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论文

共溶剂对ZnO多孔纳米块体孔径均匀性的影响

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摘要:

以十二烷基硫酸钠(SDS)的水溶液为造孔剂,用溶剂热压方法制备了大孔径的ZnO多孔纳米块体,并进一步考察了添加聚乙二醇400(PEG-400)对样品中孔道的影响. 实验发现,向十二烷基硫酸钠(SDS)的水溶液中加入聚乙二醇400组成共溶剂后, 制备的ZnO多孔纳米块体的孔径大幅度减小,比表面积和孔隙率也明显降低,但孔径的均匀性显著提高.

关键词: ZnO纳米颗粒; 多孔纳米块体; 溶剂热压方法; 共溶剂

Effects of Co-solvent on the Uniformity of Pore Size of ZnO Bulk Porous Nanosolids

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Abstract:

Using sodium dodecylsulfate solution(SDS) as the pore-forming agent and ZnO nanoparticles as the starting material,ZnO porous bulk solid was successfully prepared by a novel solvothermal hot press method. Furthermore,the effects of the addition of polyethylene glycol 400(PEG-400) into the solvent were also investigated. It was found that,the pore diameter of the ZnO porous bulk solids largely decreased when PEG-400 was added into the solvent. Besides,the specific surface area and porosity also decrease correspondingly. On the other hand,the uniformity of the channel diameter of ZnO bulk porous nanosolids was greatly improved.

Keywords: ZnO nanoparticle; ZnO bulk porous nanosolid; Solvothermal hot press; Co-solvent

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