

论文

正丙醇诱导合成WO₃粉体与光致变色性质

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摘要:

采用正丙醇为有机诱导剂, 在水热条件下制备了形貌新颖的WO₃粉体, 使用XRD, SEM和TEM等手段进行了结构和形貌表征, 并用紫外-可见(UV-Vis)光谱仪及测色计测试了光致变色性能. 结果表明, 正丙醇诱导合成的WO₃粉体仍为六方相, 但形成了特殊的海胆状纳米结构, SEM和TEM测试结果表明, 海胆状WO₃微球由大量的WO₃纳米杆簇集成. 该诱导产物的纳米杆簇集成的海胆状结构显著地改善了光生质子的传输过程, 提高了合成的WO₃粉体的光致变色性能.

关键词: WO₃粉体 光致变色 正丙醇 有机诱导剂

Synthesis and Photochromic Properties of 1-Propanol Induced WO₃ Powder

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Abstract:

WO₃ powder was prepared *via* hydrothermal method with 1-propanol as the organic inducer. The synthesized products were characterized *via* XRD, SEM, and TEM. Furthermore, photochromic properties were studied *via* UV-Vis spectrophotometer and color difference meter. The results indicate that the 1-propanol induced product is hexagonal WO₃. Under the SEM and TEM observations, it is found that these WO₃ microspheres look like urchinlike, and comprise many WO₃ nanorods. Moreover, the structure of the induced product provides a better proton diffusion path, thus resulting in its high photochromic properties.

Keywords: WO₃ powder Photochromism 1-Propanol Organic inducer

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