



Dubai, UAE

Since its founding, the Schlumberger Reservoir Laboratory in Dubai, UAE, has met a variety of challenges related to reservoir fluid studies from Middle East and Far East fields. The main aspects of those projects relate to high H₂S concentrations, organic solids precipitation and deposition, heavy liquids, and increasing enhanced oil recovery (EOR) implementation. The multinational and multidisciplinary laboratory staff aligns its priorities with global objectives and focuses on safely performing operations while securely delivering quality data.

Being an integral part of the Schlumberger fluids community significantly strengthens process standardization, personnel development, and expertise sharing, which allow the reservoir laboratory to continuously increase operational efficiency. The recent addition of cutting-edge petroleum geochemistry and water capabilities, supported by expert staff, further solidifies the laboratory's role as the Middle East technology hub for the Schlumberger global network of reservoir laboratories.



The Schlumberger Reservoir Laboratory in Dubai has a proven track record in successfully designing, optimizing, and executing the most complex fluid studies, enabling improved reservoir characterization.

SERVICES

- Sample handling, restoration, and validation using unique workflows
- PVT services
 - Standard hydrocarbon fluid studies, including flash, constant composition expansion, differential liberation, constant volume depletion, and separator testing
 - Heavy oil studies using a customized workflow and a heavy oil PVT cell
 - Formation water PVT studies
 - Data interpretation and equation-of-state examination
- Compositional analyses
 - Standard C₁₋₂₊ gas and C₃₋₆₊ liquid compositions using a gas-chromatography (GC) flame-ionization detector (FID) and thermal-conductivity detection
 - Sulfur-compounds speciation using GC sulphur chemiluminescence detection
 - Paraffin and wax analysis using high-temperature GC-FID
 - Advanced composition using GC mass spectrometry (MS)
- Flow assurance and rheology measurement
 - Live oil wax and asphaltene studies using near-infrared (NIR), high-pressure microscopy (HPM), and particle-size-analysis technology
 - Advanced studies of wax and asphaltenes from live reservoir fluids under realistic production and transportation conditions using RealView* technology for live solids deposition studies
 - Wax appearance temperature study by cross-polar microscopy (CPM)
 - Live and stock-tank liquid oil rheology for non-Newtonian fluids
 - Live oil emulsion stability testing
- Physical fluid analyses
 - Live and stock-tank liquid oil viscosity measurement using electromagnetic and capillary viscometer
 - Stock-tank fluids property analysis related to organic solids behavior (e.g., asphaltene content and saturates, aromatics, resins, asphaltenes, cloud point and pour point, and wax content)
 - Basic physical stock-tank fluid properties studies (e.g., density, water content, and sulfur content)
- EOR measurements
 - Live oil swelling testing for EOR studies
 - Forward and backward multicontact study
 - Determination of minimum miscibility conditions of pressure and enrichment using a slim-tube apparatus for EOR studies
 - Interfacial tension testing on oil-water-gas for EOR studies
- Petroleum geochemistry
 - Geochemical fingerprinting using high-resolution GC-FID for production back-allocation and compartmentalization studies
 - Studies for oil and source-rock characterization (GC-MS and isotope-ratio-monitoring GC), including interpretation
- Water chemistry
 - Basic water properties (pH, conductivity and resistivity, gravimetric total dissolved solids [TDS], total suspended solids [TSS], specific gravity, and total alkalinity)
 - Extended water properties (basic plus Rice alkalinity [OH, HCO₂, CO₃], turbidity, free sulfide, and ions by inductively coupled plasma spectroscopy), including interpretation

EQUIPMENT AND TECHNOLOGY

The laboratory operates HPHT equipment designed and manufactured by the Schlumberger DBR Technology Center in Edmonton, Canada. Products are continually being engineered and added to the list of unique technologies that provide PVT studies, flow assurance, and EOR measurements. Visual, low-volume, H₂S-compliant, and mercury-free PVT cells have reliably operated for decades, performing thousands of studies. All compositional laboratory equipment is internationally standardized and selected from the highest-quality suppliers offering cutting-edge solutions.

- Heavy oil PVT cell with operating range of 5,000 psi [34 MPa] and 482 degF [250 degC]

- Solids-detection systems based on NIR technology with bulk HP filtration
- High-pressure microscopy and cross-polar microscopy (HPM-CPM) cell with pressures up to 20,000 psi [138 MPa] and 392 degF [200 degC]
- RealView technology for measuring wax and asphaltene deposition at line conditions
- Sample conditioning systems for up to 20 samples at reservoir pressure and temperature



Petroleum geochemistry. Analysis of stable gas and liquids isotopes is critical to exploration and production, supporting hydrocarbon typing, reservoir compartmentalization, and production back-allocation studies.



PVT analysis. The Schlumberger mercury-free PVT system, manufactured by the Schlumberger DBR Technology Center in Edmonton, has delivered thousands of PVT studies—from lean condensates to heavy oils.



Water analysis. The laboratory setup delivers high-quality formation- and produced-water properties data that are critical at every stage of field development.



Flow assurance. The laboratory's equipment, used to study the behavior of organic solids at live conditions, helps support solutions to difficult flow-assurance challenges.

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