

TiO₂/WO₃ photocatalyst for Decomposing Organic Molecules

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Photocatalysis has been widely studied in the last decades as one of the most effective techniques for the abatement of organic and inorganic pollutants of water and air, as well as a mean to convert solar into chemical energy. TiO₂ is by far the most used semiconductor because of its superior photocatalytic activity, chemical stability, low cost, and nontoxicity. But TiO₂ has a relatively high energy band gap material that can be excited under UV irradiation. Also it has a low rate of electron transfer to reducible species and a high recombination rate of the photoproduced electron/hole pairs limit the rate of photocatalytic reactions. Aiming at producing TiO₂ based photocatalytic materials with reduced charge carriers recombination and sensitising visible light, TiO₂/WO₃ mixed oxides were synthesized by a sol-gel method employing H₂WO₄. Changing pH condition to find difference of the amount of heterojunction. Photocatalytic efficiency is measured by Methylene blue decomposition (AM 1.5G). The particles are characterized by XRD, XPS, BET and zeta potential.