

## Fuels, Lubricants and Oilfield Microbiology

**S**outhwest Research Institute® (SwRI®) has more than 30 years of experience in advanced, alternative and conventional fuels science and engineering. In support of these technologies, the Chemical Engineering Department provides clients the full range of microbiology services needed to enumerate and identify microorganisms encountered in fuels, fuel storage systems and fuel pipelines, and those associated with corrosion problems in oilfield pipelines. We determine if biocides are effective for specified applications.

### Capabilities

#### Downstream

- Enumeration of microorganisms in liquid fuels and oils
- Measurement of microbiological activity in fuels, fuel/water mixtures, fuel-associated water and hydraulic fracturing fluids
- Determination of microbiological content in aviation fuels, biofuels and alternative fuel systems
- Sampling and determination of microbiologically influenced corrosion (MIC) in pipelines
- Identification of microorganisms causing problems



Filter collection of microorganisms present in diesel fuel

D019759

#### Midstream

- Determination of corruption of storage and transportation systems and components by microbiological fouling
- Sampling for and characterizing pipelines and transportation systems for the presence of MIC
- Identification of microorganisms involved in midstream microbiology-based problems



Cultivation of strictly anaerobic microorganisms

D019760

#### Upstream

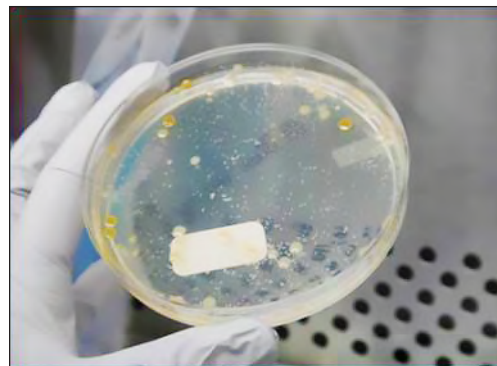
- Determination of effectiveness of biocides used in hydraulic fracturing exploration and production processes
- Enumeration and identification of microbial populations in downhole systems using conventional and molecular biology methods
- Cultivation of strictly anaerobic microorganisms common to exploration and production systems

### Facilities

- BSL-2 laboratory with BSL-2 Class II biosafety cabinets
- Reactors and process equipment
- Coy anaerobic chamber
- Analytical laboratories
  - inorganic and organic

### Technical Staff

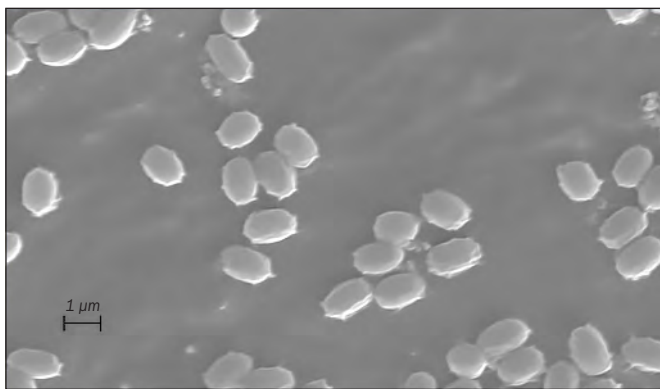
- Microbiologists
- Biochemists
- Bioengineers
- Chemists
- Chemical engineers
- Technicians



Microorganisms isolated from aviation fuel

D019761





Scanning electron micrograph of bacterial spores obtained from environmental sample



Placement of membrane filter containing microorganisms onto growth medium



The Microbiology Laboratory supports the International Alternative Fuels Technology Center for advanced biofuels research. The lab is capable of ASTM biodegradability testing, biotreatability testing, R&D for biofuels from algae, cellulose and starch, and much more.

**We welcome your inquiries.**  
For additional information, please contact:

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Southwest Research Institute is an independent, nonprofit, applied engineering and physical sciences research and development organization using multidisciplinary approaches to problem solving. The Institute occupies 1,200 acres in San Antonio, Texas, and provides more than 2 million square feet of laboratories, test facilities, workshops, and offices for nearly 3,000 employees who perform contract work for industry and government clients.

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