

Cr³⁺ doped SrTiO₃ aerogel and the test of photocatalytic property

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Abstract

SrTiO₃ is a perovskite semiconductor material with high chemical stability. It has multiple modification positions and is a good photocatalytic material. However, the existing SrTiO₃ photocatalyst has the problem of insufficient specific surface area. Aerogel can be highly dispersed in the solution, so that the light absorption and reaction sites of the photocatalyst increase. The continuous porous three-dimensional nano-network skeleton enhances the material's ability to capture light through multiple reflections of light [1]. Therefore, SrTiO₃ aerogel shows great application potential in water treatment. In this study, a novel photocatalytic aerogel material was prepared by combining the excellent structural properties of aerogel with the excellent physical and chemical properties of SrTiO₃ and doping a certain amount of Cr³⁺ [2]. Using metal strontium as the strontium source, isopropyl titanate as the titanium source, and chromium nitrate nonahydrate as the chromium source, Cr³⁺ doped SrTiO₃ nanoparticles were prepared by hydrothermal synthesis, and the nanoparticles were assembled into a gel using an assembly method. The Cr³⁺ doped SrTiO₃ was prepared by ethanol supercritical drying method. The effect of different doping amount of Cr³⁺ on the photocatalytic performance was studied.

Reference

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