

Synthesis of n-octadecane/Polyurea core-shell nanoparticles via miniemulsion interfacial polycondensation reaction

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N-octadecane/polyurea (PCM/PU) core-shell nanoparticles were successfully synthesized via interfacial polymerization process. Among the amount of poly(4-styrenesulfonic acid-co-maleic acid) sodium salt (PSSMA) was used to maintain the colloidal stability and used to control of shell thickness of PCM/PU core-shell nanoparticles. In the manufacturing process of the core / shell nanoparticle existing, we have to adjust the thickness of the shell by the adjustment ratio of monomer and core material. However, in our process, the thickness of the shell, which is polymerized at the interface, depending on the content of PSSMA that change is the difference from the previous step. Synthesis mechanism of PCM/PU core-shell nanoparticle confirmed DSC (Differential Scanning Calorimeter), TGA(Thermal gravity analysis), SEM(Scanning Electron Microscopy), by TEM(Transmission Electron Microscopy) analysis.