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三维花状 Co_3O_4 的低成本制备及其在催化 CO 氧化中的应用

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摘要 采用一种快速、无模板、低成本的微波辅助水热法在 2 min 内制备了三维花状 Co_3O_4. 所用原料均是无机盐. 前驱体浓度和尿素的逐渐水解对 Co_3O_4 形貌影响很大. 制得的花状 Co_3O_4 比表面积大, 且暴露了 (110) 高活性指数面, 对 CO 氧化具有较高的催化活性.

关键词： 一氧化碳 氧化 四氧化三钴 纳米结构 微波

Abstract: 3D flowerlike Co_3O_4 nanostructures were prepared by a microwave-assisted hydrothermal method, which is a rapid, template-free, and low cost method. The product is obtained in two minutes using all inorganic precursors. The precursor concentration and gradual hydrolysis of urea determine the morphology of Co_3O_4 nanostructures. These flowerlike Co_3O_4 nanostructures have high surface area and expose largely active (110) planes, leading to relative high catalytic activity in CO oxidation.

Keywords: carbon monoxide, oxidation, cobaltosic oxide, nanostructure, microwave

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