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论文

统计结构含氟丙烯酸酯共聚物的合成与表征

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摘要:

本文对含氟丙烯酸酯(FMA)与甲基丙烯酸丁酯(BMA)的RAFT细乳液共聚合及动力学进行了研究, 计算得到了FMA与BMA的竞聚率并制备出具有统计结构的含氟共聚物乳液.

关键词: 可逆链转移 细乳液聚合 统计结构共聚物 氟代丙烯酸酯

Synthesis and Characterization of Statistical Fluorinated Copolymers *via* RAFT Miniemulsion Polymerization

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Abstract:

Reversible addition fragmentation chain transfer(RAFT) mediated miniemulsion copolymerizations of butyl methacrylate with fluoroacrylate were carried out at 70 ℃ with potassium persulphate as initiator, and the kinetics of copolymerizations were investigated. Copolymer compositions at low conversion levels were determined by ^{1}H NMR spectra techniques. In the presence of RAFT agent 2-cyanoprop-2-yl dithiobenzoate(CPDB), the copolymerization of BMA with FMA in miniemulsion exhibited typical features of a controlled mole-cular weights and narrow polydispersities. The reactivity ratios were evaluated by Kellen-Tudos(K-T) method, which yields the apparent reactivity ratios, r_{BMA}=0.63 and r_{FMA}=0.79. The results show that the monomer FMA with a fluorinated side chain is more reactive than BMA, and the copolymerizations have a tendency to alternate and to produce a higher FMA content in the copolymers. The spontaneous statistical copolymers with soft gradient shapes were obtained using variable initial ratios of BMA and FMA.

Keywords: Reversible addition fragmentation chain transfer(RAFT) Statistical copolymer Fluorinated acrylate

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