AQSim
OLI electrolyte solutions

Solutions to water-based chemical processes

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## Electrolyte Modeling Basics (EMB)

Description: 2-day training in electrolyte simulation techniques using OLI Studio: Stream Analyzer.

Time: EMB, Full Course: two 8-hour days; EMB, Short Course: two 3.5 hour (web) sessions

Summary The **Electrolyte Modeling Basics** course is designed to train attendees on how to use OLI software and its underlying chemistry principles. At the end of the course, participants will be able to formulate and build their own applications and interpret the data presented in reports and plots. Participants will also leave with a qualitative image of how ions and molecules behave in water and a better understanding of properties like alkalinity and pH.

Who should attend: Beginning and prospective OLI clients
Class is designed for participants with little or no knowledge of OLI simulation techniques. Intermediate level clients wanting to refresh their skills may also join this class; there are extra problems in each section that allow for independent inquiry.

Instructor: AJ Gerbino, PhD, an electrolyte simulation expert and author of the workshop

Cost: **Regional Training (EMB, Full Course)**
$650 USD per person early registration / $750 USD within two weeks of course

**Web Training (EMB, Short Course)** via WebEx
$450 USD per seat (multiple participants allowed per seat)

**EMB at OLI** hosted by OLI Systems, Inc. at OLI's Office in NJ, USA
$1,100 USD per person; complimentary for current OLI clients

Register: Online: http://marketing.olisystems.com/enroll.shtml
Email: dira.salama@aqsim.com
Phone: USA 1-973-998-0240 x114

Accommodations: For in-person courses, please bring a laptop.

OLI Software: For EMB-Full Courses, we will be using OLI Studio: Stream Analyzer + Corrosion Analyzer. For EMB-Short Courses, we will be using mostly OLI Studio: Stream Analyzer.

All participants receive 30-day evaluation copies of the full OLI Studio.

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**Electrolyte Modeling Basics Class Content**

This workshop will teach electrolyte chemistry concepts and electrolyte simulation techniques, including:

**Simulation Techniques & Program Manipulations**

- Single point calculation using variety of equilibrium methods: Isothermal flash, bubble / dew points, solubilities, set pH, etc.
- Trend analysis using independent variables of T, P, composition, and pH
- Simple mixing and separations
- Output interpretation, including customization of plots and reports
- Analysis entry – water, oils, other measured data
- Electrochemical stability diagrams

**Electrolyte Chemistry Theory**

- Electrolyte speciation, acid-base chemistry, and other common chemical reactions
- Basic electrolyte thermodynamics for equilibrium constants and activity coefficients
- Precipitation/Dissolution and vapor/liquid reactions
- Oxidation-Reduction redox potential.

**Chemistry Model Manipulation**

- Adding/removing solid phases and which phases to select
- Building Azeotropes
- Modifying Critical properties of pseudocomponents
- Selectively manipulating oxidation-reduction reactions

**Applications**

A portion of the second day in the full course will focus field applications that users bring to the class or that users select from the following lists:

**Studio Analyzer Applications**
Mineral scaling during production
Product yield – solids precipitation
Crude tower overhead desublimation
Warm lime softening
Evaporative crystallization
Dehydration
Ion exchange and adsorption
Corrosion simulation studies

**OLI Flowsheet: ESP Applications**
Multi-unit Process Simulation Application
Distillation towers
Gas scrubbing/treating
Process/Waste-water treatment
Air stripping
Membrane processing