

研究论文

高比表面积有序介孔氧化铝的制备与表征

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摘要 采用溶胶-凝胶法以非离子表面活性剂PEO-PPO-PEO三嵌段共聚物F127为模板剂, 以异丙醇铝为铝源, 以异丙醇为溶剂, 成功地制备出比表面积为485 m²/g、孔径分布窄(2~20 nm)、孔容在1.2 cm³/g以上和孔道呈蠕虫状且具有一定有序性的介孔氧化铝。采用BET, TEM, XRD和TG多种测试技术对产物性能进行了表征。探讨了水铝比、醇水混合溶液的滴加速度、反应时间、水浴温度、陈化温度及陈化时间等条件对合成的有序介孔氧化铝结构的影响。

关键词 [PEO-PPO-PEO三嵌段共聚物F127](#) [有序介孔氧化铝](#) [高比表面积](#)

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Preparation and Characterization of Ordered Mesoporous Alumina with High Specific Surface Area with F127 as Template

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Abstract Ordered mesoporous alumina was synthesized by sol-gel method with isopropoxide alumina as the source of alumina and PEO-PPO-PEO block copolymer F127 as the template. The results show that the mesoporous alumina surface area(480 m²/g), narrow pore size distribution(2—20 nm), and large pore volume(over 1.2 cm³/g). Worm-like pore was formed and ordered to some extent. The structure of the synthesized sample was investigated by BET, TEM, and XRD technologies. The influence of various conditions on the structure of ordered mesoporous alumina was discussed.

Key words [PEO-PPO-PEO block copolymer F127](#) [Ordered mesoporous alumina](#) [High specific surface area](#)

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