

Copolymers of phenoxyethyl methacrylate with butyl methacrylate: Synthesis, characterization and reactivity ratios

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Phenoxyethyl methacrylate (POEMA) and butyl methacrylate (BMA) were copolymerized by free-radical copolymerization using AIBN in 2-butanone solution at 333K. Copolymers were characterized by FTIR, $^1\text{H-NMR}$ and $^{13}\text{C-NMR}$ spectroscopic methods and by comparison of the spectra with the corresponding homopolymers. Thermogravimetric analysis of the copolymers was carried out in order to know their thermal stability. Copolymer composition was established by $^1\text{H-NMR}$ analysis. Monomer reactivity ratios (MRR) were computed using the classical Fineman - Ross (FR) and Kelen - Tudos (KT) procedures. MRR were also estimated using a nonlinear computational fitting procedure, known as reactivity ratios error in variable model (RREVM). The mean sequence lengths of the copolymers were estimated and suggest that random copolymers were obtained.