

Photocatalytic decomposition of VOCs by Nickel Titanate Photocatalysts under visible light irradiation

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Indoor air quality at home or inside car has been paid a great attention . Photocatalytic decomposition of toluene over photocatalysts is a powerful and attractive method for removing it from indoor air. However, conventional TiO₂ photocatalysts are utilized only under UV light irradiation. In order to improve the efficiency of VOCs decomposition, Nickel titanate (NiTiO₃, NTN) has been reported to show effective photocatalysis under visible light irradiation. We prepared a nickel titanate photocatalyst with high purity using a facile microwave-assisted method and applied it for photooxidation of gas phase toluene in air. For comparison, P25, a widely used commercial photocatalyst, was also employed for the photooxidation of toluene. In the results, the NTN photocatalyst exhibited better photodecomposition rate for toluene and more CO₂ generation under visible light irradiation than P25, implying that it is a visible light-responded photocatalyst.