

Phase Behavior PVT System

Versatile, mercury-free system for fluid analysis

APPLICATIONS

- Study of vapor-liquid-aqueous-solid equilibria in reservoir fluid, including gas condensates, volatile and black oils, and near-critical fluids

BENEFITS

- Full sample visibility for greater operational capability
- Flexible modular design for ease of maintenance
- Mercury-free operation

FEATURES

- Phase-behavior cell
- Electronic volume detection
- Magnetically coupled mixer for rapid equilibrium
- Integrated pressure control
- Pressure rating to 15,000 psi [103 MPa]
- Motorized cell positioning
- Subambient temperature control
- Compatible accessories for solids detection, viscosity, and density measurements
- Computer-controlled data acquisition

The Schlumberger mercury-free phase behavior PVT system is one of the most versatile systems available for the study of vapor-liquid-aqueous-solid equilibria for gas condensate and oil systems.

The mercury-free PVT cell analyzes all fluid types in a single system and is equally capable of performing phase behavior studies for black oil, volatile oil, gas-condensate, and near-critical fluids. The system is converted from oil-study mode to gas-condensate-study mode by simply inverting the cell with the motorized cell-positioning device and using the truncated cone piston. In addition to performing vapor-liquid equilibrium and hydrate studies, the system is capable of determining live-fluid asphaltene precipitation onset and wax appearance temperature using the solid detection component. The full sample visibility of the PVT cell allows for more accurate determination of direct phase volume measurements.

The magnetic mixer ensures complete equilibrium of sample phases up to 15 times faster than conventional rocking cell methods. It is shielded to eliminate potential errors caused by the magnetic field altering fluid phase behavior of polar components.

The charge-coupled device (CCD) is a video-based level-measurement system that provides direct phase-volume measurements, eliminating errors precipitated by indirect phase-volume measurements that depend on pump readings.



Phase behavior PVT system for the study of vapor-liquid-aqueous-solid equilibria for gas condensate and oil systems.

The Schlumberger infrared, laser-based solid detection system (SDS), in conjunction with computerized, pressure-control software and fully automated data acquisition, has established the PVT system as an industry leader in the measurement of live-fluid asphaltene precipitation onset and wax appearance temperature. The fact that this work can be done simultaneously with the conventional phase behavior studies makes the PVT system one of the most comprehensive gas condensate and black oil laboratory systems available.