

研究快报

锆酸钡/聚合物复合中空纳米球的水热合成

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摘要 采用聚合物辅助水热合成方法, 在强碱条件下加入PAA和PVA的混合液, 实现了聚合物/锆酸钡复合中空纳米球的软化学一步合成, 而且球壳为有机-无机复合材料, 有望用于吸附分离、催化剂载体、轻质陶瓷和涂料等方面.

关键词 [水热合成](#) [锆酸钡](#) [中空纳米球](#) [复合材料](#)

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Hydrothermal Synthesis of Polymer/BaZrO₃ Hybrid Hollow Nanospheres

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Abstract Hybrid polymer/BaZrO₃ hollow nanospheres were successfully synthesized *via* a simple polymer assisted hydrothermal route. Polymer additives play a key role on the formation of hollow nanospheres. The samples prepared in the absence of polymers are microcubes. The basicity also plays an important role on the formation of hollow nanospheres. In low [OH⁻] concentration medium, the products are microcubes. Hollow spheres formed when the [OH⁻] is larger than 4 mol/L. Pure hollow spheres could be formed with the [OH⁻] over 8 mol/L. IR and TG data indicate the hybrid feature of the products. The polymer content(mass fraction) declined from 33% to 6% by adjusting the basicity from 8 to 16 mol/L. The diameters of nanospheres are tunable in the range of 300—100 nm via increasing the basicity.

Key words [Hydrothermal synthesis](#) [BaZrO₃](#) [Hollow nanosphere](#) [Hybrid material](#)

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