill press, lathe etc. also support the labs.

SERVICES & EXPERIMENTS

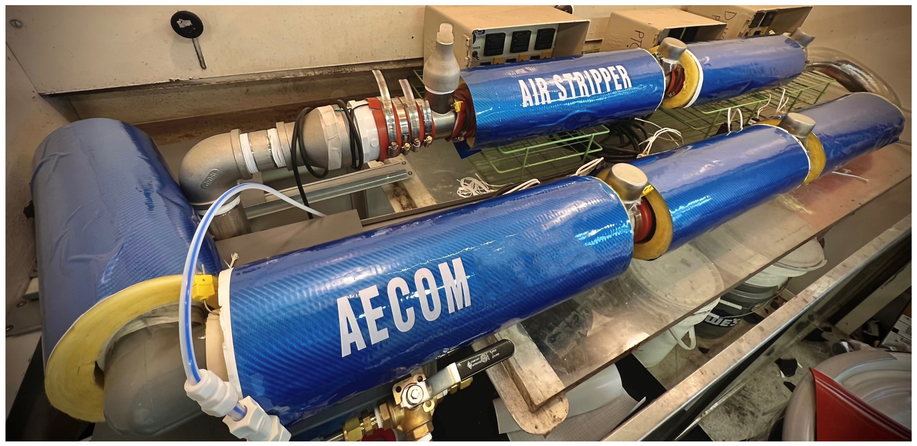
Clients benefit from in-house analytical services & staff expertise

- Water Quality
- Metals
- Halides
- Organic Compounds
- Polyatomic Ions
- Other Techniques/ Analyses

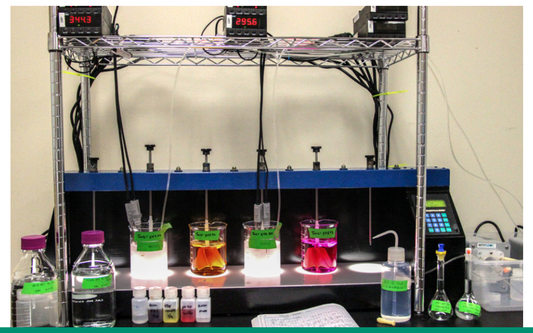
Safely Simulate Process Experiments

Our flexible design allows for modifications to the workspace as needed to accommodate unique experiments or research needs, whether in the walk-in hood or glovebox.

Expertise in Synthetic Gas and Liquid Matrices



We can simulate industrial synthetic gas streams, synthetic reaction tank slurries, evaluating as-received matrices and perform microcosm evaluations.



Fundamental Chemical Parameters

We can execute aqueous phase kinetic reaction constant measurements, mass transfer experiments, and pH titrations using our stock equipment.

Rapid Small-Scale Column Testing

RSSCT experiments can evaluate the performance of solid sorbents removing contaminants like PFAS more quickly and generating less waste than traditional column testing.

Continuous Stirred-Tank Reactor (CSTR)

The apparatus enables the simulation of diverse gas and slurry conditions to study the effects of contaminant removal, slurry kinetics, liquid additive performance and potential balance-of-plant effects.

AECOM has performed experiments for areas as diverse as thermal energy storage and carbon capture to contaminant adsorption and leaching and most things in between.

CLEANTECH HUB

AECOM Process and Technology Development Laboratories

AECOM

PROCESS & TECHNOLOGY DEVELOPMENT LABS

AECOM provides project support through our Process & Technology Development (PTD) Labs by testing solutions to complex operational issues and helping innovators take their technologies from proof-of-concept through commercial deployment.

The lab focuses on understanding the chemistry behind the problem.

We provide services for a range of clients, including industrial clients, technology vendors, and public- and private-sector research organizations.

