

论文

超声无皂乳液聚合制备BA/St/AM三元共聚物乳胶粒及其聚合机理研究

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摘要 将超声技术引入到无皂乳液聚合方法中,在不加入任何引发剂和乳化剂的情况下,制备了丙烯酸丁酯(BA)/苯乙烯(St)/丙烯酰胺(AM)三元共聚纳米乳胶粒.研究了不同超声时间对单体转化率、乳胶粒粒径以及乳液粘度的影响.同时还探讨了超声无皂乳液聚合机理,认为AM在聚合过程中起到了引发和稳定的作用. TEM照片表明,乳胶粒直径大约在80nm左右, FTIR及DSC分析表明产物为三元共聚物,而不是共混物.

关键词 [超声处理](#) [无皂乳液聚合](#) [丙烯酸丁酯](#) [苯乙烯](#) [丙烯酰胺](#)

分类号

PREPARATION OF BA/St/AM COPOLYMER LATEXES BY ULTRASONIC SOAP-FREE EMULSION POLYMERIZATION

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Abstract Through ultrasonic emulsifier-free emulsion polymerization, no chemical initiator and emulsifier, a copolymer latexes of BA(butyl acrylate) / St(styrene) / AM(acrylamide) was prepared. The influence of ultrasonic time on monomer conversion, latex particles size and latex viscosity was investigated. A polymerization mechanism of ultrasonic emulsifier-free emulsion polymerization also was proposed, which indicated that AM was as an initiator and stabilizer in the reaction system. TEM photographs showed that the size of latex particles was about 80 nm, which was less than that (about 140 nm) of the particles prepared by conventional emulsifier-free emulsion polymerization method. And FTIR spectrum showed that after extracted in turn by water, CCl₃ and THF for 48h, respectively, the sample obtained by this way was a ternary copolymer of BA, St and AM, but not the blend of poly(butyl acrylate), polystyrene and polyacrylamide.

Key words [Ultrasonic](#) [Emulsifier-free emulsion](#) [Butyl acrylate](#) [Styrene](#) [Acrylamide](#)

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