

THE INFLUENCE OF Ag₂S PERCENTAGE ON THE PHOTOACTIVITY OF TiO₂/Ag₂S NANOCOMPOSITES

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In the past decades there has been a growing interest in heterogeneous photocatalysis for wastewater treatment and water purification.[1] For such heterogeneous chemical reactions the use of nanocrystalline semiconductors as photocatalysts, to initiate interfacial redox reactions, generally results in higher activities than the corresponding bulk semiconductors.

Nanocrystalline TiO₂ has been intensely investigated as a photocatalyst for environmental remediation processes. Due to its wide band gap TiO₂ only absorbs a small portion of the solar spectrum consequently several studies have been made in order to enhance light absorption. One method that has proven to be very effective is the conjugation of TiO₂ particles with light sensitizers such as dyes or other semiconducting phases.[2]

The TiO₂/Ag₂S nanocomposites were obtained by a single source method using silver dithiocarbamate as metal sulphide precursor.[3] The photocatalytic properties of the TiO₂/Ag₂S nanocomposites were tested on the photodegradation of two distinct dyes, methylene blue and orange II. The influence of Ag₂S percentage on the photocatalytic properties of the TiO₂/Ag₂S nanocomposites was studied and will be discussed.

References:

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