

عنوان مقاله:

Effects of surfactant, initiator and temperature on conversion and particle size of styrene emulsion polymerization

محل انتشار:

پنجمین کنگره بین المللی مهندسی شیمی (سال: 1386)

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خلاصه مقاله:

The non-isothermal mathematical model is used to study the effects of surfactant, initiator and temperature on the conversion and particle size distribution of styrene batch emulsion polymerization. The model for prediction of particle size distribution is based on population balance (zero-one model), accounting for nucleation and growth phenomena. The simulation results show that by increasing the surfactant concentration, the polymerization rate is increased and the final average polymer particle size is decreased and consequently the total number of particles increases. It is shown that the initial initiator concentration has no considerable effect on conversion and particle size distribution. By increasing the initiator concentration, the conversion slightly is increased and the final average polymer particle size is slightly decreased. The results indicate that at higher temperature the polymerization rate is higher and the final average polymer particle size is slightly smaller. The xperimental result confirms the trend of model prediction

کلمات کلیدی:

Emulsion polymerization, Particle size distribution, Surfactant, Initiator, Temperature

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