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研究简报

反相微乳液法合成钛酸钡纳米棒

朱启安, 宋方平, 陈万平, 王树峰, 孙旭峰, 张琪

湘潭大学化学学院, 湘潭 411105

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摘要 本文在W/O型反相微乳液(Reverse Microemulsion)体系中制得了$BaTiO_3$纳米棒, 考察了ω_0值、反应物浓度等因素对$BaTiO_3$纳米棒尺寸及形貌的影响. 用TEM、XRD和电子衍射对材料进行了表征,并用ICP测试了产品中钡与钛的摩尔比.

关键词 W/O微乳液 BaTiO3 纳米棒 合成

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Synthesis of $BaTiO_3$ Nanorods by Reverse Microemulsion Method

ZHU Qi-An, SONG Fang-Ping, CHEN Wan-Ping, WANG Shu-Feng, SUN Xu-Feng, ZHANG Qi

College of Chemistry, Xiangtan University, Xiangtan 411105, China

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Abstract $BaTiO_3$ nanorods were synthesized in water/OP-10/*n*-hexanol/cyclohexane quaternary reverse microemulsion solution at 60 ℃. The effects of the molar ratio of water to surfactant and the concentration of reactants on the diameters and lengths of $BaTiO_3$ nanorods were studied. The products were characterized by TEM, XRD and ICP. The results show that the diameters and lengths of the prepared $BaTiO_3$ nanorods with a cubic phase and a single crystal are approximately 15~80 nm and 300~3 900 nm, respectively. And the molar ratio of barium to titanium of products is 1.0.

Key words W/O microemulsion; Barium titanate; Nanorods; Synthesis

通讯作者:
朱启安 zqa7887550@126.com
作者个人主页: 朱启安; 宋方平; 陈万平; 王树峰; 孙旭峰; 张琪