Technical Brief

Distillation Columns in CHEMCAD Suite

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What types of columns can CHEMCAD model?

Steady State columns, Dynamic columns, Batch Distillation columns.
Vapor Liquid Equilibrium columns, Mass transfer columns, Azeotropic distillation.

Steady State Columns
All rigorous columns can be used for azeotropic separations.

SCDS Column

- Rigorous Vapor Liquid Equilibrium calculations
- Can be used for steady state or dynamic models
- Allows reactive distillation
- Well suited to activity coefficient VLE models

TOWR Column

- Rigorous vapor liquid equilibrium calculations
- Uses the Inside-Out algorithm
- Can be used for steady state or dynamic models
- Well suite to equation of state VLE models

TPLS Column

- Rigorous vapor liquid equilibrium calculations
- Allows specification of pumparounds, side strippers, and side exchangers
- Useful for modeling fractionation columns
- Useful for modeling petyluk style columns
- Uses the TOWR algorithm as base of model

Shortcut Column (SHOR)

- Fenske-Underwood –Gilliand method for constant molal underflow

Dynamic Column Options

- Use any rigorous column (SCDS, TOWR, TPLS) for the basic model
- Calculate or specify holdup on trays and pressure effects
- Startup column from dry or total reflux
- Integrate with a batch reactor, PID controls, and other UnitOps for dynamic flowsheet

Mass Transfer Column Options

- Calculate effect of mass transfer resistance on separations
- Specify packed column or tray column geometry
- Can be used with dynamic column

CHEMSTATIONS

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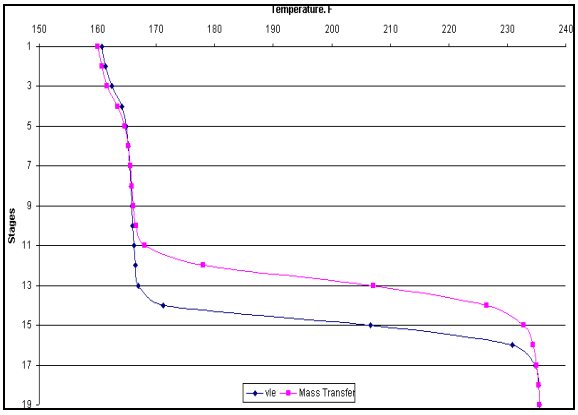

Figure 1 Comparison of Mass Transfer Column to Ideal Stages Column

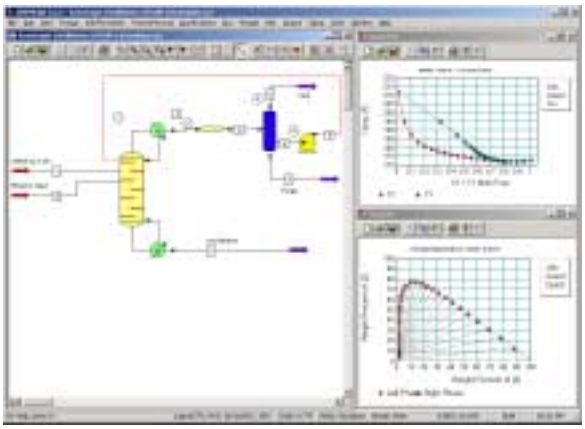

Figure 2 Azeotropic Distillation Using NRTL for VLE

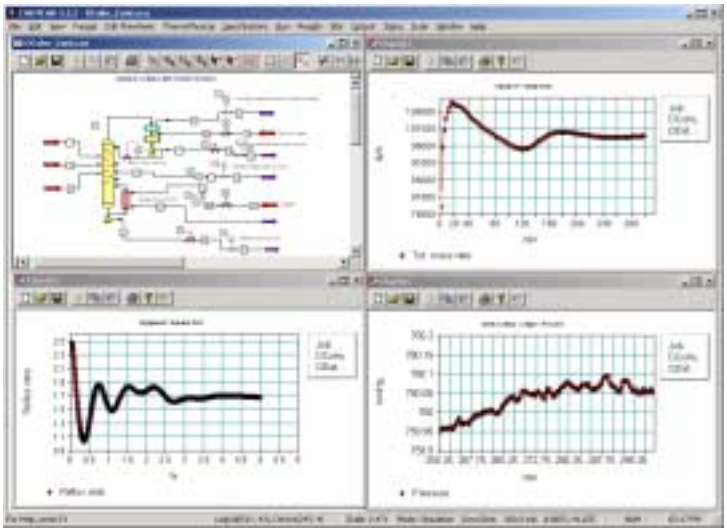

Figure 3 Dynamic Column Simulation in CHEMCAD

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