Synthesis of poly(OPPEA) microspheres by dispersion polymerization in compressed liquid dimethyl ether

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In this study, spherical particles of poly(O-Phenylphenoxyethyl acrylate) (poly(OPPEA)) were synthesiszed via dispersion polymerization in compressed liquid dimethyl ether using AIBN as an initiator and five kinds of surfactants : PDMS-g-pyrrolidonecarboxylic acid (Monasil PCA™), PDMS modified surfactants, SS-5050K™, and KF-6017™, Poly (3,3,4,4,5,5,6,6,7,7,8,8,9,9,10,10,10- heptadecafluorodecyl acrylate) (poly(HDFDA)), and poly (3, 3, 4, 4, 5, 5, 6, 6, 7, 7, 8, 8, 9, 9, 10, 10, 10 - heptadecafluorodecyl methacrylate) (poly (HDFDMA)). To study the effect of reactant concentration on the polymer particle size and distribution, the experiment is performed with changing the concentration of monomer, initiator, and surfactant. And the experiment with changing the polymerization of temperature and pressure is performed.