



## Cu<sub>2</sub>O immobilized on reduced graphene oxide for the photocatalytic treatment of red water produced from the manufacture of TNT

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### ABSTRACT

In this paper, we report on the synthesis of nanocomposite catalysts composed of cuprous oxide (Cu<sub>2</sub>O) and reduced graphene oxide (rGO) formed at room temperature. The nanocomposites were characterized by X-ray diffraction, transmission electron microscopic analysis, ultraviolet-visible diffuse reflection absorptive spectroscopy, etc. The results show that the cuprous oxide particles can be immobilized on the surface of rGO and that the rGO improves the optical properties of Cu<sub>2</sub>O thereby enhancing the utilization of visible light. Compared with Cu<sub>2</sub>O under similar synthesis condition, the Cu<sub>2</sub>O/rGO composites demonstrate improved photodegradative activity of red water. This study verifies the viability of the use of Cu<sub>2</sub>O/rGO composites in the treatment of red water.

*Keywords:* Cuprous oxide; Reduced graphene oxide; Composites; Red water; Photocatalysis

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