

Aspen RateSep™

AspenTech's innovative product for Rate-Based distillation



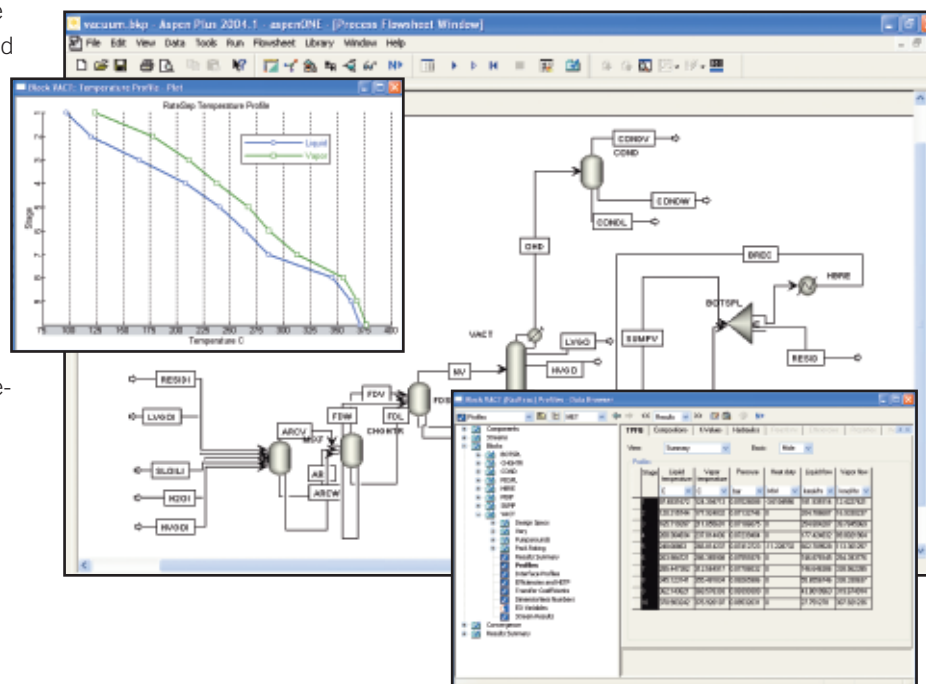
Overview

Aspen RateSep builds on the functionality of the RadFrac module in Aspen Plus® to allow Distillation Specialists and Process Engineers to accurately design and troubleshoot column separations that are known to be rate limited by using the rigorous Rate-Based approach. Aspen RateSep takes into account mass and heat transfer limitations, liquid and vapor film diffusion, equipment hydrodynamics and chemical reaction mechanisms. Typical applications include packed columns where vapor and liquid are far from equilibrium, non-ideal systems in tray columns where efficiencies are unknown or vary widely with varying operating conditions, reactive distillation and trace components absorption. Aspen RateSep has been designed and specified in close collaboration with leading experts and practitioners in the field of Rate-Based Distillation and will provide the most comprehensive range of capabilities for the design, analysis and optimization of such processes.

Features

Aspen RateSep provides a rigorous, consistent framework for the modeling of Rate-Based separations, in a user-friendly environment that includes:

- Seamless switch from equilibrium to rate-based calculations
- All column configurations including total and partial condensers, kettle and thermosyphon reboilers, absorbers, strippers, multiple feeds and side-draws, pumparounds, multi-diameter columns and name number of trayed and packed sections
- Reactions such as homogeneous kinetic reactions, equilibrium reactions, true and apparent component electrolyte reactions
- Hydraulics for trays and packing – option to update pressure profile from hydraulic calculations
- Mass and heat transfer correlations for a wide range of trays type and random and structured packings
- Interface for user models of binary mass transfer coefficients, heat transfer coefficients, interfacial area, pressure drop across trays and packing, reaction kinetics
- Design mode for calculating column diameter based on approach to flooding
- Continuation/homotopy method for easy transition from equilibrium initialization to rate-based calculations (easy solution of complex problems, no need to guess efficiencies)



Typical applications are:

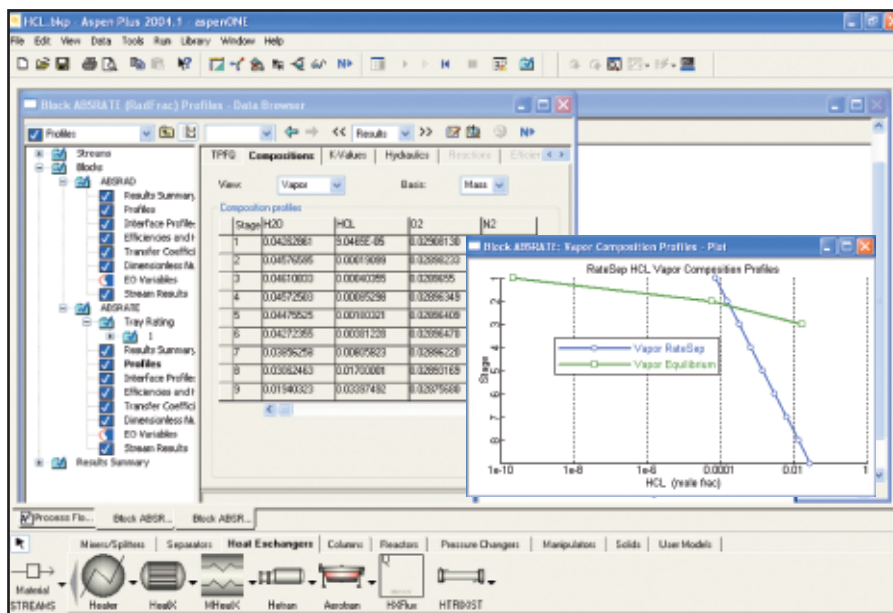
- Scrubbers
- Reactive distillation of MTBE, TAME, ETBE, TAAE, ethyl acetate, propylene glycol, ethylene glycol, propyl acetate, diacetone alcohol, etc.
- Other reactive separation processes like reactive absorption and reactive stripping
- Azeotropic distillation
- Packed columns
- Strongly non-ideal systems

Benefits

As the Rate-Based column modeling approach is based on fundamental of chemical engineering principles, it is more accurate and reliable than the equilibrium-based approach. It significantly reduces the risk of inadequate designs or off-spec operation. The internal configuration of the column can be included in the rate-based model, generating more realistic results that will closely match measured data. With Aspen RateSep engineers can do more realistic what-if studies and improve the operation of existing columns.

Companies using Aspen RateSep for designing and debottlenecking their columns will:

- Avoid over or under design by modeling tray and packed columns with greater accuracy
- Reduce capital and operating costs by avoiding excess separation capacity
- Make changes in column operations with greater confidence
- Prepare operating strategies that better account for the influence of chemical reactions on separations
- Eliminate the need for efficiencies and HETPs



AspenTech: A Tradition of Innovation

Aspen Technology, Inc. provides industry-leading software and implementation services that enable process companies to use simulation models to increase efficiency and profitability. aspenONE™, a new generation of software solutions and services from AspenTech, represents a major step forward in helping process manufacturers achieve their strategic operational excellence initiatives. The first comprehensive offering to address the demands of the enterprise operations management market, aspenONE provides companies with integrated systems that enable them to manage and optimize their operational performance.



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