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Polymeric nanoparticle formation by non-solvent introduction DONA FOSTER, ZHENGNAN YANG, ALI DHINOJWALA, Department of Polymer Science, The University of Akron — Polymeric nanoparticles have found use in applications as diverse as coatings, microelectronics and drug delivery. Formation of a consistent particle with narrow tolerances offers even greater possibilities and diversity of application. This work focuses on a better understanding of the multiphase nanoparticle formation process. Physical interactions among polymer, solvent and non-solvent influence size, shape, distribution, and ease of nanoparticle formation and separation. The initial concentration of polymer in solvent is shown to correlate to the size and size distribution of particles. Adopting a continuous flow system broadens the array of design parameters to include temperature, solvent combination and flow conditions. Design parameters are correlated to nanostructure in order to control and optimize particle formation based on the specific physical properties desired.

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