

Zinc oxide/carboxylic acid lamellar structures

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Hybrid organic-inorganic semiconductor nanocomposites of layered zinc oxide/carboxylic acids were fabricated. Products are pure phases with structures constituted by double-layer sheets of the inorganic component sandwiched between self-assembled surfactant layers. The optical properties of the nanocomposites are found to be qualitatively similar to those of bulk zinc oxide. However, blue shifted absorption band edges and enhanced band-gap energies are observed. The photocatalytic activity of the products in the degradation of methylene blue indicates that the efficiency of the nanocomposites is comparable or even better than that of bulk oxide. © 2011 Elsevier Ltd. All rights reserved.