OLI Engine in Aspen Plus / HYSYS

With the OLI Engine in Aspen, current Aspen Plus and Aspen HYSYS clients can now use OLI as a property method within their flowsheets for any water-containing or electrolyte streams. The OLI Engine operating "under the hood" of a process simulator allows predictive electrolyte simulations within a more traditional flowsheet environment.

OLI Engine in Aspen allows the OLI thermophysical property framework as a property package for accurate and reliable electrolyte simulation predictions.

Features

✓	Electrolyte OLI Property Package	Built on OLI's thermodynamic framework and available Aspen Plus and Aspen HYSYS along with all other fluid packages
✓	Electrolyte Component Database	Access to the complete OLI component databases in addition to Aspen Plus and Aspen HYSYS traditional databases
✓	Electrolyte Properties	Calculation and display of thermodynamic and transport properties specific to electrolyte systems such as pH, osmotic pressure, ionic strength and electrical conductivity.
✓	Unit Operations	For Aspen HYSYS, in addition to the HYSYS range of unit operations, HEO has three additional electrolyte operations: precipitator, crystallizer & neutralizer. For Aspen Plus, AO has OLI's 4 phase flash
✓	Electrolyte Column	OLI's column program for solving electrolyte towers.

Applications

- ✓ pH control
- ✓ Trace metal removal
- ✓ Brine handling
- ✓ Produced water management
- ✓ Amines
- ✓ Sour gas
- ✓ Regulatory and environmental limits
- ✓ Crystallization
- ✓ Gas sweetening

- ✓ Chlor-alkali brines
- ✓ Acid stream neutralization
- ✓ Waste water treatment
- ✓ Organic acid removal in brines
- ✓ Scrubbers
- ✓ Caustic wash tower
- ✓ Foul feed stripper
- ✓ Multi-effect evaporator

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OLI framework advantage

OLI's proprietary thermodynamic framework allows accurate predictions for mixtures of virtually any chemistry in water, based on the underlying binary (and ternary) interaction parameters.

Thus, when a "surprise" component appears in a system, it is likely that the OLI methods will include that component in the system without requiring additional data or lab tests. This is in contrast to more interpolative models that require action whenever a new component is added.

Clients are invited to ask OLI technical support about their chemistry of interest when considering electrolyte simulation in Aspen. This assessment is free, and can quickly focus on the question of whether the OLI Engine would be useful in your Aspen simulation.

Capabilities

✓ 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	The complete OLI databank with 80 inorganic elements, associated solution species and complexes, and numerous organics. OLI provides a paid thermophysical modeling service for customized coverage of client chemistry in the form of private databanks and / or extensions to the OLI databank.
✓ Thermophysical properties	OLI has developed unique chemical/physical models to compute thermodynamic (bulk and interfacial) and transport properties for complex electrolyte mixtures.

Related products

About half of our OLI clients who use OLI as a property method within Aspen products also license the OLI Studio:

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