

论文

碱溶性无规共聚物表面活性剂的合成及在乳液聚合中的应用研究

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摘要 合成了碱溶性无规共聚物聚(甲基丙烯酸甲酯/丙烯酸乙酯/甲基丙烯酸)(MMA/EA/MAA), 并对其结构、表面活性进行了表征研究. 以合成的P(MMA/EA/MAA)作高分子表面活性剂, 进行甲基丙烯酸丁酯的乳液聚合. 研究了反应温度, 引发剂浓度, 表面活性剂浓度等因素对反应速率(R_p)的影响. 结果表明, 聚合速率随引发剂浓度, 表面活性剂浓度的增加而增加; 该体系的表观活化能为 $85.19 \text{ kJ} \cdot \text{mol}^{-1}$. 用透射电镜(TEM)表征了所制备的乳胶粒子形态, 乳胶粒子呈较明显的核壳结构.

关键词 [碱溶性无规共聚物](#) [高分子表面活性剂](#) [动力学](#)

分类号

SYNTHESIS OF ALKALI-SOLUBLE RANDOM COPOLYMER P(MMA/EA/MAA) FOR USE AS POLYMERIC SURFACTANT IN EMULSION POLYMERIZATION

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Abstract An alkali-soluble random copolymer P(MMA/EA/MAA) was synthesized and used as a polymeric surfactant in emulsion polymerization of butyl methacrylate. The latex was studied by transmission electron micrograph, and a core/shell morphology was found for the latex particles. The effects of polymerization temperature, and amount of initiator and surfactant on polymerization rate were investigated. The results show that polymerization rate increased with the concentration of the initiator and the surfactant. The relationship between R_p and concentration of initiator is $R_p \propto [I]^{0.52}$. The apparent activation energy of the emulsion polymerization is $85.19 \text{ kJ} \cdot \text{mol}^{-1}$.

Key words [Alkali-soluble random copolymer](#) [Polymeric surfactant](#) [Kinetics](#)

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