



News Release

Announcing new modeling and simulation capabilities in OLI Systems platform V9.6

3 December 2018

A combination of new data parameters, thermodynamic framework and software innovations for Upstream Oil & Gas, Industrial Water Treatment and Rare Earth Minerals to enable higher process reliability, efficiency and engineering productivity

[OLI Systems, Inc.](#) is the industry leader in providing rigorous and accurate electrolyte chemistry-based solutions. We have a rich history of delivering insights backed by comprehensive data validation and software applications that are built on rigorous thermodynamic models. Our simulation capabilities are relevant for a variety of industrial applications.

The behavior of electrolytes is highly complex and difficult to model, and electrolyte presence in water is almost ubiquitous across many industrial processes. Thus, a comprehensive and rigorous approach like OLI's is required for effective process modeling. This approach has made OLI the trusted advisor when it comes to predicting phenomena such as corrosion, scaling, chemical composition, phase changes, etc. across a wide range of industries from oil & gas production, refinery operations, metals processing and mining, industrial water treatment, power generation including nuclear energy and chemicals processing.

OLI clients rely on us to increase operations efficiency and reliability, engineering productivity, sustainability and compliance. We accomplish this with a truly unique platform that combines an extensive materials property database that includes chemical speciation of over 85 elements of the periodic table, thermodynamic frameworks and simulation software tailored to address a broad range of water chemistry applications.

Earlier this year, we introduced [OLI Systems Platform V9.6.1](#) with several new capabilities. For upstream [oil & gas](#), we launched the MSE-SRK thermodynamic model to dramatically improve phase prediction, high-temperature and high-pressure chemistry parameters for accurate scaling prediction in deep wells and extreme production environments and corrosion-resistant alloy chemistries for corrosion prediction under high temperatures and pressures and new drilling completion fluids chemistry to select and optimize completion fluids. For [water treatment](#) (including natural and contaminated water) and chemicals processing, we introduced the arsenic and struvite chemistry models to optimize water treatment and predict scaling during water management and The RO membrane simulation in Flowsheet: ESP process simulator to enable process optimization. For [lithium and potash mining](#), we introduced new lithium and potash chemistries to optimize production yields.

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Today we are excited to announce the availability of OLI Systems Platform v9.6.2 with several new, unique capabilities that provide significant benefits for industrial process modeling, simulation and asset design. These benefits include:

Higher operational reliability: Only OLI delivers a first principles-based, rigorous and accurate predictions of the surface complexation phenomena which is critical for effective **industrial water treatment and asset integrity management**. Specifically, the databank updates for silica adsorption on magnesium oxide surfaces can be used to predict silica removal from boiler feed water as well as fouling of silica in geological formations. This enables accurate prediction of adsorption, and also can predict when a material previously absorbed can breakout and possibly damage equipment.

Increased engineering productivity: Only OLI provides the unique ability to combine the rigorous electrolyte thermodynamics with constant volume (isochoric) calculations in a simplified manner. Specifically, we have added isochoric calculations to the separator and mixer unit operations that dramatically simplify the [autoclave testing process](#) which is used to inhibit [corrosion risk in oil & gas applications](#)

Enhanced operations efficiency: Only OLI delivers a first principles-based, rigorous and accurate thermodynamic model with MSE-SRK for multi-phase heavy hydrocarbon streams at high temperature and high pressure or extreme conditions. This enables more accurate phase flow volume calculations that improve efficiency for **upstream oil & gas** applications. In addition, only OLI delivers the most rigorous, accurate electrolyte chemistry thermodynamic models to optimize the extraction of **rare earth metals**.

With V9.6.2, **OLI Flowsheet: ESP** now has several new features & capabilities that significantly expand its capabilities while making it more effective and easier to use.

Kinetics: Tuning your process to your field results just got easier with the ability to use a kinetics conversion factor in conjunction with the Flowsheet: ESP controller. This simple-to-use percentage converted factor will allow you to see the effect of partial reactions on a flowsheet.

Surface Reactions: OLI has improved the surface complexation capability in the model for water treatment processes. Use this feature in conjunction with the Reactor Block and the Controller to determine how much of your component will be adsorbed. This technique has been already applied for working with the MgOx chemistry for silica removal in warm or hot lime softening. It can also be extended to other pollutants, heavy metals such as Hg, Se, As, on a hydrous ferric oxide (HFO). Please ask us for a case template for this feature and a step-by-step guide that explains how this simulation technique works.

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Step-wise execution: For simple flowsheets that take a few minutes, it is easy to run the system to completion each time. For a more complicated process, this step-wise feature is a time saver!

Isochoric mixer in a flowsheet: Specifying a mixer volume of 1 liter, for example, is a natural way to formulate many simulation cases. This is now possible with the new isochloric mixer in Flowsheet: ESP.

Autoclave Testing: This has now become much easier to setup and visualize and setup through OLI Flowsheet: ESP. In 2019, look for the full roll-out of our Autoclave Dashboard. You can get a sneak preview of how easy autoclave simulation has become with the addition of the isochloric mixer. OLI's target audience for the Autoclave Dashboard is moving from the central research engineer to the lab technician.

Platform Improvements: These include usability improvements during calculations, case building, reporting, and results analyses as well as advancements when navigating the interface, selecting units, streams, callouts, and variables.

These new features and capabilities in **OLI Studio** as part of V9.6.2 make it more versatile and usable.

Autoclave Simulation: V9.6.2 also brought more capability in autoclave simulation. OLI has pioneered autoclave simulation in the OLI Studio. This work continues to develop with making the simulation consistent for all OLI thermodynamic frameworks, and also by showing partial pressure and fugacity properties.

Platform Improvements: ZnS and PbS are now standard solids in OLI Studio: ScaleChem. OLI Studio: ScaleChem now has greater range and flexibility in survey calculations along with better reporting capabilities that make it easier for users to visualize the results.

OLI Platform V9.6.2 brings the following extensions to the OLI property database:

Rare earth elements: Lead and Neodymium chemistry have been updated in the OLI databank with $\text{Pb}(\text{NO}_3)_2$, PbSO_4 and NdPO_4 chemistries in sulfuric and phosphoric acid.

Surface complexation: A new database, XSCDLM, is available upon request.

Densities for heavy hydrocarbons and pseudo components: These improvements are part of the extended MSE-SRK database parameters.

The new V9.6.2 release is now available for download for authorized license holders. For more information, [review Examples](#), [watch the video](#) or [contact OLI](#)

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About OLI Systems, Inc.

OLI Systems, Inc. is a global leader in the modeling and simulation of electrolyte chemistry applications. This capability accelerates process design optimization, reliability, and productivity in capital intensive industries including oil & gas, metals & mining, nuclear energy, chemicals, water management, utilities, and defense. With core competencies in electrolyte thermodynamics, process simulation and electrochemical corrosion and scaling simulation, OLI has developed both the framework and the parameters for the framework that make it possible to accurately predict the behavior of virtually any combination of chemicals in electrolyte solutions. OLI's highly unique and rigorous solutions includes a comprehensive chemistry data bank and parameters, thermodynamic frameworks, software portfolio, services capabilities, and rich applications expertise. These solutions enable over 500 commercial organizations around the world to solve their most complex water chemistry challenges. OLI's solutions are also used by students and researchers in many academic and government organizations. OLI Systems, Inc. is headquartered in Cedar Knolls, NJ USA