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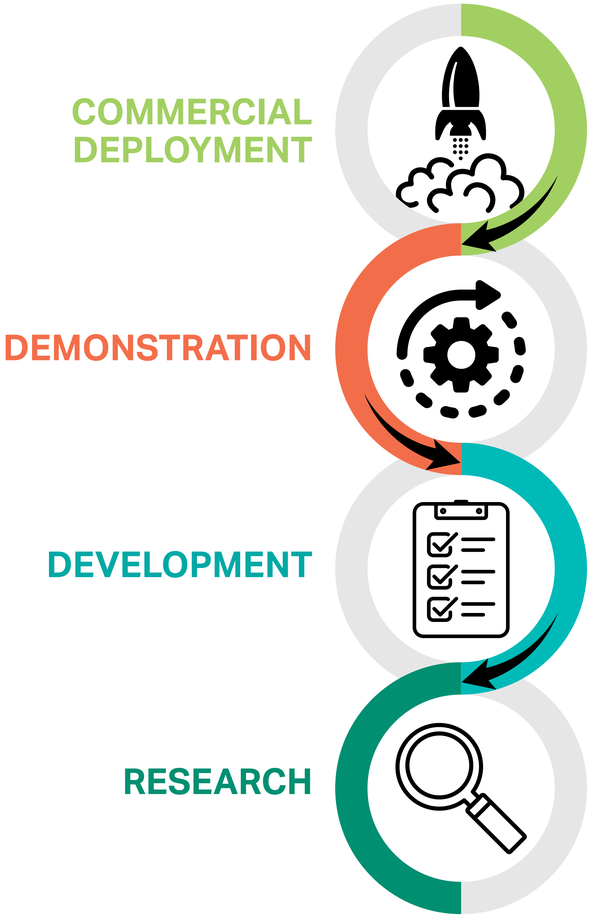
Years of advancing technologies across numerous industries

10,000+
square feet state-of-the-art research complex in Austin, Texas



COMMERCIAL DEPLOYMENT
- Detailed design
- Implementation
- Operational & control narrative
- Troubleshooting
- Optimization

DEMONSTRATION
- On-site analysis
- Pilot-scale design & construction
- Full-scale demonstration
- Cost estimation

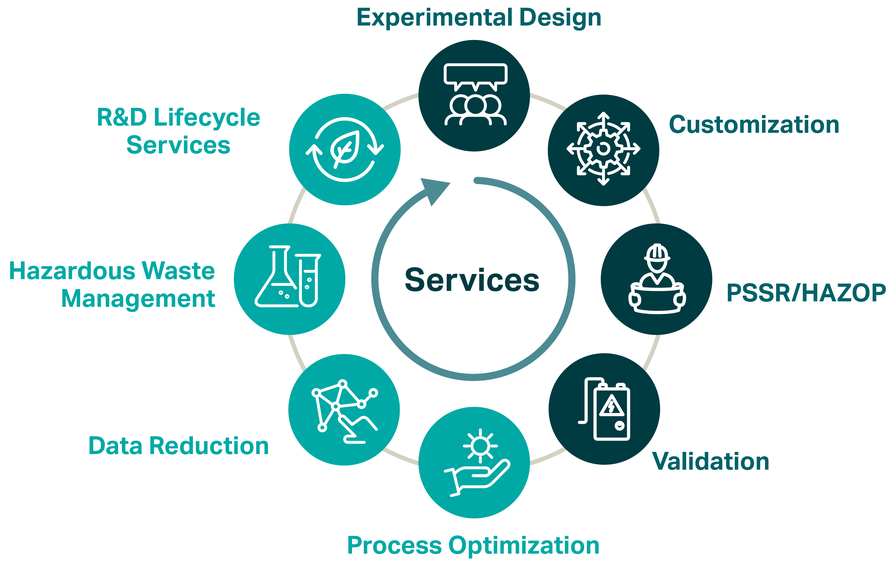
DEVELOPMENT
- Feasibility studies
- Bench-scale evaluations
- Integrated unit operations
- Process optimization

RESEARCH
- Literature review / paper study
- Market assessments
- Reaction kinetics
- Laboratory-scale studies
- Analytical method development
- Simulations & modeling

TAILORED SOLUTIONS

AECOM employs a modular design approach for bench-scale development, providing flexibility to adapt to changing requirements, and scalability to accommodate varying gas or liquid flow for a tailored solution.

The laboratories maintain a wide range of equipment and instruments to reproduce and monitor many types of process conditions. We can configure testing for gas, liquid, and/or solid phase processes.



Collaborate with the Design Team

Comprehensive Lab Assessment
Identify risks and implement effective mitigation measures

Powerful In-House Computing
For efficient and accurate data analysis and process modeling

Advanced Equipment
Maximize the possibilities using our state-of-the-art in-house equipment

Rapid In-House Analytics
Quick and accurate measurement results using our in-house analytical equipment

Process Improvement
Utilize results obtained in our labs to implement process improvements, new technology