

## Visible Light Photocatalytic Properties of Ta and N Codoped SrTiO<sub>3</sub> Nanoparticles

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<b>Abstract</b>	Ta and N co-doped SrTiO <sub>3</sub> was synthesized by microwave-assisted solvothermal reaction using SrCl <sub>2</sub> center dot 6H <sub>2</sub> O, Ti(OC <sub>3</sub> H <sub>7</sub> ) <sub>4</sub> , TaCl <sub>5</sub> , and HMT (hexamethylenetetramine) in KOH and oleic acid mixed solutions. The products were characterized by XRD, TG-DTA, BET surface area measurement, TEM, EDX, DRS, PL-Spectra, and XPS. The nanoparticles of perovskite-type SrTi <sub>(1-x)</sub> TaxO <sub>(3-y)N(y)</sub> (x = 0-0.1) were successfully synthesized. The photocatalytic activity of SrTiO <sub>3</sub> for DeNO <sub>x</sub> ability in the visible light region could be improved by the codoping of Ta <sup>5+</sup> and N <sup>3-</sup> . The excellent visible light photocatalytic activity of this substance may be due to the generation of a new band gap by doping nitrogen that enables the absorption of visible light as well as a decrease in the incidence of the lattice defects, which acts as a recombination center of photo-induced electrons and holes by codoping with Ta <sup>5+</sup> .
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