

The Effect of Backbone Architecture and Concentration on the Phase Behavior of Poly(ethylene-co-octene) in normal Propane

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The variety of poly(ethylene-co-octene) (PEO) properties is the consequence of incorporation octene comonomer in polyethylene backbone architecture. The pending normal hexane group in the backbone of PEO reduces the crystallinity and increases the flexibility of the copolymer. It is important to know the location of the phase boundaries for copolymer solutions in order to optimize the copolymerization and the subsequent purification process. However, only limited number of study has been performed on the phase behavior of PEO. In this study, the effects of backbone architecture and concentration on the phase behavior of PEO are demonstrated with poly(ethylene-co-2.7 mol% octene) (PEO2.7), poly(ethylene-co-6.2 mol% octene) (PEO6.2), and poly(ethylene-co-15.3 mol% octene) (PEO15.3) in supercritical propane.