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Fabrication and Characterization of Amino-grafted Graphene Oxide modified ZnO with high photocatalytic activity

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Abstract

ZnO-NGO composites with high photocatalytic ability were successfully synthesized by in situ growth of zine oxide (ZnO) on aminated grapheme (NGO). The TEM results showed that the ZnO particles were well dispersed and in contact with the surface area of NGO, which is necessary to improve the photocatalytic activity. ZnO-NGO-2 showed enhanced decompition activities for methyl orange (MO) and methyl blue (MB). The photodegradation efficiency could reach 99% under xenon lamp irradiation and a decomposing rate constant of the pseudo-first-order kinetics. Fourier transform infrared spectroscopy (FT-IR), X-ray diffraction (XRD), X-ray photoelectron spectroscopy (XPS), Photoluminescence (PL) and UV-Vis spectrophotometry (UV-Vis) were conducted to characterize the synthesized nanocomposites. Transient photocurrent (I-t) and EIS under light irradiation analyses were also performed to illustrate the effective separation of photogenerated carriers. The presence of NGO in

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