

The Preparation of Pore-size Controlled Nanoporous Materials by Biodegradable Block Copolymer Templates

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This work describes an innovative approach for the preparation of ordered nanoporous ceramic materials that involves a self-assembly process at the molecular level based upon biodegradable mPEG-b-PLA block copolymer templates. This approach provides not only rapid structural reorganization via self-assembly at room temperature but also controlling of pore size and wall thickness. Selected mPEG-b-PLA block copolymers have been synthesized with systematic variation of the chain lengths of the resident hydrophilic and hydrophobic blocks. Nanoporous materials were characterized by solid-state ^{29}Si NMR, BET and TEM in which showed the well ordered porous structures.