



OLI Engine: PIPESIM PVT File is the result of a collaborative effort between Schlumberger and OLI Systems. It combines the upstream mineral scale prediction capabilities of OLI Studio: ScaleChem with the steady-state, multiphase flow simulation capabilities of PIPESIM. The results are accurate scale prediction from reservoir to well head, flowlines, and surface facilities.

Features

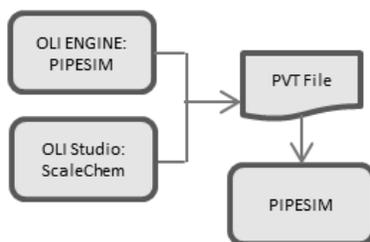
OLI Studio: ScaleChem now brings OLI electrolyte thermodynamics to PIPESIM's capability to model steady-state multiphase flow. This gives the combined product the ability to predict type, location and severity of scale.

OLI Studio: ScaleChem's expanded chemistry ability includes:

- ✓ Production chemistry simulation Access to the entire OLI database
- ✓ Brine reconciliation ScaleChem's brine reconciliation feature allows users to check for missing ions and allows adjustment of the brine sample to match pH and alkalinity data
- ✓ Electrolyte Thermodynamics Multiphase equilibrium calculations to determine the solid – gas – oil – water phase behavior at each step in the pipeline
- ✓ More accurate corrosion modeling Accurate prediction of the partitioning of CO₂ and H₂S in the gas-oil-liquid-solid environments

PVT File Generation

File-based communication



Licenses to the OLI Studio: ScaleChem & OLI Engine: PIPESIM are required

Clients enter their produced fluid analyses into the OLI Studio: ScaleChem data screens. The client then generates a PIPESIM PVT file across the production conditions (e.g., temperature and pressure range). This PVT file is read into PIPESIM to create the scale risk profile.

Licenses to the OLI Studio: ScaleChem and OLI Engine: PIPESIM PVT File are required.

Once activated, there is a checkbox within the Contour Plots calculation to generate a PVT file. This file contains the phase composition and vapor-liquid properties; density, viscosity, heat capacity, enthalpy, thermal conductivity, compressibility, surface tension, interfacial tension, and molecular weight. Comprehensive solid phases and solid phase properties including mass fraction, density, and individual phase appearance curves are also included in the file.

Results

PIPESIM reads the ScaleChem generated PVT file to produce results that include:

- ✓ Phase envelope
 - Scale appearance lines
 - Total scale lines, and also individual species lines
- ✓ Profile plots
 - Total scale mass fraction (eg. ppm, mg/L)
 - Scale species mass fraction
 - Scale species pre- and post- scale Index
- ✓ System plots
 - Max. scale mass fraction/branch
 - Max. pre-post scale Index/branch

Capabilities

OLI Engine is built on OLI's time-proven approach to electrolyte systems

- ✓ Complete speciation
The OLI AQ model predicts and considers all of the true species in solution in the range of -50 to 300° C, 0 to 1500 bar, and 0 to 30 molal ionic strength, while the MSE model temperature limit is 90% of the critical temperature and there is no concentration limit.
- ✓ Standard state framework
Based on the Helgeson equation of state, parameter regression and proprietary estimation techniques for the aqueous framework and on OLI technologies for the MSE framework.
- ✓ Activity coefficients for complex and concentrated systems
For the aqueous framework, based on the combined work of Bromley, Zemaitis, Pitzer, and OLI technologists. For MSE, based upon OLI development, published, and peer-reviewed.
- ✓ Comprehensive databanks
OLI's AQ and MSE databanks with chemistry of particular interest to upstream production
- ✓ Thermophysical properties
OLI has developed unique chemical/physical models to compute thermodynamic (bulk and interfacial) and transport properties for complex electrolyte mixtures.



Related products

- OLI Studio: Stream Analyzer** for in-depth chemistry studies of your electrolyte chemistry
OLI Studio: Corrosion Analyzer for the electrochemistry of aqueous corrosion.



www.olisystems.com

 OLI systems, inc.

240 Cedar Knolls Road, Suite 301, Cedar Knolls, NJ USA 07927
+1-973-998-0240 sales@olisystems.com