Exponent®
Engineering & Scientific Consulting

Mason Dearborn, Ph.D.

Associate | Polymers & Chemistry
Phoenix
+1-623-587-4194 | mdearborn@exponent.com

Professional Profile

Dr. Dearborn is a polymer scientist with specialties in polymer chemistry, thermomechanical characterization, polymer processing, and polymer formulation. His expertise spans a broad array of techniques, including differential scanning calorimetry (DSC), thermogravimetric analysis (TGA), scanning electron microscopy (SEM), and dynamic mechanical analysis (DMA), as well as the full gamut of additional characterization methods to create technical datasheets (TDS) for polymer resins.

Prior to joining Exponent, Dr. Dearborn developed high performance polymers at SABIC, where his responsibilities included product development, material formulation, processing and selection, testing for high-demand applications, product safety and compliance assessments, failure analysis, and intellectual property analysis.

Dr. Dearborn received his Ph.D. in Molecular Engineering from the University of Chicago. His research involved controlling the reaction-diffusion process of frontal polymerization, enabling single-step, energy-efficient fabrication of aerospace composites with patterned microstructures mimicking the intricacy of biology. This work involved extensive control of polymerization kinetics through reactor and additive design, microstructural imaging, thermomechanical characterization, and validation of computational models.

Academic Credentials & Professional Honors

Ph.D., Molecular Engineering, University of Chicago, 2023

B.S., Polymer Science and Engineering, University of Southern Mississippi, 2018

Prior Experience

Scientist, SABIC, 2024-2025

Graduate Research Assistant, University of Chicago, 2018-2022

Publications

Gao Y, **Dearborn M**, Vyas S, Kumar A, Wang Z, Wu Q, Moore J, Esser-Kahn A, Geubelle P. Manipulating frontal polymerization with phase-changing microparticles. The Journal of Physical Chemistry 2021.

Gao Y, **Dearborn M**, Vyas S, Kumar A, Wang Z, Wu Q, Moore J, Esser-Kahn A, Geubelle P. Manipulating frontal polymerization with phase-changing microparticles. The Journal of Physical

Chemistry 2021.

Pickett P, Kasprzak C, Siefker D, Abel B, **Dearborn M**, McCormick C. Amphoteric, sulfonamide-functionalized ‘Polysoaps’: CO2-induced phase separation for water remediation. Macromolecules 2018.

Presentations

Dearborn M. Controllable frontal polymerization and spontaneous patterning enabled by phase-changing particles. Poster, Gordon Research Conference on Multifunctional Materials and Structures, 2020.

Dearborn M. Exploring a multi-layered polysulfone/polyamide 6,6 system for fibrous filtration. Selected oral presenter, Northeast Ohio Undergraduate Research Symposium, 2016.