

研究论文

磺化聚苯乙烯有序孔水凝胶的制备及其模板效应

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摘要 有序大孔聚苯乙烯材料通过胶体晶模板技术合成, 再经过磺化处理制备得到有序大孔水凝胶体系. 研究了其化学组成和形态. 以溶胶/凝胶制备有序无机材料如二氧化钛对凝胶进行复型, 证明了有序大孔凝胶的形态特征,

同时显示了有序大孔水凝胶作为新型模板制备形态可控的介观尺度有序无机材料的潜力.

关键词 [磺化聚苯乙烯](#) [有序孔材料](#) [水凝胶](#) [模板合成](#) [化学改性](#)

分类号

Synthesis of Ordered Macroporous Hydrogels by Chemical Modification

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Abstract Novel ordered macroporous polymeric gels were derived by chemical modification of the corresponding rigid ones, which were template-synthesized by using silica colloidal crystals. In this study, sulfonated polystyrene ordered macroporous materials were derived from the corresponding rigid polystyrene ones by sulfonation with concentrated sulfuric acid at high temperature. It is key that the sulfuric acid and sulfone groups synchronously introduced are responsible for the hydrogel properties. The ordered morphologies of the samples were confirmed by scanning electron microscopy observation and the replication with titania. Meanwhile, it is demonstrated that the ordered hydrogels can be used as novel templates to prepare mesostructured inorganic materials with tunable morphologies.

Key words [sulfonated polystyrene](#) [ordered macroporous material](#) [hydrogel](#) [template synthesis](#) [chemical modification](#)

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