

Effect of pentablock copolymer templates and precursors on pore size of mesoporous silica synthesized via EISA method

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Recently, mesoporous materials have attracted a lot of attention in various roles, such as carriers, catalysts and sensors, due to their large surface area and adjustable pore. Controlling the pore size is very important because it is closely related to the function like adjusting the amount of substances entering the pores or acting as a molecular sieve to prevent molecules larger than a certain size from entering the pores.

In this experiment, we used PLGA-PEO-PFO-PEO-PLGA pentablock copolymers as templates, and used TEOS and BTEE as silica precursors to synthesize mesoporous silica by EISA process. The pentablock copolymers were synthesized by F68, F108, D,L-lactide and glycolide, with four different mass fractions of PLGA. The synthesized samples were analyzed by SAXS, nitrogen adsorption-desorption, TEM, SEM, and ²⁹Si CP MAS-NMR.