Short Communication

Synthesis of SnO₂ Hollow Microspheres with Efficient Photocatalytic Activity for Tetracycline Hydrochloride

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Antibiotic residues lead to serious environment pollution and provoke many health problems. Among all the antibiotics, Tetracycline hydrochloride (TC-HCl) in surface and drinking waters around the world has attracted widespread attention. Large-scale SnO₂ with hollow microspheres were synthesized via one-step hydrothermal approach as a high-efficiency photocatalyst to degrade TC-HCl. These synthesized series of SnO₂ materials with various molar ratios were characterized by XRD, SEM and EIS in terms of crystal structure, morphology, and electronic resistance. SnO₂ hollow microspheres synthesized with SnCl₂·2H₂O to Na₃C₆H₅O₇·2H₂O at the molar ratio of 1:4 showed the best photocatalytic degradation activity of TC-HCl under UV light illumination. The high photocatalytic property was considered to be benefit from the unique hollow microstructure, and the updated SnO₂ hollow microspheres were good candidates for synthesis of composite photocatalysts in area of photo degradation, such as C₃N₄-SnO₂, etc.

Keywords: SnO₂, hollow microsphere, Tetracycline hydrochloride, Photocatalytic degradation

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