

Evaluation of photocatalytic activity of carbon loaded SrTiO₃ for water splitting

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Energy consumption covers the depletion of fossil fuels and the serious environmental problems accompanying their combustion. Hence, a new form of energy that is clean, renewable, cheap, and a viable alternative to fossil fuels is needed. Hydrogen is considered as an ideal fuel for the future.

Carbon loaded strontium titanium dioxide (SrTiO₃) was synthesized by spray pyrolysis at 900°C with 4L/min air flow as gas carrier. Sucrose was added to the solution as the carbon source. The loaded of carbon inhibited the growth of crystal in photocatalyst powder and also changed the morphology of particle which was found by XRD, SEM and TEM analyses. The photocatalytic activity was conducted for water splitting under UV light irradiation (< 400 nm). The photocatalytic activity levels of C loaded SrTiO₃ were about three times higher than those of pure SrTiO₃. UV-vis spectra analysis was conducted to reveal the absorption spectrum of carbon loaded SrTiO₃.