

Abstract

Zeolite Na-A supported ZnO nanocomposites (ZnO/Zeolite Na-A NCs) were synthesized at low temperature (70 °C) via the sol-gel process and characterized for thermal, structural, morphological, adsorption, optical and bonding properties. Both XRD and microscopy imaging results indicated that the obtained nanopowders were crystalline in nature with no Zeolite Na-A structural collapse revealed. The synthesized ZnO nanoparticles occurred mainly on the surface of the Zeolite Na-A support and were more dispersed as compared to those of unsupported ZnO. The textural properties showed improved porosity and increased surface area. Photocatalytic activity for the ZnO/Zeolite Na-A was higher compared to that of unsupported ZnO which was attributed to the combined effects of both ZnO and zeolite aluminosilicate network. These effects were as result of the increased surface area, strong adsorption and enhanced ZnO dispersion hence suppressed charge recombination of the nanocomposites powders.