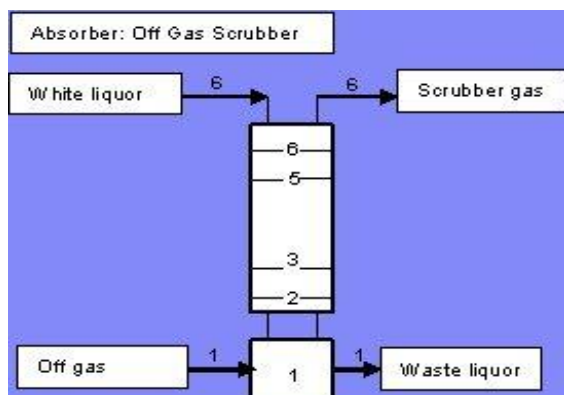


## ESP



The Environmental Simulation Program (ESP) is a steady-state electrolyte process simulator with a proven record in enhancing the productivity of engineers and scientists. With applications industry-wide, the software is not only applied to the environmental applications but to almost any electrolyte chemical processes.

## FEATURES

- Chemistry Model Where the chemistry for the system is defined
- Process Build Units are selected and streams are defined. Unit connections are made by naming the output stream of one operation as input to the next.
- Process Analysis Process is run
- Reports Stream and unit reports and export to MS Excel

The conventional and environmental unit operations, and controllers, that are available include:

Mix	Precipitator	Manipulate	Electrodialysis
Split	Reactor	Controller	Saturator
Separate	Exchanger	Feedforward	Dehydrator
Neutralizer	Extractor	Crystallizer	Membrane (UF,RO)
Absorber	Component Split	Clarifier	Bioreactor
Stripper	Incinerator	Sensitivity	Compressor

## APPLICATIONS

- Design, debottlenecking, retrofitting, troubleshooting, and optimizing either existing or new processes
- Waste water treatment
- Upstream waste minimization
- Regulatory limits
- Simulation of chlor-alkali plants, Claus plants
- Separations with mass transfer and kinetics, including absorbers, strippers, and extractors and scrubbers
- Gas treatment, sour gas sweetening, amines
- Rigorous biotreatment, including heterotrophic and autotrophic biological degradation and multiple substrates
- Biotreatment processes, including sequential batch reactors and clarifiers with multiple recycle

## ESP CAPABILITIES

## PRODUCT DESCRIPTION

- Flowsheet simulation with speciation  
Streams are carried on a true basis and all speciation is considered for the range of conditions that extend from  $-50$  to  $300^{\circ}\text{C}$ , 0 to 1500 bar, and 0 to 30 ionic strength. Also, a new model for mixed solvent electrolyte systems is available, which removes all limits for ionic strength. This model also allows for temperatures from  $-30^{\circ}\text{C}$  up to 90 % of the critical temperature of the mixture.
- Comprehensive data bank  
The Complete OLI databank has coverage for the electrolyte chemistry of 79 elements, and thousands of organics. Data service provides customized coverage of client chemistry in the form of private databanks.
- Sensitivity Analysis  
Facility to allow the user to determine easily the sensitivity of output results to changes in the unit parameters and physical constants.
- Controllers  
Process flowsheet with multiple recycles and control loops are allowed. Feedforward and feedback Controllers and Manipulate blocks help to achieve process specifications.
- Mixed Solvent Applications  
On almost any individual application for OLI's customers, ESP is available for process using OLI's mixed solvent electrolyte framework. A growing public databank is also under development.

## RELATED PRODUCTS

With an ESP lease, these software packages are also included:

- DynaChem: The dynamic response of a process can be studied using the dynamic simulation program, DynaChem, to examine control strategy, potential upsets, scheduled waste, controller tuning, and startup/shutdown studies. Discrete dynamic simulation of processes with control can be accomplished. Studies of pH and compositional control, batch treatments interactions, multistage startup and shutdown, controller tuning, multicascade and adaptive control are all possible.
- Analyzer Studio / Stream: The OLI Stream Analyzer provides flexible stream definition and easy single-case (e.g. bubble points) and parametric-case (e.g., pH sweep) calculations. This tool allows the user to investigate and understand the stream chemistry, as well as develop treatment ideas before embarking on process flowsheet simulation. The Analyzer Studio also allow direct transfer of stream information to other simulation tools for parallel studies.

## CONTACT US

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