

Molybdenum-doped Ilmenite/Graphitic Carbon Nitride Photocatalyst under Visible Light

Pham Thanh Truc, 장개명, 정해원, 신은우[†]

울산대학교

(ewshin@ulsan.ac.kr[†])

Recently, Ilmenite NiTiO_3 semiconductor is famous for their visible responded activity. However, it consumes issues in excited charge transfer during irradiated. In this study, the Mo-doped $\text{NiTiO}_3/\text{g-C}_3\text{N}_4$ composites are synthesized in order to improve the photocatalytic activity by inhibiting electron-holes recombination. The $\text{NiTiO}_3/\text{g-C}_3\text{N}_4$ composite was reported that can inhibit the recombination rate by transfer electrons that generated from NiTiO_3 to $\text{g-C}_3\text{N}_4$ phase and resulting in the improvement of their photocatalytic activity under visible-light irradiation. On the other hand, doping Mo into NiTiO_3 structure increased surface areas due to the reduction in nanoparticle sizes and inhibited the recombination process because of the generation of defect sites in the NiTiO_3 lattice. The novel combination of $\text{g-C}_3\text{N}_4$ and Mo-doped NiTiO_3 as a composite photocatalyst can bring synergistic effect as Z-scheme photocatalyst where photogenerated electrons and holes are efficiently separated, enhancing the photocatalytic activity under visible-light irradiation.