New vinyl ester copolymers as stabilizers for dispersion polymerization in $scCO_2$

박은주*, Steven M. Howdle[1]
포항공과대학교;
[1]School of Chemistry, University of Nottingham
(eunjupark@postech.ac.kr*)

In this paper we demonstrate new poly vinyl alkylate homopolymers and copolymers with excellent solubility in $scCO_2$ that can be used as stabilizers for dispersion polymerization in $scCO_2$. Poly (vinyl acetate) (PVAc) was combined in various ratios with poly (vinyl butyrate) (PVBu) and poly (vinyl octanoate) (PVOc) to both tune the $scCO_2$-solubility and provide adequate steric stabilization. The polymer cloud points observed were found to be dependent on the ratio of the different blocks and the molecular weights and polydispersities (PDI) of the polymers. The effectiveness of these new polymeric stabilizers for dispersion polymerization of N-vinyl pyrrolidone (N-VP) in $scCO_2$ is presented.