

Brian A. Ott, Ph.D., P.E.
Senior Engineer

Professional Profile

Dr. Brian Ott uses his expertise as a chemical engineer to analyze chemical processes in the petroleum refining and petrochemical industries. He specializes in the investigation and prevention of process failures involving equipment, operations, and control systems. He has experience with processing equipment including reactors, distillation columns, heat exchangers, emission control systems, and emergency relief systems. He performs hazard and regulatory compliance analyses with an emphasis on implementing and improving Job Safety Assessments (JSAs) and Standard Operating Procedures (SOPs). Dr. Ott has extensive knowledge in standards related to the chemical processing industry including OSHA, API, ASME, NFPA, CFR, and DOT codes and regulations.

Prior to joining Exponent, Dr. Ott was a Research Assistant at Michigan Technological University's (MTU's) Center for Environmentally Benign Functional Material (CEBFM), where he conducted research on polymerization reactions and polymer/solvent interactions. In addition, Dr. Ott researched biological devices as a research scientist at Diametrics Medical, Inc., specializing in the development and improvement of blood analysis sensors.

Academic Credentials and Professional Honors

Ph.D., Chemical Engineering, Michigan Technological University, 2009
M.S., Chemical Engineering, Michigan Technological University, 2008
B.S., Chemical Engineering, University of Minnesota, 1999

GAANN Fellowship, Michigan Technological University, 2005–2008

Licenses and Certifications

Registered Professional Chemical Engineer, California, #6520
Hazardous Waste Operations and Emergency Training (29 CFR 1910.120)
Fire Cause and Origin Investigation Training, California State Fire Marshal's Office

Publications

Ott B. Phase equilibrium as modeled by the Statistical Associated Fluid Theory (SAFT) Equation of State. Ph.D. dissertation, Michigan Technological University, 2009.

Caneba G, Renier M, Ott B. Towards the development of CO₂ separation membranes. *Journal of Minerals & Materials Characterization and Engineering* 2008; 7(2):175–191.

Patents

US Patent 6794877, Apparatus and Method for Analytical Determinations, 2004 (Blomberg S, Sin KV, Ott B).

Prior Experience

Graduate Research/Teaching Assistant, Michigan Technological University, 2003–2009
Associate Scientist, Diametrics Medical, Inc., 2000–2003

Project Experience

As a graduate research assistant at MTU, Dr. Ott developed Factorial Design of Experiments (DOE) and authored Job Safety Assessments (JSAs) and Standard Operating Procedures (SOPs) for high pressure/high temperature polymerization processes and solvent/polymer saturation experiments. His polymerization experience includes free-radical precipitation and solution polymerization of monomers including vinylidene chloride, methyl methacrylate, acrylonitrile, butyl aldehyde and/or other monomers in various solvent environments including methylethylketone, dimethylformamide and t-butanol. His solvent/polymer experience includes solvent/polymer saturation experiments and polymer purification via supercritical fluid extraction. Thermodynamic modeling included the use of MatLab, Unisym, and other chemical engineering software packages to model vapor-liquid and vapor-polymer equilibrium systems using complex equations of state, including the Statistical Associated Fluid Theory (SAFT), and phase separation phenomena as observed by nucleation-and-growth and spinodal decomposition schemes.

At MTU, Dr. Ott was the lead instructor for courses in Transport Phenomena and Fundamentals of Chemical Engineering, as well as a teaching assistant in a variety of courses including Chemical Process Safety, Plant Design, Thermodynamics, Process Control, Engineering for the Environment, and Polymer Science.

At Diametrics Medical, Inc. his duties included thick-film design, membrane formulation, and signal translation for the determination of blood substrates including BUN, HCT, creatinine, glucose and lactate. Part of his research at Diametrics was rewarded with a patent related to a novel approach to hematocrit (HCT) sensor design.

Professional Affiliations

- American Institute of Chemical Engineers
- Society of Petroleum Engineers