

## عنوان مقاله:

Removal of water-soluble methylene blue dye using a magnetic Co-Ferrite@Silica core-shell composite

## محل انتشار:

هفتمین کنفرانس بین المللی شیمی و مهندسی شیمی (سال: 1399)

تعداد صفحات اصل مقاله: 6

## نویسندگان:

Tahoura Saemian - *Department of Chemistry, Azarbaijan Shahid Madani University, Tabriz, Iran- Department of Nanomaterials and Nanocoatings Institute for Color Science and Technology (ICST), Tehran, Iran*

Moayad Hossaini Sadr - *Department of Chemistry, Azarbaijan Shahid Madani University, Tabriz, Iran*

Mehrnaz Gharagozlou - *Department of Nanomaterials and Nanocoatings Institute for Color Science and Technology (ICST), Tehran, Iran*

## خلاصه مقاله:

In this research, magnetic Co-Ferrite@SiO<sub>2</sub> core-shell composite was prepared via a modified sol-gel method using ethylene glycol and tetraethyl orthosilicate and used as an efficient catalyst for the removal of methylene blue (MB). Various techniques including X-ray diffractometry, FTIR analysis, scanning electron microscopy, transmission electron microscopy, and vibrating sample magnetometer were used for identification and characterization of the products. The XRD pattern of the sample confirms the existence of Co-Ferrite nanoparticles in the silica matrix due to the change of the diffraction peak in the presence of the silica matrix. The SEM and TEM images show spherical nanoparticles dispersed in the silica network with a varied size of 30–80 nm; while VSM result implies that the Co-Ferrite@SiO<sub>2</sub> is a soft magnetic material. The removal experiments of MB from aqueous samples were performed in the presence of catalysts and hydrogen peroxide (H<sub>2</sub>O<sub>2</sub>), the removal efficiency of MB on Co-Ferrite@SiO<sub>2</sub> was about 90% at pH 10 after 60-min interaction time. According to the experimental results, Co-Ferrite@SiO<sub>2</sub> composite could be considered as a potential for removing methylene blue dye.

## کلمات کلیدی:

Co-Ferrite@Silica, magnetic core-shell composite, methylene blue, water pollutant, dye removal

## لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/1040734>

