

UniSim Design OLI is a joint product of Honeywell and OLI Systems. It combines the OLI Alliance Engine with all the existing features of UniSim Design. The result: clients may specify the OLI thermophysical property framework as a property package with the UniSim Design flowsheet simulation environment.



Both OLI models, AQ and MSE, are available as property methods.

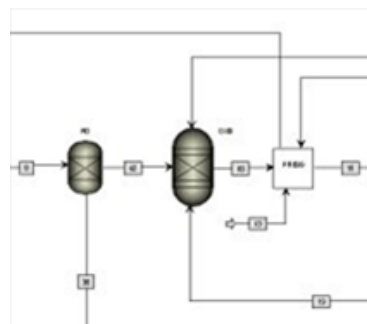
When there is water or electrolyte streams in a process, using OLI for simulation of these units, or for a section of the flowsheet, allows predictive electrolyte simulations within a more traditional flowsheet environment.

## Features

- ✓ Electrolyte OLI Property Package Built on OLI's thermophysical property framework and available in UniSim Design along with all other fluid packages.
- ✓ Electrolyte Component Database Access to the complete OLI component databases for both the AQ- and MSE-based systems in addition to UniSim Design's 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 In addition to the UniSim Design range of unit operations, UniSim Design OLI has three additional electrolyte operations: precipitator, crystallizer, & neutralizer.
- ✓ Electrolyte Column OLI's column program for solving electrolyte towers.
- ✓ Chemistry Wizard The OLI Chemistry Wizard provides features such as generating custom electrolyte models including MSE models, and creating and maintaining proprietary species databanks
- ✓ Configuration Tool OLI versioning tool that selects the right OLI Engine for the client's USD version

## Application

- ✓ pH control
- ✓ Trace metal removal
- ✓ Brine handling
- ✓ Produced water management
- ✓ Regulatory and environmental limits
- ✓ Amines
- ✓ Sour gas
- ✓ Gas sweetening
- ✓ Waste water treatment
- ✓ Chlor-alkali brines
- ✓ Acid stream neutralization
- ✓ Solids deposition
- ✓ Organic acid removal in brines
- ✓ Scrubbers
- ✓ Caustic wash tower
- ✓ Foul feed stripper
- ✓ Multi-effect evaporator



The OLI MSE model might be better considered OLI's "Super Model" because it is an excellent choice for chemistries both inside and outside the range of the OLI's aqueous (AQ) model. Both the AQ and the MSE model are good for systems up to an ionic strength of 30 molal in the aqueous phase. This limit is fine for slurries and heavy brines, and chemical mixtures of many types.



When the question becomes how soluble other system components are in water – or without water – then the OLI MSE model is the only choice. This includes systems that contain  $H_2SO_4$ , glycols, alcohols, most amines and others: highly soluble in the aqueous phase.

### 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 OLI 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  
The aqueous model is based on the combined work of Bromley, Zemaitis, Pitzer, and OLI technologists. The mixed solvent activity coefficient model is based on OLI's internal development now extensively published in peer-reviewed literature
- ✓ 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

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

