

Visible light photocatalytic activity induced by the carboxyl group chemically bonded on the surface of SrTiO<sub>3</sub>

<b>Publons ID</b>	(not set)
<b>Wos ID</b>	WOS:000287103000034
<b>Doi</b>	10.1016/j.apcatb.2010.12.013
<b>Title</b>	Visible light photocatalytic activity induced by the carboxyl group chemically bonded on the surface of SrTiO <sub>3</sub>
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<b>Publish Date</b>	FEB 1 2011
<b>Journal Name</b>	APPLIED CATALYSIS B-ENVIRONMENTAL
<b>Citation</b>	33
<b>Abstract</b>	Strontium titanate nanoparticles were synthesized by a microwave-assisted solvothermal reaction of SrCl <sub>2</sub> ·6H <sub>2</sub> O, Ti(OC <sub>3</sub> H <sub>7</sub> ) <sub>4</sub> in KOH methanol-oleic acid solution. The products were characterized by TG-DTA, XRD, TEM, BET surface area and XPS. The photocatalytic activity was determined by DeNO(x) ability using LED lamps with various wavelengths such as 627 nm (red), 530 nm (green), 445 nm (blue) and 390 nm (UV). The nanoparticles of perovskite type SrTiO <sub>3</sub> with the particle size of 15-18 nm were successfully synthesized. The photocatalytic activity of SrTiO <sub>3</sub> under visible light (lambda = 530 nm) irradiation could be generated by modification of the surface with the carboxyl group (-COO) from oleic acid which enabled the absorption of visible light. (C) 2010 Elsevier B.V. All rights reserved.
<b>Publish Type</b>	Journal
<b>Publish Year</b>	2011
<b>Page Begin</b>	286
<b>Page End</b>	290
<b>Issn</b>	0926-3373
<b>Eissn</b>	
<b>Url</b>	<a href="https://www.webofscience.com/wos/woscc/full-record/WOS:000287103000034">https://www.webofscience.com/wos/woscc/full-record/WOS:000287103000034</a>
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