

The Properties of Polymer Particles Prepared by Emulsion Aggregation Process

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In this study, the polymer particles having nano size were prepared using by soap-free emulsion process. In a polymerization process, the monomers used are styrene, butyl acrylate (BA) and methacrylic acid (MAA) without any emulsifiers. A macromonomer, PEG-EEM, was used as a reactive emulsifier during polymerization. In an aggregation process, the effects of pH, concentrations of electrolyte, shear force, and reaction temperature on the polymer particle structures were investigated. Also, the glass transition temperatures (T_g) and molecular weight of the latex had a significant effect on controlling the size and shape of the latexes. The structures of the polymer particles were examined using transmission electron microscope (TEM).