OLI CLIENTS HAVE AN EDGE ON THEIR COMPETITION

By understanding the behavior of complex electrolyte solutions, clients can:

- **PREDICT** stream properties and reactivity
- **DIAGNOSE** problems and develop solutions
- **OPTIMIZE** both plant and lab operations

OLI TECHNOLOGY HELPS CLIENTS

- **SAVE TIME AND MONEY**
  Use simulation to focus experimental work, and to optimize planned plant shutdown and startup operations
- **MANAGE RISK**
  Use calculated fluid properties to predict unwanted environmental conditions, thereby avoiding dangerous operations or expensive repairs
- **ANTICIPATE PROBLEMS**
  Pre-test corrective actions and diagnose equipment failures
- **REDUCE COSTS**
  Test process changes before implementing them
- **IMPROVE OPERATIONS**
  Optimize unit or plant operations

ABOUT OLI

OLI Systems, Inc. is the world's leading provider of electrolyte simulation software. This USA-based company has served the chemical process, energy production, and scientific research industries for over 38 years.

OLI brings a unique blend of pioneering research and industrial commercialization to technology development.

OLI's technology is available through the OLI Simulation Studio, a series of products that includes:

Corrosion Analyzer™
Stream Analyzer™
Alliance Engine
OLI Pro™ + ESP™
ScaleChem™

ACCESSING OLI

You can begin using this technology today! We welcome your inquiries. You can contact OLI Systems at the contact information listed below, and work with specialists in OLI electrolyte simulation.

Let us hear more about your electrolyte applications. We can recommend the best course of action for your situation: a software lease, a turnkey lease, or a consulting project.

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This brochure was prepared by AQSim, OLI's partner company in sales, training, and applications consulting
www.aqsim.com

OLI in Alberta

Think Simulation!

Providing advanced science for water management

YOUR ANSWER TO

SIMULATION

OF WATER CHEMISTRY

IN EXTRACTION

TAILINGS MANAGEMENT

AND

PLANT OPERATIONS

OLI systems, Inc.

WHY OLI?

A wrong answer can be worse than no answer at all! Electrolyte chemistry is extraordinarily complex and challenging. Simplified aqueous modeling and computational approximations, though worthwhile in some cases, can prove inadequate, when conditions exceed the model's capabilities.

This is because electrolyte systems behave in complex and sometimes counter-intuitive ways. This introduces risk to plant design and operation if the system is not properly understood.
Using a competent tool suited for the job will reduce these risks and uncertainties.

OLI has been developing these tools for 38 years, and is considered the industry leader in electrolyte simulation. We are synonymous with being the best tool for the job.

OLI TECHNOLOGY
FROM EXTRACTION TO TAILINGS MANAGEMENT

OLI provides software that predicts the behavior of electrolytes in process waters and natural systems, typical of that found in plant operations as a function of time.

OLI technology includes, four-phase calculations (gas, water, solid, oil), ion exchange, surface complexation, and kinetics. These are the key mechanisms that govern energy extraction and produced water management in the energy industry,

These technologies are provided in several tools; a steady-state process simulation, a dynamic (transient) process simulator, and a Stream Analyzer studio.

Each tool is capable of modeling the complex systems associated with produced and process water chemistry. They work in combination to optimize your entire process.

Applications

- Closing water cycles
- Warm lime softening
- CO2/H2S gas injection
- Sour-gas treatment
- Gas processing for dew-point control
- Sulfur recovery and handling
- High temperature and CO2 corrosion
- Evaporation and crystallization
- Ion exchange on clays
- Process and waste water treatment
- Magnesium hydroxide precipitation and silica removal

OLI software helps you maximize water reclamation and re-use.

Through simulation models, you can screen alternative operation strategies and optimize process resources.

Features

ELECTROLYTE COMPONENT DATABASE

An aqueous (AQ) and mixed solvent electrolyte (MSE) databank containing ten-thousand species, including 2000+ solid phase, 2500 organic and vapor components, and 6000+electrolytes.

ELECTROLYTE PROPERTIES

A thermodynamic engine that calculates and display thermodynamic and transport properties of a fluid; pH, scaling, osmotic pressure, ionic strength, electrical conductivity and more.

USER INTERFACES

Three software interfaces for three applications, Stream Analysis, Steady-state process simulation, and Dynamic simulation

ADVANCED SCIENCE

Advanced thermodynamic mechanisms for complex systems; ion exchange, surface complexation, Oxidation/Reduction, kinetics, mass transfer limiting flow and more.

OLI WORKS "OUT OF THE BOX"

OLI Software covers over 80 elements and nearly 10,000 organic and inorganic species and phases.

OLI's proprietary thermo-dynamic framework predicts the properties of virtually any chemistry in water. So, when a "surprise" component appears in your system, chances are good that OLI software contains that component.

NEW SYSTEMS If your chemistry includes components for which OLI does not yet have adequate data, we will work with you to fill in the gaps with literature data or your own, proprietary data.

It is not magic, it's just great technology!

OLI MSE IV : SILICON CHEMISTRY +
leveraging your research funds

OLI offers a 3-year membership in the MSE consortium for clients who would like to leverage their research funds into a focused research plan. The next 3-year cycle begins January 2010: please ask us for a prospectus.

For this cycle, some of OLI's clients have proposed a study of silicon chemistry. OLI's present silicon chemistry is limited to predicting the behavior of SiO_2 as a function of temperature, pressure, and pH. We would like to extend it to study the properties of all practically important silicates, including the relevant minerals.

Other client proposals include transition metal cyanides, scaling and corrosion inhibitors, supercritical CO_2 in the presence of various minerals and brines, and the remaining inorganic and organic chemistry that is needed to model oil- and gas-related systems; this will include Sr, Fe^{II}, sulfide, formate, acetate, and ammonia chemistry in aqueous systems and in the presence of methanol and glycols.