

Preparation of Highly Monodispersed Nano Hybrid Silica Spheres Using a One-Step Sol-Gel Reaction in Aqueous Solution

김성수, 오성근*

한양대학교

(seonoh@hanyang.ac.kr*)

Highly monodispersed hybrid silica spheres in the nano size range were prepared using a vinyl trimethoxysilane(VTMS) by a one-pot route sol-gel reaction in aqueous solution. In order to synthesize the hybrid silica materials, many studies are focused on the surface modification of silica particles through at least two steps. In this study, however, this facile method can be used to prepare colloidal hybrid nanoparticles via one-step sol-gel reaction. There are three advantages in this method: (i) through this one-pot route, hybrid silica particles with organic functional groups on the surface can be prepared in aqueous solution without surface modification; (ii) highly monodispersed nanoparticles between 30 and 150 nm can be obtained; (iii) The size of particles can be controlled easily with the variation of concentrations of surfactant and organosilane.