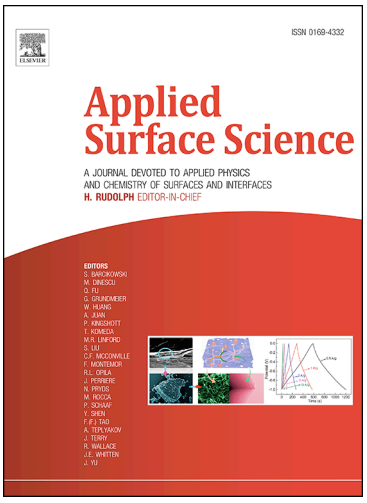

Full Length Article

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Enhanced photocatalytic activity of ternary Ag_3PO_4/GO/g-C_3N_4 photocatalysts for Rhodamine B degradation under visible light radiation

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Abstract: Single-component graphitic carbon nitride (g-C_3N_4) are faced with inadequate visible light absorption and low quantum efficiency arising from the rapid charge recombination, limiting their efficient photocatalytic degradation of organic pollutant under visible light radiation. Here, we demonstrated a ternary photocatalyst composed of Ag_3PO_4, graphene oxide (GO), and g-C_3N_4 synthesized by chemical precipitation method, in which Ag_3PO_4 as the photosensitizer and GO as the cocatalyst that significantly promoted the photocatalytic activity of g-C_3N_4 for Rhodamine B (RhB) degradation under visible light radiation. The ternary photocatalysts (Ag_3PO_4/GO/g-C_3N_4) exhibited enhanced absorption in the visible region and superior photocatalytic activity compared with single-component or binary composite photocatalysts for RhB degradation. The degradation rate toward RhB could reach to 94.8% under visible light irradiation for 50 min, and we found that it was the hole (h^+), superoxide radical ($O_2^{\bullet-}$) and hydroxyl radical (OH•) that played a major role in RhB degradation. Meanwhile, the ternary photocatalyst showed enhanced photocatalytic