

Photo-oxidation of nitrogen to nitrite using a composite ZnO-Fe₂O₃ catalyst

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Abstract

A composite catalyst, in which Fe₂O₃ crystallites are deposited on ZnO particles, is found to photogenerate NO₂⁻ in nitrogen-purged aqueous solution. Hydrogen is evolved concomitantly. The effectiveness of the catalyst is attributed to hole transfer from ZnO to Fe₂O₃ and preferential chemisorption of nitrogen at the Fe₂O₃ surface.