

Synthesis and characterization of titanium dioxide hollow nanospheres and mesoporous shell

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Titanium dioxide has proven to be the most suitable for widespread environmental applications due to its biological and chemical inertness, strong oxidizing power, cost effectiveness, and stability against photo-corrosion and chemical corrosion. Recently, synthesis of titanium dioxide hollow spheres has attracted a great deal of attention because of their smaller band gap, low density, high surface area, good surface permeability as well as large light-harvesting efficiencies. The general methods for synthesis of titanium hollow spheres was chemical vapor condensation(CVC) process. The best method for synthesis of hollow sphere was sacrificial core method because it was synthesized easily monodispersed hollow sphere owing to using highly dispersed polymer sphere core. In this study, we controlled TiO₂ particle size, shell thickness, and shell structure and characterized by SEM, TEM, FT-IR, BET surface analysis.