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pH值对水热合成纳米钒酸铋的影响及表征

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Effect of pH on Hydrothermal Preparation of Nano-Structured InVO₄ and its Characterization

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摘要 探讨了pH值对水热法合成纳米InVO₄的影响,以InCl₃·NH₄VO₃为原料于150 ℃下反应4 h,水热合成纳米InVO₄,以NH₃·H₂O和盐酸调节反应体系的pH值,以XRD,FTIR为表征手段对产物进行表征,考察了反应体系pH值分别为6.0, 7.0, 8.0时对产物生成的影响.结果表明: pH值对纳米InVO₄的生成具有影响,在pH值为7.0时,可制得纯度较高的正交相纳米InVO₄,而pH为6.0时得到的是InVO₄和In(OH)₃的混合物, pH为8.0时得到的是In(OH)₃.

关键词: 纳米InVO₄ 水热法 pH值的影响

Abstract: The effect of pH value on preparation of nano-structured InVO₄ by hydrothermal method was studied. Using InCl₃·NH₄VO₃ as raw material to prepare nano-InVO₄ by hydrothermal method under 150 ℃, adjusting the pH value of reaction system by NH₃OH₂O and hydrochloric acid, and characterizing the products by XRD and FTIR, the effect of pH on products' generation was investigated when pH value of reaction system was 6.0, 7.0, 8.0, respectively. The results show that pH value influences generation of nano-InVO₄. When it is 7.0, a higher purity orthorhombic nano-InVO₄ can be prepared; when it is 6.0, the product obtained is a mixture of InVO₄ and In(OH)₃; when it is 8.0, the product obtained is In(OH)₃.

Key words: nano-InVO₄ hydrothermal method effect of pH value

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