

## 钛酸纳米管的制备及 TEM表征

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**摘要** 采用水热合成法以金红石型纳米TiO<sub>2</sub>粉为原料制备钛酸纳米管, 考察了搅拌、酸洗及焙烧温度对纳米管的形成和结构的影响, 并通过TEM观察了产物的形貌、结构. 结果显示: 持续搅拌能促进原料粉末的定向生长, 有利于形成钛酸纳米片; 酸洗是纳米管的形成阶段; 300℃是纳米管转变为长棒状晶柱的临界温度. 实验表明以优化的水热合成法制得的纳米管形貌均一, 长度超过1μm, 钛酸纳米管长径比为125:1.

**关键词** [钛酸纳米管](#) [制备](#) [TEM表征](#)

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## Preparation of Trititanate Nanotube and TEM Observation

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### Abstract

Trititanate nanotubes were synthesized from rutile TiO<sub>2</sub> via hydrothermal process. The influences of process parameters such as stirring, acid leaching and calcination temperature on formation and structure of nanotubes were observed by TEM. The results show that continuous stirring could improve the directional growth of TiO<sub>2</sub> particles and formation of trititanate nanoflakes, and nanotubes are formed in the acid leaching process. It also reveals that 300℃ is the critical transformation temperature between nanotubes and long-stick crystalline column. The nanotubes synthesized under optimal condition are uniform and longer than 1μm, and the ratio of length to diameter is 125:1.

**Key words** [trititanate nanotube](#) [preparation](#) [TEM](#)

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