

Parameters affecting the recovery of silver (Ag) using photocatalytic ZnO nanopowder prepared by solution-combustion method.

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Nanometer sized zinc oxide (ZnO) powder was synthesized by a novel “solution-combustion method” and its photocatalytic activity was evaluated with the recovery of Ag from a used photofilm developing solution. Different parameters affecting the reaction rates like wavelength of the UV light used, reaction temperature, mass of the used photocatalyst, and effect of scavenger were tested. The optimum parameters were found as follows. UV wavelength of less than 385 nm, reaction temperature between 40- 60 °C, photocatalyst concentration of 3-6 g/l, and scavenger concentration of 0.3-0.4 g/l.