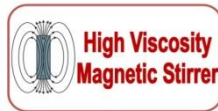


# Flow Assurance System



FLASS



## Applications:

- Visual observation of onset and growth of organic solid precipitates (wax, asphaltene)
- Organic solids deposition by filtration
- Phase behaviour studies for black oils
- Determination of asphaltene precipitation onset
- Determination of wax appearance temperature
- Titration tests

## Benefits:

- Mercury free operation
- High level of automation
- Provide three techniques to characterize organic solids in one instrument
- Efficient sample mixing to establish phase equilibrium in reduced time

## Features

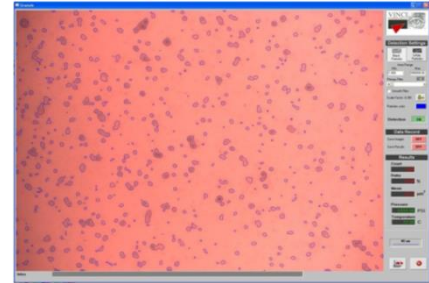
- PVT pump cell and gas pump for titration test
- 15000 PSI , ambient to 200°C (Option: -20°C)
- Embedded PVT pump cell of 200 cc volume
- Gas pump of 100 cc volume
- Magnetic stirrer



## HPM – High pressure microscope

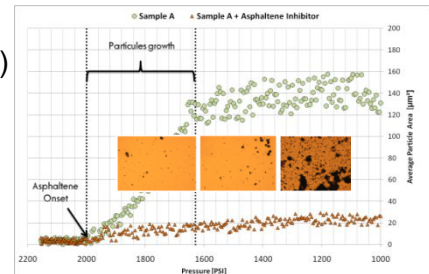


- 15000 PSI , ambient to 200°C (Option: -20°C)
- Customized backlight for low API black oil
- Oil recirculation loop
- Particle size analysis software
- Detection of particles from 1µm
- Wax / Asphaltene characterization

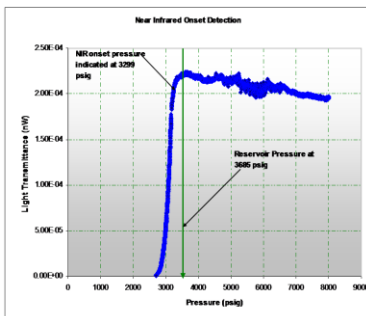


### Results:

- ★ Particle size analysis (Size, Area, Count, Distribution, Density, Movie)
- ★ Asphaltene Enveloppe
- ★ Detection of WAT (Wax Appearance Temperature)
- ★ Kinetics of asphaltene flocculation (growth rate)
- ★ EOR (additive, gas injection)



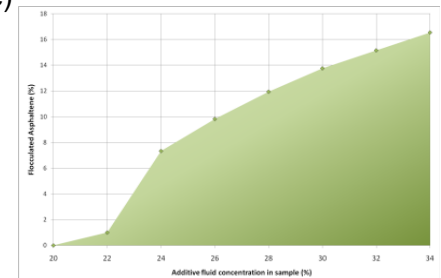
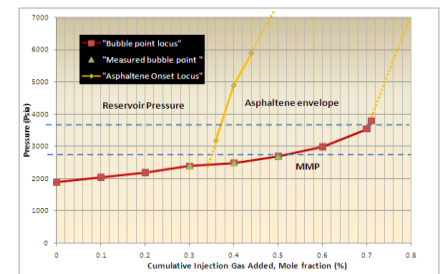
## SDS – Solids detection system



- 15000 PSI – ambient to 200°C (Option: -20°C)
- Option 1: Dual Wavelength (NIR)
- Option 2: Spectrometer (900nm and 2500nm)

### Results:

- ★ Detection of WAT (Wax Appearance Temperature)
- ★ Asphaltene Enveloppe
- ★ EOR (additive, gas injection)
- ★ Titration



## OSF – Organic solid filter



- 15000 PSI –ambient to 200°C (Option: -20°C)
- Pore size from 0.22µ to 100 µm
- High surface of filtration to avoid plugging

### Results:

- ★ Content of Flocculated and Non Flocculated Asphaltene