

研究论文

水和辛胺对ZnO多孔纳米块体孔道结构的影响

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摘要 以ZnO纳米颗粒为原料, 分别用水和辛胺水溶液作为造孔剂, 利用溶剂热压方法制备了ZnO多孔纳米块体. 实验结果表明, 当以水作造孔剂时, 随着ZnO纳米粉/水(质量比)比值的减小, ZnO多孔纳米块体的孔径分布变宽, 比表面积和孔隙率增加; 加入辛胺后, ZnO多孔纳米块体的孔径分布变窄, 但比表面积和孔隙率略有减少.

随着辛胺用量的增加, 比表面积和孔隙率又同时呈上升趋势. 对ZnO多孔纳米块体进行的红外吸收测试结果表明, 在制备多孔纳米块体过程中, 水及辛胺基本上都从样品中逸出, 孔道中只有微量残留.

关键词 [ZnO纳米颗粒](#) [多孔纳米块体](#) [溶剂热压方法](#) [孔隙率](#)

分类号

Influence of Octylamine on the Channel Structure Properties of ZnO Bulky Porous Nanosolids

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Abstract ZnO bulky porous nanosolids have been successfully prepared by the solvothermal hot press method using ZnO nanoparticles, deionized water and octylamine as the starting materials. The experimental results showed that, with the decrease of ZnO nanoparticle/water ratio, the uniformity of the pore diameter of ZnO bulky porous nanosolids became poor, while the surface area and porosity were increased. Furthermore, when octylamine was added, the surface area and porosity of ZnO bulky porous nanosolids gradually increased with the increase of the octylamine content. Compared with the ZnO bulky porous nanosolids prepared without octylamine, the samples prepared with octylamine have slightly less surface area and porosity, but the uniformity of the pore diameter was improved. The FT-IR measurement results of the ZnO bulk porous nanosolids indicated that almost all the deionized water and octylamine were removed from the samples during the solvothermal hot press process.

Key words [ZnO nanoparticle](#) [bulky porous nanosolid](#) [solvothermal hot press method](#) [porosity](#)

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