

Developed state-of-the-art hydraulics/mass transfer models for Aspen Rate-Based Distillation.
Developed tray/packing hydraulic operating diagram code for Aspen Plus and HYSYS.
General manager for a privately held company with annual sales of \$5MM.
Developed column rating and design program for gas scrubbers and strippers.
Implemented engineering standards and practices, including an inquiry tracking system.
Developed a financial analysis methodology and linked this to sales predictions
Modeled the closed cup flash point for multicomponent mixtures adopted by NFPA in Section 704.
Developed simple, complete equations for multicomponent diffusion.
Built and ran two adsorption pilot units: 1) VSA N₂, and 2) RPSA - 1/2 TPD 30% O₂.
Key technical support for employer in \$2,000MM lawsuit.
4 patents issued.

SKILLS

Distillation tray and packed column design, rating, hydraulics, troubleshooting, and mass transfer.
Engineering project management.
Process safety assessment (PSA), process safety review (PSR), risk analysis.
Economic evaluation.
Carbon capture with aqueous amines.
Mass and heat transfer.
C++, FORTRAN, Basic.
Aspen Plus, HYSYS, Aspen Rate-Based Distillation, process simulation.
Database mining: prior performance, quality, historical sales, engineering model verification.
Mathematical modeling and data interpretation.

EMPLOYMENT HIGHLIGHTS

Aspen Technology, Inc.

Bedford, Massachusetts

Principal Engineer

Developed state-of-the-

(11/06- 07/17)

781.221.6400

- Method of determining flood points of packed columns US #8,449,727 B2
- Apparatus and method of designing or optimizing a column for a separation process US #8,650,013 B2
- Method of optimizing product output rate of packed columns US #9,095,785 B2

Koch-Glitsch, LP

(4/01- 5/04)

Wichita, Kansas

316.828.5110

Principal Engineer (4/01 6/05)

Developed mass transfer coefficient correlations for structured and random packings.

Developed pressure drop/flood models for structured and random packings.

Suggested/tested improvements in packing geometrical designs for enhanced capacity/mass transfer.

1 patent: Structured packing plate and element and method of fabricating same US #6,874,769 B2.

Jaeger Products, Inc.

(3/98 7/00)

Houston, Texas

281.449.9500

General Manager (3/98 7/00)

Oversaw staff of 3 engineers and 2.5 technicians.

Responsible for overall corporate function, including R&D, design, financial evaluation, economic evaluation, standards and practices, modeling.

Interacted with sales/marketing to develop strategies for improving market share and company profile.

Developed an easy to use state-of-the-art software for design of gas scrubbers and gas strippers.

Air Products and Chemicals, Inc.

(3/88 - 1/98)

Allentown, Pennsylvania

610.481.5900

Principal Engineer, Corporate Research Services (11/94-1/98)

Engineer, Engineering Technology (3/88-5/89)

Studied the performance of packed distillation columns. Developed a model which defined the locus of acceptable column parameters for use in cryogenic air separation, resulting in \$1MM/year in savings and improved column performance.

Supported \$2,000MM litigation against company.

Developed model for ballistic trajectories of molten steel particles.

Evaluated mass transfer performance of various distillation tray designs.

EDUCATION

University of Minnesota Ph.D. Chemical Engineering 1987

University of Massachusetts B.S. Chemical Engineering 1979

PUBLICATION HIGHLIGHTS

On Packed Column Hydraulics, *AIChE J.* **2012**, 58(6), 1671.

New Mass Transfer Correlations for Packed Towers, *AIChE J.* **2012**, 58(1), 132.

The Influence of Flow Maldistribution on the Performance of Columns Containing Random Packings: A Model Study for Constant Relative Volatility and Total Reflux, *Sep. Purif. Te*

Synthesis and Characterization of Poly(vinylmethyl ether), *Polym. Comm.* **1989**, 30(1), 19. 13 citations.

Translational Diffusion of Linear Polystyrenes in Dilute and Semidilute Solutions of Poly(vinyl methyl ether), *Macromolecules* **1987**, 20, 1120.

The Effect of Polydispersity on the Analysis of Optical Tracer Diffusion Experiments II. Intramolecular Interference, *Polymer Bulletin* **1987**, 17, 279.

The Effect of Polydispersity on the Analysis of Optical Tracer Diffusion Experiments, *Polymer Bulletin* **1986**, 15, 35.

Incorporating Diffusion Data Into a Model for High Conversion Free Radical Polymerization, *Polymer Preprints* **1985**, Miami, FL.

Behavior of the Tracer Diffusion Coefficient of Polystyrene in Isorefractive Solvents Composed of Poly(vinyl methyl ether) and o-Fluorotoluene, *Polym Bull. (Berlin)* **1985**, 14(2), 137.

An Experimental Study of Polymer Diffusion in Concentrated Solution: Implications for Diffusion in Polymerization, *Chem. Eng. Commun.* **1983**, 24, 93.