

메조기공 유기실리케이트 제조에 대한 템플레이트의 영향

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A strategy for the synthesis of more stable and large periodic mesoporous organo-silica materials has been developed for the 2D hexagonal mesoporous organosilica by the core-shell approach using nonionic PEO-PLGA-PEO triblock copolymer templates. The BET surface area of the solvent-extracted hexagonal mesoporous organosilica is estimated to be 1,016 m²/g and the pore volume, pore diameter, and wall thickness are 1.447 cm³/g, 65 Å, and 43 Å, respectively. More hydrophobic PLGA block than the PPO block used for templates of mesoporous silica proves to be quite effective in confining the organosilicates within the PEO phase. Reaction temperature and acid concentration of an initial solution as well as the chemical nature of the block copolymer templates also demonstrate to be important experimental parameters for ordered organosilica mesophase. Moreover, the mesoporous organosilicas prepared with the PEO-PLGA-PEO block templates maintain their structural integrity for up to 25 days in boiling water at 100 °C. The mesoporous materials with large pores and high hydrothermal stability prepared in this study has a potential for many applications.