

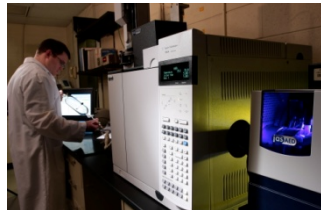
### Natural Gas Analysis

- ASTM D1945, GPA 2261, major component analysis
- ASTM D6228, sulfur speciation by GC-FPD or GC-PFPD
- ASTM D3588, calculated BTU, density, Wobbe
- ASTM D3246, total sulfur
- Extended hydrocarbons to C20 (GPA 2286)
- Ultimate calculation (CHNOS)
- Hydrocarbon dewpoint
- Mercury



### Biogas and Renewable Natural Gas Analysis

- ASTM D1946, major component analysis
- Fixed gas analysis
- ASTM D6228, sulfur speciation by GC-FPD or GC-PFPD
- Hydrogen sulfide
- Reduced sulfur components
- ASTM D3588, calculated BTU, density, Wobbe
- Trace volatile hydrocarbons
- Siloxanes
- Ammonia



### Cylinder and Bag Rental

- Inerted stainless steel cylinders for sulfur analysis
- Stainless steel cylinders
- Aluminum cylinders
- Tedlar® bags

#### For More Information

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### Other Trace Gas Analysis

- Hydrogen, helium, argon
- Trace CO and CO<sub>2</sub>
- Trace hydrocarbons
- Oxygen
- Trace methane and ethane for leak identification

### Coal and Fuel Analysis

- Ultimate
- ASTM D5373, CHN
- ASTM 4239, Sulfur
- ASTM D5142, Proximate
- ASTM D5865, calorific value
- Major/minor oxides in ash
- Karl Fischer water



### Materials and Physical Testing

- BET Surface area
- Nano-pore size distribution
- Bulk density
- FTIR
- DSC, TGA, and TMA
- ASTM D792, Specific Gravity
- ASTM D5630, Ash by Method B



### Metals and Solids Analysis

- Metal composition by ICP
- ASTM E1019, carbon, sulfur

### Microbiology

- qPCR
- Microbial influenced corrosion evaluation
- Biodiversity





# Material Analysis Capabilities

## Failure Analysis, Metals, Polymers, Coating, Corrosion and Pipe



### Coating Tests

- Abrasion Resistance
- Adhesion
- Cathodic Disbondment
- Coating Thickness
- Chemical Attack
- Chip Resistance
- Coating Hardness
- Impact Resistance
- Penetration Resistance
- Q(UV) and Q-Sun (Xenon-Arc)
- Water Absorption/Penetration



### Corrosion Testing

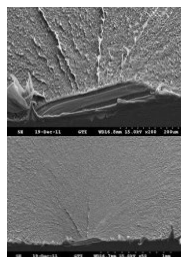
- Salt Fog/Salt Spray
- CCT and B117
- Laboratory Immersion
- Polarization Scans and Resistance
- Tafel Plots/Voltammetry
- LPR/ER
- EIS

### Mechanical Testing

- Tensile/Compression/Flexural
- Charpy and IZOD
- Microhardness (Knoop/Vickers)
- Rockwell and Brinell Hardness
- Pipes/Valves/Pressure Vessels
- Proof Load—Bolts and Nuts
- Drop Weight Test

### Metallography and Microscopy

- SEM and EDX
- Stereo Optical
- Inclusion Counts
- Micro-Examination
- Phase Counts
- Photography and Video



### Failure Analysis and Consulting

- Failure Analysis/Root Cause
- Litigation Support
- Product Testing
- Fault Tree Analysis

### Plastic/Polymer Testing

- Tensile/Compression/Flexural
- FTIR
- DSC, TGA, and TMA
- Rheology
- Hardness
- Specific Gravity/Density
- DTMA



### Plastic Pipe Testing

- Tensile Data
- Quick Burst
- Long-Term Sustained/HDB
- PENT
- RCP/S-4
- Fusion Bond/Fittings
- Cyclic Pressure Fatigue
- Chemical Resistance
- Dimensional Analysis
- Flexural Properties
- Instrumented Impact Testing



### Modeling

- Finite Element Analysis
- Predictive Models
- Simulations
- Design of Experiment

#### For More Information

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