

Engineering Nanostructure of Mesoporous Core/Shell ZnO/SiO₂ Particles Using Dual Surfactant

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Mesoporous silica nanoparticles have been drawn considerable interest because of their unique properties, such as low toxicity, high chemical and mechanical stabilities, and facile surface functionalization. Among them, the particles having hollow cavity have recently researched due to larger inner voids, higher porosity, and lower density than mesoporous silica. In this research, we could synthesize mesoporous core/shell ZnO/SiO₂ particles using dual surfactant system comprising the cationic surfactant cetyltrimethylammonium chloride (CTAC) and triblock copolymer pluronic F-127 (poly (ethyleneoxide-propyleneoxide-ethyleneoxide)) (PEO-PPO-PEO). We also synthesized hollow mesoporous silica nanoparticles by etching ZnO core in the particles. We analyzed these particles to confirm the structure.